Schneider and Shoemaker Creeks Naturalization Environmental Study Report

Schedule ‘C’ Municipal Class Environmental Assessment – Phase 4

March 8, 2024

Prepared for:
City of Kitchener
200 King Street West
Kitchener ON N2G 4G7

Prepared by:
Stantec Consulting Ltd.
100-300 Hagey Boulevard
Waterloo, ON N2L 0A4

Project Number:
161414319

Limitations and Sign-off

The conclusions in the Report titled Schneider and Shoemaker Creeks Naturalization Environmental Study Report are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific Project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the Project, or for any other Project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from the City of Kitchener (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided to applicable authorities having jurisdiction and others for whom the Client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.

Prepared by: Gibson, Shelby Digitally signed by Gibson, Shelby Date: 2024.03.08 12:29:18 -05'00'

Signature

Shelby Gibson, M.E.S.
Environmental Planner

Printed Name and Title

Reviewed by: Digitally signed by Raheem, Ferenaz Date: 2024.03.08 11:59:41 -05'00'

Signature

Ferenaz Raheem, M.E.S., RPP, MCIP
Senior Environmental Planner

Printed Name and Title

Reviewed by: Digitally signed by Hill, Laura Date: 2024.03.08 12:41:52 -05'00'

Signature

Laura Hill, M.Env.Sc.
Project Manager, Environmental Scientist

Printed Name and Title

Approved by: Knight, Mark 2024.03.08 12:53:33 -05'00'

Signature

Mark Knight, MA, MCIP, RPP
Principal, Environmental Planner

Printed Name and Title

Executive Summary

The City of Kitchener (the City) is situated in the Regional Municipality of Waterloo. Based on the 2021 Canadian census, the City covers an area of 136.86 km^2 and had a population of 256,885 (Statistics Canada 2023). As much of the City landscape is urbanized with the development of buildings, roads, parking lots, and other hard surfaces, stormwater management has become increasingly important. The City of Kitchener stormwater management program manages stormwater in the urban area. Stormwater comes from rain and snow melt and drains into the City drainage system. Stormwater also travels through natural areas such as creeks and wetlands.

In 2001, the City completed the Kitchener Stormwater Management Master Plan, and in 2002 the City began monitoring the stormwater management plan effectiveness (City of Kitchener 2024). Stormwater report cards measure physical, chemical, and biological health of streams and the overall stormwater management plan. The 2011-2015 Report Card highlighted opportunities for increasing riparian cover throughout the City (City of Kitchener 2024). Riparian cover is vegetation along stream banks that stabilizes banks, reduces soil erosion, filters nutrients, and increases habitat. Based on the past report cards, the City decided to prioritize improving natural function of streams, maintaining and upgrading stormwater facilities, and restoring streams (City of Kitchener 2024). Overall, 75% of urban areas in Kitchener do not have adequate stormwater management (City of Kitchener 2024). The *Schneider Creek Floodplain Mapping & Two-Zone Policies* update (MMM 2016) modeled possible scenarios to evaluate reduction in flood risk. The study identified opportunities for modification of the channel corridor as a way to reduce flood risk. In addition, with the intention of creating a framework to guide growth and stability in areas surrounding rapid transit stations, the City's Planning Around Rapid Transit Stations (PARTS) program identified Schneider and Shoemaker Creeks as natural heritage assets. Findings showed there are opportunities to create signature greenspaces which would reduce flooding impacts, restore parts of the ecosystem, and provide better greenspace connection in the City.

Based on the preferred alternative solution, the Schneider and Shoemaker Creeks Naturalization Project (the Project) will remove the existing concrete lined channels in the floodway and replace them with a natural channel design. The Study Area is bound by Courtland Avenue East at the southern limit, Charles Street East at the northern limit, Madison Avenue South at the western limit, and Sydney Street South at the eastern limit. The goal of the Project is to restore the system to a functional floodplain.

Stantec Consulting Ltd. (Stantec) was retained by the City to undertake the Municipal Class Environmental Assessment (Class EA) process for the Project. The Project was carried out in accordance with a Schedule C undertaking. The Environmental Study Report (ESR) is the documentation of the Class EA process for the Project.

The City has undertaken Phases 1 through 3 of the Class EA process, which establishes the need for the Project, evaluates alternative solutions, and evaluates alternative design concepts. The City is carrying out Phase 4 with the release of this ESR. This ESR documents the activities undertaken as part of the Class EA process and recommendations for Schneider and Shoemaker Creeks. In Phase 2, four Alternative Solutions were evaluated and the Preferred Alternative Solution involved a full naturalization

of the channels. In Phase 3, four Alternative Design Concepts were developed based on the preferred alternative solution. The evaluation concluded that the Preferred Alternative Design Concept, as confirmed by feedback received through consultation, includes naturalization of the creeks with improvements to the Iron Horse Trail (IHT) and up to three amenity features. This also allows the Project to:

- Reduce the flood risk of the creeks
- Improve the biodiversity of the surrounding area
- Enhance recreational value of the IHT and creeks
- Be in accordance with priorities of Indigenous Peoples and Municipal Policies

A number of environmental management measures have been identified to mitigate potential adverse environmental impacts. Recommendations to monitor the effectiveness of the proposed mitigation measures are also provided in Section 6 of this ESR. Potential effects are considered with regards to variety of factors including surface water, groundwater, terrestrial environment, social environment, and climate change.

Consultation with the public, stakeholders, Indigenous Nations and Indigenous Organizations, , and government agencies was done as per the requirements of the Class EA process. The following are highlights of the consultation activities undertaken through each Class EA phase:

- A Project contact list was compiled and maintained that included agencies, Indigenous Nations, special interest groups, and interested members of the public
- Study notices were published in the local newspaper (*Kitchener Record*) and on the City website, and mailed and emailed to those on the contact list
- Three in-person Public Information Centres (PIC) were held; on April 13, 2023, June 28, 2023, and December 12, 2023

Comments received during the Class EA process related to design of the naturalization, impacts to adjacent properties and to the IHT, assessment of alternatives, and timing, cost, and next steps of the Project. Feedback regarding access to the water has been considered and will be incorporated into the design. Further feedback will be incorporated during detailed design.

The work undertaken in preparing this report represents the completion of the Class EA process for the Project after the public review and comment period. The ESR will be made available for the mandatory 30-day public review period. Provided all concerns from stakeholder, agencies, and Indigenous Peoples are addressed, the City may proceed with detailed design and implementation.

Table of Contents

List of Figures

List of Tables

List of Appendices

Acronyms / Abbreviations

AA	Archeological Assessment
DBH	Diameter at Breast Height
DMAF	Disaster Mitigation and Adaptation Fund
EA	Environmental Assessment
ECCC	Environment and Climate Change Canada
ESA	Endangered Species Act
ESR	Environmental Study Report
GHG	Greenhouse Gas
GRCA	Grand River Conservation Authority
IHT	Iron Horse Trail
MBCA	Migratory Birds Convention Act
MCEA	Municipal Class Environmental Assessment
MECP	Ministry of the Environment Conservation and Parks
MNRF	Ministry of Natural Resources and Forestry
NHIC	Natural Heritage Information Centre
PIC	Public Information Centre
SAR	Species at Risk

1 Background

The City of Kitchener (the City) is situated in the Regional Municipality of Waterloo. Based on the 2021 Canadian census, the City covers an area of 136.86 km^2 and had a population of 256,885 (Statistics Canada 2023). As the landscape is highly urbanized with buildings, roads, parking lots, and other hard surfaces, stormwater management has become increasingly important. The City of Kitchener's stormwater management program manages stormwater in the urban area. Stormwater comes from rain and snow melt and ideally drains into the City's drain system. Stormwater also travels through natural areas such as creeks and wetlands.

In 2001, the City completed the *Kitchener Stormwater Management Master Plan*, and in 2002 the City began monitoring the stormwater management's effectiveness (City of Kitchener 2024). Stormwater report cards measure physical, chemical, and biological health of the city's streams and effectiveness of overall stormwater management compared to the Plan. Overall, 75% of urban areas in Kitchener do not have adequate stormwater management (City of Kitchener, 2024). The 2011-2015 Report Card highlighted opportunities for increasing riparian cover throughout the City (City of Kitchener 2024). Riparian cover is vegetation along stream banks that stabilizes banks, reduces soil erosion, filters nutrients, and increases habitat. Based on the past report cards, the City decided to prioritize improving natural function of streams, maintaining and upgrading stormwater facilities, and restoring streams (City of Kitchener 2024). The *Schneider Creek Floodplain Mapping & Two-Zone Policies* update (MMM 2016) modeled possible scenarios to evaluate reduction in flood risk. The study identified opportunities for modification of the channel corridor as a way to reduce flood risk. In addition, with the intention of creating a framework to guide growth and stability in areas surrounding rapid transit stations, the City's Planning Around Rapid Transit Stations (PARTS) program identified Schneider and Shoemaker Creeks as natural heritage assets. Findings showed there are opportunities to create signature greenspaces which would reduce flooding impacts, restore parts of the ecosystem, and provide better greenspace connection in the City.

1.1 Study Purpose

The City of Kitchener is undertaking a Municipal Class Environmental Assessment (Class EA) to review the environmental risks of Schneider and Shoemaker Creeks and present design options to mitigate those risks. Schneider and Shoemaker Creeks are currently lined with concrete at their confluences, near Kent Avenue and Courtland Avenue East. As a result, the floodplain at this location has expanded past the concrete boundaries; this affects adjacent properties and presents potential concerns related to public safety.

The Government of Canada launched the Disaster Mitigation and Adaptation Fund (DMAF) to support large-scale Projects that help communities manage the effects of natural disasters. This funding presented a unique opportunity for the City to initiate and complete Projects related to flood mitigation, such as the Schneider and Shoemaker Creeks naturalization.

1.2 Study Area

The area surrounding the junction of Schneider and Shoemaker Creeks (herein referred to as the Study Area) is lined with concrete. The Study Area includes approximately 900 m of Schneider Creek, (from Sydney Street to Stirling Avenue) and approximately 300 m of Shoemaker Creek (from the confluence with Schneider Creek upstream to Courtland Avenue). The Study Area boundaries are irregularly shaped, however, the Study Area generally straddles Schneider Creek in an east to west orientation and contains a central south component that straddles Shoemaker Creek. The Study Area is bound by Courtland Avenue East at the southern limit, Charles Street East at the northern limit, Madison Avenue South at the western limit, and Sydney Street South at the eastern limit. The Study Area for the Schneider and Shoemaker Creeks Naturalization EA is shown in Figure 1.

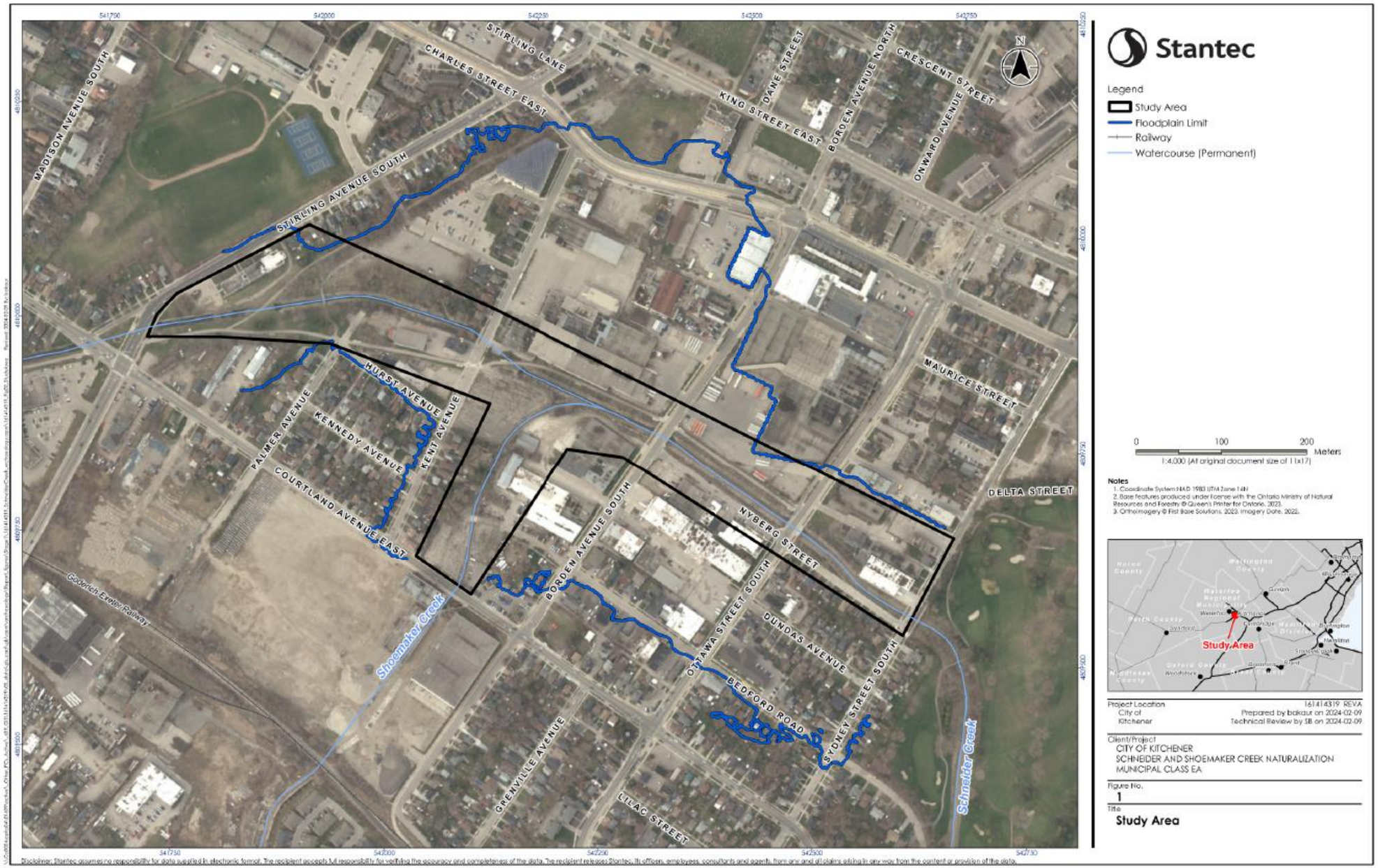


Figure 1: Study Area

1.3 Municipal Class Environmental Assessment Process

The Class EA process provides a consistent method of identifying and assessing technical and environmental impacts and concerns before improvements or additions to municipal infrastructure are undertaken. Planning in this way provides reassurance that potential impacts from all municipal Projects are addressed and mitigated, prior to implementation.

Figure 2: Steps in the Municipal Class Environmental Assessment process.

The Class EA document defines four schedules under which Projects may be planned and the associated processes required for each. The four types of Projects are referred to as schedules and Projects can be classed as either Schedule A, A+, B, or C, depending on the anticipated level of environmental impact, and for some Projects, the anticipated construction costs.

Schedule A Projects are minor operational and/or maintenance activities and may go ahead without further assessment once Phase 1 of the Class EA process is complete (i.e., the problem is reviewed, and a solution is confirmed).

Schedule A+ Projects are limited in scale, have minimal adverse environmental impacts, and require no documentation. However, the public is to be advised of the Project prior to implementation.

Schedule B Projects must proceed through the first two phases of the process. Proponents must identify and assess alternative solutions to the problem, inventory impacts, and select a preferred solution. They must also contact relevant agencies and affected members of the public. Provided that no significant impacts are found, and no requests are received to undertake the Project as an individual Environmental Assessment, the Project may proceed to detailed design (Phase 5).

Schedule C Projects require more detailed study, public consultation, and documentation, as they may have more significant impacts. Projects categorized as Schedule C must proceed through the first four phases of assessment. Schedule C Projects may potentially result in adverse impact(s), and as such, a public consultation program is needed to ensure that stakeholders and residents in the Study Area are provided with the opportunity to provide meaningful input.

As per the Class EA Guidelines (MCEA 2024), the Schneider and Shoemaker Creeks Naturalization Project is classified as a Schedule “C” undertaking.

2 Problem and Opportunity Statement

In the Study Area, Schneider and Shoemaker Creeks are heavily lined concrete urban creeks and floodplains spill onto adjacent lands, posing potential concerns for public safety. The City has secured DMAF funding to build climate change resilience and adaptability into Schneider and Shoemaker Creeks. In particular, the DMAF funding supports the creation of natural assets that increase resilience and adaptability, such as creek naturalization. The objectives of the DMAF are closely aligned with those of the City's Integrated Stormwater Management Master Plan (ISWM-MP) and the funding will accelerate the implementation of the City's strategic components of the ISWM-MP (City of Kitchener 2024a). The Project also provides an opportunity to realize components of several other City plans including Places and Spaces, the Official Plan, and the Transportation Master Plan. Places and Spaces is the City's Parks Strategy, which is focuses on the quality and quantity of park land in the City (City of Kitchener 2024b).

As the neighbourhood redevelops as part of the PARTS program and above noted plans, there is an opportunity to improve public safety through floodplain improvements by reducing impacts to nearby properties, improving the natural heritage system by contributing to the restoration of the ecosystem, and increasing connectivity with surrounding development by providing better greenspace connections. Overall, naturalization of the creeks provides opportunities for climate change resiliency, and improved aesthetics, wildlife habitat and active transportation experience.

3 Alternative Solutions

3.1 Existing Conditions

An inventory of existing environmental conditions was undertaken for this Project, as described herein. Information included in this section was taken directly from the Summary of Natural Features Report (Appendix A), Tree Management Plan (Appendix B), Cultural Heritage Report (Appendix C), the Stage 1 Archeological Assessment (Appendix D), and Stage 2 Archeological Assessment (Appendix E).

3.1.1 Surface Water

Surface water in the Grand River watershed is used largely as a resource for the five cities located within the watershed – Guelph, Kitchener, Waterloo, Cambridge, and Brantford (GRCA 2020). The main pressures facing water resources in the Grand River watershed are people and population growth, agricultural production, and a changing climate (GRCA 2020). The current water management plan in the area has four major goals: (1) ensure water supplies are protected for communities, economies, and ecosystems; (2) improve water quality to improve river health and reduce impacts on Lake Erie; (3) reduce flood damage potential; and (4) increase watershed's resilience to climate change (GRCA 2020).

Within the Study Area, Schneider and Shoemaker Creeks are the primary features. Schneider Creek drains a 65 km^2 watershed area that drains most of the western side of the City of Kitchener and covers a distance of about 20 km from its headwaters to its outlet to the Grand River. The Schneider Creek system and each of the tributaries are summarized as follows:

- Schneider Creek (65 km^2 watershed)
    - Concrete lined channel from Victoria Park Lake to Sydney Street
    - Natural channel from Sydney Street to the confluent with the Grand River near the village of Doon
- Henry Sturm Greenway (12 km^2 watershed)
    - Includes Sandrock Greenway, Detweiler Greenway and Henry Sturm Greenway.
    - Combination of natural, engineered and concrete lined channels draining into Victoria Park Lake.
- Westmount Drain
    - 1 km long grass lined channel draining into the Henry Sturm Greenway
- Shoemaker Creek (11 km^2 watershed)
    - Tributaries include Voisin Greenway (channelized) and Borden Greenway (grass lined and channelized).
    - Shoemaker Creek is grass lined and concrete lined system that joins Schneider Creek upstream of Borden Ave.

- Balzer Creek (3 km^2 watershed)
    - Grass lined and natural channel that joins Schneider Creek downstream of Blockline Road
- Montgomery Creek (9 km^2 watershed)
    - Grass lined channel that joins Schneider Creek downstream of Blockline Road
- Strasburg Creek (15 km2 watershed)
    - The largest tributary of Schneider Creek; joins Schneider Creek upstream of Homer Watson Road.
    - The north branch has been urbanized and the main and south branches are natural.
- Doon Creek (3 km^2 watershed)
    - Natural channel that joins Schneider Creek at Homer Watson Road.

Within the Study Area both Schneider Creek and Shoemaker Creek are 6-20 m wide, concrete lined channels with no significant riparian features and are surrounded by urban development that consists of industrial, commercial and residential land uses. The concrete channels generally contain most flows, but the floodplain extends up to 300 m beyond the channel boundaries (see Figure 1). The channel is traversed by four roads and two pedestrian crossings associated with the Iron Horse Trail.

3.1.2 Groundwater

The Grand River watershed supports one of the largest populations in Ontario primarily through an inland river system and groundwater system for water supply and wastewater disposal (GRCA 2020). Most of the drinking water supply in the Grand River watershed comes from groundwater (GRCA 2020). There are no municipal wellheads in the Study Area (City of Kitchener 2014), however the Study Area is located in a Wellhead Protection Area and Issue Contributing Area associated with the Manitou Well, located approximately 3 km southeast of the Study Area (MECP 2024). There are two areas mapped as highly vulnerable aquifers (vulnerability score of 6) in the Study Area (MECP 2024).

As noted in the Assessment of Past Uses (APU) (Appendix F), historical groundwater levels in 2020 were measured at depths between 1.90 m and 3.64 m below ground surface. The local groundwater flow is inferred to be towards Schneider and Shoemaker Creeks, with regional groundwater inferred to flow to the southeast toward the Grand River, which is 5.3 km east of the Study Area. The regional groundwater flow follows a southeasterly direction, and as such the groundwater elevations in the western portion of the Study Area were higher than in the easter portion. The local shallow groundwater flow pattern is expected to be influenced by subsurface structures present in the vicinity, including building foundations, weeping tiles, and utility trenches (Appendix F).

Based on the Assessment of Past Uses (Appendix F), there may be historical groundwater contamination in the Study Area. Groundwater testing has not been completed as part of this Project. Groundwater testing will be completed as part of detailed design of the Project.

3.1.3 Terrestrial Environment

The Natural Heritage Information Centre (NHIC) database and the City of Kitchener Natural Heritage System Technical Background Report (City of Kitchener 2011) do not identify wetlands, woodlands, or significant landforms in the Study Area. The City of Kitchener has identified Schneider Creek as a Locally Significant Valleyland for future restoration (City of Kitchener 2011).

A tree inventory of the Study Area identified the species, diameter at breast height (DBH), and condition of coniferous and deciduous Trees. A total of 618 trees were assessed and included the following tree species and quantities:

- Apple sp. (4)
- Basswood (2)
- Bitternut Hickory (1)
- Black Walnut (91)
- Bur Oak (1)
- Cherry sp. (4)
- Colorado Spruce (4)
- Easter White Cedar (3)
- European Buckthorn (23)
- Green Ash (5)
- Hackberry (6)
- Little-Leaf Linden (1)
- Manitoba Maple (179)
- Norway Maple (14)
- Norway Spruce (5)
- Poplar sp. (30)
- Pryamidal Oak (1)
- Red Oak (1)
- Redbud (1)
- Russian Olive (5)
- Scots Pine (1)
- Shadbush (1)
- Siberian Crab Apple (3)
- Siberian Elm (111)
- Silver Maple (17)
- Slippery Elm (1)
- Sugar Maple (2)
- Sweet Crab Apple (2)
- White Mulberry (58)
- White Oak (2)
- White Pine (1)
- White Spruce (27)
- Willow sp. (10)
- Yew (1)

The following is a summary of the number of trees by DBH. Trees with a DBH of < 10 cm are identified as ‘small’, 10 cm – 25 cm as ‘medium’ and > 25 cm as ‘large’:

- 5 small trees
- 369 medium trees
- 244 large trees

Each tree’s condition was assessed as ‘Good’, ‘Fair’, ‘Poor’ or ‘Dead’, according to their trunk integrity, crown structure, crown vigour and overall condition. Results indicated the following:

- 55 trees in ‘Good’ condition
- 392 trees in ‘Fair’ condition
- 156 trees in ‘Poor’ condition
- 15 trees in were considered ‘dead standing trees’

The trees were also classified by High, Medium and Low priority in order to signify the importance of :

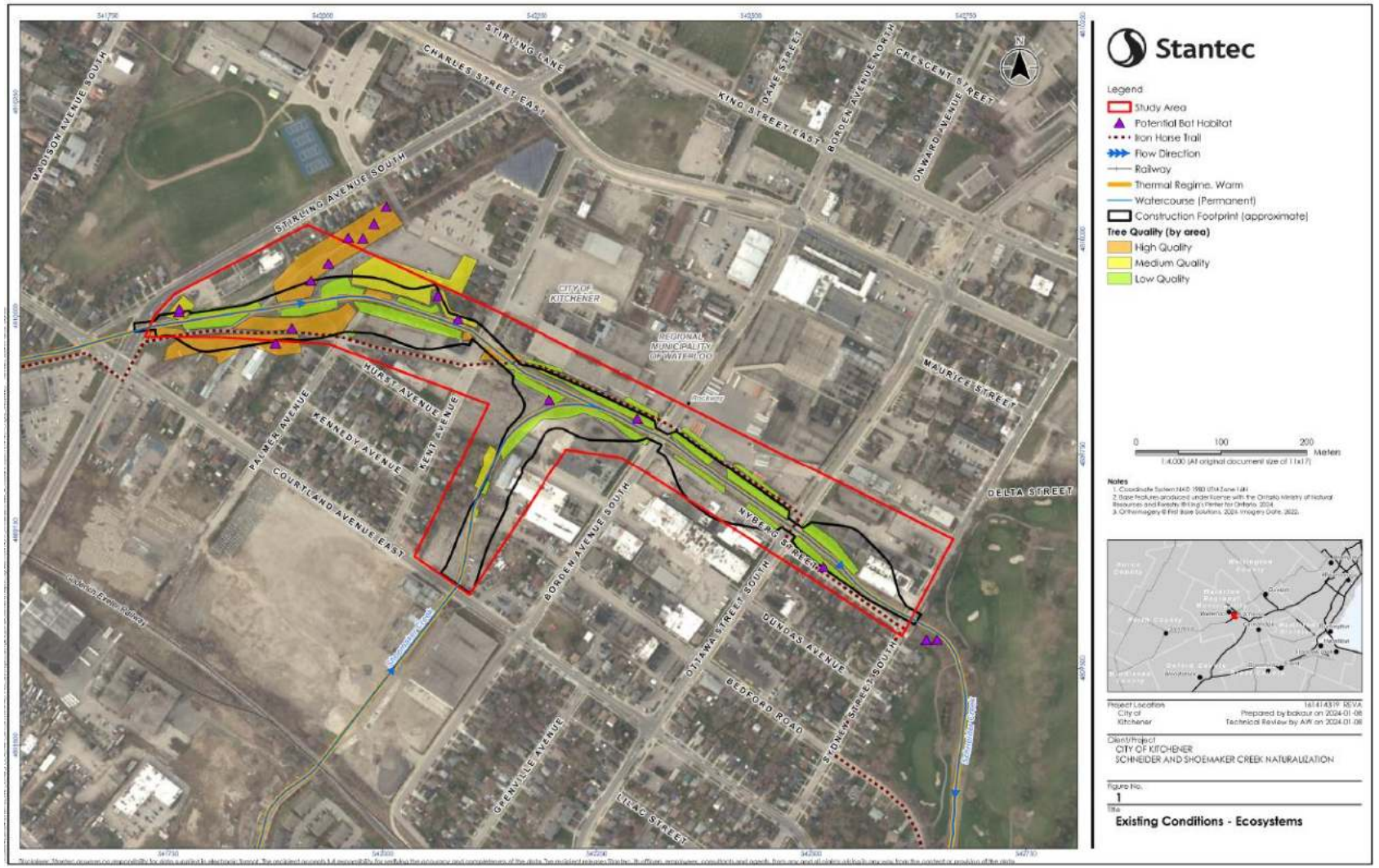
- High Priority – Naturalized and Landscape plantings on public and private property.
- Medium Priority – Naturalized mature trees within a group and open area, some location within private properties.

- Low Priority – Naturalized area containing low quality invasive species. Trees growing from concrete foundations, within chain link fences along Schneider Creek.

Nine trees were identified in the Study Area that provide suitable bat maternity roost habitat. These trees were all deciduous, and included Black Walnut (*Juglans nigra*), Siberian Elm (*Ulmus pumila*), White Willow (*Salix alba*), Silver Mape (*Acer saccharinum*) and Norway Maple (*A. platanoides*). The trees had a large DBH (i.e., >25cm), and had cavities and/or peeling bark. Of these bat maternity roost trees, three were identified to be in 'Good' condition, and six in 'Fair' condition.

Detailed results of the tree quality assessment and tree inventory are available in Appendix B.

Figure 3: Existing Conditions - Ecosystems



3.1.4 Aquatic Environment

Schneider and Shoemaker Creeks have a warmwater thermal regime and permanent flow regime (Appendix A). Fish species documented in the watercourse are summarized in Table 1. There are no records of aquatic species at risk (SAR) in Schneider or Shoemaker Creeks (Appendix A). The upstream end of the Study Area is located approximately 1 km downstream of the outlet of Victoria Park Lake.

Table 1: Fish Community Data from Schneider Creek and Shomaker Creek

Species	Schneider Creek (2020 data)[1]	Schneider Creek (2012 data)[2]	Shoemaker Creek (2019 data)[3]
Blacknose Dace (Rhinichthys atratulus)	✓	✓	✓
Bluntnose Minnow (Pimephales notatus)	✓	-	-
Brook Stickleback (Culaea inconstans)	✓	-	✓
Common Carp (Cyprinus carpio)	✓	-	✓ (carps and minnows)
Common Shiner (Luxilus cornutus)	✓	-	-
Creek Chub (Semotilus atromaculatus)	✓	✓	✓
Fathead Minnow (Pimephales promelas)	✓	✓	-
Longnose Dace (Rhinichthys cataractae)	-	-	✓
Pumpkinseed (Lepomis gibbosus)	✓	-	✓
Rock Bass (Ambloplites rupestris)	✓	-	✓
White Sucker (Catostomus commersonii)	-	-	✓

NOTES
1 1 km downstream of Sydney Street
2 1 km upstream of Stirling Avenue
3 750 m upstream of Courtland Avenue
"✓" Indicates species is present
"-" Indicates species is absent

Data taken/adapted from Appendix A.

In the Study Area, Schneider and Shoemaker Creeks are concrete trapezoidal or rectangular channels (Stantec 2024). The creek bottom is flat, with no structure to provide cover for fish and no natural pool / riffle morphology. An area of gravel on the concrete bottom was present near the downstream end of the Study Area. Some portions of Schneider Creek receive partial shade due to trees located at the top of the channel walls; however, most of the surface water of the creek is not shaded. In the Study Area, there are several elevation drops in Schneider Creek that may restrict upstream fish passage, particularly during periods of low water.

Despite the low-quality fish habitat in Schneider and Shoemaker Creeks, schools of small fish and a Great Blue Heron were observed during the Stantec field investigation on May 29, 2023 (Appendix A). Habitat availability is dependent on the water level, as the margins of the channel can be dry during low water. In the absence of roughness and flow breaks, small-bodied fish likely become displaced to downstream habitat when water velocity increases under high flow conditions.

3.1.5 Species at Risk Screening

The background data search identified 13 SAR that have been recorded in the vicinity of the Study Area (Table 2) (Appendix A). The bird and reptile SAR identified in the background data are not expected to inhabit the Study Area due to the lack of suitable habitat. Stantec conducted a bat maternity roost survey to assess potential bat habitat in the Study Area.

Table 2: **SAR** Records in the Schneider Creek and Shoemaker Creek Study Area[1]

Common Name	Scientific Name	S-Rank[2]	SARO Status
BIRDS			
Bobolink	Dolichonyx oryzivorus	S4B	THR
Loggerhead Shrike	Lanius ludovicianus	S1B	END
Barn Swallow	Hirundo rustica	S4B	THR
Eastern Meadowlark	Sturnella magna	S4B, S3N	THR
Bank Swallow	Riparia riparia	S4B	THR
Chimney Swift	Chaetura pelagica	S3B	THR
Red-headed Woodpecker	Melanerpes erythrocephalus	S3	END
Northern Bobwhite	Colinus virginianus	S1?	END
REPTILES			
Blanding's Turtle	Emydoidea blandingii	S3	THR

Common Name	Scientific Name	S-Rank[2]	SARO Status
MAMMALS			
Eastern Small-footed Myotis	Myotis leibii	S2S3	END
Little Brown Myotis	Myotis lucifugus	S3	END
Northern Myotis	Myotis septentrionalis	S3	END
Tricolored Bat	Perimyotis subflavus	S3?	END

1 Records from background data sources listed in Section 1

2 Subnational Rank (S-Rank) is the conservation status of a species or plant community in the province; rank definitions available at: Conservation Status Categories | NatureServe Explorer.

3.1.6 Soil

An APU was conducted at the Study Area to determine potential areas of environmental concern based on past activity (Appendix F). The APU was conducted in anticipation of the removal of excess soil from the Study Area. The APU supports planning for the removal of soil off-site for reuse of disposal. The objective of the APU is to determine if Areas of Potential Environmental Concern (APECs) exist in the Project area, which may be present as a result of current and/or past Potentially Contaminating Activities (PCAs) at the Project area or adjacent/neighbouring properties within at least 250m of the perimeter of the Study Area (Appendix F).

Summary of Areas of Potential Environmental Concern:

- APEC #1 – PCA 46 – Rail Yards, Tracks and Spurs: metals and inorganics including electrical conductivity (EC) and sodium absorption ratio (SAR), petroleum hydrocarbons (PHC) fractions F1 to F4, benzene, toluene, ethylbenzene and xylenes (BTEX), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs)
- APEC #2 – PCA 30 – Importation of Fill Material of Unknown Quality: Metals and inorganics including EC and SAR, PHC F1 to F4/BTEX, PAHs
- APEC #3 – PCA B – known soil and groundwater impacts at 170 Borden Avenue South; PCA 27 – Garages and Maintenance and Repair of Railcars, Marine Vehicles, and Aviation Vehicles; PCA 34 – Metal Fabrication: PHC F1 to F4/BTEX Metals and Inorganics including EC and SAR, VOCs
- APEC #4 – PCA 27 Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles; PCA 28 – Gasoline and Associated Products Storage in Fixed Tanks: PHC F1 to F4/BTEX Metals and Inorganics including EC and SAR, VOCs
- APEC #5 – PCA B – Known Metals Impacts in Soil near 20 Hurst Avenue; PCA 27 – Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles; PCA 28 – Gasoline and Associated Projects Storage in Fixed Tanks: Metals and inorganics including EC and SAR, PHC F1 to F4/BTEX, VOCs
- APEC #6 – PCA B – Known off-site VOC groundwater impacts; PCA 34 – Metal Fabrication; PCA 39 – Paints Manufacturing, Processing, and Bulk Storage; PCA C – Generation of Hazardous Wastes: Metals and inorganics including EC and SAR, PHC F1 to F4/BTEX, VOCs, PAHs, PCBs

- APEC #7 – PCA 58 – Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners: Metals and inorganics including EC and SAR, PHC F1 to F4/BTEX, PAHs, VOCs
- APEC #8 – PCA 34 – Metal Fabrication – Metals and inorganics including EC and SAR, PHC F1 to F4/BTEX, VOCs
- APEC #9 – PCA B – Known soil and groundwater impacts at 108 Syndey St. S., PAH soil impacts near 123 Ottawa Street South; PCA C – Generation of Hazardous Wastes; PCA 33 – Metal Treatment, Coating, Plating and Finishing; PCA 34 – Metal Fabrication; PCA 43 – Plastics (including Fibreglass) Manufacturing and Processing; PCA 57 – Vehicles and Associated Parts Manufacturing: Metals and inorganics including EC and SAR, PHC F1 to F4/BTEXT, PAHs, VOCs
- APEC #10 – PCA B – Known PHC Soil Impacts along Nyberg Street; PCA 27; Garages and Maintenance and Repair of Railcards, Marine Vehicles and Aviation Vehicles; PCA 28 – Gasoline and Associated Products Storage in Fixed Tanks; PCA 37 – Operation of Dry Cleaning Equipment (where chemicals are used): Metals and inorganics including EC and SAR, PHC F1 to F4/BTEX, VOCs
- APEC #11 – PCA B – Known soil and groundwater impacts at 405-409 Nyberg Street and along Nyberg Street; PCA C – Generation of hazardous wastes; PCA 28 – Gasoline and Associated Products Storage in Fixed Tanks; PCA 33 – Metal Treatment, Coating, Plating and Finishing; PCA 34 – Metal Fabrication; PCA 43 – Plastics (including Fibreglass) manufacturing and Processing; PCA 55 – Transformer Manufacturing, Processing and Use: Metals and inorganics including EC and SAR, PHC F1 to F4/BTEX, VOCs, PCBs
- APEC #12 – PCA A – Spills; PCA 10 – Commercial Autobody Shops; PCA 27 – Garages and Maintenance and Repair of Railcars, Marine Vehicle's and Aviation Vehicles; PCA 28 – Gasoline and Associated Products Storage in Fixed Tanks: Metals and inorganics including EC and SAR, PHC F1 to F4/BTEX, VOCs
- APEC #13 – PCA B – Known metals impacts in soil; PCA 58 – Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners: Metals and inorganics including EC and SAR, PHC F1 to F4/BTEX, VOCs

3.1.7 Noise and Vibration

The Study Area is located in a residential area. The City of Kitchener By-Law Number 2010-191 (Noise By-Law) prohibits commercial construction-related noise from 7:00 PM to 7:00 AM, and all day on Sundays and holidays (City of Kitchener 2010). Sensitive receptors primarily include residential properties adjacent to the Study Area and concrete channel. No substantive noise generating sources or activities were identified in the Study Area.

3.1.8 Built Heritage Resources and Cultural Heritage Landscapes

Part of the Trans Canada Trail is located in the Study Area and referred to as the Iron Horse Trail. It represents a significant part of Kitchener and Waterloo's heritage. The Iron Horse Trail is the former right-of-way of the Preston & Berlin Street Electric Railway. The Railway was started in 1900 by John Patterson of Hamilton and became operational on August 21, 1903. The route started in east Preston and ran through Preston Junction, Hagey's Siding, Freeport, Centreville, Kitchener Junction before reaching a station on Queen Street, west of the downtown. From here, it ran to Waterloo, paralleling Belmont Street, and eventually along Caroline to Erb. It connected with a street rail section at Stirling and this route took passengers along King Street north to Water Street in downtown Kitchener.

The Railway operated under the name of the Preston & Berlin Electric Railway until 1909 when it was amalgamated with the Galt Preston & Hespler Street Railway. It was renamed the Grand River Railway in 1914. The change to the "Grand River Railway" was made under lease to the Canadian Pacific Railway. It eventually connected with the Grand Trunk Railway in Kitchener, the Canadian Pacific Railway in Galt and the Lake Erie & Northern Railway in south Galt which provided service to Port Dover. Electrical power was provided by a powerhouse in Preston and a substation in Berlin. The Grand River Railway provided passenger service until 1955. The rail line was eventually closed completely on July 6 1993.

Today, the pedestrian trail runs approximately 5.5 kilometres between Ottawa Street and Erb Street West in Waterloo. The Iron Horse Trail not only connects downtown Kitchener to uptown Waterloo, reflecting the close-knit fabric of the two cities, it also links Victoria Park to Waterloo Park. The Iron Horse Trail became a reality in 1997 when both Kitchener and Waterloo formed a partnership to purchase the abandoned rail line and preserve it as an important part of the heritage of both cities. The Iron Horse Trail today provides a scenic and historic route linking the two cities.

3.1.9 Archaeological Resources

A *Stage 1 Archaeological Assessment* (Stage 1 AA) was undertaken on July 13, 2023, by Stantec in support of this Class EA. A Stage 1 AA consists of a review of geographic, land use, and historical information for the property and the relevant surrounding area. Its purpose is to identify areas of archaeological potential and further archeological assessment (e.g., Stage 2-4) as necessary. The Stage 1 AA has been entered into the *Ontario Public Register of Archeological Reports*. The Stage 1 AA is included in Appendix D.

The background information demonstrated that there were specific parcels of land in the Study Area that retained potential for the recovery of archaeological resources. The property visit demonstrated that much of the Study Area contained low to no archaeological potential due to previous disturbance and assessment (Appendix D). A Stage 2 archeological assessment is not required for any portion of the Project which will occur in the area of low to no archeological potential. Approximately 3.9% of the area retained potential for archeological resources. Therefore, a Stage 2 AA was required prior to any activities on the area of archeological potential.

Field work for the Stage 2 AA was undertaken on October 31, 2023 (Appendix E). No archeological resources were found during the Stage 2 AA, and therefore no further archeological assessment is required. The Stage 2 AA is included in Appendix E.

3.1.10 Social Environment & Land Use

The IHT is located in part of the Project area. The IHT is a part of the Trans Canada Trail and is a significant feature of the Kitchener and Waterloo area (City of Kitchener 2024a). The IHT represents a historical section of early rail lines that linked Ontario communities together (City of Kitchener 2024a). The trail provides transportation and recreational use in both the City of Kitchener and City of Waterloo communities. With a population of 256,885 (Statistics Canada 2023), there are approximately 140,000 trail users on this portion of the Iron Horse Trail every year (City of Kitchener 2015), signifying the popularity of the trail. The majority of the trail within the Study Area contains pedestrian level lighting.

The types of land use present in the area include a mix of industrial, commercial, and residential. Land use zoning in the Project area includes Existing Use, General Industrial Zone, Commercial Residential, and Community Institutional Zones (City of Kitchener 2024). Residential areas are located adjacent to the Project area and in the floodplain, however, surrounding residential homes are not being removed.

Both Schneider Creek and Shoemaker Creek are concrete lined channels with extensive floodplains through the Study Area. There is some variation as follows:

- Schneider Creek
    - From Stirling Avenue South to Kent Avenue, the concrete channel is largely trapezoidal (except at culvert entrances) with grass and other vegetation at the top of the slope - two pedestrian crossings exist through this reach
    - From Kent Avenue to Borden Avenue South, the concrete channel is trapezoidal in shape with little vegetation present
    - From Borden Avenue South to Ottawa Street South, the concrete channel is trapezoidal in shape with little vegetation present
    - From Ottawa Street South to Sydney Street South, the concrete channel starts as a trapezoidal shape but transitions to vertical steel and concrete walls closer to Sydney Street South. Little vegetation is present in this reach.
- Shoemaker Creek
    - From Courtland Avenue East to the confluence with Schneider Creek, the concrete channel has vertical concrete sides without any vegetation.
    - A parking lot on the north side of Shoemaker near Courtland was developed for the original Schneider's plant across the street. A second access to that parking lot is from Bedford St., however as the parking lot is now in private ownership, the crossing is now also private.

3.1.11 Economic Environment

The Study Area includes commercial and industrial land uses and activities, which includes a number of businesses located north and south of Schnieder Creek. These include auto repair shops, storage buildings, and retail (i.e., cameras, music, cabinets, etc.).

3.1.12 Air Quality

Air Quality refers to the presence or absence of substances in the air that could cause harm to humans in large quantities. This includes substances in gaseous or solid (particulate) form. The current state of either creek does not create notably unique air quality conditions. The limited vegetation provides limited capacity for the creek to act as a carbon sink (i.e., places that absorb more carbon than they release). Air quality in Kitchener, Ontario is generally high and suitable for outdoor activities. Kitchener has a pollution level well below the threshold for suitable outdoor air quality based on 6.8 $\mu g/m^3$, which is below the 10 $\mu g/m^3$ World Health Organization target goal (IQ Air 2024).

3.1.13 Infrastructure and Utilities

There are several utilities that exist in the Study Area, including under the current creek channel, these include gas (Enbridge Gas Inc.), electricity (Kitchener-Wilmont Hydro Inc.), communications (Bell), and City water/sewer (Kitchener Utilities). Identification of utility conflicts will occur in detailed design. Crossings that are included in the Study Area include Kent Avenue, Borden Avenue S, Ottawa Street S, Sydney Street S, LRT tracks on both Borden and Ottawa, and two pedestrian crossings between Kent and Stirling.

3.1.14 Health and Safety

The current state of Schneider and Shoemaker Creeks potentially creates a health and safety concern due to the flooding and lack of resilience to extreme weather events. The current Scheider Creek floodplain extends beyond the concrete channel therefore causes potential safety concerns to nearby properties.

3.1.15 Climate Change Considerations

Climate change can lead to more frequent and/or more intense extreme weather events, which can stress city water infrastructure. With climate change, high and low extreme water levels are more likely to occur. Low water levels can pose issues with habitat and water quality in the creeks while high water levels can create risks of flooding in the Study Area.

The 2014 Provincial Policy Statement issued under the *Planning Act* advises of the need to consider climate change adaptation and mitigation. The MECP provides further guidance on considering climate change adaptation and mitigation in the environmental assessment process (MECP 2024). With climate change leading to highly variable conditions, adaptation measures may be required in the future to ensure the infrastructure's resiliency and mitigate the impact of extreme weather events. Climate change and the potential impact to infrastructure is highly uncertain. This uncertainty should be considered in engineering planning and design initiatives.

In 2018 the Government of Canada introduced the Disaster Mitigation and Adaptation Fund (DMAF), which is to provide communities with financial assistance in infrastructure activities related to stormwater management with relation to climate change (City of Kitchener 2024). The City of Kitchener was awarded $49.99 million from the DMAF in 2019. The City of Kitchener aims to use the DMAF finances to fund Projects that mitigate flooding, protect the environment, homes, and houses, and maintain drinking water supply (City of Kitchener 2024). The proposed Schneider Creek naturalization Project will remove existing infrastructure in the floodway and then proceed with an engineered natural channel design to restore the system to an improved floodplain (City of Kitchener 2024).

The potential impacts of climate change and extreme weather events on the Project include:

- Flooding during higher river flows due to increased precipitation
- Low flows impact on habitat and water quality due to decreased precipitation/prolonged droughts
- Water quality issues linked to temperature increases

To address potential climate change impacts and increase resilience to climate change, different measures could be integrated in the selected alternative. Opportunities for climate change adaptation include:

- Adaptation to flooding risks
    - Design and construct new channel with capacity to convey flood flows
    - Design and construct new channel features to withstand expected erosive forces
    - Build new buildings above the floodplain limit, with a buffer to accommodate future floods
    - Relocate buildings away from flood-prone areas
    - Verify and update emergency measures for flooding
- Adaptation to low water levels due to drought
    - Design and construct new channel to function and maintain critical habitat conditions during low water levels

3.2 Alternative Solutions

As part of the Class EA planning process, reasonable and feasible alternatives solutions to the Phase 1 problem statement were identified and described in Phase 2. The magnitude of the net positive and negative effects of each alternative solution, as well as mitigating measures, were identified and evaluated. Based on this evaluation, a preferred alternative solution was selected and confirmed based on consultation with Indigenous Nations, public, agencies, and other stakeholders.

3.2.1 Development of Alternative Solutions

The alternative solutions developed and evaluated as part of Phase 2 of Class EA process each proposed a unique approach for removing all or a portion of the concrete channels. Feasible alternatives were identified based on the ability to support the Problem and Opportunity Statement. Based on the review of possible alternatives for this Project, the following short-list was brought forward for evaluation to address the needs for the City of Kitchener:

- Alternative 1 – Do Nothing
- Alternative 2 – Concrete Channel with Naturalized Valley Bottom
- Alternative 3 – Natural Channel with Retaining Structure at One or Both Valley Walls
- Alternative 4 – Natural Channel and Valley

The full evaluation of alternative solutions undertaken is included in the *Municipal Class Environmental Assessment – Phase 2: Evaluation of Alternative Solution* in Appendix G.

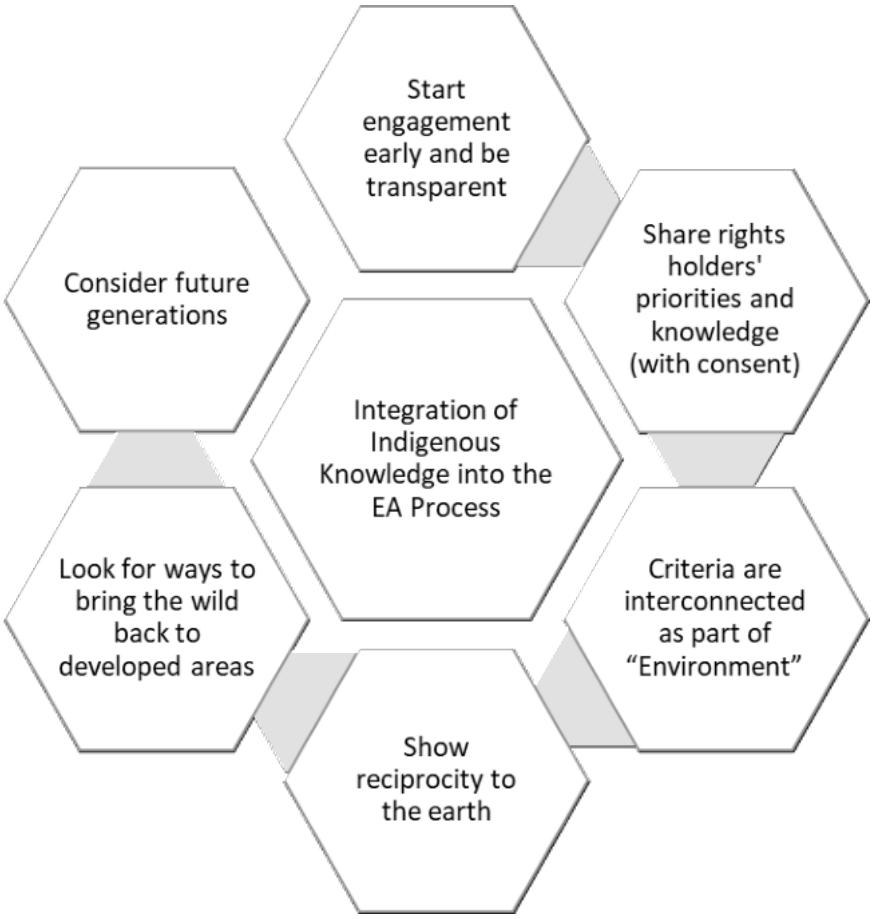
3.3 Alternatives Assessment & Impacts

The alternative solutions were evaluated against environmental factors and specific criteria to recommend a preferred alternative.

3.3.1 Integrating Indegenous Knowledge and Priorities

The criteria were developed in close consultation with Indigenous Nations who had requested Indigenous knowledge and rights holder priorities be integrated into the evaluation criteria. Indigenous knowledge was communicated by these Nations as priorities, values, and interests. These included the interconnectedness of evaluation criteria, commitment to public education, reciprocity for the earth, re-wilding, and considering future generations. (Figure 4).

Figure 4: Indigenous Knowledge and Rights Holder Priorities



Based on this input from Indigenous Nations, the number of categories included in the evaluation criteria was reduced to three to indicate the interconnectivity within categories. Financial factors were embedded within the other categories.

3.3.2 Evaluation Criteria

The criteria for the evaluation of the alternative fell into three main categories that will be used in Phase 3 of the Class EA process.

- Natural Environment
  - Aquatic Environment
  - Terrestrial Environment
- Socio-Economic and Cultural Environment
  - Air Quality
  - Aesthetics

  - Health and Safety
  - Community Access
  - Archaeological Resources
  - Built Heritage Resources / Cultural Landscape
  - Socio-Economic
- Technical Environment
  - Functionality
  - Constructability and Feasibility
  - Cost
  - Climate Change

3.4 Evaluation of Alternative Solutions

Below is a summary of the Alternatives Evaluation. The full evaluation of the Alternatives is included in the *Municipal Class Environmental Assessment – Phase 2: Evaluation of Alternative Solution* in Appendix G. The Evaluation of Alternative Solutions evaluates the alternatives against the environmental criteria in the Natural Environment, Socio-Economic and Cultural Environment, and Technical Environment sections. This environmental criteria was presented to the public and Indigenous Nations and confirmed through consultation to be the appropriate criteria to conduct the evaluation.

Natural Environment

Factors considered in the natural environment component included surface water, groundwater, aquatic, terrestrial, and species at risk screening. Alternative 4 was the preferred choice for the natural environment as it presented the largest opportunity to include targeted habitat and largest area of vegetation naturalization proposed, the largest opportunity to incorporate Indigenous Knowledge for planting plans, had the highest positive impact long-term. The remaining evaluation criteria were equal for all the alternatives except Alternative 1 where no impacts to the natural environment were indicated.

Socio-Economic and Cultural Environment

Factors considered in the socio-economic and cultural environment section included social environment, air quality, noise and vibration, aesthetics and land use, health and safety, community access, utilities, built heritage resources, cultural landscapes, archeological resources, and the economic environment. Alternative 4 was the preferred choice for the socio-economic and cultural environment because of the long-term impacts with aesthetics, specifically with additional opportunities for enhanced, accessible recreation and the full removal of the concrete channel. Alternative 4 also had the highest amount of private land converted to valley land with the highest opportunity for public access and highest conformance with municipal planning objectives. Alternative 4 was noted as the safest, however it was also indicated to have the highest need for potential property acquisition. Other elements were equal between all the alternatives except Alternative 1 where impacts were low or had no changes.

Technical Environment

Factors considered in the technical environment included functionality, constructability and feasibility, cost, and climate change. Alternative 4 was the preferred choice for Technical Environment since it has the highest potential to improve flooding conditions downstream, has the most flexibility when it came to future improvements for road crossings, stormwater controls, enhanced access to the channel/valley floor area and the most opportunity for future greenspace and habitat improvements. Alternatives 4 and 3 did have the highest capital costs for implementation and similar maintenance costs for Alternatives 2, 3, and 4.

Based on a comparative evaluation of impacts associated with the alternative evaluation criteria and rating system, Alternative 4: Natural Channel and Valley was identified as the preferred alternative solution and further confirmed through consultation with Indigenous Nations and the public.

3.5 Selection of Preferred Alternative Solution

Alternative 4: Natural Channel and Valley was identified as the preferred alternative solution because:

- Full naturalization of the channels allows the Study Area to reduce the flood risk of the creeks.
- The biodiversity of the surrounding area will be improved.
- Social benefits of the trails and creek
- Aligned with Indigenous Knowledge and priorities and supported by Indigenous Nations and municipal policies.

The preferred alternative of full naturalization of the channels allows the for the reduction of the flood risk of these creeks. Further, the biodiversity of the surrounding area will be improved. Although this option occupies the largest footprint and property acquisitions will be required, the social benefits of the trails and creek as well as support by Indigenous and Municipal Policies outweigh the other alternatives. While from a technical perspective, the ‘Do Nothing’ approach is a strong alternative, considering the purpose of the funding for this Project and the goal of reducing climate risk, the naturalization alternative was preferred over the Do Nothing alternative.

4 Alternative Design Concepts

In Phase 3 of the Class EA process, once a preferred solution is identified, alternative design concepts are developed for the preferred solution, to further expand on the preferred approach. The alternative design concepts developed for the preferred solution provided varying approaches on incorporating the IHT into the naturalized channel corridors Schneider and Shoemaker Creek.

4.1 Development of Alternative Design Concepts

Based on reviews of the preferred solution, and recognition that the creek itself would meander, the following design concepts were developed with consideration for the alignment of the IHT and additional amenity features (e.g., seating areas, garbage containers, signage, lookouts, etc. to create interest in the location and attract members of the public) to enhance recreational value of the IHT:

- Alternative 1a – Naturalized Creeks with Multi-Use Trail along the South side of Schneider Creek and East side of Shoemaker Creek
- Alternative 1b – Naturalized Creeks with Multi-Use Trail along the South side of Schneider Creek with Trail Amenity Features (Up to Three) and Trail East side of Shoemaker Creek
- Alternative 2a – Naturalized Creeks with Multi-Use Trail along a Combination of the North and South side of Schneider Creek and West side of Shoemaker Creek
- Alternative 2b – Naturalized Creeks with Multi-Use Trail along a Combination of the North and South side of Schneider Creek with Train Amenity Features (Up to Three) and West side of Shoemaker Creek

The full evaluation of alternative solutions undertaken is included in the *Municipal Class Environmental Assessment – Phase 3: Evaluation of Alternative Design Concepts* in Appendix H.

4.2 Evaluation of Alternative Design Concepts

The alternative design concepts have been evaluated against environmental factors and specific criteria to recommend a preferred design concept as was conducted in Phase 2.

Below is a summary of the *Municipal Class Environmental Assessment – Phase 3: Evaluation of Alternative Design Concepts* report (Appendix H).

Natural Environment:

Factors considered in the natural environment component included surface water, groundwater, aquatic, terrestrial, and species at risk screening. There were no significant differences between the alternatives for all measures for Natural Environment criteria. There was low potential for negative effects during construction for both aquatic and terrestrial environments. The high positive outcome of naturalization for all four alternatives created an equal weighting on long-term effects on the natural environment criteria, therefore no preferred was selected based on this criteria.

Socio-Economic and Cultural Environment

Factors considered in the socio-economic and cultural environment section included social environment, air quality, noise and vibration, aesthetics and land use, health and safety, community access, utilities, built heritage resources, cultural landscapes, archeological resources, and economic environment. Noise and vibration, air quality and cultural land use had no significant differences in impact for construction or long-term impacts for all the alternatives. From a built heritage perspective, Alternatives 2a and 2b presented the least impact to the IHT. Alternatives 1b and 2b has the highest positive long-term impact with respect to aesthetics. This was due to adding access to views of the creek vegetation and the inclusion of up to three amenity features. The social benefits outweigh the minor safety risk resulting from the potential for increased access into the naturalized valley (access to the water). Prioritizing access to the water was identified as an important symbolic feature in consideration for Indigenous heritage. Alternatives 2a and 2b would improve the trail connection to Sydney Avenue by replacing the existing on-road cycling route along Nyberg Road with a multi-use trail, which provides improved connectivity. Therefore, Alternative 2b results in the highest net benefit from a socio-economic and cultural perspective.

Technical Environment

Factors considered in the technical environment included functionality, constructability and feasibility, cost, and climate change. All alternatives were scored the same for functionality and constructability and feasibility, however Alternatives 1a and 1b would require the highest capital costs due to the additional trail construction; IHT would be replaced between Kent Street and Ottawa Street and two pedestrian bridge crossings over the creeks are required. Therefore, Alternatives 2a and 2b were the preferred choice for technical environment.

4.3 Overall Design Recommendation

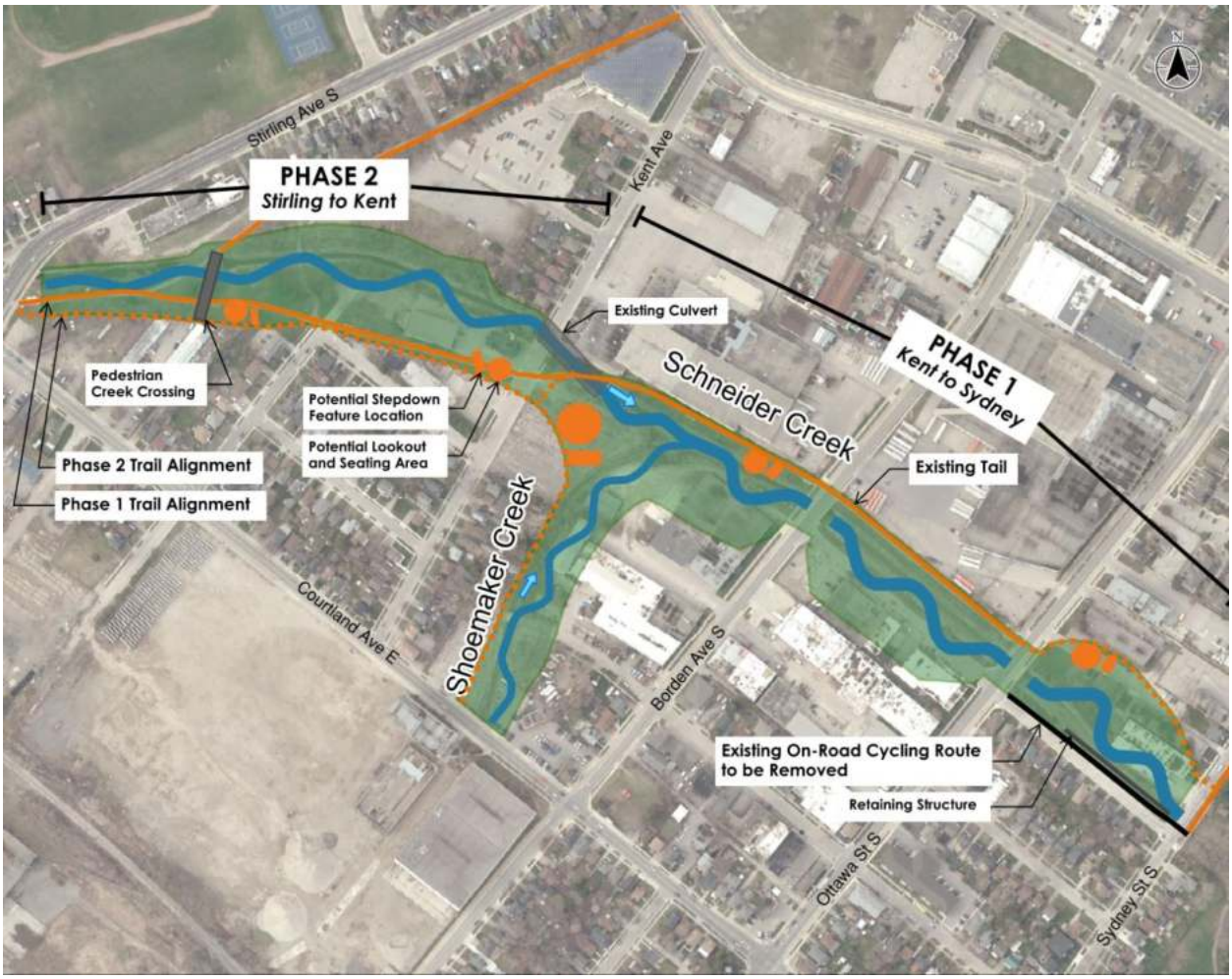
The recommended preferred design concept was Alternative 2b which includes locating the IHT along a combination of the north and south side of Schneider Creek, up to three amenity areas, and a connecting trail on the west side of Shoemaker Creek. This design concept reduces the flood risk of these creeks while enhancing the recreational value of the IHT. This alternative largely maintains the existing IHT and provides opportunities to enjoy and interact with naturalized areas with step-down features. Although there is potential risk related to increased access into the naturalized valley with the step-down features (e.g. high flows during floods, exposure to ticks), the safety risk can be mitigated with the integration of signage (i.e., slippery when wet, avoid during high flows, etc.).

4.4 Description of the Recommended Design Concept

The recommended design concept positions the IHT along the top of the valley on the south side of the naturalized Schneider Creek corridor between Stirling Avenue and Kent Avenue. The trail alignment in the upstream portion of the Study Area requires a new pedestrian crossing of Schneider Creek, which would replace an existing culvert crossing. Downstream of Kent Avenue, the trail alignment switches to the north side of the valley corridor, maintaining the current IHT between Kent Avenue and Ottawa Street.

A new section of trail would be constructed along the north side of the corridor between Ottawa Street and Sydney Street. This new trail would replace the on-road cycling route along Nyberg Street and eliminate the existing gap in the trail network. Additionally, a new section of trail along the west side of Shoemaker Creek will be incorporated and extend the existing IHT network south by connecting the trail to Courtland Ave. The recommended design incorporates additional amenity features along Schneider Creek such as seating areas (providing lookout views of the naturalized channel valley) and step-down features (providing public access from the trail down to the valley lands). Up to three amenity features would be incorporated into the Schneider Creek trail and naturalization. Figure 3 illustrates the preferred alternative, the potential amenity features and including the expected construction phasing, which will be further discussed in Section 5.0.

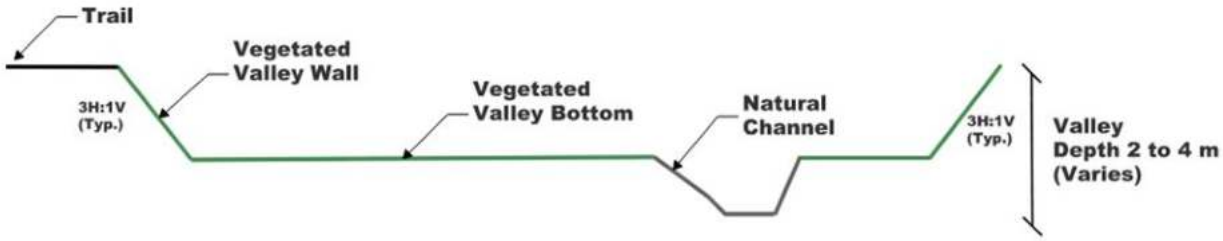
Figure 3: Preferred Alternative 2b: Naturalized Creeks with Multi-Use Trail along a Combination of the North and South side of Schneider Creek with Train Amenity Features (Up to Three) and West side of Shoemaker Creek



5 Project Description

The Project will involve removal of the concrete channel and replacement with a naturalized low flow channel and valley corridor. The corridor will be naturalized by planting native vegetation along the valley wall and bottom. The low flow channel will meander and will be constructed to mimic the form of natural watercourses. This form will include riffle and pool bed features, a variety of wood channel structures, vegetated channel banks and riparian areas. The valley walls along the edges of the corridor will be gradated at a 3-horixontal: 1-vertical slope form the valley bottom to the adjacent ground above the channel. A multi-use trail will be incorporated into this alternative. The trail is expected to be positioned along the top of the valley (Figure 5).

Figure 5: Project conceptual cross-section.



To manage the Project, construction and funding windows, the City proposes that construction be phased. The first construction phase is proposed to include Shoemaker Creek from Courtland Avenue East to the confluence with Schneider Creek and Schneider Creek from Kent Avenue to Sydney Street South. The first construction phase is expected to occur from 2025 to 2026. The second construction phase will include Schneider Creek from Stirling Avenue South to Kent Avenue. The timing of the second construction phase is yet to be determined. The construction phases are illustrated on Figure 3.

The highest-risk areas for flooding are called floodways. Reducing the extent of the floodway around Schneider Creek requires more room for the creek to flow unimpeded during storms. This is accomplished by increasing the channel width and removing the buildings in the floodway. Flood risk will be reduced throughout the Study Area as the Project progresses There are a total of seven non-residential buildings being impacted in Phase 1 and four non residential buildings in Phase 2 as part of this Project.

The Project (Alternative 2b) will have moderate capital costs as the existing trail will be maintained (compared to the other alternative design options) and only one pedestrian crossing is required. As the IHT is not significantly changing in length, operational costs for lighting and snow plowing are expected to remain similar to current conditions after Project completion. Maintenance costs for minor landscaping and channel repairs are expected to be less than current costs, as the naturalized channel is largely self-maintaining.

6 Effects Assessment, Mitigation and Monitoring

Phase 3 of the Class EA process involves identifying the impact of the preferred design concept on the environment as well as corresponding mitigation measures and monitoring activities. The construction and operation of the Project has potential impacts on the natural, social, economic, cultural environment and climate change and technical factors which are described in the following sections. Potential impacts were determined based on the environmental inventory described in Section 3 and the evaluation criteria discussed in Section 4.2. In general, the operation of the preferred design concept will have limited effect on the environment. Environmental effects due to construction activities will require a permit.

6.1 Effects

6.1.1 Surface Water

Isolate watercourse during construction and will divert the water around the active construction areas. Potential effects to the aquatic environment from the Project include runoff and sedimentation to Schneider and Shoemaker Creeks from excavation and construction activities. The long-term effects will be the reduction in the flood risk within the Study Area. GRCA mapping will be updated to reflect final design details.

Impacts to the surface water environment shall be mitigated through design and construction management measures including:

- Appropriate erosion and sediment controls shall be employed during all phases of construction to reduce erosion and sediment transport to downstream areas the extent possible.
- Silt fencing shall be used along all construction areas adjacent to natural features to prevent sediment migration. No equipment will be permitted to enter natural features beyond the fencing.
- Materials requiring stockpiling (fill, topsoil, etc.) shall be stabilized and kept outside of the channel corridor.
- Erosion and sediment control materials (silt fence, strawbales, clear stone) are to be kept on site for emergencies and repairs.
- Erosion and sediment controls shall be monitored and maintained, as required. Controls are to be removed only after the soils of the construction area have been stabilized and adequately protected and until cover is re-established.
- A permit is required from GRCA under Ontario Regulation (O. Reg.) 150/06. Permit conditions shall be followed during all activities.
- Demolition and construction shall be phased to allow for the efficient management of water flow and site management with respect to sediment and erosion control.
- Construction fencing shall be installed to delineate the Project construction areas prior to the start of construction and shall be reviewed by an engineer.

- Equipment shall be re-fueled greater than 30 m away from natural features to avoid potential impacts in the event that an accidental spill occurs.
- A containment and spill management plan shall be implemented to reduce the risk of deleterious substances entering the watercourses.
- A fully stocked emergency spill kit shall be kept on site at all times.

6.1.2 Groundwater

Based on the proposed design concept, the Project is not expected to have deep enough excavation to interact with groundwater. Nevertheless, a Geotechnical and Soils Report will be developed during detailed design to guide the design of the pedestrian bridge crossings, a hydrogeology report will inform if groundwater impacts the Project. Mitigation measures will be proposed and followed during construction. If dewatering is required a dewatering permit would need to be obtained.

6.1.3 Terrestrial Environment

Potential negative effects on the terrestrial environment from the Project during construction include the disturbance, displacement, or mortality of wildlife resulting from vegetation removal. Most existing trees will be removed to facilitate construction. However, trees and other vegetation will be planted in the floodplain during revegetation. Long-term positive impacts are anticipated resulting from the revegetation and naturalization. Potential positive impacts to the terrestrial environment include increased area for native vegetation which may provide habitat to a diversity of terrestrial species. Native vegetation may provide nesting and foraging resources for terrestrial species. Invasive species have been identified in the Tree Management Plan as 'Low Priority'.

Impacts to the terrestrial environment during construction shall be mitigated through design and construction management measures including:

- Provide contractor employees with sensitivity education for on-site wildlife encounters and instructions on procedures to follow if wildlife is encountered during demolition and/or construction.
- Schedule construction activities during daylight hours whenever practicable to reduce the need for staging lights. The use of site flood lighting during key bat migration periods (i.e., April to May and late August through October) shall be avoided or limited to the extent possible.
- Retain natural habitat features such as wildlife trees wherever possible and practical.
- Implement wildlife-friendly (safe for various wildlife species) exclusion fencing in areas undergoing active demolition/construction.
- Conduct daily wildlife sweeps prior to construction start-up for the day to determine if any wildlife avoidance or rescue efforts are required.
- In accordance with the *Migratory Birds Convention Act,* 1995 (MBCA), the loss of migratory bird nests, eggs and/or nestlings due to tree cutting or other vegetation clearing shall be avoided by limiting clearing of vegetation to outside of the general nesting period for migratory birds in this region (C2) as identified by Environment and Climate Change Canada (ECCC) (i.e., between

April 1 and August 31). If work must be performed in this window, a survey for active nests or breeding activity shall be conducted by a qualified biologist before work commences and additional mitigation measures (e.g., implementation of avoidance distances during construction) employed, as required.

- If wildlife is encountered, measures will be implemented to avoid death, injury, or interference with the species, and its habitat. For example, construction activities will cease, or be reduced, and wildlife will be encouraged to move off-site and away from the construction area on its own. A qualified biologist will be contacted to advise on the appropriate actions for the situation.
- Construction machinery shall be cleaned prior to entering the site at construction start-up to reduce the potential for establishment of invasive species, such as *Phragmites*, that may have been encountered by the machinery on a previous site location.

6.1.4 Aquatic Environment

There is potential for the Project to negatively impact fish and fish habitat temporarily during construction due to the potential for runoff and sedimentation which can impact water quality and aquatic habitat. This can occur by changing aspects of the local environment such as the water velocity, water temperature, food supply, and nutrient concentration. There is also potential for a positive impact to aquatic habitat after construction resulting from the removal of barriers to passage, addition of naturalized substrate, inclusion of pools and riffles, and the diversification of fish habitat. These features may result in increased potential for fish spawning, rearing, and adult life cycle elements. The full naturalized channel can be included in a habitat bank.

Negative impacts to the aquatic environment shall be mitigated through design and construction management measures including:

- Construction activities will maintain the buffers established during the design phase to reduce potential negative impacts of the Project.
- As construction works are required within 30 m of the watercourse, a Fish and Fish Habitat Impact Assessment shall provide appropriate mitigation measures, in accordance with legislation and through consultation with the relevant authorities including Fisheries and Oceans Canada (DFO). All requirements of the *Fisheries Act* will be met.
- Avoid in-water work during the restricted activity period for spring spawning fish species in the MNRF's Southern Region (i.e., no in-water work from March 15 to July 15)
- The contractor shall monitor the five-day weather forecast on a daily basis to anticipate weather conditions and shall be prepared to leave the site in a stable and secure condition should water levels rise.
- In water work areas shall be isolated from flow as required to prevent the transport of suspended sediment; the method of work area isolation will be determined by the contractor.
- Prior to instream construction activity, fish shall be rescued from the isolated work areas by implementing a fish removal and relocation plan to be conducted by qualified aquatic biologists in accordance with the conditions of a License to Collect Fish for Scientific Purposes.

- During dewatering of in-water work areas the dewatering pump inlet shall be covered with filter fabric or clear stone. Water from dewatering and unwatering operations shall be directed to a sediment control measure such as a sediment bag, trap and/or a vegetated discharge as far as practical from the top of bank of any waterbody, prior to discharge to the natural environment. No dewatering shall be sent directly to a sewer. These control measures shall be monitored for effectiveness and maintained or revised to meet the objective of reducing the risk of the entry of sediment into the watercourse.
- All water intakes used to dewater area(s) that may contain fish shall be screened to reduce the risk of the impingement and entrainment of fish as per DFO's *Interim Code of Practice: End-of-Pipe Fish Protection Screens for Small Water Intakes in Freshwater.*

6.1.5 Species at Risk

Potential effects to SAR include disturbance, displacement, or mortality of SAR species. There is also potential for the loss of migratory bird nests, eggs and nestlings if tree cutting, or other vegetation impacts due to excavation and construction occur during the general nesting periods (i.e., between April 1 and August 31). Stantec identified 13 SAR that have been recorded in the vicinity of the Study Area. The bird and reptile SAR are not expected to inhabit the Study Area, however a tree inventory conducted in the Study Area identified 10 trees which could provide suitable SAR bat maternity roost habitat. An additional seven trees located adjacent to the Study Area have been identified as having potential suitable bat maternity roost habitat. A long-term positive impact for SAR includes enhancement of local habitat once the naturalization is complete.

Impacts to SAR shall be mitigated through design and construction management measures including:

- A Notice of Activity registration under Ontario Regulation 242/08 of the provincial *Endangered Species Act* (ESA) shall be prepared for potential impacts to bats and submitted as the works are considered to be an enhancement or restoration of an ecosystem native to Ontario.
- To reduce the likelihood of harm to bats, it is recommended that trees > 10 cm DBH be removed outside the period that includes bat maternity roost season, rearing and movement out of the habitat. Tree removal is therefore recommended to occur outside of the period from May 1 to October 1. If tree removal is required in this window, maternity exit surveys may be conducted prior to the tree removals to determine if bats are using the trees.
- If wildlife is encountered, measures will be implemented to avoid death, injury, or interference with the species, and its habitat. For example, construction activities will cease, or be reduced, and wildlife will be allowed to move off-site and away from the construction area on its own. A qualified biologist will be contacted to advise on the appropriate actions for the situation.

6.1.6 Soil

Based on the findings of the APU, there is potential to encounter contaminated soils in the Study Area. There is the potential for movement of contaminated soil during construction which would be a short-term and temporary effect. A potential long-term effect would be improved soil quality due to the naturalization.

The following mitigation measures should be implemented:

- O.Reg. 406/19 (On-Site and Excess Soil Management) and the associated MECP document *Rules for Soil Management and Excess Soil Quality Standards* referenced by O.Reg. 406/19 should be followed for soil that is excavated and managed on-site or off-site during construction.
- O.Reg. 406/19 requires sampling of soil that will be disturbed during construction, according to a sampling and analysis plan and analyzing for the specific contaminants of potential concern as described in the APEC summary table. Sampling programs should be developed and undertaken under the supervision of a qualified person as defined in O.Reg. 406/19 and sample selection should take into consideration the presence of anthropogenic substances such as debris/waste, and unusual odours or staining.
- Stockpiling and transport of excavated soil during construction should be done in accordance with the requirements specified in O.Reg. 406/19.
- A Geotechnical and Soils Report will be developed during detailed design to guide the design of the pedestrian bridge crossings, and a hydrogeology report will inform if groundwater impacts the Project. Mitigation measures will be proposed and followed during construction.

6.1.7 Noise and Vibration

There are no long-term noise or vibration impacts. A noise and vibration report will be completed during detailed design and mitigation measures will be proposed and followed during construction which would include:

- Noise emissions of the construction equipment shall be reviewed during detailed design to confirm that they are in the NPC-115 and NPC-118 limits. If they are expected to exceed the limits, quieter equipment should be considered for the Project. Alternatively, noise control options, such as silencers/mufflers should be investigated and implemented for specific equipment.
- Construction-related noise emissions shall adhere to the City Noise By-Law (By-law 2010-191) which prohibits commercial construction-related noise from 7:00 PM to 7:00 AM, and all day on Sundays and holidays (City of Kitchener 2010).

6.1.8 Built Heritage Resources and Cultural Heritage Landscape

A Cultural Heritage Report (CHR) will be completed, and mitigation measures will be proposed and followed.

6.1.9 Archeological Resources

Based on the findings of Stage 1 and 2 Archeological Assessments (Section 3.1.9), the Study Area was determined to be composed of previously disturbed area and the Study Area was determined to have low potential to impact undisturbed lands. Therefore, no impacts to archaeological resources are expected during the Project.

However, in the event that unassessed or documented archaeological materials are encountered during construction, the following mitigation measures shall be implemented:

- Should previously undocumented archaeological resources be discovered or suspected of being discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out an archaeological assessment, in compliance with Section 48(1) of the *Ontario Heritage Act*.
- The Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33 requires that any person discovering human remains must cease all activities immediately and notify the police or coroner. If the coroner does not suspect foul play in the disposition of the remains, in accordance with Ontario Regulation 30-11, the coroner shall notify the Registrar, Ontario Ministry of Public and Business Services Delivery, which administers provisions of that Act related to burial sites. In situations where human remains are associated with archaeological resources, the Ministry of Citizenship and Multiculturalism should also be notified (at archaeology@ontario.ca) to ensure that the archaeological site is not subject to unlicensed alterations which would be a contravention of the Ontario Heritage Act.

Furthermore, corresponding monitoring activities include:

- Performance of the work will occur in land previously subject to an Archaeological Assessment.
- Any site personnel responsible for carrying out or overseeing land-disturbing activities will be informed of their responsibilities in the event that an archaeological resource is encountered.

6.1.10 Social Environment & Land Use

Implementation of the Project will not change the overall land use in the Study Area, however construction activities may impact surrounding residents and business temporary during the duration of the construction phases. Temporary disruptions to community access to the IHT are anticipated during construction resulting from excavation and naturalization, which will be considered during detailed design. There is potential for temporary visual aesthetic impacts during construction. Long-term, the Project will change the existing views/landscapes of the area to more naturalized environment. Moreover, construction activities may have the potential to increase light, traffic and dust pollution in nearby areas. No long-term road closures are anticipated. The City must acquire property to allow for construction of the preferred alternative and some businesses will have to relocate. While the relocation of services supplied by these businesses cannot be avoided, the impact of not expanding the width of Schneider Creek lessens the positive impact of reducing flood risk. Aside from reduced flood risk, potential long-term positive effects to the social environment may include enjoyment of the naturalized area, increased usability of the area, and increased access to the water.

Potential effects to the social environment will be mitigated through design and construction management measures including:

- Reduce closure of associated trails used by the community during excavation and naturalization and provide detour signage where appropriate.
- During construction, a designated City representative should be available to monitor and respond to requests and concerns voiced by residents and business owners.

Stakeholders included on the distribution list including residents within a 1km radius will receive construction notificatiindigon and schedule information 30 days prior to the start of construction.

- Access to nearby recreational areas will be maintained for pedestrian and cyclist traffic, to the extent feasible. Potentially affected residents, tenants, and business owners will be notified of initial construction schedules, as well as modifications to these schedules as they occur.
- Potential effects to pedestrian and cyclist activities during construction will be mitigated through the installation of appropriate wayfinding, regulatory, and warning signs.
- Existing sidewalks and crossings will be maintained. Alterations to existing sidewalks and crossings will only be permitted upon review and approval by the City of Kitchener. If approved, temporary pedestrian facilities will comply with accessibility and applicable municipal standards.
- Should road closures be required, they are to be implemented in accordance with Ontario Traffic Manual Book 7.
- The constructor will perform the works in such a way that avoids or mitigates obtrusive light with respect to adjacent residents, communities and/or businesses.
- In the presence of persistent complaints and subject to the results of an investigation, identify reasonable alternative control measures, where possible.

Operation of the Project is not expected to impact air quality; however the Project has the potential to temporarily impact local air quality due to construction-related air pollution as a result of increased fugitive dust emissions, construction equipment tailpipe emissions, vehicle emissions and associated dust.

Potential effects to air quality shall be mitigated through design and construction management measures are included in Section 6.1.12.

Furthermore, corresponding monitoring activities include establishing a **Complaints Protocol** to respond to issues that develop during construction.

6.1.11 Economic Environment

The City must acquire property from local landowners with businesses located in the floodplain to allow for construction of the preferred alternative. Businesses that remain the in floodplain are at an elevated risk of non-insured financial loss should a significant weather event occur. Relocation, while disruptive to the business, will provide longer term economic benefit as it removes the risk of catastrophic business loss due to flooding.

6.1.12 Air Quality

There is the potential for negative short-term effects to air quality during construction from emissions from equipment and dust. Following construction, there is the potential for high positive impacts to air quality due to the vegetation in the naturalized area acting as a new carbon sink.

The following mitigation measures will be used:

- All construction equipment to be maintained and in good working order in accordance with operational manual.
- Employ dust control measures.

6.1.13 Infrastructure and Utilities

Excavation and construction for Schneider and Shoemaker Creeks Naturalization in the Study Area may have the potential to impact existing utilities. The preferred alternative calls for the removal of a portion of Nyberg Street between Borden Avenue South and Ottawa Street South, which will require the removal of existing road infrastructure and associated utilities. Potential effects to utilities shall be mitigated through design and construction management measures including:

- Obtain permits and consents from and with all utility companies with respect to the design, construction, installation, servicing, operation, repair, preservation, relocation, and/or commissioning of utility infrastructure.

Furthermore, corresponding monitoring activities include:

- Maintain regular communication with applicable utility companies.
- In the event of potential effects to critical utilities, instrumentation and monitoring shall be carried out to protect the critical utilities and structures and reduce risks of damage due to construction activities.

6.1.14 Health and Safety

There is low potential to impact the health and safety of City residents due to construction nuisance such as noise and vibration, reduced air quality and traffic safety. Mitigation and monitoring measures will be implemented to address such impacts. The Project is expected to improve the health and safety of residents by improving stormwater management and recreational opportunities with increase accessibility. There is a decreased potential for flooding with the naturalization of Schneider and Shoemaker Creeks.

- Obtain City of Kitchener approval regarding public safety due to removal of barriers and increasing access to the creek; may include signage, public awareness campaign, etc.

6.1.15 Climate Change Considerations

The Project provides opportunities to improve local resiliency to climate change through the implementation of increased ability to handle extreme weather effects which are expected to occur more frequently.

While naturalization will improve local resiliency to climate change, the short-term construction impacts will increase known climate change contributors (i.e., GHG emissions).

The long-term impacts of the Project on climate change include benefits such as

- Improved flood resilience (reducing impact to surrounding land uses)
- Reduction in the urban heat island effect by creating a green corridor in an urban space
- Improved water quality and habitat conditions
- Introduction of vegetation to absorb carbon dioxide and emit oxygen
- Improving active transportation opportunities by enhancing trail connections
- Saving future costs caused by climate change impacts

6.2 Summary of Potential Effects, Mitigating Measures and Monitoring Activities

A summary of the potential effects, mitigation measures and proposed monitoring for the various components of the environment described in the previous sections of the ESR has been outlined in Table 3. The City is responsible for confirming that the recommendations are met but may direct a third party to undertake future activities (i.e., contractor, technical consultant). The intent of this table is to provide a summary of those commitments and responsibility of third parties where the City determines applicability. These are recommendations that will be confirmed as Project planning advances into detailed design.

Table 3: Summary of Potential Effects, Mitigation Measures, and Monitoring Activities

Environment	Environmental Component	Project Activity	Potential Effects	Mitigation Measures	Monitoring Activities
Natural Environment	Aquatic Environment	Construction activities such as: vegetation removal, grading, excavation, backfill, watercourse isolation and diversion and vegetation planting	Potential to impact fish and fish habitat	• Construction activities will maintain the buffers established during the design phase to reduce potential negative effects of the Project. • As construction works are required within 30 m of the watercourse, a Fish and Fish Habitat Impact Assessment shall provide appropriate mitigation measures, in accordance with legislation and through consultation with the relevant authorities including Fisheries and Oceans Canada (DFO). All requirements of the *Fisheries Act* will be met. • Avoid in-water work during the restricted activity period for spring spawning fish species in the MNRF's Southern Region (i.e., no in-water work from March 15 to July 15) • The contractor shall monitor the five-day weather forecast on a daily basis to anticipate weather conditions and shall be prepared to leave the site in a stable and secure condition should water levels rise • In water work areas shall be isolated from flow as required to prevent the transport of suspended sediment; the method of work area isolation will be determined by the contractor. • Prior to instream construction activity, fish shall be rescued from the isolated work areas by implementing a fish removal and relocation plan to be conducted by qualified aquatic biologists in accordance with the conditions of a License to Collect Fish for Scientific Purposes • During dewatering of in-water work areas the dewatering pump inlet shall be covered with filter fabric or clear stone. Water from dewatering and unwatering operations shall be directed to a sediment control measure such as a sediment bag, trap and/or a vegetated discharge as far as practical from the top of bank of any waterbody, prior to discharge to the natural environment. No dewatering shall be sent directly to a sewer. These control measures shall be monitored for effectiveness and maintained or revised	

Environment	Environmental Component	Project Activity	Potential Effects	Mitigation Measures	Monitoring Activities
				to meet the objective of reducing the risk of the entry of sediment into the watercourse • All water intakes used to dewater area(s) that may contain fish shall be screened to reduce the risk of the impingement and entrainment of fish as per DFO's *Interim Code of Practice: End-of-Pipe Fish Protection Screens for Small Water Intakes in Freshwater*	
	Terrestrial Environment (Wildlife)	Excavation and construction for naturalization at the site	Impacts to healthy trees	Tree Protection Fencing • Install Tree Protection Fencing (TPF) to protect trees identified for preservation. • All TPF will conform with the detail(s) included on these plans. Where current governing Municipal/City standards differ, contact Project Arborist or Contract Administrator for direction. • No substitutions of materials, products or quantities will be accepted without the prior written permission of the Project Arborist. • Upon installation of the TPF, contact the Project Arborist to review and approve the fencing and location(s) in writing prior to commencement of any site work. • TPF shall remain in the approved locations throughout the duration of the site works and shall not be moved at any time to accommodate construction or site work. • Inspect TPF weekly and maintain as required through all stages of development/construction. The TPF shall be removed at the completion of all site works and disturbed areas shall be restored to original condition. Tree Preservation • The Tree Protection Zone (TPZ) is protected and delineated by the TPF. Do not proceed in uncertainty. • Any potential or incurred injury/damage to adjacent tree(s) identified to be preserved shall be immediately reported to the Project Arborist and reviewed on site. Injury/damage includes any required arboricultural treatment including but not limited to: limb pruning, trunk damage, root exposure or required cutting/removal or any other activity that has the potential to harm the tree.	

Environment	Environmental Component	Project Activity	Potential Effects	Mitigation Measures	Monitoring Activities
				• The TPZ is not to be used for any type of storage including materials, equipment or stockpiles. • No trenching or tunneling for underground services shall occur within the TPZ. • Any equipment use within the TPZ will be restricted throughout all stages of development. This applies to TPZs within or outside of the project limit line. • Absolutely no alteration of grades or construction activity is permitted within the TPF and TPZ. Absolutely no flushing of contaminant shall be permitted towards or within the TPZ. • When working adjacent to trees to be preserved site preparation measures such as pruning for overhead clearance may be required. Preparatory pruning shall only be performed when completed by or under the direct supervision of an ISA Certified Arborist (or approved qualified person as approved by the Project Arborist). • All pruning work shall be performed by a qualified individual and shall be in accordance with current horticultural practices including but not limited to: - a. Pruning cuts shall be made just beyond the branch collar and should be limited to thinning cuts. Heading cuts will only be accepted in specific cases as directed by an arborist and should be avoided where possible. - b. Pruning of all stems greater than 50 mm in diameter should be made with a three-cut method to avoid tearing living bark tissue. - c. No wound dressings shall be applied. • Where soil excavation/grading work is required within the rooting zone of a tree to be preserved (the rooting zone often extends beyond the identified TPZ and can be 3 times the dripline radius or more): - a. Roots shall be cleanly severed before stripping and removing soil to avoid damage to the tree and the root system. Roots to be cut using appropriate equipment (i.e. trencher adapted to this specific	

Environment	Environmental Component	Project Activity	Potential Effects	Mitigation Measures	Monitoring Activities
				use/chainsaw/root pruning machine). Roots may be severed using the clean edge of a straight excavator bucket under supervision of an ISA Certified Arborist. - b. No attempts to cut existing roots with the digging bucket of any heavy machinery will be permitted as it can cause the roots to tear and pull and be harmful to root regeneration and recovery. - c. Any exposed roots of a tree to be preserved with a diameter greater than 2.5cm (1 inch) shall be pruned back to the soil face. - d. An excavation area within the TPZ shall be backfilled immediately and/or roots shall be kept constantly moist with burlap covered with white plastic and checked a minimum of 2 times a day, for a maximum of 48 hours. If roots are to be exposed for a period greater than 48 hours, the exposed area shall be covered with a minimum of 150 mm (6 inches) of mulch and maintained in a moist condition during construction until the area can be properly backfilled. • Trees shall not have any rigging cables, fencing, signage or hardware of any sort attached or wrapped around them. • No contaminants or toxic materials shall be dumped or flushed where they may come into contact with the feeder roots of trees to be preserved. • Maintain responsibility for all avoidable damage to preserved trees during all stages of construction. • Watering or other maintenance of trees to be preserved may be required if construction activities are observed to be causing stress or impacting health as determined by the Project Arborist. Tree Removals • Prior to the commencement of tree removals, all trees designated for removal must be clearly identified in the field.	

Environment	Environmental Component	Project Activity	Potential Effects	Mitigation Measures	Monitoring Activities
				• Trees shall always be felled away from adjacent preserved trees to prevent avoidable damage to the crowns and	
			Potential for temporary disturbance, displacement, or mortality of wildlife	• Provide contractor employees with sensitivity education for on-site wildlife encounters and instructions on procedures to follow if wildlife is encountered during demolition and/or construction. • Schedule construction activities during daylight hours whenever practicable to reduce the need for staging lights. The use of site flood lighting during key bat migration periods (i.e., April to May and late August through October) shall be avoided or limited to the extent possible • Retain natural habitat features such as wildlife trees wherever possible and practical. • Implement wildlife-friendly exclusion fencing in areas undergoing active demolition/construction. • Conduct daily wildlife sweeps prior to construction start-up for the day to determine if any wildlife avoidance or rescue efforts are required. • Construction machinery shall be cleaned prior to entering the site at construction start-up to reduce the potential for establishment of invasive species, such as *Phragmites*, that may have been encountered by the machinery on a previous site location.	• Culturally important plants to various Indigenous Nations will be incorporated into revegetation planting.
			Potential to impact wildlife habitat, including bird nesting	• In accordance with the *Migratory Birds Convention Act,* 1995 (MBCA), the loss of migratory bird nests, eggs and/or nestlings due to tree cutting or other vegetation clearing shall be avoided by limiting clearing of vegetation to outside of the general nesting period for migratory birds in this region (C2) as identified by Environment and Climate Change Canada (ECCC) (i.e., between April 1 and August 31). If work must be performed in this window, a survey for active nests or breeding activity shall be conducted by a qualified biologist before work commences and additional mitigation measures (e.g., implementation of avoidance distances during construction) employed, as required.	

Environment	Environmental Component	Project Activity	Potential Effects	Mitigation Measures	Monitoring Activities
				• If wildlife is encountered, measures will be implemented to avoid death, injury, or interference with the species, and its habitat. For example, construction activities will cease, or be reduced, and wildlife will be encouraged to move off-site and away from the construction area on its own. A qualified biologist will be contacted to advise on the appropriate actions for the situation.	
	Species at Risk	Excavation and construction for naturalization at the site	Potential loss of bat maternity roosting habitat	• A Notice of Activity registration under Ontario Regulation 242/08 of the provincial *Endangered Species Act* (ESA) shall be prepared for potential impacts to bats and submitted as the works are considered to be an enhancement or restoration of an ecosystem native to Ontario. • To reduce the likelihood of harm to bats, it is recommended that trees > 10 cm DBH be removed outside the period that includes bat maternity roost season, rearing and movement out of the habitat. Tree removal is therefore recommended to occur outside of the period from May 1 to October 1. If tree removal is required in this window, maternity exit surveys may be conducted prior to the tree removals to determine if bats are using the trees. • If wildlife is encountered, measures will be implemented to avoid death, injury, or interference with the species, and its habitat. For example, construction activities will cease, or be reduced, and wildlife will be allowed to move off-site and away from the construction area on its own. A qualified biologist will be contacted to advise on the appropriate actions for the situation.	
	Surface water	Excavation and construction for naturalization at the site	Potential to impact water quality and quantity due to site's proximity to the Schneider Creek and potential	• Appropriate erosion and sediment controls shall be employed during all phases of construction to reduce erosion and sediment transport to downstream areas the extent possible. • Silt fencing shall be used along all construction areas adjacent to natural features to prevent sediment migration. No equipment will be permitted to enter natural features beyond the fencing.	

Environment	Environmental Component	Project Activity	Potential Effects	Mitigation Measures	Monitoring Activities
			runoff during construction.	• Materials requiring stockpiling (fill, topsoil, etc.) shall be stabilized and kept outside of the channel corridor. • Erosion and sediment control materials (silt fence, strawbales, clear stone) are to be kept on site for emergencies and repairs. • Erosion and sediment controls shall be monitored and maintained, as required. Controls are to be removed only after the soils of the construction area have been stabilized and adequately protected until cover is re-established. • A permit is required from GRCA under Ontario Regulation (O. Reg.) 150/06. Permit conditions shall be followed during all activities. • Demolition and construction shall be phased to allow for the efficient management of water flow and site management with respect to sediment and erosion control. • Construction fencing shall be installed to delineate the Project construction areas prior to the start of construction and shall be reviewed by an engineer. • Equipment shall be re-fueled greater than 30 m away from natural features to avoid potential impacts in the event that an accidental spill occurs. • A containment and spill management plan shall be implemented to reduce the risk of deleterious substances entering the watercourses. • A fully stocked emergency spill kit shall be kept on site at all times.	
	Soil	Excavation and construction for naturalization at the site	Potential for movement of contaminated soil during construction.	• O.Reg. 406/19 (On-Site and Excess Soil Management) and the associated MECP document *Rules for Soil Management and Excess Soil Quality Standards* referenced by O.Reg. 406/19 should be followed for soil that is excavated and managed on-site or off-site during construction. • O.Reg. 406/19 requires sampling of soil that will be disturbed during construction, according to a sampling and analysis plan and analyzing for the specific	

Environment	Environmental Component	Project Activity	Potential Effects	Mitigation Measures	Monitoring Activities
				contaminants of potential concern as described in the APEC summary table. Sampling programs should be developed and undertaken under the supervision of a qualified person as defined in O.Reg. 406/19 and sample selection should take into consideration the presence of anthropogenic substances such as debris/waste, and unusual odours or staining. • Stockpiling and transport of excavated soil during construction should be done in accordance with the requirements specified in O.Reg. 406/19. • A Geotechnical and Soils Report will be developed during detailed design to guide the design of the pedestrian bridge crossings, and a hydrogeology report will inform if groundwater impacts the Project. Further mitigation measures will be proposed and followed during construction.	
Socio-Economic Environment	Social Environment	Excavation and construction for naturalization at the site	Potential to impact social environment including land access, aesthetics, noise, and vibration.	• Reduce closure of associated trails used by the community during excavation and naturalization and provide detour signage where appropriate. • During construction, a designated City representative should be available to monitor and respond to requests and concerns voiced by residents and business owners. • Stakeholders included on the distribution list including residents within a 1km radius will receive construction notification and schedule information 30 days prior to the start of construction. • Access to nearby land uses will be maintained for pedestrian and cyclist traffic, to the extent feasible. Potentially affected residents, tenants, and business owners will be notified of initial construction schedules, as well as modifications to these schedules as they occur. • Potential effects to pedestrian and cyclist activities during construction will be mitigated through the installation of appropriate wayfinding, regulatory, and warning signs. • Existing sidewalks and crossings will be maintained. Alternations to existing sidewalks and crossings will only be permitted upon review and approval by the City of Kitchener. If approved, temporary pedestrian facilities will	• Corresponding monitoring activities include establishing a **Complaints Protocol** to respond to issues that develop during construction. • Incorporation of culturally important information for various Indigenous Nations to be included in signage or public art.

Environment	Environmental Component	Project Activity	Potential Effects	Mitigation Measures	Monitoring Activities
				comply with accessibility and applicable municipal standards. • The constructor will perform the works in such a way that avoids or mitigates obtrusive light with respect to adjacent residents, communities and/or businesses. • Noise emissions of the construction equipment shall be reviewed during detailed design to confirm that they are in the NPC-115 and NPC-118 limits. If they are expected to exceed the limits, quieter equipment should be considered for the Project. Alternatively, noise control options, such as silencers/mufflers should be investigated and implemented for specific equipment. • Construction related noise emissions shall adhere to the City Noise By-Law (By-law 2010-191) which prohibits commercial construction-related noise from 7:00 PM to 7:00 AM, and all day on Sundays and holidays (City of Kitchener 2010). • In the presence of persistent complaints and subject to the results of an investigation, identify reasonable alternative vibration control measures, where possible. • Any road closures would follow typical construction zone processes as guided by OTM Book 7.	
	Health and Safety	Construction activities	Potential impact to health / safety of residents	• Obtain City of Kitchener approval regarding public safety due to removal of barriers and increasing access to the creek; may include signage, public awareness campaign, etc.	
	Air Quality	Use of construction equipment and vehicles Excavation and construction for naturalization at the site	Potential for temporary impacts to local air quality due to construction-related air pollution (such as dust emissions,	• All construction equipment to be maintained and in good working order in accordance with operational manual. • Employ dust control measures.	• All construction equipment to be maintained and in good working order in accordance with operational manual.

Environment	Environmental Component	Project Activity	Potential Effects	Mitigation Measures	Monitoring Activities
			vehicle exhaust)		
	Utilities	Excavation and construction for naturalization at the site	Potential impact to existing utilities	• Obtain permits and consents from and with all utility companies with respect to the design, construction, installation, servicing, operation, repair, preservation, relocation, and or commissioning of utility infrastructure.	• Maintain regular communication and coordination with applicable utility companies. • In the event of potential effects to critical utilities, instrumentation and monitoring shall be carried out to protect the critical utilities and structures and reduce risks of damage due to construction activities.
Cultural Environment	Built Heritage Resources/ Cultural Landscape	Works on the IHT alignment	Heritage designation on alignment	• Undertake a Heritage Impact Assessment to provide mitigation measures • Obtain permits / approvals to undertake work on the IHT alignment and additional features	
	Archeological Resources	Excavation and construction for naturalization at the site	Potential for the disturbance of unassessed or documented archaeological resources.	• Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources shall cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48(1) of the Ontario Heritage Act.	• Performance of the work will occur in land previously subject to an Archaeological Assessment. • Any site personnel

Environment	Environmental Component	Project Activity	Potential Effects	Mitigation Measures	Monitoring Activities
				• The Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33 requires that any person discovering human remains must cease all activities immediately and notify the police or coroner. If the coroner does not suspect foul play in the disposition of the remains, in accordance with Ontario Regulation 30-11, the coroner shall notify the Registrar, Ontario Ministry of Public and Business Services Delivery, which administers provisions of that Act related to burial sites. In situations where human remains are associated with archaeological resources, the Ministry of Citizenship and Multiculturalism should also be notified (at archaeology@ontario.ca) to ensure that the archaeological site is not subject to unlicensed alterations which would be a contravention of the Ontario Heritage Act.	responsible for carrying out or overseeing land-disturbing activities will be informed of their responsibilities in the event that an archaeological resource is encountered.

7 Consultation

The Class EA process provides a minimum of three points of contact for a Schedule C undertaking where stakeholders have the opportunity to review the Project findings and submit comments for consideration in development of the Project. The following sections summarize the approach that has been taken with respect to consultation during this Project.

7.1 Public Consultation

7.1.1 Study Website

Background information, notifications, updates, and links to consultation content were provided on the Project webpage, as they became available. The consultation materials for Phases 3 and 4 are provided in Appendix I. Through the Project webpage, users were invited to contact study team members through their email account. The website for the Project is: https://www.engagewr.ca/schneidercreekea.

7.1.2 Contact List

A comprehensive contact list consisting of government agencies, City staff, utilities, emergency service providers, Indigenous Nations, Indigenous Organizations, local organizations and interest groups and members of the public who expressed interest in the Project was developed at the onset of the MCEA. This list was updated as the study progressed. The latest version of this contact list is provided in Appendix I.1.

7.1.3 Notice of Commencement and Online Public Information Centre (PIC)

The purpose of the Notice of Study Commencement and Public Information Centre (PIC) was to inform the public that the City had initiated Phases 3 and 4 of the Class EA process to complete the planning and preliminary design of this Project. The notice briefly outlined the objective of the study, the Study Area location map, and contact information for the Project team representatives. Additionally, the City held three (3) PIC's. The PICs inform the public about the purpose, format, and how to access the PIC materials, and provide the study team's contact information.

The Notice of Study Commencement and PIC was communicated via the local newspaper, Kitchener Record, and was also posted on the Project website. Additionally, a copy of the notice was mailed and emailed to the contact mailing list. A copy of this notice is provided in Appendix I.2 of this document.

7.1.3.1 PIC

Three PICs were held to share information and solicit feedback from the public, agencies, Indigenous Nations and other stakeholders on the study background, evaluation criteria, alternative and recommended design concepts, and next steps in the MCEA process. The Notice of Commencement and PIC #1 (Notice) for the EA was issued on March 31, 2023. The PIC content is saved on the study website. PIC #1 was an in-person event held at the Rockway Golf Course in Kitchener, Ontario on April 13, 2023, from 6:00pm to 8:00pm. A total of 73 attendees signed in with 42 attendees requesting to be added to the email distribution list.

PIC #2 Notice of Study Commencement was posted on the Project website on June 16, 2023. The PIC #2 materials were added to the Project website on June 28, 2023, including the display boards and comments on the idea boards which were available in-person at the PIC. PIC #2 was an in-person event held at the Rockway Mennonite Collegiate in Kitchener, Ontario on June 28, 2023, from 5:00pm to 8:00pm. A total of 41 attendees signed in with 33 attendees requesting to be added to the email distribution list.

The Notice for PIC #3 was issued on December 1, 2023, and the in-person event was held on December 12, 2023, from 5:00pm to 8:00pm at Rockway Golf Course in Kitchener, Ontario. A total of 67 attendees signed in with 32 attendees requesting to be added to the email distribution list. All participants were encouraged to provide their feedback directly to the Project Team. Alternatively, there was an option to participate online by reviewing the presentation materials from the PIC and completing the Alternative Design Options Survey on the Project website. The survey was open from December 18, 2023, until January 2, 2024. The comments and responses received throughout Phases 1-3 are summarized in Table 5 below.

Table 4: Summary of Comments and Responses

Topic	Question/Comment	Response
Design	Questions and concerns around designs of the creeks (e.g., will all the concrete be removed, what will the concrete be replaced with, presence of invasive species, excluding certain invasive species during naturalization, planting only native species, and retaining as many existing trees as possible). Maximize use of naturalized areas. Potential future re-naturalization north of existing trail. Naturalize area to right of IHT south of Kent St.	There will be alternative design concepts presented. A team of environmental engineers and biologists will be involved with the designs and will consider appropriate naturalization species.
	Inquiries about if current road crossing and infrastructure will be maintained.	Current road crossings will not be changed.
	Request to leave area as is (stating there is no flooding in the areas around the creek where the resident lives/visits).	Modifications will include mitigation to existing flood risk. One of the main Project goals is mitigation of existing flood risk and mitigation against future flood risks that could be associated with climate change. The City is being proactive to mitigate risks before they occur. The proposed approach will also create additional benefits, including enhancing aquatic and terrestrial environments, improving recreational amenities (IHT), and providing additional greenspace in the neighborhood. There have been numerous residents who have confirmed recent storm events that have completely filled up the channel in the Project area.
	Inquiries if existing vegetation could be maintained.	Existing vegetation has been mapped as part of the background investigations and will be considered at detailed design. Design plans will incorporate revegetation plans.
	Requests to have access to the creek. Removing narrow bike lanes on the trial and adding water bottle refill station along the IHT. Adding in space for fire pits. How climate change will impact the Project. Improve area between Kent and Palmer by removing gravel and adding shade in order to host events in the area. Concerns around the use of salt in the area. Safety concerns (single file cycling, heavily marked signage, speed limits). Add children's play areas, seating areas, washrooms. Replace concrete along Nyberg St with armour stone.	This will be considered during detailed design.

Topic	Question/Comment	Response
	Concerns around stability of natural channel to be implemented.	Engineering design will incorporate structures to maintain stability of natural channel. This will be determined during detailed design, but it is expected that the structures will consist of natural materials (rocks, wood/logs).
	Concerns around Iron Horse Trail including adding water bottle refill station, signaled crossing, remove narrow bike lane from Nyberg Street, improve shade along IHT, smooth out street intersections, add more greenery.	This will be considered during detailed design.
	How the Project will reduce flood risks to various nearby properties.	The highest-risk areas for flooding are called floodways. Reducing the extent of the floodway around Schneider Creek requires more room for the creek to flow unimpeded during storms. We do this by increasing the channel width and removing the buildings in the floodway. Flood risk will be reduced throughout the study area as we begin to do this. There is a total of seven (7) buildings being removed in Phase 1 and four (4) buildings in Phase 2.
Timing	Why naturalize the creeks now?	Concerns for safety is top priority and the main reason for naturalizing the creeks.
Alternatives Assessment	Who will choose the alternative design? What input from residents will be considered? Why did residents outside the floodplain limit receive a Notice?	Input from residents throughout the EA process will be considered and a team of engineers and biologists will decide on alternatives based on feasibility and those will be evaluated to determine the preferred option. The evaluation methodology (Appendix H) and results will be presented at the next PIC and the team will be looking for comments and input before the final selection of a preferred option. Input from those who use the trail for various purposes is also important.
Waste	Concerns around waste including existing waste/garbage in the area, how will the City protect the naturalization from further littering.	There is a known issue with waste in the area and the City will look at options to manage that in the future.
Next Steps	How residents will be notified of alternative design concepts, what studies are still pending, timeline of Project.	The next step is to develop the alternative design concepts, which will be available on the Project website and presented at PIC 2. Environmental investigations will be conducted in spring and summer 2023.
	Inquiries around timeline of the Project (when will it start, construction phases, and completion).	Field work continuing throughout summer 2023; Phase 3: Alternative Design and PIC #3 (Fall 2023), Phase 4: Environmental Study Report (Winter 2024), detailed design and permitting (2024-2025), construction (2025-2026).
Cost	Concerns around cost of the Project.	The City is receiving federal funding support, with 40% of funding coming from the federal government.
Project Scope	Suggestions to expand Project area and scope (e.g., to consider additional recreational areas, cycling trails, to considered	These changes are outside of the current Project scope, however the City will consider the suggestions made.

Topic	Question/Comment	Response
	upstream and downstream areas, removed culvert under an adjacent private property).	
Impacts	Questions about land impacts.	This question was asked during PIC #1 and #2. Land impacts were discussed at PIC #3.
	Temporary impacts as a result of construction.	The EA process will identify impacts and will confirm avoidance and mitigation measures; the public will have an opportunity to review and comment.
	Which properties will be impacted? How will property impacts be addressed?	At the time of the question during PIC#1, the final alignment has not been decided. It was explained that Phase 1 and 2 of the Class EA process will inform next steps regarding property impacts, specifically to the IHT. Those were then presented in Phase 3 (PIC #3).
	Overall impacts to the Iron Horse Trail or Light Rail Transit.	IHT and Light Rail Transit routes will be maintained. Temporary detours to the IHT may be required during construction.
	Inquiries around property loss impacts for residential properties, including those on Nyberg St.	There will not be any property loss impacts for residential properties, including those on Nyberg St.

7.1.4 Notice of Publication of Environmental Study Report

The Notice of Completion for the Environmental Study Report will be placed in the newspaper in April 2024. The Notice will also available on the Project website and distributed via mail and email to agencies, key stakeholders, Indigenous Nations, and the public on the study mailing list. This notice will briefly outlined the Preferred Design Concept and noted that the ESR will be posted on the Project website for a 30-day public review period. A copy of this notice will be appended to this report after the 30-day review period is complete.

7.2 Agency Consultation

The Class EA provides for the involvement of MECP's various branches as well as other provincial and federal ministries and outside agencies. The list of Review Agencies varies depending upon the scope of the Project, its location, and the potential environmental impacts.

All applicable agencies that were provided with the Notices are listed in the Contact list which can be found in Appendix I.1. Agency comments are available in Appendix I.4 and summarized below.

Notices of EA and PIC were sent to MECP and MCM. MECP provided a Letter of Acknowledgement regarding the Notice of Commencement for Schneider and Shoemaker Creeks Naturalization Class EA. The Letter of Acknowledgement from MECP outlined the provincial policy framework for the proposed naturalization Project and also highlighted requirements for consultation. MECP also provided a Guide to Preliminary Screening for Species at Risk.

MCM acknowledged receipt of the Notice of EA and PIC. MCM provided a letter outlining requirements for determining the proposed naturalization Project's potential impact on potential cultural heritage resources. Mainly this related to the conservation of Ontario's cultural heritage including: archaeological resources, including land and marine; built heritage resources, including bridges and monuments; and cultural heritage landscapes.

7.2.1 Consultation Meetings

Following the publication of the Notice of Study Commencement, a site walk meeting was held with DFO and Grand River Conservation Authority (GRCA) on My 29th 2023. GRCA provided input on recommendations of the EA based on GRCA requirements for the floodway. Comments can be found in Appendix I.4.

7.3 Indigenous Consultation

7.3.1 Pre-consultation

The following Indigenous Nations and organizations were invited by email and phone to pre-consultation meetings:

- Haudenosaunee Confederacy Chiefs Council

- Huron-Wendat Nation
- Mississaugas of the Credit First Nation
- Six Nations of the Grand River

The following pre-consultation meetings were held:

- Mississaugas of the Credit First Nation
    - 2020-08-26
    - 2022-09-12
    - 2023-03-28
- Six Nations of the Grand River
    - 2020-08-19
    - 2022-09-20
    - 2022-12-08
    - 2023-02-28

7.3.2 Notice of Request to Consult

The following Indigenous Nations and organizations were provided with a Notice of Request to Consult at the time of study commencement:

- Haudenosaunee Confederacy Chiefs Council
- Huron-Wendat Nation
- Métis Nation of Ontario
- Mississaugas of the Credit First Nation
- Six Nations of the Grand River

The Indigenous Consultation Log can be found in Appendix I.5. Throughout Phases 1-4, Notices and Letters of Request to Consult were sent by email.

8 Timing of Implementation

8.1 Project Schedule

As the Project proceeds into detailed design and Construction, Table 5 presents the anticipated timeline associated with the list of additional studies and proposed construction. For more details refer to the consultation reports in Appendix I.

Table 5: Schneider and Shoemaker Creeks Naturalization Project timeline.

Project Component	Timeline: Phase 1 – Winter 2024/2025 Phase 2 - TBD
Field work • Topographic survey • Subsurface utility exploration • Geotechnical/hydrogeological/soil assessments	Throughout 2024
Detailed design and Permitting • Servicing and Stormwater Management Report • Geotechnical and Soils Report • Hydrogeological Report • Noise and Vibration Report • Preliminary Design Report • Cultural Heritage Report • Engineering Drawings • Submit permit application	Throughout 2024
Construction • Prepare tender documentation • Review tender submissions and select contractor • Initiate Construction • Expected construction completion	Winter 2024 / 2025 Spring 2025 Summer 2025 End of 2026

9 References

Bird Studies Canada, Environment Canada's Canadian Wildlife Service, Ontario Nature, Ontario Field Ornithologists and Ontario Ministry of Natural Resources. (2006). Ontario Breeding Bird Atlas Database, 31 January 2008. Retrieved 2023, from Ontario Breeding Bird Atlas: http://www.birdsontario.org/atlas/aboutdata.jsp?lang=en

City of Kitchener. 2011. City of Kitchener Natural Heritage System Technical Background Report. June 14, 2011.

City of Kitchener. 2014. 2014 Official Plan. https://www.kitchener.ca/en/development-and-construction/official-plan.aspx.

City of Kitchener. 2024. Kitchener OnPoint Map. https://maps.kitchener.ca/OnPointExternal/WebPages/Disclaimer.aspx?ReturnUrl=%2fOnPointExternal%2fRMap%2fDefault.aspx.

City of Kitchener. 2024. Stormwater management. https://www.kitchener.ca/en/water-and-environment/stormwater-management.aspx#Stream-Naturalization.

City of Kitchener. 2024a. Planning around rapid transit (PARTS). https://www.kitchener.ca/en/strategic-plans-and-Projects/planning-around-rapid-transit.aspx#What-is-PARTS.

City of Kitchener. 2024b. Disaster Mitigation and Adaptation Fund Reporting. https://form.kitchener.ca/ins/ops/disaster-mitigation-and-adaptation-fund-reporting.

City of Kitchener. 2024c. Places & Spaces. City of Kitchener Parks Strategy. https://www.kitchener.ca/en/resourcesGeneral/Documents/INS_PARKS_Places_and_Spaces_Foundations.pdf.

DFO (Fisheries and Oceans Canada). 2023. Aquatic Species at Risk Map; Fisheries and Oceans Canada: https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html.

Dobbyn, J. S. (1994). Atlas of the Mammals of Ontario. Federation of Ontario Naturalists.

Google Earth Pro. 2022. Aerial photography available on Google Earth Pro.

Government of Ontario. 2023. O. Reg. 238/09 Species at Risk in Ontario List. Available at: https://www.ontario.ca/laws/regulation/080230

GRCA (Grand River Conservation Authority). 2023. Grand River Information Network (GRIN); General Mapping Application. Available at: https://maps.grandriver.ca/web-gis/public/?theme=General&bbox=407843,4734636,720099,4904886.

Government of Ontario. 2011. *Standards and Guidelines for Consultant Archaeologists*. Toronto: Ministry of Citizenship and Multiculturalism.

Grand River Conservation Authority (GRCA). 2020. Grand Water Resources: State of Water Resources. 2020_01_02_SOWR_Report.pdf (grandriver.ca).

Grand River Conservation Authority (GRCA). 2024. GRCA Flow Summary. https://apps.grandriver.ca/waterdata/kiwischarts/rf_flowsummary.aspx#gsc.tab=0.

IQ Air. 2024. Air Quality in Kitchener. https://www.iqair.com/ca/canada/ontario/kitchener.

MECP (Ministry of Environment Conservation and Parks). 2024. Source Protection Information Atlas. https://www.lioapplications.lrc.gov.on.ca/SourceWaterProtection/index.html?viewer=SourceWaterProtection.SWPViewer&locale=en-CA.

Ministry of Environment, Conservation, and Parks (MECP). 2024. Considering climate change in the environmental assessment process. https://www.ontario.ca/page/considering-climate-change-environmental-assessment-process.

MMM. January 2016. Update of Schneider Creek Floodplain Mapping & Two-Zone Policies, Stirling Avenue to Sydney Street.

MNRF (Ministry of Natural Resources and Forestry). 2023a. Ontario GeoHub, Land Information Ontario (LIO) database. Online: https://geohub.lio.gov.on.ca/. Accessed June 2023.

MNRF (Ministry of Natural Resources and Forestry). 2023b. Natural Heritage Information Centre (NHIC) database. Online: https://www.lioapplications.lrc.gov.on.ca/Natural_Heritage/index.html?viewer=Natural_Heritage.Natural_Heritage&locale=en-CA. Accessed June 2023.

Municipal Engineers Association (MEA). 2023. Municipal Class Environmental Assessment.

Ontario Nature. (2020). Ontario Reptile and Amphibian Atlas: a citizen science Project to map the distribution of Ontario's reptiles and amphibians. (O. Nature, Producer) Retrieved July 2023, from Ontario Reptile & Amphibian Atlas: https://www.ontarioinsects.org/herp/

Statistics Canada (Statistics Canada). 2023. (table). *Census Profile*. 2021 Census of Population. Statistics Canada Catalogue no. 98-316-X2021001. Ottawa. Released November 15, 2023. https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm?Lang=E. (accessed January 19, 2024).

Appendices

Appendix A Summary of Natural Features Report

Stantec

Memo

To:	Steve Brown and Heather Amirault Stantec, Waterloo Office	From:	Nancy Harttrup and Jen Randall Stantec, Waterloo Office
Project/File:	161414319	Date:	March 1, 2024

Reference: Schneider Creek and Shoemaker Creek Naturalization Municipal Class Environmental Assessment – Summary of Natural Features

The following information was prepared to summarize existing conditions with respect to natural heritage features in the Study Area associated with the Schneider Creek and Shoemaker Creek Naturalization Municipal Class Environmental Assessment (Figure 1, attached).

1 Methods

Background Data Collection

Background data were retrieved and reviewed from the following sources:

- Ministry of Natural Resources and Forestry's (MNRF) Ontario GeoHub (MNRF 2023a)
- MNRF's Natural Heritage Information Centre (NHIC) database (MNRF 2023b)
- Fisheries and Oceans Canada's (DFO) Aquatic Species at Risk Map (DFO 2023)
- City of Kitchener's Natural Heritage System Technical Background Report (City of Kitchener 2011)
- The Grand River Information Network on-line map application (GRCA 2023)
- Atlas of the Mammals of Ontario (Dobbyn 1994)
- Ontario Reptile and Amphibian Atlas (Ontario Nature 2020)
- Ontario Breeding Bird Atlas (Bird Studies Canada, Environment Canada's Canadian Wildlife Service, Ontario Nature, Ontario Field Ornithologists and Ontario Ministry of Natural Resources, 2006)
- Species at Risk in Ontario (SARO) list (Government of Ontario 2023)
- Aerial photographs available on Google Earth Pro (Google Earth Pro 2022)

Results of the background data collection and review are discussed in Section 2.

Field Investigations

Field investigations were scoped in consideration of the urban setting and absence of natural features in the Study Area and consisted of a bat maternity habitat assessment and general fish habitat assessment, as follows:

- April 14, 2023 – A bat habitat assessment (for maternity habitat) was conducted at specific trees identified during the tree inventory completed by arborists from Stantec's Landscape Architect team. Trees that were assessed on April 14, 2023, for potential as bat maternity roost trees had the following characteristics:
  - large diameter at breast height (DBH)
  - cavities, cracks, signs of decay and/or peeling bark.
- May 29, 2023 –Habitat conditions in Schneider Creek and Shoemaker Creek were assessed and photographed during a site meeting attended by Stantec's project team, DFO and Grand River Conservation Authority (GRCA) staff.

Given the highly developed nature of the Study Area and the availability of background data and reports, additional inventories or wildlife surveys were not included in the scope of work with respect to natural heritage features for the project.

2 Results

Terrestrial Ecosystems

The NHIC database and the *City of Kitchener Natural Heritage System Technical Background Report* (City of Kitchener 2011) do not identify wetlands, woodlands, or significant landforms in the Study Area. The City of Kitchener has identified Schneider Creek as a Locally Significant Valleyland for future restoration (City of Kitchener 2011).

The background data search identified 13 species at risk (SAR) that have been recorded in the vicinity of the Study Area (Table 1). The bird and reptile SAR identified in the background data are not expected to inhabit the Study Area due to the lack of suitable habitat. Stantec conducted the bat maternity roost survey to assess potential bat habitat in the Study Area.

Table 1: SAR Records in the Schnieder Creek and Shoemaker Creek Study Area[1]

Common Name	Scientific Name	S-Rank[2]	SARO Status
BIRDS			
Bobolink	*Dolichonyx oryzivorus*	S4B	THR
Loggerhead Shrike	*Lanius ludovicianus*	S1B	END
Barn Swallow	*Hirundo rustica*	S4B	THR
Eastern Meadowlark	*Sturnella magna*	S4B, S3N	THR
Bank Swallow	*Riparia riparia*	S4B	THR
Chimney Swift	*Chaetura pelagica*	S3B	THR

Reference: Schneider Creek and Shoemaker Creek Naturalization Municipal Class Environmental Assessment – Summary of Natural Features

Table 1: SAR Records in the Schnieder Creek and Shoemaker Creek Study Area[1]

Common Name	Scientific Name	S-Rank[2]	SARO Status
Red-headed Woodpecker	*Melanerpes erythrocephalus*	S3	END
Northern Bobwhite	*Colinus virginianus*	S1?	END
REPTILES			
Blanding's Turtle	*Emydoidea blandingii*	S3	THR
MAMMALS			
Eastern Small-footed Myotis	*Myotis leibii*	S2S3	END
Little Brown Myotis	*Myotis lucifugus*	S3	END
Northern Myotis	*Myotis septentrionalis*	S3	END
Tricolored Bat	*Perimyotis subflavus*	S3?	END

[1] Records from background data sources listed in Section 1

[2] Subnational Rank (S-Rank) is the conservation status of a species or plant community in the province; rank definitions available at: Conservation Status Categories | NatureServe Explorer.

A tree inventory of the Study Area was completed by Stantec Arborists and included the categorization of the quality of groupings of trees as High, Medium, and Low. Designations were applied to groupings of treed areas (Figure 1). Results of the tree quality assessment and tree inventory are available in Stantec's project files.

Ten trees were identified in the Study Area that provide suitable bat maternity roost habitat (Figure 1). An additional seven trees were identified adjacent to the Study Area that also provide suitable bat maternity roost habitat. These trees were all deciduous, and included Black Walnut (*Juglans nigra*), Siberian Elm (*Ulmus pumila*), White Willow (*Salix alba*), Silver Maple (*Acer saccharinum*) and Norway Maple (*A. platanoides*). The trees had a large DBH (i.e., >25 cm), and had cavities and/or peeling bark.

Fish and Fish Habitat

Schneider Creek and Shoemaker Creek have a warmwater thermal regime (MNRF 2023a; GRCA 2023) and permanent flow regime (MNRF 2023a). Fish species documented in the watercourse are summarized in Table 2. There are no records of aquatic SAR in Schneider Creek or Shoemaker Creek (MNRF 2023b; DFO 2023). The upstream end of the Study Area is located approximately 1 km downstream of the outlet of Victoria Park Lake, which is a barrier to upstream fish passage.

Reference: Schneider Creek and Shoemaker Creek Naturalization Municipal Class Environmental Assessment – Summary of Natural Features

Table 2: Fish Community Data from Schneider Creek and Shomaker Creek (MNRF 2023a)

Species	Watercourse, Year, and Location		
	Schneider Creek (2020 data) 1 km downstream of Sydney Street:	**Schneider Creek (2012 data) 1 km upstream of Stirling Avenue**	**Shoemaker Creek (2019 data) 750 m upstream of Courtland Avenue**
Blacknose Dace *(Rhinichthys atratulus)*	✓	✓	✓
Bluntnose Minnow *(Pimephales notatus)*	✓	-	-
Brook Stickleback *(Culaea inconstans)*	✓	-	✓
Common Carp *(Cyprinus carpio)*	✓	-	✓ (carps and minnows)
Common Shiner *(Luxilus cornutus)*	✓	-	-
Creek Chub *(Semotilus atromaculatus)*	✓	✓	✓
Fathead Minnow *(Pimephales promelas)*	✓	✓	-
Longnose Dace *(Rhinichthys cataractae)*	-	-	✓
Pumpkinseed *(Lepomis gibbosus)*	✓	-	✓
Rock Bass *(Ambloplites rupestris)*	✓	-	
White Sucker *(Catostomus commersonii)*	-	-	✓

Within the Study Area, Schneider Creek and Shoemaker Creek are concrete trapezoidal channels. The creek bottom is flat, with no structure to provide cover for fish and no natural pool / riffle morphology. An area of gravel on the concrete bottom was present near the downstream end of the Study Area. Some portions of Schneider Creek receive partial shade due to trees located at the top of the channel walls; however, most of the surface water of the creek is not shaded. Within the Study Area, there are several elevation drops in Schneider Creek that may restrict upstream fish passage, particularly during periods of low water.

Despite the low-quality habitat in Schneider Creek and Shoemaker Creek, schools of small fish and a Great Blue Heron were observed during Stantec's May 29, 2023, field investigation. Habitat availability is dependent on the water level, as the margins of the channel can be dry during low water. In the absence of cover structure or backwater areas (as observed during the field investigation) to provide channel roughness and flow breaks, small-bodied fish likely become displaced to downstream habitat when water velocity increases under high flow conditions.

3 Preferred Alternative

Four alternatives for the treatment of the existing concrete channels were developed and examined during the EA process. These included:

- Alternative 1 – Do Nothing
- Alternative 2 – Concrete Channel with Naturalized Valley Bottom
- Alternative 3 – Natural Channel with Retaining Structure at One or Both Valley Walls
- Alternative 4 – Natural Channel and Valley

Through the analysis of the treatment alternatives, Alternative 4 with full naturalization of the channels and their valleys within the Project Area was determined to be preferred for several criteria:

- It represented the greatest opportunity to include targeted aquatic and terrestrial habitats over the largest area of potential naturalization through grading and planting plans, allowing for increased habitat diversity that results in greater biodiversity overall.

- It had the highest potential to improve flooding conditions in downstream areas, while also providing enhancement of stormwater treatment, flexibility for future infrastructure improvements (i.e., road crossings, added stormwater controls, etc.), and the greatest opportunity for additional greenspace and habitat improvements in a cumulative fashion.

- In addition to the ecological and functional benefits of full channel and valley naturalization, it will be the most aesthetically beneficial alternative given the removal of the unsightly concrete and replacement with naturalized vegetation, thus softening the corridor and promoting connection with natural environments through access opportunities that are in conformance with municipal planning objectives.

4 Potential Impacts and Mitigation

The project will require removal of the entire concrete channel structure, including its angular sidewalls, and replacement of the hardened corridor with a naturalized low flow channel contained within a 70 m wide naturalized valley corridor. The low flow channel will be designed and constructed using natural channel design principles and will include a meandering form featuring a variety of physical features such as riffle and pool bed features, a variety of wood channel structures, and vegetated channel banks and riparian areas. These physical elements will function as ecological habitat features in addition to their guidance of stream flow mechanics. Existing fish passage barriers that are related to lack of flow depth (i.e., sheetflow over concrete) and elevation drops are expected to be mitigated through the design of these habitat features. The entire corridor will be naturalized using native vegetation that is typical to the area. A multi-use trail and various access and outlook locations will be incorporated into the design to allow for human access and interaction with the natural environment.

From a direct impact perspective, the project as a whole is seen as a beneficial and positive impact; however, during demolition and reconstruction, there is the potential for temporary impacts to occur. These impacts can be reduced by employing key mitigation approaches that will become more detailed and specific when detailed design of the preferred alternative is completed.

Reference: Schneider Creek and Shoemaker Creek Naturalization Municipal Class Environmental Assessment – Summary of Natural Features

Potential indirect effects to natural heritage features include construction phase activities such as inadvertent encroachment of heavy equipment, siltation and/or spills of deleterious substances, noise, and dust migration. These impacts may alter existing species communities by introducing substances that could be harmful to vegetation and wildlife, such as sediment and fuel used by construction vehicles. Where they occur, these impacts are expected to be localized to the construction area and immediate adjacent areas.

These potential indirect effects are common to various types of construction and can be controlled using standard mitigation measures for erosion and sediment control. The following provides some general guidance on mitigation approaches that can be considered for the future detailed design.

General Mitigation

- Demolition and construction shall be phased to allow for the efficient management of water flow and site management with respect to sediment and erosion control
- Construction fencing shall be installed to delineate the project construction areas prior to the start of construction, after layout, and shall be reviewed by an engineer
- Equipment shall be re-fueled as great a distance as possible from natural features to avoid potential impacts in the event that an accidental spill occurs
- A containment and spill management plan shall be implemented to reduce the risk of deleterious substances entering the watercourses
- An emergency spill kit shall be kept on site at all times
- Construction machinery shall be cleaned prior to entering the site at construction start-up to reduce the potential for establishment of invasive species, such as *Phragmites*, that may have been encountered by the machinery on a previous site location

General Sediment and Erosion Control

- Appropriate erosion and sediment controls shall be employed during all phases of construction to reduce erosion and sediment transport to downstream areas the extent possible
- Silt fencing shall be used along all construction areas adjacent to natural features to prevent sediment migration. No equipment will be permitted to enter natural features beyond the fencing
- Materials requiring stockpiling (fill, topsoil, etc.) shall be stabilized and kept outside of the channel valley corridor
- Erosion and sediment control materials (silt fence, strawbales, clear stone) are to be kept on site for emergencies and repairs
- Erosion and sediment controls shall be monitored and maintained, as required. Controls are to be removed only after the soils of the construction area have been stabilized and adequately protected until cover is re-established
- Conditions of the anticipated GRCA permit under Ontario Regulation (O. Reg.) 150/06 shall be followed during all activities

Reference: Schneider Creek and Shoemaker Creek Naturalization Municipal Class Environmental Assessment – Summary of Natural Features

Aquatic Habitat Impacts and Mitigation

The existing concrete channel provides limited habitat opportunities due to its homogeneous composition, lack of diverse physical features and minimal flow depth during low flow periods. Regardless, fish were observed in some areas of the channel during site investigations and the agency site walk in 2023. Therefore, in addition to the general mitigation items outlined above, some precautions must be taken during demolition and construction to avoid impacts to resident fish populations within, and downstream of, the Project Area. The following is a preliminary list of mitigation considerations:

- Avoid in-water work during the restricted activity period for spring spawning fish species in the MNRF's Southern Region (i.e., no in-water work from March 15 to July 15)
- The contractor shall monitor the five-day weather forecast on a daily basis to anticipate weather conditions and shall be prepared to leave the site in a stable and secure condition should water levels rise
- Prior to instream construction activity, fish shall be rescued from the isolated work areas by implementing a fish removal and relocation plan to be conducted by qualified aquatic biologists in accordance with the conditions of a Licence to Collect Fish for Scientific Purposes
- During dewatering of in-water work areas the dewatering pump inlet shall be covered with filter fabric or clear stone. Water from dewatering and unwatering operations shall be directed to a sediment control measure such as a sediment bag, trap and/or a vegetated discharge as far as practical from the top of bank of any waterbody, prior to discharge to the natural environment. No dewatering shall be sent directly to a sewer. These control measures shall be monitored for effectiveness and maintained or revised to meet the objective of reducing the risk of the entry of sediment into the watercourse
- All water intakes used to dewater area(s) that may contain fish shall be screened to reduce the risk of the impingement and entrainment of fish as per DFO's *Interim Code of Practice: End-of-Pipe Fish Protection Screens for Small Water Intakes in Freshwater*

Wildlife Impacts

Wildlife habitat is scarce throughout the existing channels and valleys and relegated primarily to small groupings of trees and scattered pockets of vegetation throughout the corridor. Resident habitat for SAR is absent. Nevertheless, some wildlife use of the existing vegetation is expected, and wildlife may also move through the concrete channel in search of foraging opportunities or to find larger patches of vegetation. There is the potential for some habitat disturbance or encounters with wildlife during construction activities, and the following are preliminary mitigation considerations:

- Provide contractor employees with sensitivity education for on-site wildlife encounters and instructions on procedures to follow if wildlife is encountered during demolition and/or construction
- Schedule construction activities during daylight hours whenever practicable to minimize the need for staging lights. The use of site flood lighting during key bat migration periods (i.e., April to May and late August through October) shall be avoided or limited to the extent possible

- Retain natural habitat features such as wildlife trees wherever possible and practical
- Implement speed limits on internal roads
- Implement wildlife-friendly exclusion fencing in areas undergoing active demolition/construction to avoid interactions between wildlife and construction equipment traffic
- Conduct daily wildlife sweeps prior to construction start-up for the day to determine if any wildlife avoidance or rescue efforts are required
- In accordance with the *Migratory Birds Convention Act,* 1995 (MBCA), the loss of migratory bird nests, eggs and/or nestlings due to tree cutting or other vegetation clearing shall be avoided by limiting clearing of vegetation to outside of the general nesting period for migratory birds in this region (C2) as identified by Environment and Climate Change Canada (ECCC) (i.e., between April 1 and August 31). If work must be performed within this window, a survey for active nests or breeding activity shall be conducted by a qualified biologist before work commences and additional mitigation measures (e.g., implementation of avoidance distances during construction) employed, as required
- Approximately 10 trees that provide potential bat maternity habitat will be removed. A Notice of Activity registration under Ontario Regulation 242/08 of the provincial *Endangered Species Act* (ESA) shall be prepared and submitted as the works are considered to be an enhancement or restoration of an ecosystem native to Ontario. To reduce the likelihood of harm to bats, it is recommended that trees > 10 cm diameter at breast height (DBH) be removed outside the period that includes bat maternity roost season, rearing and movement out of the habitat. Tree removal is therefore recommended to occur outside of the period from May 1 to October 1. If tree clearing is required within this window, maternity exit surveys may be conducted prior to the tree removals to determine if bats are using the trees

5 Permits and Timing Windows

Permits

With respect to natural heritage features, the following legislation is applicable to the Schneider Creek and Shoemaker Creek Naturalization project:

Endangered Species Act, 2007 (ESA)

Due to the need for the removal of approximately 10 trees that provide potential bat maternity habitat, Stantec recommends the preparation and submission of a Notice of Activity registration under Ontario Regulation 242/08 of the ESA.

The current scope of work does not include the completion of a Notice of Activity registration or other tasks related to the ESA permitting process. Protection and mitigation measures shall be summarized in a mitigation plan for the work and the measures included in the contract documents.

Reference: Schneider Creek and Shoemaker Creek Naturalization Municipal Class Environmental Assessment – Summary of Natural Features

Fisheries Act

The City of Kitchener is currently re-negotiating the terms of their existing habitat bank with DFO. Under the existing habitat banking agreement, the City must apply for a Fisheries Act authorization to obtain habitat credits for a project. The extent of habitat credits that may be gained by the project will be dependent on the terms of the revised habitat bank and the final design of the project.

Migratory Birds Convention Act

There is no permitting requirement under the *Migratory Birds Convention Act* (MBCA); however, protection and mitigation measures that will comply with the MBCA shall be included in the contract documents. The measures shall outline the timing of vegetation clearing and criteria for nest sweeps.

Timing Windows

During detail design, mitigation measures shall be incorporated into contract documents to protect fish, fish habitat, bats, and migratory birds. The following construction timing windows are applicable to the project and shall be incorporated into contract documents and the construction schedule:

Tree clearing (to comply with the MBCA and SAR bats under the ESA):

- No tree clearing between March 15 and the end of September (inclusive). Clearing of confirmed bat habitat trees is subject to establishing replacement bat habitat (e.g., Rocket boxes) prior to the active bat season April 1.

In-water work (to protect fish and fish habitat):

- No in-water work between March 15 and July 15 (inclusive).

Regards,

STANTEC CONSULTING LTD.

Digitally signed by Harttrup, Nancy
Date: 2024.03.01 14:47:51 -05'00'

Nancy Harttrup, B.Sc.
Senior Fisheries Biologist
Phone: (519) 585-7329
Mobile: (226) 339-7401
nancy.harttrup@stantec.com

Digitally signed by Randall, Jennifer
Date: 2024.03.01 14:40:21 -05'00'

Jennifer Randall, B.Sc., MES
Terrestrial Ecologist
Phone: (519) 585-7462
Mobile: (226) 791-3744
jennifer.randall@stantec.com

Attachment: Figure 1 – Existing Conditions - Ecosystems

6 References

Bird Studies Canada, Environment Canada's Canadian Wildlife Service, Ontario Nature, Ontario Field Ornithologists and Ontario Ministry of Natural Resources. (2006). Ontario Breeding Bird Atlas Database, 31 January 2008. Retrieved 2023, from Ontario Breeding Bird Atlas: http://www.birdsontario.org/atlas/aboutdata.jsp?lang=en

City of Kitchener. 2011. City of Kitchener Natural Heritage System Technical Background Report. June 14, 2011 (Revised June 2014).

DFO (Fisheries and Oceans Canada). 2023. Aquatic Species at Risk Map; Fisheries and Oceans Canada: https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html. Accessed October 13, 2023.

Dobbyn, J. S. (1994). Atlas of the Mammals of Ontario. Federation of Ontario Naturalists.

Google Earth Pro. 2022. Aerial photography available on Google Earth Pro.

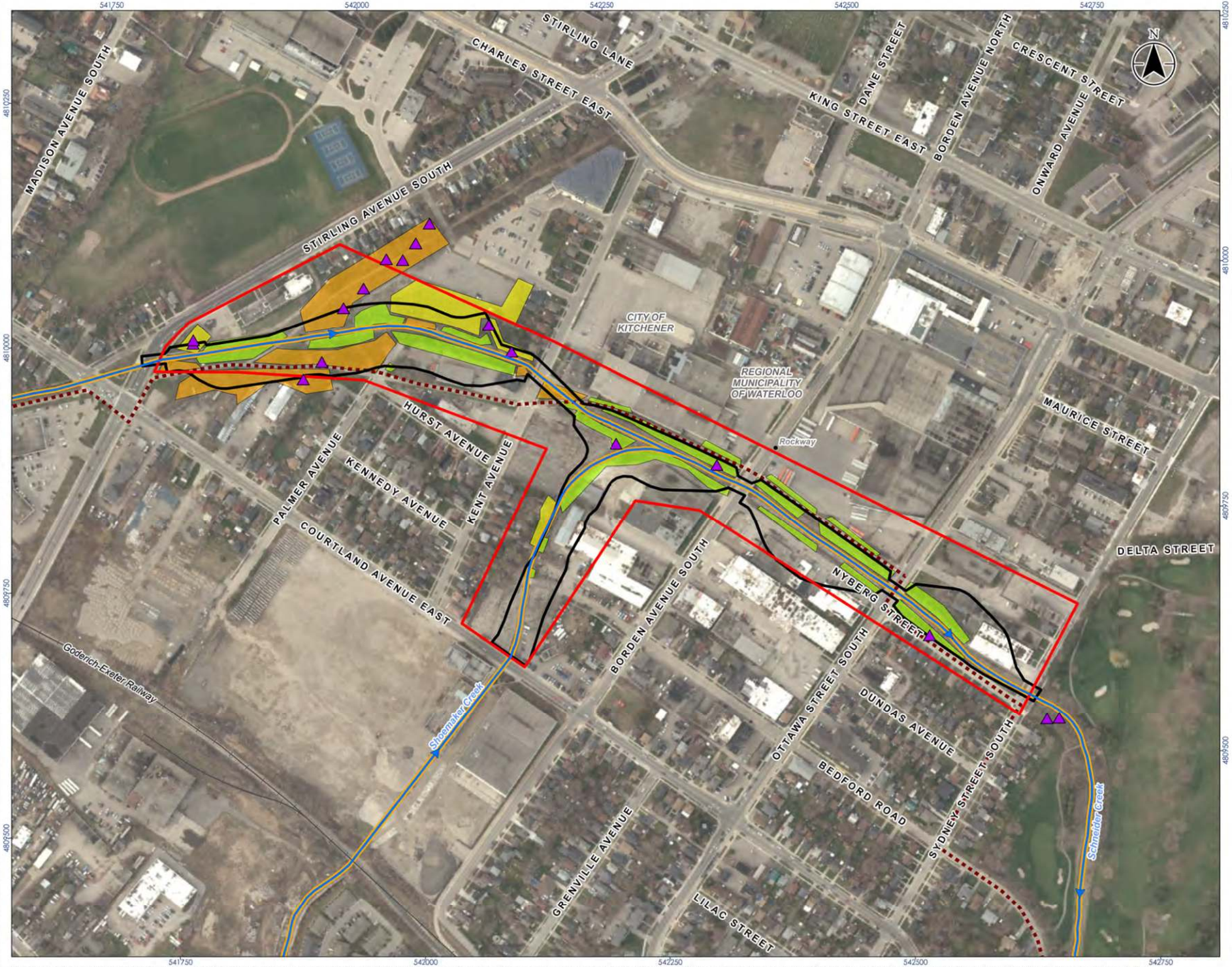
Government of Ontario. 2023. O. Reg. 238/09 Species at Risk in Ontario List. Available at: https://www.ontario.ca/laws/regulation/080230

GRCA (Grand River Conservation Authority). 2023. Grand River Information Network (GRIN); General Mapping Application. Available at: https://maps.grandriver.ca/web-gis/public/?theme=General&bbox=407843,4734636,720099,4904886

MNRF (Ministry of Natural Resources and Forestry). 2023a. Ontario GeoHub, Land Information Ontario (LIO) database. Online: https://geohub.lio.gov.on.ca/. Accessed June 2023.

MNRF (Ministry of Natural Resources and Forestry). 2023b. Natural Heritage Information Centre (NHIC) database. Online: https://www.lioapplications.lrc.gov.on.ca/Natural_Heritage/index.html?viewer=Natural_Heritage.Natural_Heritage&locale=en-CA. Accessed June 2023.

Ontario Nature. (2020). Ontario Reptile and Amphibian Atlas: a citizen science project to map the distribution of Ontario's reptiles and amphibians. (O. Nature, Producer) Retrieved July 2023, from Ontario Reptile & Amphibian Atlas: https://www.ontarioinsects.org/herp/



Stantec

Legend

- Study Area
- Potential Bat Habitat
- Iron Horse Trail
- Flow Direction
- Railway
- Thermal Regime, Warm
- Watercourse (Permanent)
- Construction Footprint (approximate)

Tree Quality (by area)

- High Quality
- Medium Quality
- Low Quality

0 100 200 Meters

1:4,000 (At original document size of 11x17)

Notes

1. Coordinate System:NAD 1983 UTM Zone 16N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2024.
3. Orthoimagery © First Base Solutions, 2024. Imagery Date: 2022.

Project Location
City of Kitchener

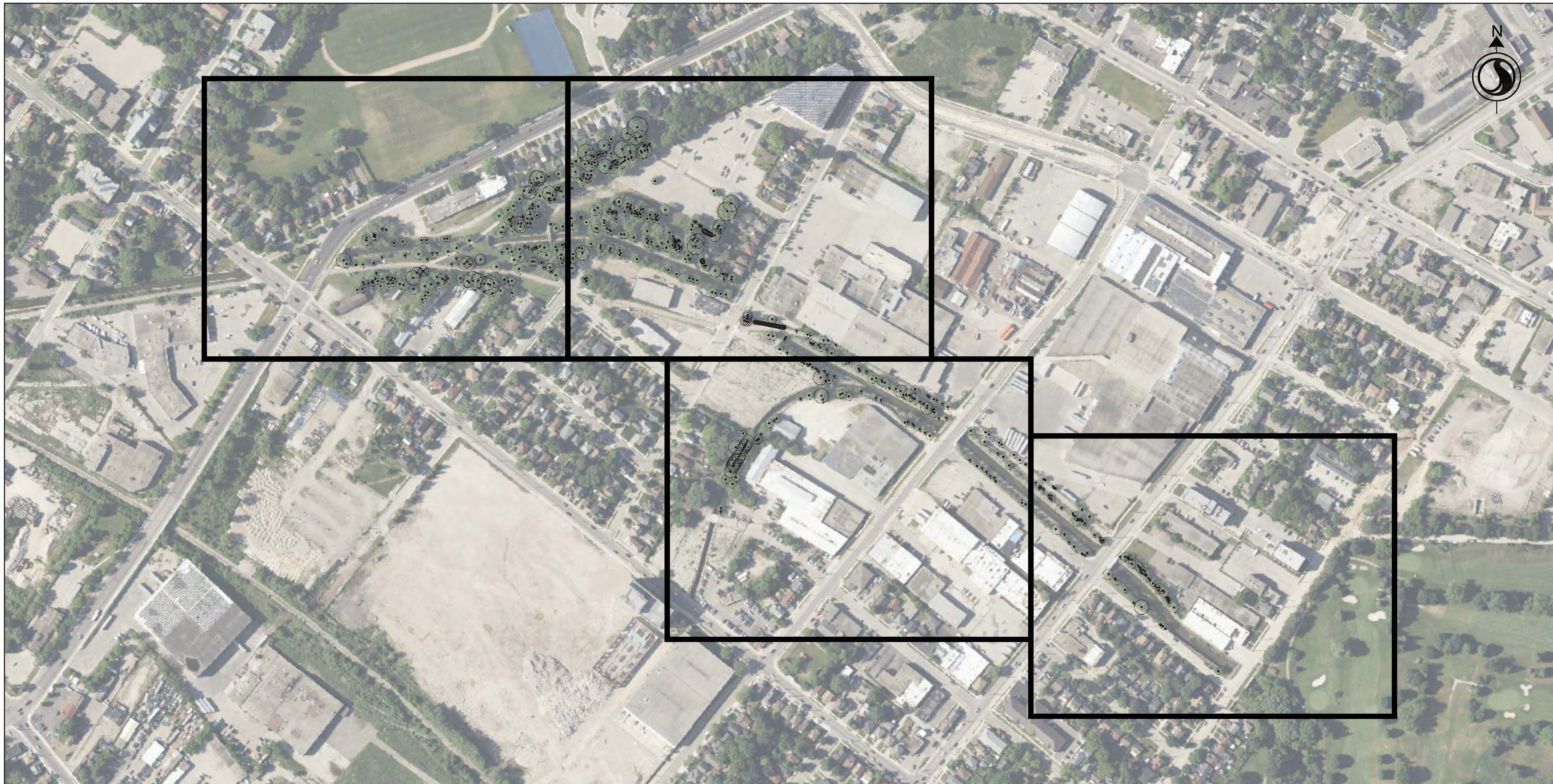
161414319 REVA
Prepared by bakaur on 2024-01-08
Technical Review by AW on 2024-01-08

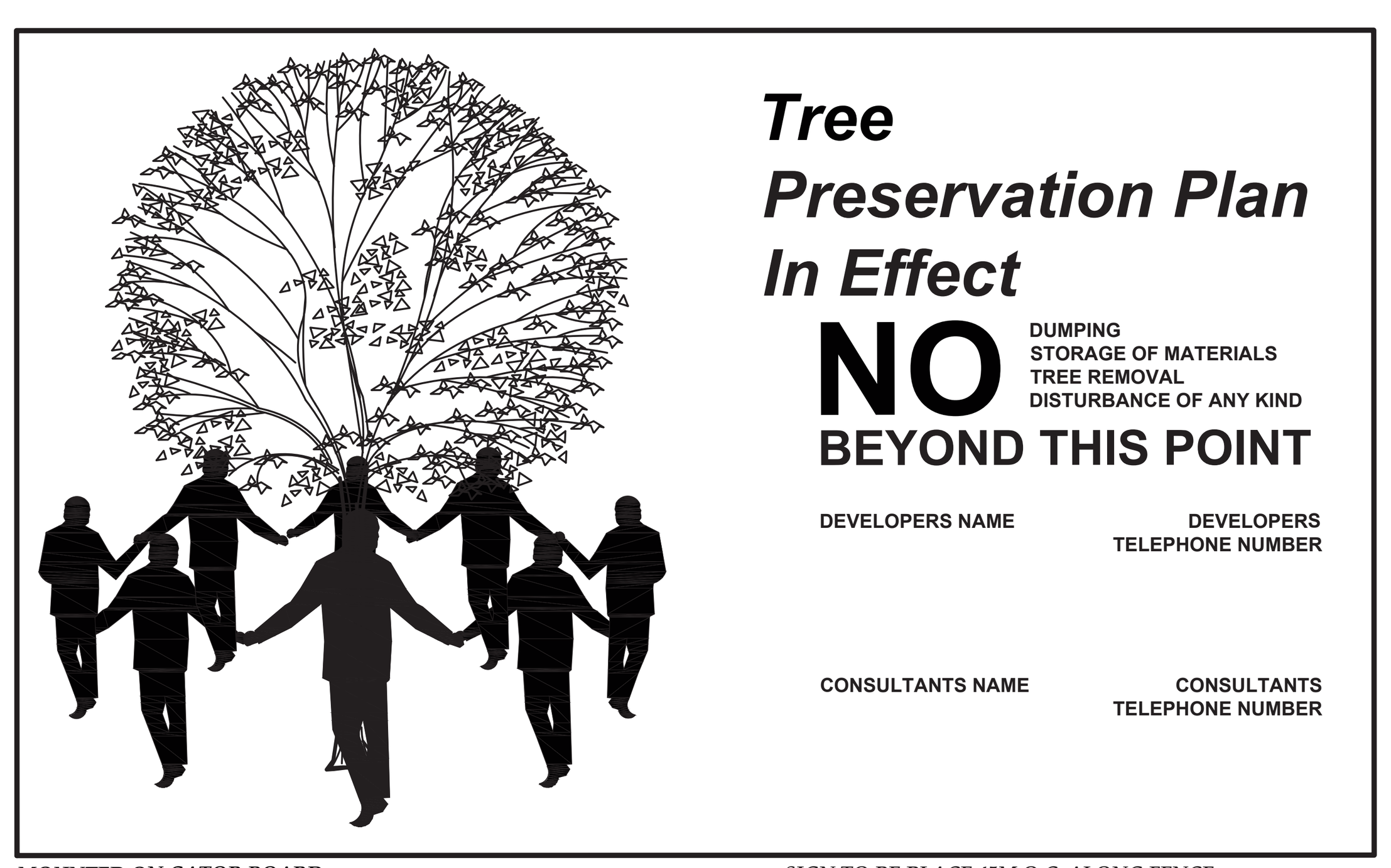
Client/Project
CITY OF KITCHENER
SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION

Figure No.
1

Title
Existing Conditions - Ecosystems

Appendix B Tree Management Plan

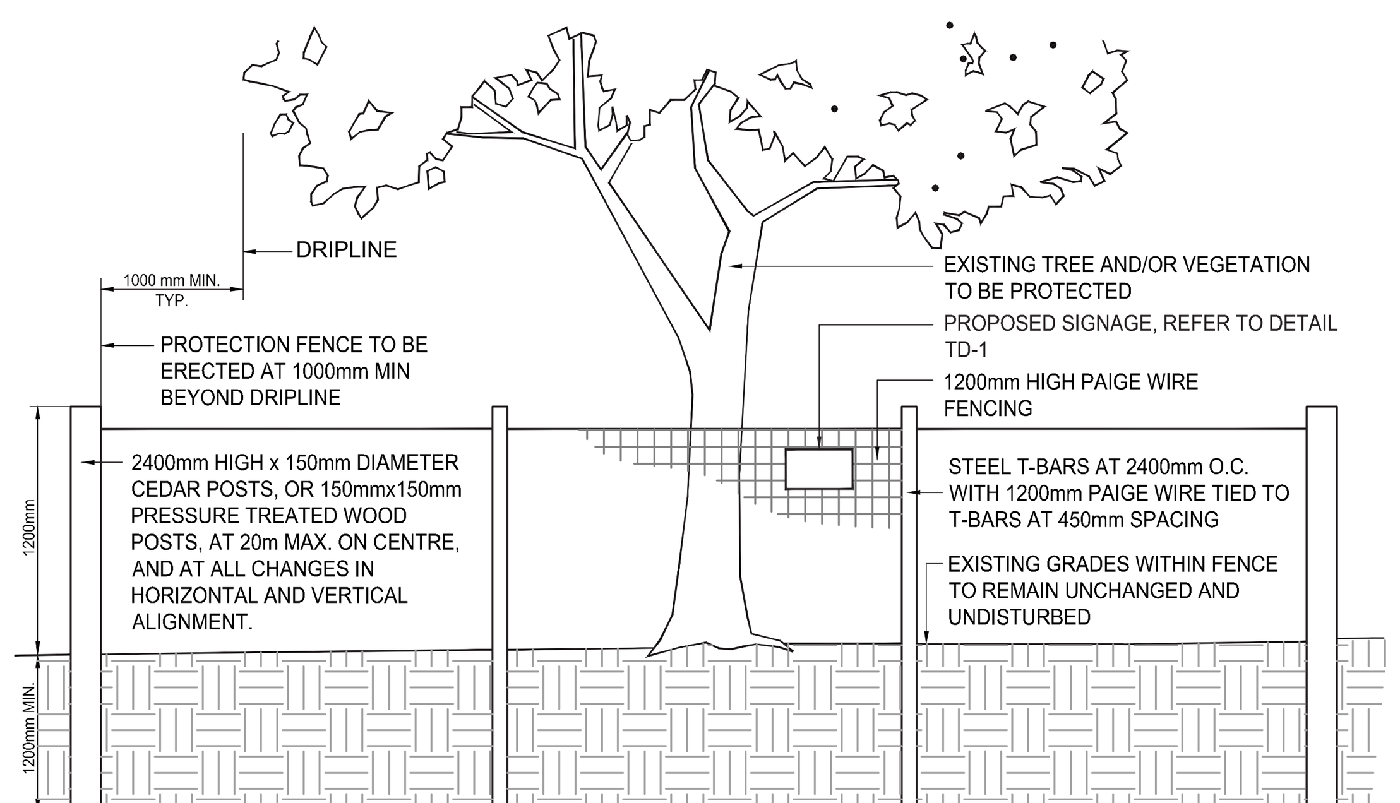




MOUNTED ON GATOR BOARD
MINIMUM SIZE 11" X 17"

SIGN TO BE PLACE 45M O.C. ALONG FENCE
SECURED WITH OUTDOOR PLASTIC LOCKING TIE-WRAPS

TD 1 — PROPOSED TREE PROTECTION SIGNAGE
N.T.S.



NOTES:

1. ATTACHMENT OF FENCE TO TREES WILL NOT BE PERMITTED.

2. ANY EXPOSED ROOTS ARE TO BE HAND PRUNED USING PROPER ARBORICULTURAL PRACTICES.

3. UNDER NO CIRCUMSTANCES SHALL ANY CONSTRUCTION MATERIALS, EQUIPMENT OR VEHICLES BE PLACED WITHIN THE TREE PROTECTION ZONE.

4. ALL TREE PROTECTION TO BE ERECTED PRIOR TO ANY CONSTRUCTION ACTIVITY AND IS TO REMAIN IN PLACE UNTIL ALL CONSTRUCTION HAS BEEN COMPLETED. OBTAIN WRITTEN APPROVAL FROM CONTRACT ADMINISTRATOR PRIOR TO REMOVAL OF FENCING.

TD 2 — PROPOSED TREE PROTECTION FENCING
N.T.S.

GENERAL

1. The Tree Management/Preservation Plan is to be read in conjunction with the associated Arborist Report and shall not be utilized as a standalone document.

TREE PROTECTION FENCING

1. The Contractor shall install Tree Protection Fencing (TPF) to protect trees identified for preservation.
2. All TPF will conform with the Arborist Report and detail(s) included on these plans. Where current governing Municipal/City standards differ, contact Project Arborist or Contract Administrator for direction.
3. No substitutions of materials, products or quantities will be accepted without the prior written permission of the Project Arborist.
4. Upon installation of the TPF, the Contractor shall contact the Project Arborist to review and approve the fencing and location(s) in writing prior to commencement of any site work.
5. The TPF shall remain in the approved locations throughout the duration of the site works and shall not be moved at any time to accommodate construction or site work.
6. The Contractor shall inspect TPF weekly and maintain as required through all stages of development/construction. The TPF shall be removed at the completion of all site works and disturbed areas shall be restored to original condition.

TREE PRESERVATION

1. The Tree Protection Zone (TPZ) is protected and delineated by the TPF or as otherwise defined in the approved Arborist Report. The Contractor is not to proceed in uncertainty.
2. Any potential or incurred injury/damage to adjacent tree(s) identified to be preserved shall be immediately reported to the Project Arborist and reviewed on site. Injury/damage includes any required arboricultural treatment including but not limited to: limb pruning, trunk damage, root exposure or required cutting/removal or any other activity that has the potential to harm the tree.
3. The TPZ is not to be used for any type of storage including materials, equipment or stockpiles.
4. No trenching or tunneling for underground services shall occur within the TPZ.
5. Any equipment use within the TPZ will be restricted throughout all stages of development. This applies to TPZs within or outside of the project limit line.
6. Absolutely no alteration of grades or construction activity is permitted within the TPF and TPZ. Absolutely no flushing of contaminant shall be permitted towards or within the TPZ.
7. When working adjacent to trees to be preserved site preparation measures such as pruning for overhead clearance may be required. Preparatory pruning shall only be performed when completed by or under the direct supervision of an ISA Certified Arborist (or approved qualified person as approved by the Project Arborist).
8. All pruning work shall be performed by a qualified individual and shall be in accordance with current horticultural practices including but not limited to:
   a. Pruning cuts shall be made just beyond the branch collar and should be limited to thinning cuts. Heading cuts will only be accepted in specific cases as directed by an arborist and should be avoided where possible.
   b. Pruning of all stems greater than 50 mm in diameter should be made with a three-cut method to avoid tearing living bark tissue.
   c. No wound dressings shall be applied.

16. Where soil excavation/grading work is required within the rooting zone of a tree to be preserved (the rooting zone often extends beyond the identified TPZ and can be 3 times the dripline radius or more):
   a. Roots shall be cleanly severed before stripping and removing soil to avoid damage to the tree and the root system. Roots to be cut using appropriate equipment (i.e. trencher adapted to this specific use/chainsaw/root pruning machine). Roots may be severed using the clean edge of a straight excavator bucket under supervision of an ISA Certified Arborist.
   b. No attempts to cut existing roots with the digging bucket of any heavy machinery will be permitted as it can cause the roots to tear and pull and be harmful to root regeneration and recovery.
   c. Any exposed roots of a tree to be preserved with a diameter greater than 2.5cm (1 inch) shall be pruned back to the soil face.
   d. An excavation area within the TPZ shall be backfilled immediately and/or roots shall be kept constantly moist with burlap covered with white plastic and checked a minimum of 2 times a day, for a maximum of 48 hours. If roots are to be exposed for a period greater than 48 hours, the exposed area shall be covered with a minimum of 150 mm (6 inches) of mulch and maintained in a moist condition during construction until the area can be properly backfilled.

17. Trees shall not have any rigging cables, fencing, signage or hardware of any sort attached or wrapped around them.
18. No contaminants or toxic materials shall be dumped or flushed where they may come into contact with the feeder roots of trees to be preserved.
19. The Contractor will be held responsible for all avoidable damage to preserved trees during all stages of construction.
20. Watering or other maintenance of trees to be preserved may be required if construction activities are observed to be causing stress or impacting health as determined by the Project Arborist.

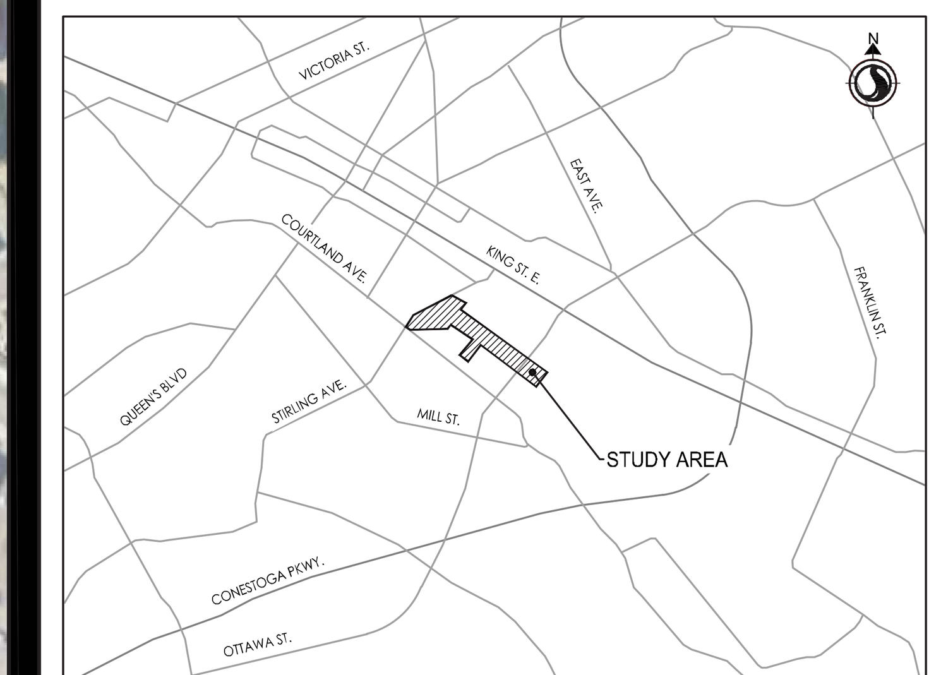
TREE REMOVALS

1. Prior to the commencement of tree removals, all trees designated for removal must be clearly identified in the field.
2. Where possible, removals, chipping, and/or brush removal is to be completed outside of migratory bird nesting season from April 1 to August 31. If removals are to occur within the restricted activity period, due diligence measures, including pre-clearing nest sweeps will be employed to reduce risk to nesting birds protected under the Migratory Birds Convention Act, 1994 and Migratory Birds Regulations. These surveys must be completed by a qualified biologist or ornithologist.
3. Trees shall always be felled away from adjacent preserved trees to prevent avoidable damage to the crowns and stems

Stantec

Stantec Consulting Ltd.
100-300 Hagey Boulevard
Waterloo ON N2L 0A4
Tel: (519) 579-4410
www.stantec.com

Key Map NTS.



Legend

- Existing Deciduous Tree
- Existing Coniferous Tree
- 0000 — Tree to be Retained and Protected Identification Tag
- 0000 — Tree to be Removed Identification Tag
- Proposed Tree Protection Fencing
- Existing Vegetation Unit to be Retained and Protected
- Existing Vegetation Unit to be Removed
- Dead Standing Tree

Revision/Issue	By	Appd	YYYY.MM.DD
ISSUED FOR CLIENT REVIEW	JL	TH	2023.05.02

File Name: 161414319_L-TM	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD
				2023.05.10

Permit-Seal

CERTIFIED ARBORIST ISA
TED HEAGLE
ON-1740A

Client/Project

CITY OF KITCHENER

DMAF SCHNEIDER CREEK

Kitchener, ON

Title

TREE PRESERVATION PLAN
CONTEXT MAP
DETAILS & NOTES

Project No. 161414319

Scale 1:1500 — 0 15 45 75m

Revision

Sheet 1 of 5

Drawing No. L-900

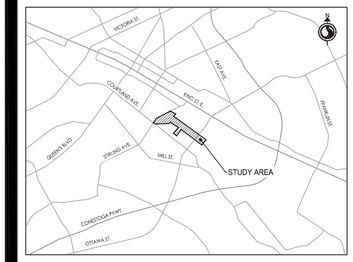
V:\01614\active\161414319\design\drawing\landscape\sheet_files\161414319_L-TM.dwg
5/10/2023 4:15:27 PM By: Legault, Jack

ORIGINAL SHEET - ARCH D

Stantec

Stantec Consulting Ltd.
100-300 Hagey Boulevard
Waterloo ON N2L 0A4
Tel: (519) 579-4410
www.stantec.com

Key Map NTS.



Legend

- Existing Deciduous Tree
- Existing Coniferous Tree
- 0000 Tree to be Retained and Protected Identification Tag
- 0000 Tree to be Removed Identification Tag
- Proposed Tree Protection Fencing
- Existing Vegetation Unit to be Retained and Protected
- Existing Vegetation Unit to be Removed
- Dead Standing Tree
- High Priority
- Medium Priority
- Low Priority

ISSUED FOR CLIENT REVIEW		JL	TH	2023.05.02
Revision/Issue		By	Appd	YYYY.MM.DD
File Name: 161414319_L-TM		Dwn.	Dsgn.	2023.05.10
			Chkd.	YYYY.MM.DD

Permit-Seal

CERTIFIED ARBORIST ISA
TED HEAGLE
ON-1740A

Client/Project
CITY OF KITCHENER

DMAF SCHNEIDER CREEK

Kitchener, ON

Title
TREE PRESERVATION PLAN
STIRLING AVENUE SOUTH

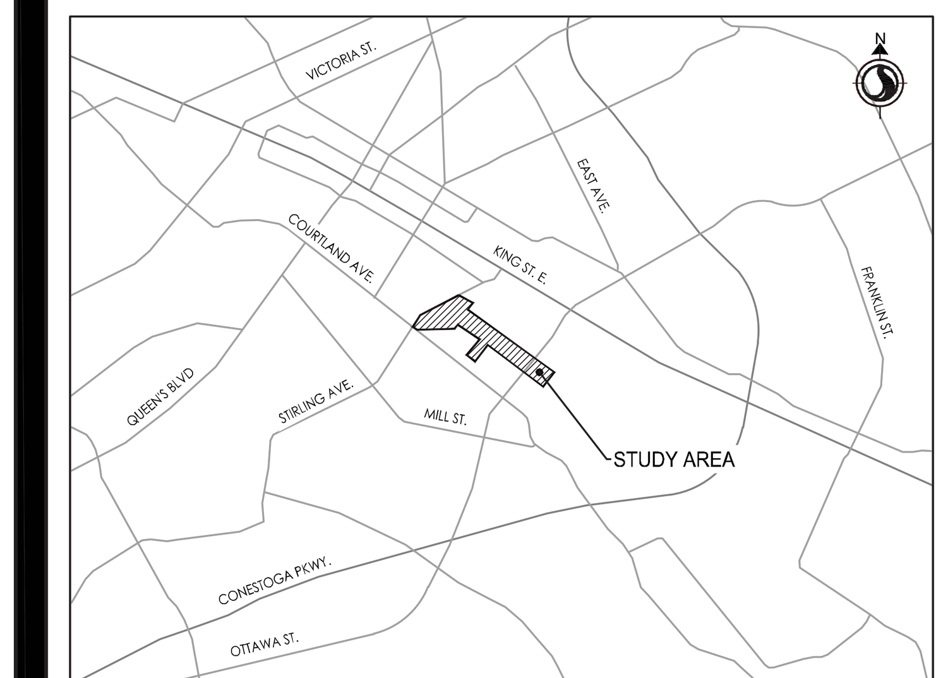
Project No. 161414319
Scale 1:500 0 5 15 25m
Revision
Sheet 2 of 5
Drawing No. L-901

(SEE DWG. NO. L-903)
MATCHLINE - WINDOW 3

Stantec

Stantec Consulting Ltd.
100-300 Hagey Boulevard
Waterloo ON N2L 0A4
Tel: (519) 579-4410
www.stantec.com

Key Map NTS.



Legend

- Existing Deciduous Tree
- Existing Coniferous Tree
- 0000 Tree to be Retained and Protected Identification Tag
- 0000 Tree to be Removed Identification Tag
- Proposed Tree Protection Fencing
- Existing Vegetation Unit to be Retained and Protected
- Existing Vegetation Unit to be Removed
- Dead Standing Tree

Revision/Issue	By	Appd	YYYY.MM.DD
ISSUED FOR CLIENT REVIEW	JL	TH	2023.05.02

File Name: 161414319_L-TM	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD
				2023.05.10

Permit-Seal

CERTIFIED ARBORIST ISA
TED HEAGLE
ON-1740A

Client/Project
CITY OF KITCHENER

DMAF SCHNEIDER CREEK

Kitchener, ON

Title
TREE PRESERVATION PLAN KENT AVENUE

Project No. 161414319

Scale 1:500 (0 5 15 25m)

Revision

Sheet 3 of 5

Drawing No. L-902

ORIGINAL SHEET - ARCH D

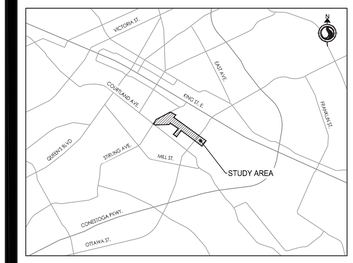
MATCHLINE - WINDOW 2
(SEE DWG. NO. L-902)

SEE DWG. NO. L-904
MATCHLINE - WINDOW 4

Stantec

Stantec Consulting Ltd.
100-300 Hagey Boulevard
Waterloo ON N2L 0A4
Tel: (519) 579-4410
www.stantec.com

Key Map NTS.



Legend

- Existing Deciduous Tree
- Existing Coniferous Tree
- 0000 Tree to be Retained and Protected Identification Tag
- 0000 Tree to be Removed Identification Tag
- Proposed Tree Protection Fencing
- Existing Vegetation Unit to be Retained and Protected
- Existing Vegetation Unit to be Removed
- Dead Standing Tree

ISSUED FOR CLIENT REVIEW		JL	TH	2023.05.02
Revision/Issue		By	Appd	YYYY.MM.DD
File Name: 161414319_L-TM				2023.05.10
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Permit-Seal

CERTIFIED ARBORIST ISA
TED HEAGLE
ON-1740A

Client/Project
CITY OF KITCHENER

DMAF SCHNEIDER CREEK

Kitchener, ON

Title
TREE PRESERVATION PLAN
BORDEN AVENUE SOUTH

Project No. 161414319
Scale 1:500 0 5 15 25m
Revision
Sheet 4 of 5
Drawing No. L-903

V:\161414\active\161414319\design\planning\landscape\sheet_files\161414319_L-TM.dwg
5/10/2023 4:53:29 PM By: AngusA_Sea

ORIGINAL SHEET - ARCH D

MATCHLINE - WINDOW 3
(SEE DWG. NO. L-903)

OTTAWA ST. S.

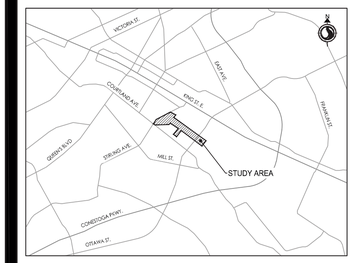
N

WINDOW 3

Stantec

Stantec Consulting Ltd.
100-300 Hagey Boulevard
Waterloo ON N2L 0A4
Tel: (519) 579-4410
www.stantec.com

Key Map NTS.



Legend

- Existing Deciduous Tree
- Existing Coniferous Tree
- 0000 Tree to be Retained and Protected Identification Tag
- 0000 Tree to be Removed Identification Tag
- Proposed Tree Protection Fencing
- Existing Vegetation Unit to be Retained and Protected
- Existing Vegetation Unit to be Removed
- Dead Standing Tree

ISSUED FOR CLIENT REVIEW		JL	TH	2023.05.02
Revision/Issue		By	Appd	YYYY.MM.DD
File Name: 161414319_L-TM	Dwn.	Dsgn.	Chkd.	2023.05.10 YYYY.MM.DD

Permit-Seal

CERTIFIED ARBORIST ISA
TED HEAGLE
ON-1740A

Client/Project
CITY OF KITCHENER

DMAF SCHNEIDER CREEK

Kitchener, ON

Title
TREE PRESERVATION PLAN
OTTAWA STREET SOUTH

Project No. 161414319
Scale 1:500 0 5 15 25m
Revision
Sheet 5 of 5
Drawing No. L-904

V:\161414\active\161414319\design\drawing\construction\sheet_files\161414319_L-TM.dwg
5/10/2023 4:13:27 PM By: Hilgrull, Jack

ORIGINAL SHEET - ARCH D

Appendix C Heritage Check List

Ontario

Ministry of Tourism, Culture and Sport

Programs & Services Branch
401 Bay Street, Suite 1700
Toronto ON M7A 0A7

Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes

A Checklist for the Non-Specialist

The **purpose of the checklist** is to determine:

- if a property(ies) or project area:
  - is a recognized heritage property
  - may be of cultural heritage value
- it includes all areas that may be impacted by project activities, including – but not limited to:
  - the main project area
  - temporary storage
  - staging and working areas
  - temporary roads and detours

Processes covered under this checklist, such as:

- *Planning Act*
- *Environmental Assessment Act*
- *Aggregates Resources Act*
- *Ontario Heritage Act* – Standards and Guidelines for Conservation of Provincial Heritage Properties

Cultural Heritage Evaluation Report (CHER)

If you are not sure how to answer one or more of the questions on the checklist, you may want to hire a qualified person(s) (see page 5 for definitions) to undertake a cultural heritage evaluation report (CHER).

The CHER will help you:

- identify, evaluate and protect cultural heritage resources on your property or project area
- reduce potential delays and risks to a project

Other checklists

Please use a separate checklist for your project, if:

- you are seeking a Renewable Energy Approval under Ontario Regulation 359/09 – separate checklist
- your Parent Class EA document has an approved screening criteria (as referenced in Question 1)

Please refer to the Instructions pages for more detailed information and when completing this form.

Project or Property Name

Schneider and Shoemaker Creek Naturalization

Project or Property Location (upper and lower or single tier municipality)

City of Kitchener

Proponent Name

City of Kitchener (Chris Nechacov)

Proponent Contact Information

Chris.Nechacov@kitchener.ca

Screening Questions

	Yes	No
1. Is there a pre-approved screening checklist, methodology or process in place?	☐	☑

If Yes, please follow the pre-approved screening checklist, methodology or process.

If No, continue to Question 2.

Part A: Screening for known (or recognized) Cultural Heritage Value

	Yes	No
2. Has the property (or project area) been evaluated before and found **not** to be of cultural heritage value?	☐	☑

If Yes, do **not** complete the rest of the checklist.

The proponent, property owner and/or approval authority will:

- summarize the previous evaluation and
- add this checklist to the project file, with the appropriate documents that demonstrate a cultural heritage evaluation was undertaken

The summary and appropriate documentation may be:

- submitted as part of a report requirement
- maintained by the property owner, proponent or approval authority

If No, continue to Question 3.

	Yes	No
3. Is the property (or project area):		
a. identified, designated or otherwise protected under the *Ontario Heritage Act* as being of cultural heritage value?	☐	☑
b. a National Historic Site (or part of)?	☐	☑
c. designated under the *Heritage Railway Stations Protection Act*?	☐	☑
d. designated under the *Heritage Lighthouse Protection Act*?	☐	☑
e. identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office (FHBRO)?	☐	☑
f. located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?	☐	☐

If Yes to any of the above questions, you need to hire a qualified person(s) to undertake:

- a Cultural Heritage Evaluation Report, if a Statement of Cultural Heritage Value has not previously been prepared or the statement needs to be updated

If a Statement of Cultural Heritage Value has been prepared previously and if alterations or development are proposed, you need to hire a qualified person(s) to undertake:

- a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts

If No, continue to Question 4.

Part B: Screening for Potential Cultural Heritage Value

	Yes	No
4. Does the property (or project area) contain a parcel of land that:		
a. is the subject of a municipal, provincial or federal commemorative or interpretive plaque?	☐	☑
b. has or is adjacent to a known burial site and/or cemetery?	☐	☑
c. is in a Canadian Heritage River watershed?	☐	☑
d. contains buildings or structures that are 40 or more years old?	☐	☑

Part C: Other Considerations

	Yes	No
5. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area):		
a. is considered a landmark in the local community or contains any structures or sites that are important in defining the character of the area?	☐	☑
b. has a special association with a community, person or historical event?	☐	☑
c. contains or is part of a cultural heritage landscape?	☐	☑

If Yes to one or more of the above questions (Part B and C), there is potential for cultural heritage resources on the property or within the project area.

You need to hire a qualified person(s) to undertake:

- a Cultural Heritage Evaluation Report (CHER)

If the property is determined to be of cultural heritage value and alterations or development is proposed, you need to hire a qualified person(s) to undertake:

- a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts

If No to all of the above questions, there is low potential for built heritage or cultural heritage landscape on the property.

The proponent, property owner and/or approval authority will:

- summarize the conclusion
- add this checklist with the appropriate documentation to the project file

The summary and appropriate documentation may be:

- submitted as part of a report requirement e.g. under the *Environmental Assessment Act, Planning Act* processes
- maintained by the property owner, proponent or approval authority

Instructions

Please have the following available, when requesting information related to the screening questions below:

- a clear map showing the location and boundary of the property or project area
  - large scale and small scale showing nearby township names for context purposes
- the municipal addresses of all properties within the project area
- the lot(s), concession(s), and parcel number(s) of all properties within a project area

For more information, see the Ministry of Tourism, Culture and Sport's Ontario Heritage Toolkit or Standards and Guidelines for Conservation of Provincial Heritage Properties.

In this context, the following definitions apply:

- **qualified person(s)** means individuals – professional engineers, architects, archaeologists, etc. – having relevant, recent experience in the conservation of cultural heritage resources.
- **proponent** means a person, agency, group or organization that carries out or proposes to carry out an undertaking or is the owner or person having charge, management or control of an undertaking.

1. Is there a pre-approved screening checklist, methodology or process in place?

An existing checklist, methodology or process may already be in place for identifying potential cultural heritage resources, including:

- one endorsed by a municipality
- an environmental assessment process e.g. screening checklist for municipal bridges
- one that is approved by the Ministry of Tourism, Culture and Sport (MTCS) under the Ontario government's Standards & Guidelines for Conservation of Provincial Heritage Properties [s.B.2.]

Part A: Screening for known (or recognized) Cultural Heritage Value

2. Has the property (or project area) been evaluated before and found not to be of cultural heritage value?

Respond 'yes' to this question, if all of the following are true:

A property can be considered not to be of cultural heritage value if:

- a Cultural Heritage Evaluation Report (CHER) - or equivalent - has been prepared for the property with the advice of a qualified person and it has been determined not to be of cultural heritage value and/or
- the municipal heritage committee has evaluated the property for its cultural heritage value or interest and determined that the property is not of cultural heritage value or interest

A property may need to be re-evaluated, if:

- there is evidence that its heritage attributes may have changed
- new information is available
- the existing Statement of Cultural Heritage Value does not provide the information necessary to manage the property
- the evaluation took place after 2005 and did not use the criteria in Regulations 9/06 and 10/06

Note: Ontario government ministries and public bodies [prescribed under Regulation 157/10] may continue to use their existing evaluation processes, until the evaluation process required under section B.2 of the Standards & Guidelines for Conservation of Provincial Heritage Properties has been developed and approved by MTCS.

To determine if your property or project area has been evaluated, contact:

- the approval authority
- the proponent
- the Ministry of Tourism, Culture and Sport

3a. Is the property (or project area) identified, designated or otherwise protected under the *Ontario Heritage Act* as being of cultural heritage value e.g.:

i. designated under the *Ontario Heritage Act*

- individual designation (Part IV)
- part of a heritage conservation district (Part V)

Individual Designation – Part IV

A property that is designated:

- by a municipal by-law as being of cultural heritage value or interest [s.29 of the *Ontario Heritage Act*]
- by order of the Minister of Tourism, Culture and Sport as being of cultural heritage value or interest of provincial significance [s.34.5]. **Note**: To date, no properties have been designated by the Minister.

Heritage Conservation District – Part V

A property or project area that is located within an area designated by a municipal by-law as a heritage conservation district [s. 41 of the *Ontario Heritage Act*].

For more information on Parts IV and V, contact:

- municipal clerk
- Ontario Heritage Trust
- local land registry office (for a title search)

---

ii. subject of an agreement, covenant or easement entered into under Parts II or IV of the *Ontario Heritage Act*

An agreement, covenant or easement is usually between the owner of a property and a conservation body or level of government. It is usually registered on title.

The primary purpose of the agreement is to:

- preserve, conserve, and maintain a cultural heritage resource
- prevent its destruction, demolition or loss

For more information, contact:

- Ontario Heritage Trust - for an agreement, covenant or easement [clause 10 (1) (c) of the *Ontario Heritage Act*]
- municipal clerk – for a property that is the subject of an easement or a covenant [s.37 of the *Ontario Heritage Act*]
- local land registry office (for a title search)

---

iii. listed on a register of heritage properties maintained by the municipality

Municipal registers are the official lists - or record - of cultural heritage properties identified as being important to the community.

Registers include:

- all properties that are designated under the *Ontario Heritage Act* (Part IV or V)
- properties that have not been formally designated, but have been identified as having cultural heritage value or interest to the community

For more information, contact:

- municipal clerk
- municipal heritage planning staff
- municipal heritage committee

---

iv. subject to a notice of:

- intention to designate (under Part IV of the *Ontario Heritage Act*)
- a Heritage Conservation District study area bylaw (under Part V of the *Ontario Heritage Act*)

A property that is subject to a **notice of intention to designate** as a property of cultural heritage value or interest and the notice is in accordance with:

- section 29 of the *Ontario Heritage Act*
- section 34.6 of the *Ontario Heritage Act.* **Note**: To date, the only applicable property is Meldrum Bay Inn, Manitoulin Island. [s.34.6]

An area designated by a municipal by-law made under section 40.1 of the *Ontario Heritage Act* as a **heritage conservation district study area**.

For more information, contact:

- municipal clerk – for a property that is the subject of notice of intention [s. 29 and s. 40.1]
- Ontario Heritage Trust

---

v. included in the Ministry of Tourism, Culture and Sport's list of provincial heritage properties

Provincial heritage properties are properties the Government of Ontario owns or controls that have cultural heritage value or interest.

The Ministry of Tourism, Culture and Sport (MTCS) maintains a list of all provincial heritage properties based on information provided by ministries and prescribed public bodies. As they are identified, MTCS adds properties to the list of provincial heritage properties.

For more information, contact the MTCS Registrar at registrar@ontario.ca.

3b. Is the property (or project area) a National Historic Site (or part of)?

National Historic Sites are properties or districts of national historic significance that are designated by the Federal Minister of the Environment, under the *Canada National Parks Act*, based on the advice of the Historic Sites and Monuments Board of Canada.

For more information, see the National Historic Sites website.

3c. Is the property (or project area) designated under the *Heritage Railway Stations Protection Act*?

The *Heritage Railway Stations Protection Act* protects heritage railway stations that are owned by a railway company under federal jurisdiction. Designated railway stations that pass from federal ownership may continue to have cultural heritage value.

For more information, see the Directory of Designated Heritage Railway Stations.

3d. Is the property (or project area) designated under the *Heritage Lighthouse Protection Act*?

The *Heritage Lighthouse Protection Act* helps preserve historically significant Canadian lighthouses. The Act sets up a public nomination process and includes heritage building conservation standards for lighthouses which are officially designated.

For more information, see the Heritage Lighthouses of Canada website.

3e. Is the property (or project area) identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office?

The role of the Federal Heritage Buildings Review Office (FHBRO) is to help the federal government protect the heritage buildings it owns. The policy applies to all federal government departments that administer real property, but not to federal Crown Corporations.

For more information, contact the Federal Heritage Buildings Review Office.

See a directory of all federal heritage designations.

3f. Is the property (or project area) located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?

A UNESCO World Heritage Site is a place listed by UNESCO as having outstanding universal value to humanity under the Convention Concerning the Protection of the World Cultural and Natural Heritage. In order to retain the status of a World Heritage Site, each site must maintain its character defining features.

Currently, the Rideau Canal is the only World Heritage Site in Ontario.

For more information, see Parks Canada – World Heritage Site website.

Part B: Screening for potential Cultural Heritage Value

4a. Does the property (or project area) contain a parcel of land that has a municipal, provincial or federal commemorative or interpretive plaque?

Heritage resources are often recognized with formal plaques or markers.

Plaques are prepared by:

- municipalities
- provincial ministries or agencies
- federal ministries or agencies
- local non-government or non-profit organizations

For more information, contact:

- municipal heritage committees or local heritage organizations – for information on the location of plaques in their community
- Ontario Historical Society's Heritage directory – for a list of historical societies and heritage organizations
- Ontario Heritage Trust – for a list of plaques commemorating Ontario's history
- Historic Sites and Monuments Board of Canada – for a list of plaques commemorating Canada's history

4b. Does the property (or project area) contain a parcel of land that has or is adjacent to a known burial site and/or cemetery?

For more information on known cemeteries and/or burial sites, see:

- Cemeteries Regulations, Ontario Ministry of Consumer Services – for a database of registered cemeteries
- Ontario Genealogical Society (OGS) – to locate records of Ontario cemeteries, both currently and no longer in existence; cairns, family plots and burial registers
- Canadian County Atlas Digital Project – to locate early cemeteries

In this context, adjacent means contiguous or as otherwise defined in a municipal official plan.

4c. Does the property (or project area) contain a parcel of land that is in a Canadian Heritage River watershed?

The Canadian Heritage River System is a national river conservation program that promotes, protects and enhances the best examples of Canada's river heritage.

Canadian Heritage Rivers must have, and maintain, outstanding natural, cultural and/or recreational values, and a high level of public support.

For more information, contact the Canadian Heritage River System.

If you have questions regarding the boundaries of a watershed, please contact:

- your conservation authority
- municipal staff

4d. Does the property (or project area) contain a parcel of land that contains buildings or structures that are 40 or more years old?

A 40 year 'rule of thumb' is typically used to indicate the potential of a site to be of cultural heritage value. The approximate age of buildings and/or structures may be estimated based on:

- history of the development of the area
- fire insurance maps
- architectural style
- building methods

Property owners may have information on the age of any buildings or structures on their property. The municipality, local land registry office or library may also have background information on the property.

Note: 40+ year old buildings or structure do not necessarily hold cultural heritage value or interest; their age simply indicates a higher potential.

A building or structure can include:

- residential structure
- farm building or outbuilding
- industrial, commercial, or institutional building
- remnant or ruin
- engineering work such as a bridge, canal, dams, etc.

For more information on researching the age of buildings or properties, see the Ontario Heritage Tool Kit Guide Heritage Property Evaluation.

Part C: Other Considerations

5a. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) is considered a landmark in the local community or contains any structures or sites that are important to defining the character of the area?

Local or Aboriginal knowledge may reveal that the project location is situated on a parcel of land that has potential landmarks or defining structures and sites, for instance:

- buildings or landscape features accessible to the public or readily noticeable and widely known
- complexes of buildings
- monuments
- ruins

5b. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) has a special association with a community, person or historical event?

Local or Aboriginal knowledge may reveal that the project location is situated on a parcel of land that has a special association with a community, person or event of historic interest, for instance:

- Aboriginal sacred site
- traditional-use area
- battlefield
- birthplace of an individual of importance to the community

5c. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) contains or is part of a cultural heritage landscape?

Landscapes (which may include a combination of archaeological resources, built heritage resources and landscape elements) may be of cultural heritage value or interest to a community.

For example, an Aboriginal trail, historic road or rail corridor may have been established as a key transportation or trade route and may have been important to the early settlement of an area. Parks, designed gardens or unique landforms such as waterfalls, rock faces, caverns, or mounds are areas that may have connections to a particular event, group or belief.

For more information on Questions 5.a., 5.b. and 5.c., contact:

- Elders in Aboriginal Communities or community researchers who may have information on potential cultural heritage resources. Please note that Aboriginal traditional knowledge may be considered sensitive.
- municipal heritage committees or local heritage organizations
- Ontario Historical Society's "Heritage Directory" - for a list of historical societies and heritage organizations in the province

An internet search may find helpful resources, including:

- historical maps
- historical walking tours
- municipal heritage management plans
- cultural heritage landscape studies
- municipal cultural plans

Information specific to trails may be obtained through Ontario Trails.

Appendix D Stage 1 Archeological Assessment

STAGE 1 ARCHAEOLOGICAL ASSESSMENT: SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

Parts of Lots 1, 17, and 18, German Company Tract, Geographic Township of Waterloo, former Waterloo County, now City of Kitchener, Regional Municipality of Waterloo, Ontario

July 13, 2023

Prepared for:
City of Kitchener
200 King Street West, 4th Floor
Kitchener, Ontario N2G 4G7

Prepared by:
Stantec Consulting Ltd.
600 – 171 Queens Avenue
London, Ontario N6A 5J7

Licensee: Arthur Figura, MA
License Number: P083
Project Information Form Number:
P083-0408-2023

Project Number:
161414319

ORIGINAL REPORT

Executive Summary

Stantec Consulting Ltd. (Stantec) was retained by the City of Kitchener (the City) to complete Stage 1 archaeological assessment as part of a Municipal Class Environmental Assessment (Class EA) for the proposed Schneider and Shoemaker Creek Naturalization (the Project). The study area for the Project is located on part of Lots 1, 17, and 18, German Company Tract, Geographic Township of Waterloo, former Waterloo County, now City of Kitchener, Regional Municipality of Waterloo, Ontario. The study area comprises approximately 12.1 hectares along Schneider Creek between Stirling Avenue South and Sydney Street South, and the lower portion of Shoemaker Creek from Courtland Avenue East to where it joins Schneider Creek between Kent Avenue and Borden Avenue South. The Stage 1 archaeological assessment was undertaken by Stantec on behalf of the City as part of a Schedule "C" Municipal Class EA (Government of Ontario 1990a).

The Stage 1 archaeological assessment, including background research and property inspection, was completed under Project Information Form number P083-0408-2023 issued to Arthur Figura, MA, by the Ministry of Citizenship and Multiculturalism (MCM). A property inspection by Arthur Figura (P083) was completed on June 5, 2023.

The Stage 1 archaeological assessment of the study area for the Project, involving background research and a property inspection, determined that portions of the study area, approximately 3.9%, retain potential for the identification and documentation of archaeological resources. In accordance with Section 1.3.1 and Section 7.7.4 of the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011a), **Stage 2 archaeological assessment is required for any portion of the Project's anticipated construction activities that impact an area of archaeological potential**.

The Stage 1 archaeological assessment also determined that the majority of the study area, approximately 96.1%, retains low to no archaeological potential for the identification or recovery of archaeological resources due to extensive disturbance and previous assessment (ARA 2019). In accordance with Section 1.3.2 and Section 7.7.4 of the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011a), **Stage 2 archaeological assessment is not required for any portion of the Project's anticipated construction activities that impact an area of low to no archaeological potential.**

Full and detailed recommendations are provided in the body of the report.

The MCM is asked to review the results presented and to accept this report into the *Ontario Public Register of Archaeological Reports*.

The Executive Summary highlights key points from the report only; for complete information and findings, the reader should examine the complete report.

Table of Contents

LIST OF FIGURES

LIST OF TABLES

Project Personnel

Project Manager	Steve Brown, MBA, P.Eng.
Licensed Archaeologist	Arthur Figura, MA (P083)
Field Director	Arthur Figura, MA (P083)
Report Writer	Ruth Dickau, Ph.D. (R1171)
Mapping	Baljeet Kaur, GIS Specialist
Quality Review	Parker Dickson, MA
Independent Review	Colin Varley, MA, RPA (P002)

Acknowledgements

City of Kitchener	Chris Nechacov, C.E.T. - Construction Project Manager
Region of Waterloo	Roxanna Nazarowicz
Ministry of Citizenship and Multiculturalism	Robert von Bitter – Archaeological Data Coordinator

1 Project Context

1.1 Development Context

Stantec Consulting Ltd. (Stantec) was retained by the City of Kitchener (the City) to complete Stage 1 archaeological assessment as part of a Municipal Class Environmental Assessment (Class EA) for the proposed Schneider and Shoemaker Creek Naturalization (the Project). The study area for the Project is located on part of Lots 1, 17, and 18, German Company Tract, Geographic Township of Waterloo, former Waterloo County, now City of Kitchener, Regional Municipality of Waterloo, Ontario (Figure 1). The study area comprises approximately 12.1 hectares along Schneider Creek between Stirling Avenue South and Sydney Street South, and the lower portion of Shoemaker Creek from Courtland Avenue East to where it joins Schneider Creek between Kent Avenue and Borden Avenue South (Figure 2). The Stage 1 archaeological assessment was undertaken by Stantec on behalf of the City as part of a Schedule "C" Municipal Class EA (Government of Ontario 1990a).

1.1.1 Objectives

In compliance with the provincial standards and guidelines set out in the Ministry of Citizenship and Multiculturalism's (MCM) 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011a), the objectives of a Stage 1 archaeological assessment are as follows:

- To provide information about the study area's geography, history, previous archaeological fieldwork, and current land conditions.
- To evaluate the study area's archaeological potential which will support recommendations for Stage 2 survey for all or parts of the property.
- To recommend appropriate strategies for Stage 2 survey.

To meet these objectives, Stantec archaeologists employed the following research strategies:

- A review of relevant archaeological, historical, and environmental literature pertaining to the study area.
- A review of the land use history, including pertinent historical maps.
- An examination of the MCM's *Ontario Archaeological Sites Database* to determine the presence of registered archaeological sites in and around the study area.
- A query of the MCM's *Ontario Public Register of Archaeological Reports* to determine if previous archaeological assessments have occurred within the study area or within 50 metres of the study area.
- A review of the Regional Municipality of Waterloo's *Archaeological Facilities Master Plan* (Regional Municipality of Waterloo 1989).
- A property inspection of the study area for the Project.

Permission to enter the study area and document features of archaeological potential was provided by the City.

1.2 Historical Context

"Contact" is typically used as a chronological benchmark when discussing Indigenous archaeology in Canada and describes the contact between Indigenous and European cultures. The precise moment of contact is a constant matter of discussion. Contact in what is now the province of Ontario is broadly assigned to the 16th century (Loewen and Chapdelaine 2016).

1.2.1 Pre-Contact Indigenous Resources

This portion of southwestern Ontario has been occupied by Indigenous peoples since the retreat of the Wisconsin glacier approximately 11,000 years ago. Much of what is understood about the lifeways of Indigenous peoples is derived from archaeological evidence and ethnographic analogy. In Ontario, Indigenous culture prior to the period of contact with European peoples has been distinguished into cultural periods based on observed changes in material culture. These cultural periods are largely based in observed changes in formal lithic tools, and separated into the Early Paleo, Late Paleo, Early Archaic, Middle Archaic, and Late Archaic periods. Following the advent of ceramic technology in the Indigenous archaeological record, cultural periods are separated into the Early Woodland, Middle Woodland, and Late Woodland periods, based primarily on observed changes in formal ceramic decoration. It should be noted that these cultural periods do not necessarily represent specific cultural identities but are a useful paradigm for understanding changes in Indigenous culture through time. The current understanding of Indigenous archaeological culture is summarized in Table 1, based on Ellis and Ferris (1990). The provided time periods are based on the "Common Era" calendar notation system, i.e., Before Common Era (BCE) and Common Era (CE).

Table 1: Generalized Cultural Chronology of Southern Ontario

Period	Characteristics	Time Period	Comments
Early Paleo	Fluted Projectiles	9000 – 8400 BCE	Spruce parkland/caribou hunters
Late Paleo	Hi-Lo Projectiles	8400 – 8000 BCE	Smaller but more numerous sites
Early Archaic	Kirk and Bifurcate Base Points	8000 – 6000 BCE	Slow population growth
Middle Archaic	Brewerton-like points	6000 – 2500 BCE	Environment similar to present
Late Archaic	Narrow Points	2500 – 1800 BCE	Increasing site size
	Broad Points	1800 – 1500 BCE	Large chipped lithic tools
	Small Points	1500 – 1100 BCE	Introduction of bow hunting
Terminal Archaic	Hind Points	1100 – 950 BCE	Emergence of true cemeteries
Early Woodland	Meadowood Points	950 – 400 BCE	Introduction of pottery
Middle Woodland	Dentate/Pseudo-Scallop Pottery	400 BCE – 500 CE	Increased sedentism
	Princess Point	550 – 900 CE	Introduction of corn

Period	Characteristics	Time Period	Comments
Late Woodland	Early Late Woodland pottery	900 – 1300 CE	Emergence of agricultural villages
	Middle Late Woodland pottery	1300 – 1400 CE	Long longhouses (100+ metres)
	Late Late Woodland pottery	1400 – 1650 CE	Tribal warfare and displacement
Contact Indigenous	Various Algonkian and Iroquoian Groups	1650 – 1875 CE	Early written records and treaties
Late Historical	Euro-Canadian	1796 CE – present	European settlement

Between 9000 and 8000 BCE, Indigenous populations were sustained by hunting, fishing, and foraging and lived a relatively mobile existence across an extensive geographic territory. Despite these wide territories, social ties were maintained between groups; one method was through gift exchange, evident through exotic lithic material documented on many sites (Ellis 2013:35-40).

By approximately 8000 BCE, evidence exists and becomes more common for the production of ground-stone tools such as axes, chisels and adzes. These tools themselves are believed to be indicative specifically of woodworking. This evidence can be extended to indicate an increase in craft production and arguably craft specialization. This latter statement is also supported by evidence dating to approximately 7000 BCE of ornately carved stone object which would be laborious to produce and have explicit aesthetic qualities (Ellis 2013:41). This is indirectly indicative of changes in social organization which permitted individuals to devote time and effort to craft specialization. Since 8000 BCE, the Great Lakes basin experienced a low-water phase, with shorelines significantly below modern lake levels (Stewart 2013: Figure 1.1.C). It is presumed that the majority of human settlements would have been focused along these former shorelines. At approximately 6500 BCE, the climate had warmed considerably since the recession of the glaciers and the environment had grown more similar to the present day. By approximately 4500 BCE, evidence exists from southern Ontario for the utilization of native copper, i.e., naturally occurring pure copper metal (Ellis 2013:42). The recorded origin of this material along the north shore of Lake Superior indicates the existence of extensive exchange networks across the Great Lakes basin.

At approximately 3500 BCE, the isostatic rebound of the North American plate following the melt of the Laurentide glacier had reaches a point which significantly affected the watershed of the Great Lakes basin. Prior to this, the Upper Great Lakes had drained down the Ottawa Valley via the French and Mattawa River valleys. Following this shift in the watershed, the drainage course of the Great Lakes basin had changed to its present course. This also prompted a significant increase in water-level to approximately modern levels (with a brief high-water period); this change in water levels is believed to have occurred catastrophically (Stewart 2013:28-30). This change in geography coincides with the earliest evidence for cemeteries (Ellis 2013:46). By 2500 BCE, the earliest evidence exists for the construction of fishing weirs (Ellis *et al*. 1990: Figure 4.1). There is some evidence to suggest that fishing weirs had been constructed much earlier. A radiocarbon sample from a weir site in Lovesick Lake along the Trent-Severn Waterway provided a date of 4600 BCE (Stevens 2004). Construction of these weirs would have required a large amount of communal labour and are indicative of the continued development

of social organization and communal identity. The large-scale procurement of food at a single location also has significant implications for permanence of settlement within the landscape. This period is also marked by further population increase and by 1500 BCE evidence exists for substantial permanent structures (Ellis 2013:45-46).

By approximately 950 BCE, the earliest evidence exists for populations using ceramics. Populations are understood to have continued to seasonally exploit natural resources. This advent of ceramic technology correlated, however, with the intensive exploitation of seed foods such as goosefoot and knotweed as well as mast such as nuts (Williamson 2013:48). The use of ceramics implies changes in the social organization of food storage as well as in the cooking of food and changes in diet. Fish also continued to be an important facet of the economy at this time. Evidence continues to exist for the expansion of social organization (including hierarchy), group identity, ceremonialism (particularly in burial), interregional exchanges throughout the Great Lakes basin and beyond, and craft production (Williamson 2013:48-54).

By approximately 550 CE, evidence emerges for the introduction of maize into southern Ontario. This crop would have initially only supplemented Indigenous people's diets and economy (Birch and Williamson 2013:13-14). Maize-based agriculture became more important to societies and by approximately 900 CE permanent communities emerge which are primarily focused on agriculture and the storage of crops, with satellite locations oriented toward the procurement of other resources such as hunting, fishing, and foraging. By approximately 1250 CE, evidence exists for the common cultivation of historical Indigenous cultigens, including maize, beans, squash, sunflower, and tobacco. The extant archaeological record demonstrates many cultural traits similar to historical Indigenous nations (Williamson 2013:55).

1.2.2 Post-Contact Indigenous Resources

Broadly, the post-contact Indigenous occupation of southern Ontario was heavily influenced by the dispersal of various Iroquoian-speaking communities by the New York State Iroquois and the subsequent arrival of Algonkian-speaking groups from northern Ontario at the end of the 17th century and the beginning of the 18th century (Konrad 1981; Schmalz 1991). Numerous Indigenous groups and communities are associated with the post-Contact occupation of southern Ontario and the general area of the Project.

At the turn of the 17th century, the region of the study area was occupied by Iroquoian populations who are historically described as the *Neutre* (by the French), the *Neutral* (by the English), or the *Atawandaron* (by the Huron-Wendat); their autonym is not conclusively known (Birch 2015). This group may be ancestral Haudenosaunee as they had similar culture, language, and ceremonies and were considered by the Haudenosaunee to be under the Great Law governance (Hill 2017). In 1626, French Recollet Father Daillon reportedly travelled the length of the Grand River and counted 28 Neutral villages in the area (Harper 1950:10-11; White 1978:410). This initial survey of the Grand River and the lands adjacent to it demonstrates the significance of the area and its resources to Indigenous peoples and their communities.

To the north was territory occupied by the Wendat-Tionontati (Huron-Petun) (Heidenreich 1978). The Five Nations Iroquois (Mohawk, Oneida, Onondaga, Cayuga, and Seneca), located in present-day upstate New York, failed to convince the Wendat-Tionontati to join them in an alliance (Warrick 2013). In 1649, the Seneca and the Mohawk led a campaign into southern Ontario and dispersed the Atawandaron and the Wendat-Tionontati, and established dominance over the region (Heidenreich 1978; Konrad 1981). In 1667, surviving Huron-Wendat warriors joined the alliance with the French-allied Ojibwa and Mississaugas to counterattack the Iroquois who had settled along the north shore of Lake Ontario. By 1690, Ojibwa (Anishinaabe) speaking people had begun moving south into the lower Great Lakes basin (Konrad 1981; Rogers 1978). Mississauga oral traditions, as related by Chief Robert Paudash and recorded in 1905, indicate that after the Mississauga defeat of the Mohawk, the Mohawk retreated to their homeland south of Lake Ontario and a peace treaty was negotiated between those groups around 1695 (Paudash 1905). Upon their return to southern Ontario, the Mississauga inhabited a large area along the north shore and at the western end of Lake Ontario throughout the 1700s and into the 1800s. Between 1695 and the mid-1820s the Mississauga continued to follow a yearly cycle of resource harvest and movement throughout their southern Ontario territory (Praxis Research Associates n.d.).

Despite the differentiation among these groups in Euro-Canadian sources, there was a considerably different view by Indigenous groups concerning their self-identification during the first few centuries of European contact. These peoples relied upon kinship ties that cut across European notions of nation identity (Bohaker 2006:277-283). Many of the British-imposed names such as Chippewa, Ottawa, Potawatomi, or Mississauga artificially separated how self-identified Indigenous peoples' classified themselves; these groups were culturally and socially more alike than contemporary European documentation might indicate (Bohaker 2006:1-8).

The study area falls within the historical and traditional territory of several Indigenous communities, including but not limited to the Mississaugas of the Credit First Nation (Wybenga and Dalton 2018), the Six Nations of the Grand River, the Haudenosaunee Confederacy, and the Huron-Wendat Nation. Since contact with European explorers and immigrants, and, later, with the establishment of provincial and federal governments (the Crown), the lands within Ontario have been included in various treaties, land claims, and land cessions. Though not an exhaustive list, Morris (1943) provides a general outline of some of the treaties within the Province of Ontario from 1783 to 1923.

Around 1722, the Tuscarora were accepted into the Iroquois Confederacy, which became known as the Six Nations Iroquois (Haudenosaunee). With the end of the American Revolutionary War in 1783, the Six Nations Iroquois (Haudenosaunee) were forced to leave their traditional homeland in New York State and elsewhere after the 1783 Treaty of Paris surrendered their land to the Americans (Hill 2017). The Six Nations Iroquois (Haudenosaunee) returned to their previous hunting grounds in southern Ontario in land secured by the Crown from Mississauga lands that were part of the Between the Lakes Treaty. Due to the terms of the Royal Proclamation of 1763, this land needed to be purchased from the Mississaugas before the lands could be transferred to the Six Nations Iroquois. Colonel John Butler was sent to negotiate with the Mississaugas, who ceded approximately 3,000,000 acres (1,214,00 hectares) of land located between Lake Huron, Lake Ontario, and Lake Erie to the Crown under Treaty Number 3 (Mississaugas of the Credit First Nation [MCFN] 2023). However, it was later discovered that the upper limits of the cession were in error, based on faulty geographical assumptions (MCFN 2023). The final boundaries were

defined, and a confirming document was signed by the Mississaugas and the Crown on December 7, 1792, known as the "Between the Lakes Purchase" Treaty Number 3:

> *… all that tract or parcel of land lying and being between the lake Ontario and Erie beginning at Lake Ontario four miles southwesterly from the point opposite to Niagara fort known by the name of Messisague Point and running from thence along the said lake to the creek that falls from a small lake known by the name of Washquarter into the said Lake Ontario, and from thence north forty-five degrees, west fifty-miles; thence south forty-five degrees, west twenty-miles; and thence south until it strikes the River La Tranche; then down the stream of the said river to that part or place where a due south course will lead part of place of the aforesaid River La Tranche following the south course to the mouth of the said Catfish Creek; thence down Lake Erie to the lands heretofore purchased from the said nation of Messissague Indians; and from thence along the said purchase to Lake Ontario at the place of beginning as above mentioned, together belonging.*
>
> (Government of Canada 2023)

The study area is situated within the Haldimand Tract, which was originally created in 1784 but not formalized until 1793, after the Between the Lake Purchase was made with the Mississaguas. The original tract consisted of approximately 273,000 hectares and occupied an approximately 10-kilometre-deep tract on either side of the Grand River from mouth to source. This tract was granted by the Crown to the Mohawks "…and such others of the Six Nations Indians as wish to settle in that quarter" (Government of Canada 1905) in restitution for the loss of their homeland following the American War of Independence and in recognition of their loyalty to the Crown during that war. The original Six Nations (Haudenosaunee) settlers were also accompanied by Delaware, Nanticoke, Tutelo, Creek, and Cherokee who had previously settled with the Haudenosaunee prior to the beginning of the war. The largest group settled in the Grand River valley near Brantford, Ontario, to become the Six Nations of the Grand River.

While it is difficult to exactly delineate treaty boundaries today, Figure 3 provides an approximate outline of the Between the Lakes Treaty (identified by the letter "D") and the Haldimand Tract (identified by the letter "E"), based on a compilation from Morris (1943).

The Indigenous economy from the turn of the 18th century focused on fishing and the fur trade, supplemented by agriculture and hunting. An initial controversy existed over the sovereignty of the Haudenosaunee, with the Crown asserting that the lands granted were non-transferrable. The assertion was made in 1792 with the Simcoe patent, stipulating that all land transactions required Crown approval. This patent was rejected by the Haudenosaunee and subsequently more than 142,000 hectares were leased or sold to Euro-Canadian inhabitants. In 1834, a Crown investigation was held: however, the Crown concluded that removal of the Euro-Canadian settlers would be too costly, and the leases were confirmed as legal (Weaver 1978:525).

Further controversy existed over the description of the extent of the Haldimand Tract, specifically regarding the headwaters of the Grand River beyond Nichol Township (in present day Wellington County). Despite the Grand River headwaters extending beyond, the Crown asserted that the Haldimand Tract ended at Nichol Township based on the description of the extent of land purchased in 1784 from the Mississauga (Weaver 1978:525). The inconsistency between the description of the Haldimand Tract in

the 1784 treaty and the surveyed extent of the Haldimand Tract asserted by the Crown continues to be a grievance (Six Nations Lands & Resources Department 2015).

In the late 1820s and into the 1830s, itinerant Christian missionaries became increasingly active across the Haldimand Tract and many Haudenosaunee that had settled up-river converted to Christianity. While clan and lineage affiliations under the Longhouse social organization had been important aspects of Haudenosaunee society, this affiliation became rare among Christians for whom the nuclear family became the primary social and economic unit (Weaver 1978:525-527).

From 1830 onward, the Crown pursued an active assimilation policy, such as in 1869 with the statutorily enacted patrilineal kinship, contrary to traditional matrilineal kinship. Despite these policies, Longhouse traditionalism persisted into the late 19th century. By the late 1830s, most of the Haudenosaunee population had left the original villages and settled farms along the Haldimand Tract. Haudenosaunee economy in the 19th century was comparable to that of neighbouring Euro-Canadian inhabitants, cultivating maize only on a small scale, with larger scale cultivation of cash crops such as wheat, oats, hay, and peas. With the continued piecemeal sales of lands, in 1841 the remaining approximate 89,000 hectares of the Haldimand Tract was surrendered to the Crown and the Six Nations reserve was established (Weaver 1978:525-526).

As demonstrated above, the nature of Indigenous settlement size, population distribution, and material culture shifted as European settlers encroached upon their territory. However, despite this shift, “written accounts of material life and livelihood, the correlation of historically recorded villages to their archaeological manifestations, and the similarities of those sites to more ancient sites have revealed an antiquity to documented cultural expressions that confirms a deep historical continuity to…systems of ideology and thought” (Ferris 2009:114). As a result, Indigenous peoples have left behind archaeological resources throughout Ontario which show continuity with past peoples, even if they have not been recorded in Euro-Canadian documentation.

1.2.3 Euro-Canadian Resources

1.2.3.1 Waterloo Township

In 1796, Richard Beasley and his two associates, John Baptiste Rousseaux and James Wilson, purchased 94,012 acres of the Haldimand Tract from Joseph Brant (Hayes 1997:3). The land was designated Block 2 and was situated near the Grand River, south of the eventual site of the village of Berlin (now Kitchener). Beasley bought out his two associates and, by 1800, had sold more than 14,000 acres of land, which was purchased primarily by German Mennonites from Pennsylvania (Hayes 1997:3). In 1803, Beasley sold 60,000 acres to the German Company of Pennsylvania, a group of Mennonite shareholders lead by Daniel Erb and Samuel Bricker who sought land for settlement in Upper Canada. The 60,000 acres were surveyed by Augustus Jones in 1805. The land was divided into 128 lots of 448 acres each and 32 lots comprising 83 acres each (Hayes 1997:5).

Shortly after the survey in 1805, German Mennonites from Pennsylvania began to migrate to Block 2, which, in 1816, would be renamed to Waterloo Township of the District of Gore. By July of 1805, nearly 35 families or single men owned land in Waterloo Township (Dahms 1991:38). Mennonite settlement of the area continued steadily as the pioneer families of Pennsylvania accounted for 70% of Waterloo Township's population and owned 87% of the land as of 1831 (Bloomfield 2006:34).

After the initial wave of Pennsylvania settlement, other groups entered Waterloo Township, which, by 1842, was a part of the District of Wellington. The area attracted German-speaking Catholics who emigrated from European regions, such as Alsace in France and Baden in Germany, between the late 1820s and the early 1850s. This group mainly settled in the northeast of the township, an area that would be referred to as "Rottenburg" or "Little Germany" by the 1830s (Bloomfield 2006:35). During this same time, immigrants from England, Scotland, and Ireland settled along the eastern and southern edges of the township. These English-speaking settlers provided help to many Mennonite settlers when dealing with matters related to government and local administration with other townships (Bloomfield 2006:36).

In 1851, Waterloo Township had a population of 8,871, making it the most settled township in Waterloo County at the time (Hayes 1997:16). Settlement of the township continued to grow into the latter half of the 19th century with the introduction of multiple railways. In 1856, the Grand Trunk Railway built the first railway in the township, which provided a route to Toronto. Other railways included: the Grand Trunk branch between Preston and Berlin in 1857; a Great Western Line from Galt, Preston, and Guelph in 1857; a Grand Trunk branch between Waterloo, Berlin, and Galt in 1882; and a Grand Trunk branch between Waterloo and Elmira in 1891 (Breithaupt 1917). The presence of the railways accelerated industrial development throughout the township, especially at the village of Berlin, located 6.5 kilometres northwest of the study area, which had become the industrial centre of the township and county.

In 1912, Berlin was incorporated as a city. Its name was changed to Kitchener in 1916 due to anti-German sentiment during the First World War. The Town of Waterloo became a city in 1948. By the mid-20th century, these cities became centres of economic activity and growth that attracted people to live nearby. In 1973, the Regional Municipality of Waterloo was established and as a result many small hamlets were annexed into the City of Kitchener.

1.2.3.2 19th Century Historical Mapping Review

The 1805 map of Waterloo Township (Bricker 1934) indicates that Lot 1, 17, and 18 were owned by three of the original 26 shareholders in the German Company (Figure 4). The lots of the German Company Tract were numbered, and the shareholders drew lots to divide up the tract, based on the amount of stock they owned in the company (Bricker 1934:91). Table 2 provides a summary of the landowner information from the 1805 map of Waterloo Township for the study area.

Table 2: Applicable Landowner Information from the 1805 Map of Waterloo Township

Lot	Landowner	Features
1	George Eby	Schneiders and Shoemakers Creeks depicted in southwest part of lot.
17	Benjamin Hershey	Schneider's Creek flows through lot.
18	John Eby	Shoemakers Creek flows through lot.

George Eby was the original owner of Lot 1. He sold a portion to John Groff in 1807, and the remainder to Joseph Eby in 1808. Over the next four years, Joseph Eby proceeded to sell portions of the lot to other shareholders and settlers, such as David Shantz, Jacob Shantz, Samuel Eshelman, Benjamin Eby, and Christian Shantz. In 1816, Joseph Eby and Jacob Shantz sold one and half acres to the Elders of the Mennonite Church (Bricker 1934).

Benjamin Hershey was the original owner of Lot 17. He sold the entire lot to Joseph Snider in 1807. Snider later divided the lot and sold a portion to Jacob Erb in 1810, and Samuel Eshelman in 1814 (Bricker 1934).

John Eby was the original owner of Lot 18. He sold the entire lot to Joseph Eby in 1806, and Joseph Eby sold an unknown portion of the lot to Samuel Eby the following year. Between 1808 and 1823, Joseph and Samuel Eby sold off potions of the lot to John Eckerd, Joseph Clemmer, Jacob Shantz, Benjamin Eby, and Abraham Becker (Bricker 1934).

Tremaine's Map of the County of Waterloo, Canada West (Tremaine 1861) shows that by 1861, Lots 1, 17, and 18 had been subdivided into a series of smaller parcels of various sizes and shapes. The study area in Lot 1 and Lot 18 was within a large parcel owned by Jacob Y. Shantz. A structure is depicted east of the creek, beyond the study area, fronting what later became King Street (Figure 5). The study area within Lot 17 is within a portion of the lot owned by Geo. Davidson, who also owned a portion of the adjacent lot (Lot 2) to the northeast. A structure is depicted in Lot 2, but no features are depicted in Lot 17 near the study area. The Preston and Berlin Railroad (later the Grand Trunk Railway [GTR]) is illustrated west of the study area and the town of Berlin (Kitchener) is illustrated northwest of the study area. Parts of the original road network exist today, including King Street to the east and part of Ottawa Street to the southwest, but other parts have been changed or realigned.

Parsell's 1881 *Illustrated Historical Atlas of Waterloo County* (Parsell 1881) shows no landowners or structures in the portion of Lots 1, 17, and 18 that contains the study area; most lots in the township also lack specific land ownership details. A wetland or pond is illustrated at the confluence of Shoemaker Creek and Schneider Creek. North of the study area in Lot 2, a church is depicted on the property of Moses Betzner. The town of Berlin (Kitchener) is depicted northwest of the study area and cross-hatching around Lots 1, 17, and 18 indicate that these were part of the designated town lands.

Late 19th century historical county atlases were produced primarily to identify factories, offices, residences, and landholdings of subscribers and were funded by subscription fees. Landowners who did not subscribe were not always listed on the maps (Caston 1997:100). As such, structures were not necessarily depicted or placed accurately (Gentilcore and Head 1984). Further, review of historical mapping, including treaty maps, also has inherent accuracy difficulties due to potential error in geo-referencing. Geo-referencing is conducted by assigning spatial coordinates to fixed locations and using these points to spatially reference the remainder of the map. Due to changes in "fixed" locations over time (e.g., road intersections, road alignments, watercourses, etc.), errors/difficulties of scale and the relative idealism of historical cartography, historical maps may not translate accurately into real space points. This may provide obvious inconsistencies during historical map review.

1.2.3.3 20th Century Development

Based on topographical mapping and aerial photography (Figure 7), the area around Schneider Creek and lower Shoemaker Creek underwent significant and extensive development in the first half of the 20th century (Department of Militia and Defence 1916, Department of National Defence 1936, University of Waterloo 2008). In 1916, the area around the creeks was still primarily rural; however, a railway spur line had been built in the west part of the study area crossing Schneider Creek and connecting the GTR to a brick yard to the east. By 1936, Kitchener was expanding south into the study area and new transportation infrastructure was being constructed including a new railway, part of the Grand River Railway, along Schneider Creek (Figure 7). Interestingly, Schneider Creek is depicted south of the new rail line, whereas in the 1945 aerial photo, the creek flows along the north side of the rail line. This may be a mapping error on the topographic map, especially given the maturity of the trees that are visible in the 1945 aerial photo along the creek. However, the possibility that portions of Schneider Creek were diverted as early as 1945 cannot entirely be ruled out. Between 1945 and 1968, rapid residential and industrial development occurred in the vicinity of Schneider and Shoemaker creeks (Figures 7 and 8). Sometime between 1963 and 2000, the portions of Schneider and Shoemaker creeks within the study area were channelized with the construction of concrete embankments (Department of Energy, Mines and Resources 1968). By the end of the 20th century, Schneider and Shoemaker creeks were a confined, channelized system that drain a highly urbanized commercial and residential area (City of Kitchener 2018).

1.3 Archaeological Context

1.3.1 The Natural Environment

The study area is situated within the Waterloo Hills physiographic region, as defined by Chapman and Putnam (1984). This region:

> *… occupies about 300 square miles or 192,000 acres, lying chiefly in the Regional Municipality of Waterloo…The surface is composed of sandy hills, some of them being ridges of sandy till while others are kames or kame moraines, with outwash sands occupying the intervening hollows….Adjoining the hilly region is an extensive area of alluvial terraces of the Grand River spillway system which, although more nearly horizontal, contains similar but more uniform sandy and gravelly materials….The original forest consisted of splendid pines and hardwoods such as sugar maple, beech, wild cherry, and red oak.*
>
> (Chapman and Putnam 1984:136)

General elevation of the region ranges from 300 to 425 metres above sea level (Chapman and Putnam 1984:136). Soils within the study area are categorized as urban and not classified (Presant and Wicklund 1971). However, soils in the general region outside of the city are classified as Burford-Fox loams and sands, Brant-Waterloo loams, and Grand-Kirkland loam, and are considered well drained, fertile, and good for agriculture (Presant and Wicklund 1971).

Potable water is the single most important resource for any extended human occupation or settlement and since water sources in southwestern Ontario have remained relatively stable over time, proximity to

drinkable water is regarded as a useful index for the evaluation of archaeological site potential. In fact, distance to current water is one of the most commonly used variables for predictive modeling of archaeological site locations in Ontario. The study area encompasses a portion of Schneider Creek and lower Shoemaker Creek.

1.3.2 Registered Archaeological Sites and Surveys

In Canada, archaeological sites are registered within the Borden system, a national grid system designed by Charles Borden in 1952 (Borden 1952). The grid covers the entire surface area of Canada and is divided into major units containing an area that is two degrees in latitude by four degrees in longitude. Major units are designated by upper case letters. Each major unit is subdivided into 288 basic unit areas, each containing an area of 10 minutes in latitude by 10 minutes in longitude. The width of basic units reduces as one moves north due to the curvature of the earth. In southern Ontario, each basic unit measures approximately 13.5 kilometres east-west by 18.5 kilometres north-south. In northern Ontario, adjacent to Hudson Bay, each basic unit measures approximately 10.2 kilometres east-west by 18.5 kilometres north-south. Basic units are designated by lower case letters. Individual sites are assigned a unique, sequential number as they are registered. These sequential numbers are issued by the MCM who maintain the *Ontario Archaeological Sites Database*. The study area is located within Borden block AiHc.

Information concerning specific site locations is protected by provincial policy and is not fully subject to the *Freedom of Information and Protection of Privacy Act* (Government of Ontario 1990b). The release of such information in the past has led to looting or various forms of illegally conducted site destruction. Confidentiality extends to media capable of conveying location, including maps, drawings, or textual descriptions of a site location. The MCM will provide information concerning site location to the party or an agent of the party holding title to a property, or to a licensed archaeologist with relevant cultural resource management interests.

An examination of the *Ontario Archaeological Sites Database* has shown that there are five archaeological sites registered within a one-kilometre radius of the study area (Government of Ontario 2023a). None of the registered archaeological sites are located within 50 metres of the study area. Table 3 provides a summary of the registered archaeological sites.

Table 3: Registered Sites within One Kilometre of the Study Area

Borden Number	Site Name	Cultural Affiliation	Site Type
AiHc-13	Roseville	Pre-Contact Indigenous	Campsite
AiHc-17	J. Schneider	Euro-Canadian	House
AiHc-18	Waterloo County Jail	Euro-Canadian	Jail
AiHc-66	Sonneck	Euro-Canadian	Homestead
AiHc-166	RMW-HQ	Euro-Canadian	Houses

An examination of the *Ontario Register of Archaeological Reports* (Government of Ontario 2023b) has shown that one previous archaeological assessment was conducted within 50 metres of the study area. In 2019, Archaeological Research Associates Ltd. (ARA) completed a Stage 1 archaeological

assessment as part of the Shoemaker Creek Restoration project from Homer Watson Boulevard to Schneider Creek (ARA 2019). The ARA (2019) study area included the lower portion of Shoemaker Creek and overlaps with the current study area. ARA (2019) determined that while portions of the upper Shoemaker Creek study area retained archaeological potential, the portion of the lower Shoemaker Creek study area from Courtland Avenue East to Schneider Creek within the current study area has been deeply disturbed through channelization and does not retain archaeological potential.

1.3.3 Archaeological Master Plan

An *Archaeological Facilities Master Plan* was developed by the Regional Municipality of Waterloo (Regional Municipality of Waterloo 1989). The purpose of the plan "is to identify and evaluate the archaeological resources in the Region and to study the feasibility of developing an archaeological facility" (Regional Municipality of Waterloo 1989:2). Distance to water, and distance to multiple different water sources, provided the basis for the most efficient model for Indigenous site potential. Euro-Canadian archaeological site potential modelling focused on areas which would provide evidence for some of the earliest settlements of the areas, including historical roads, early historical communities, and structures illustrated on historical mapping. Based on the archaeological potential modelling criteria included in the *Archaeological Facilities Master Plan* (Regional Municipality of Waterloo 1989), portions of the study area retain archaeological potential. Documentation from the Region of Waterloo (R. Nazarowicz, Personal Communication, June 21, 2023) has been provided in the Supplementary Documentation to this report.

1.4 Existing Conditions

The study area for the Project comprises 12.1 hectares of parts of Lots 1, 17, and 18, German Company Tract, Geographic Township of Waterloo, former Waterloo County, now City of Kitchener, Regional Municipality of Waterloo, Ontario. The study area encompasses a portion of Schneider Creek and the lower portion of Shoemaker Creek where it joins Schneider Creek along with approximately 50 metres of land on either side. Both Schneider Creek and Shoemaker Creek within the study area have been heavily modified by channelization and the construction of concrete embankments in the mid to late 20th century. The land adjacent to the creeks is a mix of industrial and residential use with some manicured lawn, parkland, and scrubland, and large areas of previous disturbance including sidewalks, multiuse pathways, paved streets, paved and gravel parking lots, utilities, existing residential and industrial buildings, and former railbeds.

2 Field Methods

The Stage 1 archaeological assessment compiled information concerning registered and/or potential archaeological resources within the study area. A property inspection was conducted on June 5, 2023, under Project Information Form (PIF) number P083-0408-2023 issued to Arthur Figura, MA, by the MCM. Arthur Figura (P083) was the Field Director for the property inspection. The property inspection involved examining the entirety of the study area to identify the presence or absence of any features of archaeological potential, in accordance with Section 1.2 of the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011a). During the property inspection the weather was warm and sunny, and visibility of land features was excellent. Field, lighting, and weather conditions were not detrimental to the identification of features of archaeological potential in accordance with Section 1.2 Standard 2 of the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011a). The photography from the property inspection (see Section 7.1) confirms that the requirements for a Stage 1 property inspection were met, as per Section 1.2 and Section 7.7.2 Standard 1 of the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011a).

The property inspection identified that approximately 3.9% of the study area comprises manicured lawn, parkland, or scrubland. The property inspection also identified that approximately 93.9% of the study area is previously and extensively disturbed due to paved streets, sidewalks, pathways, and parking lots, existing buildings, concrete embankments along Schneider and Shoemaker Creeks, and buried and overhead utilities. Finally, a portion of the study area (2.2%) has been previously assessed as noted in Section 1.3.2 (ARA 2019).

3 Analysis and Conclusions

Archaeological potential is established by determining the likelihood that archaeological resources may be present on a subject property. Stantec applied archaeological potential criteria commonly used by the MCM (Government of Ontario 2011a) to determine areas of archaeological potential within the region under study. These variables include proximity to previously identified archaeological sites; distance to various types of water sources; soil texture and drainage; glacial geomorphology; elevated topography; and the general topographic variability of the area. However, it is worth noting that extensive land disturbance can eradicate archaeological potential (Government of Ontario 2011a).

Potable water is the single most important resource for any extended human occupation or settlement and since water sources in southern Ontario have remained relatively stable over time, proximity to drinkable water is regarded as a useful index for the evaluation of archaeological site potential. In fact, distance to water is one of the most commonly used variables for predictive modeling of archaeological site location in Ontario. Distance to modern or ancient water sources is generally accepted as the most important determinant of past human settlement patterns and considered alone, may result in a determination of archaeological potential. However, any combination of two or more other criteria, such as well-drained soils or topographic variability, may also indicate archaeological potential.

As discussed above, distance to water is an essential factor in archaeological potential modeling. When evaluating distance to water it is important to distinguish between water and shoreline, as well as natural and artificial water sources, as these features affect site locations and types to varying degrees. The MCM categorizes water sources in the following manner:

- Primary water sources: lakes, rivers, streams, and creeks.
- Secondary water sources: intermittent streams and creeks, springs, marshes, and swamps.
- Past water sources: glacial lake shorelines, relic river or stream channels, cobble beaches, shorelines of drained lakes or marshes.
- Accessible or inaccessible shorelines: high bluffs, swamp or marshy lake edges, sandbars stretching into marsh.

The study area encompasses a portion of Schneider Creek and Shoemaker Creek. However, the creeks have undergone significant alteration during the 20th century when they were channelized, and concrete embankments constructed. The original soils in the region would have been suitable for early agricultural practices. An examination of the MCM's *Ontario Archaeological Sites Database* has shown that there is one registered Indigenous archaeological site within one kilometre of the study area (Government of Ontario 2023a).

Archaeological potential can be extended to areas of early Euro-Canadian settlement, including places of military or pioneer settlements; early transportation routes; and properties listed on the municipal register or designated under the *Ontario Heritage Act* (Government of Ontario 1990c) or property that local histories or informants have identified with possible historical events, activities, or occupations. Historical mapping demonstrates that the study area was one of the first areas of Waterloo Township settled by German Pennsylvania Dutch farmers in the early 19th century. To the north of the study area was the settlement of Berlin, which later was incorporated into the City of Kitchener. By the early to mid 20th

century, Kitchener was rapidly expanding south, and the study area was subject to industrial and urban development. Some of the established road and settlement from the early 19th century is still visible today, but parts have been realigned and many new roads have been built as the area was developed. Two early 20th century railway beds cross the study area; one has been converted into a multi-use trail. An examination of the MCM's *Ontario Archaeological Sites Database* has shown that there are four registered Euro-Canadian archaeological sites within one kilometre of the study area (Government of Ontario 2023a).

When the above listed criteria are applied, the study area retains archaeological potential. This is supported by archaeological potential mapping from the Region of Waterloo's *Archaeological Master Plan* (R. Nazarowicz, personal communication June 21, 2023). However, as noted above, extensive and deep land alteration can eradicate archaeological potential. The Stage 1 background research, including examination of aerial photography from the late 20th century, along with a property inspection, confirmed that much of the study area has been subject to deep and extensive land disturbance including the channelization of Schneider and Shoemaker creeks, construction railways, streets, buildings, and supporting infrastructure. Thus, approximately 93.9% of the study area retains low to no archaeological potential and approximately 2.2% of the study area was previously assessed by ARA (2019) as disturbed and no further archaeological work was recommended. The remaining portion of the study area, approximately 3.9%, comprises manicured lawn, parkland, and scrubland that retains archaeological potential.

4 Recommendations

The Stage 1 archaeological assessment of the study area for the Project, involving background research and a property inspection, determined that portions of the study area, approximately 3.9%, retain archaeological potential. In accordance with Section 1.3.1 and Section 7.7.4 of the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011a), **Stage 2 archaeological assessment is required for any portion of the Project's anticipated construction activities that impact an area of archaeological potential (Figure 9)**.

The objective of Stage 2 archaeological assessment is to document any archaeological resources within the portions of the study area still retaining archaeological potential and to determine whether these archaeological resources require further assessment. As the study area in inaccessible for ploughing, the Stage 2 archaeological assessment will include test pit survey as outlined in Section 2.1.2 of the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011a). The MCM standards require that each test pit be at least 30 centimetres in diameter, excavated to at least five centimetres into sterile subsoil, and have soil screened through six-millimetre hardware cloth to facilitate the recovery of any cultural material that may be present. Prior to backfilling, each test pit will be examined for stratigraphy, cultural features, or evidence of fill.

If the archaeological field team determines lands to be low and wet, steeply sloped, or disturbed during the Stage 2 fieldwork, those areas will not require survey, but will be photographically documented in accordance with Section 2.1 of the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011a).

The Stage 1 archaeological assessment also determined that the majority of the study area, approximately 96.1%, retains low to no archaeological potential for the identification or recovery of archaeological resources due to extensive disturbance and previous assessment (ARA 2019). In accordance with Section 1.3.2 and Section 7.7.4 of the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011a), **Stage 2 archaeological assessment is not required for any portion of the Project's anticipated construction activities that impact an area of low to no archaeological potential (Figure 9).**

In addition to the above, Stantec encourages archaeological engagement with Indigenous communities with interests in the Project area. As it pertains to archaeological assessment, engagement may include notification of any upcoming Stage 2 archaeological fieldwork and an invitation to interested Indigenous communities to join the archaeological field crew during the Stage 2 survey work. Indigenous engagement practices must be completed by licensed archaeologists in accordance with the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011a) and the draft technical bulletin on *Engaging Aboriginal Communities in Archaeology* (Government of Ontario 2011b).

The MCM is asked to review the results presented and to accept this report into the *Ontario Public Register of Archaeological Reports*.

5 Advice on Compliance with Legislation

In accordance with Section 7.5.9 of the MCM's 2011 Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011a), the following standard statements are a required component of archaeological reporting and are provided from the MCM's 2011 Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011a).

This report is submitted to the Minister of Citizenship and Multiculturalism as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c. O.18 (Government of Ontario 1990c). The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Citizenship and Multiculturalism, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* (Government of Ontario 1990c) for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeological Reports referred to in Section 65.1 of the *Ontario Heritage Act* (Government of Ontario 1990c).

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act* (Government of Ontario 1990c). The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48(1) of the *Ontario Heritage Act* (Government of Ontario 1990c).

The *Funeral, Burial and Cremation Services Act,* 2002, S.O. 2002, c. 33 (Government of Ontario 2002), requires that any person discovering or having knowledge of a burial site shall immediately notify the police or coroner. It is recommended that the Registrar of Cemeteries at the Ministry of Public and Business Service Delivery is also immediately notified.

Archaeological sites recommended for further archaeological fieldwork remain subject to Section 48(1) of the *Ontario Heritage Act* (Government of Ontario 1990c) and may not be altered, or have artifacts removed, except by a person holding an archaeological license.

6 References

Archaeological Research Associates Ltd. 2019. *Stage 1 Archaeological Assessment Shoemaker Creek Restoration Homer Watson Boulevard to Schneider Creek City of Kitchener Regional Municipality of Waterloo Part of Lots 1, 18 and 19, German Company Tract, Geographic Township of Waterloo, Waterloo County, Ontario*. Report on file with the Ministry of Citizenship and Multiculturalism. PIF number P007-0982-2019.

Birch, Jennifer. 2015. Current Research on the Historical Development of Northern Iroquoian Societies. *Journal of Archaeological Research* 22(4): 263-323.

Birch, Jennifer and Ronald F. Williamson. 2013. *The Mantle Site: An Archaeological History of an Ancestral Huron Wendat Community.* Lanham: Altamira Press.

Bloomfield, Elizabeth. 2006. *Waterloo through Two Centuries.* Revised edition. Waterloo Historical Society. St. Jacobs: St. Jacobs Printery.

Bohaker, Heidi R. 2006. Nindoodemag: Anishinaabe Identities in the Eastern Great Lakes Region, 1600 to 1900. Ph.D. dissertation. University of Toronto.

Borden, Charles E. 1952. A Uniform Site Designation Scheme for Canada. *Anthropology in British Columbia* 3: 44-48.

Breithaupt, W. H. 1917. *Waterloo County Railway History: Fifth Annual Report of the Waterloo Historical Society*. Electronic Document: http://www.transportsourcebook.ca/waterloo-historical-society/yr1917-waterloo-county-railway-history.php. Last accessed June 21, 2023.

Bricker, I.C. 1934. The History of Waterloo Township up to 1825. *Twenty-Second Annual Report of the Waterloo Historical Society*. Kitchener: Waterloo Historical Society.

Caston, Wayne A. 1997. Evolution in the Mapping of Southern Ontario and Wellington County. *Wellington County History* 10:91-106.

Chapman, Lyman John and Donald F. Putnam. 1984. *The Physiography of Southern Ontario*. Third edition. Ontario Geological Survey Special Volume 2. Toronto: Ministry of Natural Resources.

City of Kitchener. 2018. *Terms of Reference P18-173: Professional Services for Detailed Design & Contract Administration for Shoemaker Creek Restoration from Homer Watson Blvd to Schneider Creek*. City of Kitchener.

Dahms, Fred. 1991. Change and Stability Within an Urban Hierarchy: Waterloo County 1864 to 1971. *Urban History Review* 20(1):38-47.

Department of Militia and Defence, Survey Division. 1916. Galt, Ontario. 1:63,360. Map Sheet 040P08 (ed. 1).

Department of National Defence, Geographical Section. 1936. Galt, Ontario. 1:63,360. Map Sheet 040P08 (ed. 4).

Department of Energy, Mines and Resources, Surveys and Mapping Branch. 1968. Kitchener - Breslau (Kitchener East), Ontario. 1:25,000. Map Sheet 040P08E, ed. 1.

Ellis, Chris J. and Neal Ferris (editors). 1990. *The Archaeology of Southern Ontario to A.D. 1650*. Occasional Publication of the London Chapter, Ontario Archaeological Society, Number 5.

Ellis, Chris J., Ian T. Kenyon, and Michael W. Spence. 1990. “The Archaic.” In Ellis and Ferris 1990, 65-124.

Ellis, Christopher J. 2013. Before Pottery: Paleoindian and Archaic Hunter-Gatherers. In *Before Ontario: The Archaeology of a Province*, edited by Marit K. Munson and Susan M. Jamieson, 35-47. Montreal and Kingston: McGill-Queen’s University Press.

Ferris, Neal. 2009. *The Archaeology of Native-Lived Colonialism: Challenging History in the Great Lakes*. Tucson: University of Arizona Press.

Gentilcore, R. Louis and C. Grant Head. 1984. *Ontario’s History in Maps*. Toronto: University of Toronto Press.

Government of Canada. 1905. *Indian Treaties and Surrenders from 1680 to 1890*. Two volumes. 1971 Coles reprint. Ottawa: Queen’s Printer.

Government of Canada. 2023. *Treaty Texts - Upper Canada Land Surrenders.* Electronic document: https://www.rcaanc-cirnac.gc.ca/eng/1370372152585/1581293792285#ucls5. Last accessed June 27, 2023.

Government of Ontario. 1990a. Environmental Assessment Act, R.S.O. 1990, CHAPTER E.18. Electronic document: https://www.ontario.ca/laws/statute/90e18. Last accessed June 21, 2023.

Government of Ontario. 1990b. *Freedom of Information and Protection of Privacy Act,* R.S.O. 1990, CHAPTER F.31. Electronic document: https://www.ontario.ca/laws/statute/90f31. Last accessed June 21, 2023.

Government of Ontario. 1990c. *Ontario Heritage Act*, R.S.O. 1990, CHAPTER O.18. Electronic document: http://www.ontario.ca/laws/statute/90o18. Last accessed June 21, 2023.

Government of Ontario. 2002. *Funeral, Burial and Cremation Services Act, 2002*, S.O. 2002, CHAPTER 33. Electronic document: https://www.ontario.ca/laws/statute/02f33. Last accessed June 21, 2023.

Government of Ontario. 2011a. *Standards and Guidelines for Consultant Archaeologists*. Toronto: Ministry of Citizenship and Multiculturalism.

Government of Ontario. 2011b. *Engaging Aboriginal Communities in Archaeology.* Toronto: Ministry of Citizenship and Multiculturalism.

Government of Ontario. 2023a. *Archaeological Sites Database Files*. Electronic document: https://www.pastport.mtc.gov.on.ca/APSWeb/pif/projectSiteDataSearch.xhtml. Last accessed June 6, 2023. Toronto: Ministry of Citizenship and Multiculturalism.

Government of Ontario. 2023b. *Past Portal Report Database Files*. Electronic document: https://www.pastport.mtc.gov.on.ca/APSWeb/report/reportSearch.xhtml. Last accessed June 6, 2023. Toronto: Ministry of Citizenship and Multiculturalism.

Harper, Russell. 1950. *The Early History of Haldimand County.* Caledonia: Grand River Sachem.

Hayes, Geoffrey. 1997. *Waterloo County: An Illustrated History.* Waterloo: St. Jacobs Printery.

Heidenreich, Conrad E. 1978. Huron. In *Handbook of North American Indians, Volume 15 Northeast*, edited by Bruce G. Trigger, 368-388. Washington: Smithsonian Institution Press.

Hill, Susan M. 2017. *The Clay we are Made of: Haudenosaunee Land Tenure on the Grand River.* Winnipeg: University of Manitoba Press.

Konrad, Victor. 1981. An Iroquois Frontier: The North Shore of Lake Ontario during the Late Seventeenth Century. *Journal of Historical Geography* 7(2): 129-144.

Loewen, Brad and Claude Chapdelaine (editors). 2016. *Contact in the 16th Century: Networks among Fishers, Foragers and Farmers.* Mercury Series Archaeology Paper 176. Ottawa: University of Ottawa Press.

Mississaugas of the Credit First Nation. 2023. Between the Lakes Treaty No. 3 (1792). Electronic document: http://mncfn.ca/treaty3/. Last accessed June 21, 2023.

Morris, J.L. 1943. *Indians of Ontario*. 1964 reprint. Toronto: Department of Lands and Forests, Government of Ontario.

Parsell, H. 1881. *Illustrated Historical Atlas of Waterloo County*. Toronto: H. Parsell & Co.

Paudash, Robert. 1905. *The Coming of the Mississagas*. An oral history prepared by J. Hampden Burnham. Ontario Historical Society Papers and Records, Vol. VI. Toronto: Ontario Historical Society.

Praxis Research Associates. n.d. *The History of the Mississaugas of the New Credit First Nation*. Hagersville: Lands, Research and Membership, Mississaugas of the New Credit First Nation.

Presant, E.W. and R.E. Wicklund. 1971. *The Soils of Waterloo County. Report No. 44 of the Ontario Soil Survey.* Ottawa: Research Branch, Canada Department of Agriculture.

Regional Municipality of Waterloo. 1989. *Archaeological Facilities Master Plan*. Waterloo: Marsland Centre, Planning and Development Department, Archaeology Division.

Rogers, E.S. 1978. “Southeastern Ojibwa.” In *Handbook of North American Indians*, *Volume 15, Northeast*, edited by Bruce G. Trigger, 760-771. Washington: Smithsonian Institution Press.

Schmalz, Peter S. 1991. *The Ojibwa of Southern Ontario*. Toronto: University of Toronto Press.

Six Nations Lands & Resources Department. 2015. *Land Rights: A Global Solution for the Six Nations of the Grand River*. Ohsweken: Six Nations Lands & Resources Department. Electronic document: http://www.sixnations.ca/LandsResources/index.htm. Last accessed June 21, 2023.

Stevens, E. W. 2004. *First Nations underwater archaeology of the Trent-Severn Waterway*. Copy on file at Parks Canada, Ottawa.

Stewart, A.M. 2013. Water and Land. In *Before Ontario: The Archaeology of a Province, e*dited by Marit K. Munson and Susan M. Jamieson, 24-34. Montreal and Kingston: McGill-Queen’s University Press.

Tremaine, George. 1861. *Tremaine’s Map of the County of Waterloo, Canada West*. Toronto: George R. & G.M. Tremaine.

University of Waterloo. 2008. *Digital Historical Air Photos of Kitchener-Waterloo.* Electronic Resource: https://lib.uwaterloo.ca/locations/umd/project/IM9.html. Last accessed: June 21, 2023.

Warrick, Gary. 2013. The Aboriginal Population of Ontario in Late Prehistory. In *Before Ontario: The Archaeology of a Province*, edited by Marit K. Munson and Susan M. Jamieson, 62-76. Montreal and Kingston: McGill-Queen’s University Press.

Weaver, Sally M. 1978. Six Nations of the Grand River, Ontario. In *Handbook of North American Indians, Volume 15 Northeast*, edited by Bruce G. Trigger, 525-536. Washington: Smithsonian Institution Press.

White, Marian. 1978. Neutral and Wenro. In *Handbook of North American Indians, Volume 15 Northeast*, edited by Bruce Trigger, 407-411. Washington: Smithsonian Institution Press.

Williamson, Ronald F. 2013. The Woodland Period, 900 BCE to 1700 CE. In *Before Ontario: The Archaeology of a Province,* edited by Marit K. Munson and Susan M. Jamieson, 48-61. Montreal and Kingston: McGill-Queen’s University Press.

Wybenga, Darin P., and Kaytee Dalton. 2018. Mississaugas of the New Credit First Nation: Past and Present. Haggersville, ON: Mississaugas of the New Credit First Nation Administration.

7 Images

7.1 Photographs

Photo 1: General view of paved parking lot, facing southwest

Photo 2: General view of gravel lane and buildings, facing east

Photo 3: General view of gravel area and paved path, facing east

Photo 4: General view of gravel area and paved path, facing west

Photo 5: General view of parkland and manicured lawn, facing east

Photo 6: General view of Schneider Creek with concrete embankments, facing east

Photo 7: General view of scrubland, facing south

Photo 8: General view of gravel parking lot and buildings, facing east

Photo 9: General view of gravel parking lot, paved pathway, and buildings, facing southeast

Photo 10: General view of paved parking lot, facing southwest

Photo 11: General view of Schneider Creek with concrete embankments, facing northwest

Photo 12: General view of paved parking lot, facing northeast

Photo 13: General view of asphalt pathway, facing southeast

Photo 14: General view of existing buildings and parking lot, facing northwest

Photo 15: General view of street and existing buildings, facing southeast

Photo 16: General view of Schneider Creek with concrete embankments, facing northwest

Photo 17: General view of gravel parking lot and buildings, facing northeast

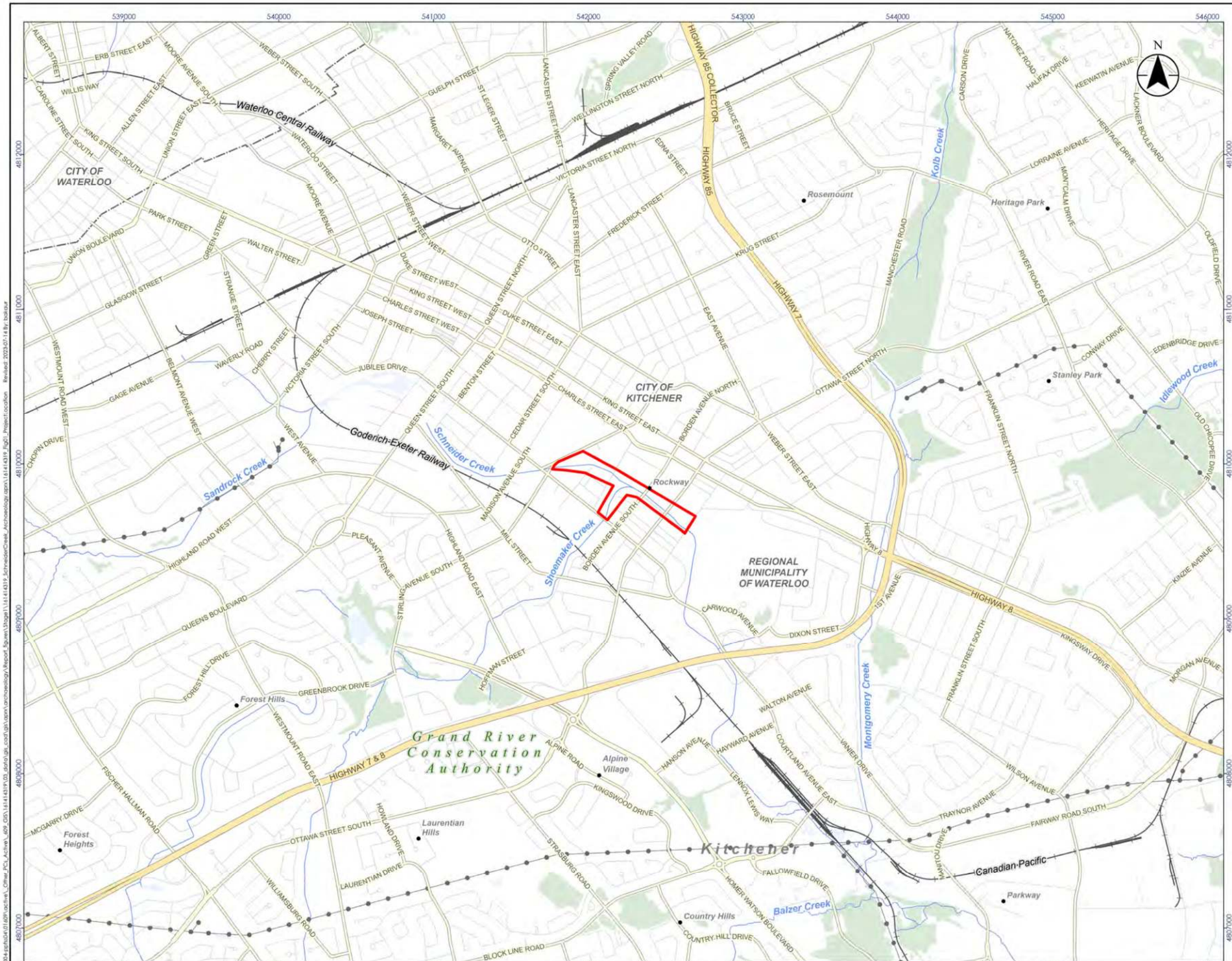
Photo 18: General view of Schneider Creek with concrete and steel embankments, facing northwest

Photo 19: General view of Schneider Creek with concrete and steel embankments, and building, facing northeast

Photo 20: General view of existing building and parking lot, facing northwest

8 Maps

General maps of the Stage 1 archaeological assessment of the study area follow on succeeding pages.

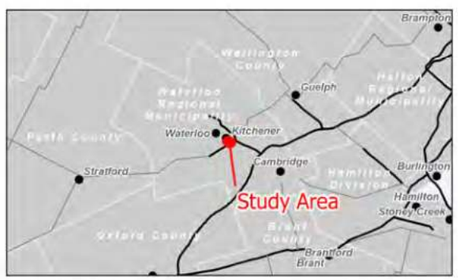


Stantec

Legend
- Study Area
- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Hydro Line
- Watercourse (Permanent)
- Waterbody
- Municipal Boundary - Lower Tier
- Municipal Boundary - Upper Tier
- Wooded Area

0 0.5 1 km
1:25,000 (At original document size of 11x17)

Notes
1. Coordinate System:NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2022.



Project Location
City of Kitchener

161414319 REVA
Prepared by bakaur on 2023-07-14
Technical Review by AW on 2023-06-13

Client/Project
CITY OF KITCHENER
SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION
MUNCIPAL CLASS EA: APU REPORT

Figure No.
1

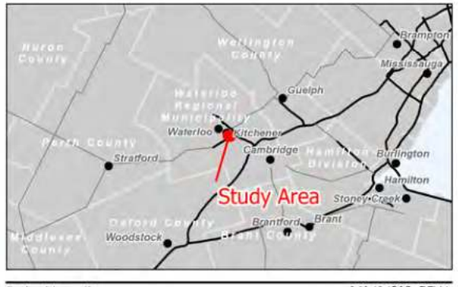
Title
Project Location

Stantec

Legend
- Study Area
- Railway
- Watercourse (Permanent)

0 100 200 Meters
1:4,000 (At original document size of 11x17)

Notes
1. Coordinate System:NAD 1983 UTM Zone 16N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.
3. Orthoimagery © First Base Solutions, 2023. Imagery Date, 2022.



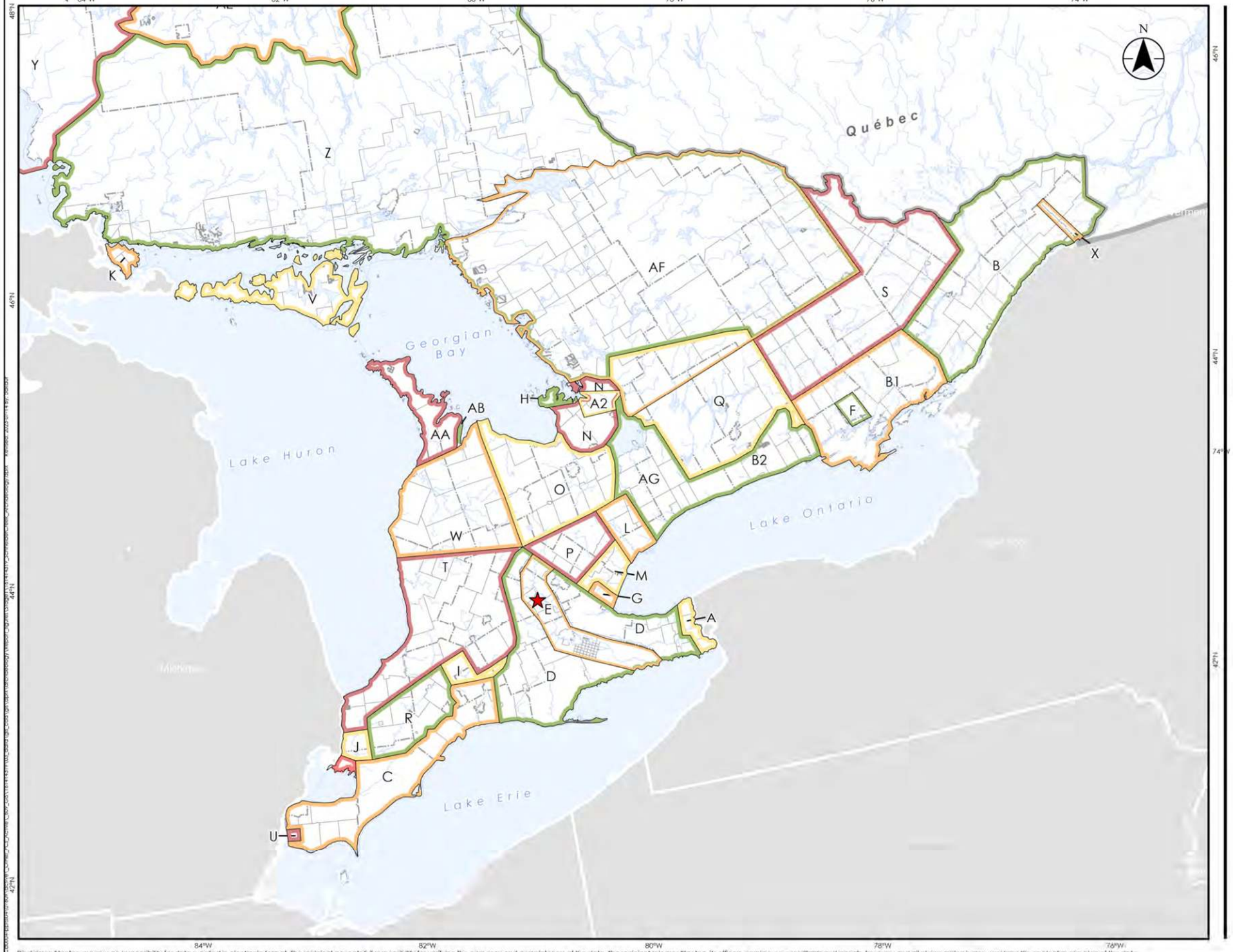
Project Location
City of Kitchener

161414319 REVA
Prepared by bakaur on 2023-07-14
Technical Review by AW on 2023-06-14

Client/Project
CITY OF KITCHENER
SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION
MUNCIPAL CLASS EA: APU REPORT

Figure No.
2

Title
Study Area



Stantec

Legend

- Study Area
- Waterbody

A Treaty No. 381, May 9th, 1781 (Mississauga and Chippewa)
AA Treaty No. 72, October 30th, 1854 (Chippewa)
AB Treaty No. 82, February 9th, 1857 (Chippewa)
AE Treaty No. 9, James Bay 1905, 1906 (Ojibway and Cree)
AF Williams Treaty, October 31st and November 15th, 1923 (Chippewa and Mississauga)
AG Williams Treaty, October 31st, 1923 (Chippewa)
A2 John Collins' Purchase, 1785 (Chippewa)
B Crawford's Purchase, October 9th, 1783 (Algonquin and Iroquois)
B1 Crawford's Purchase, October 9th, 1783 (Mississauga)
B2 Crawford's Purchase, 1783, 1787, 1788 (Mississauga)
C Treaty No. 2, May 19th, 1790 (Odawa, Chippewa, Pottawatomi, and Huron)
D Treaty No. 3, December 2nd, 1792 (Mississauga)
E Haldimand Tract: from the Crown to the Mohawk, 1793
F Tyendinaga: from the Crown to the Mohawk, 1793
G Treaty No. 3 3/4: from the Crown to Joseph Brant, October 24th, 1795
H Treaty No. 5, May 22nd, 1798 (Chippewa)
I Treaty No. 6, September 7th, 1796 (Chippewa)
J Treaty No. 7, September 7th, 1796 (Chippewa)
K Treaty No. 11, June 30th, 1798 (Chippewa)
L Treaty No. 13, August 1st, 1805 (Mississauga)
M Treaty No. 13A, August 2nd, 1805 (Mississauga)
N Treaty No. 16, November 18th, 1815 (Chippewa)
O Treaty No. 18, October 17th, 1818 (Chippewa)
P Treaty No. 19, October 28th 1818 (Chippewa)
Q Treaty No. 20, November 5th, 1818 (Chippewa)
R Treaty No. 21, March 9th, 1819 (Chippewa)
S Treaty No. 27, May 31st, 1819 (Mississauga)
T Treaty No. 27½, April 25th, 1825 (Ojibwa and Chippewa)
U Treaty No. 35, August 13th, 1833 (Wyandot or Huron)
V Treaty No. 45, August 9th, 1836 (Chippewa and Odawa, "For All Indians To Reside Thereon")
W Treaty No. 45½, August 9th, 1836 (Saugeen)
X Treaty No. 57, June 1st, 1847 (Iroquois of St. Regis)
Y Treaty No. 60, Robinson, Superior, September 7th, 1850 (Ojibwa)
Z Treaty No. 61, Robinson, Huron, September 9th, 1850 (Ojibwa)

0 50 100 km
1:3,000,000 (At original document size of 11x17)

Notes
1. Coordinate System: NAD 1983 Statistics Canada Lambert
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.
3. Treaty boundaries adapted from Morris 1943 (1964 reprint). For cartographic representation only.

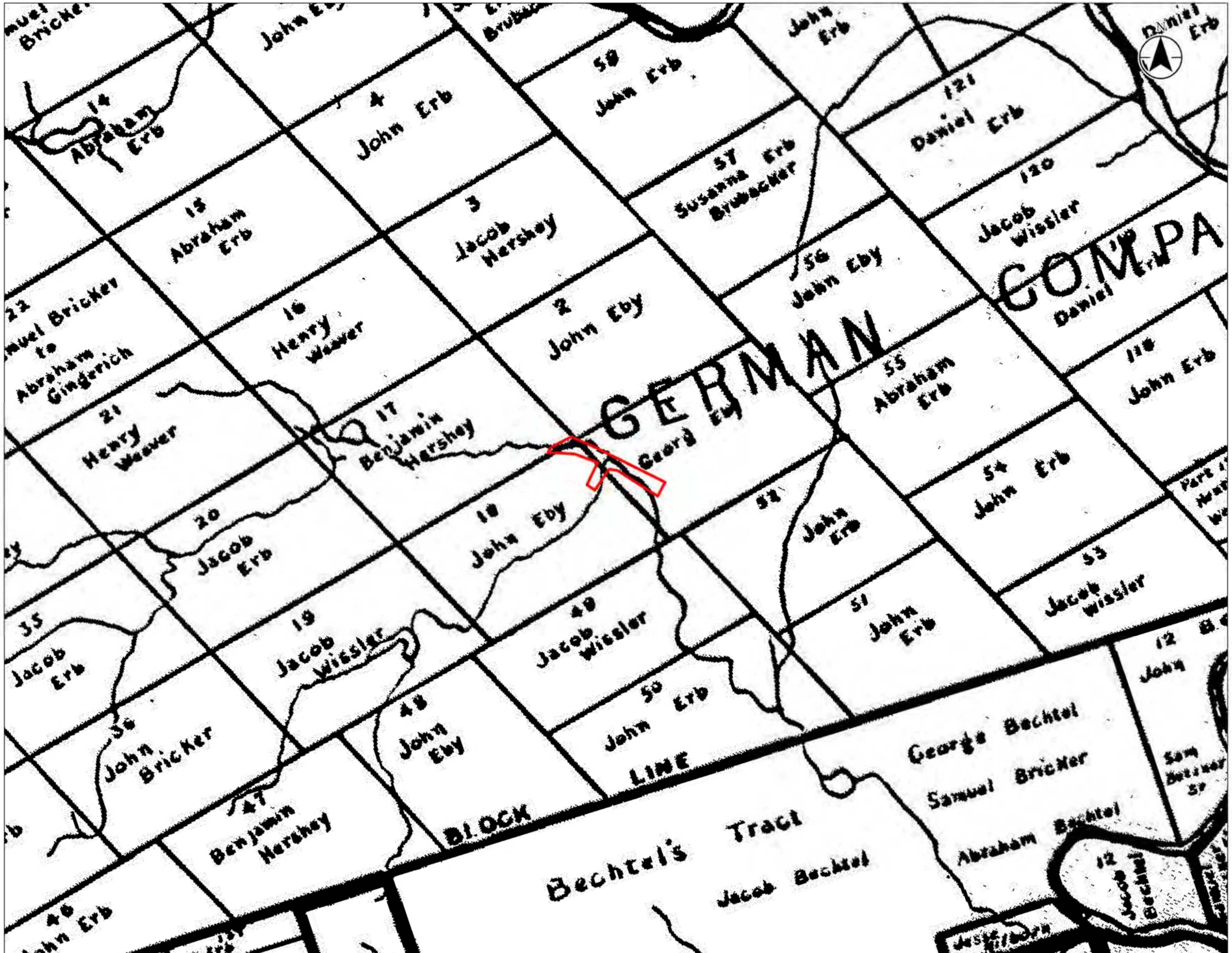
Project Location
City of Kitchener

161414319 REVA
Prepared by bakaur on 2023-07-14
Technical Review by AW on 2023-06-14

Client/Project
CITY OF KITCHENER
SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION
MUNCIPAL CLASS EA: APU REPORT

Figure No.
3

Title
Treaties and Purchases (Adapted from Morris 1943)



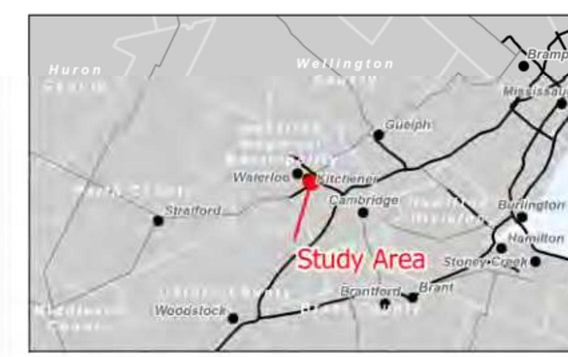
Stantec

Legend

Study Area (Approximate)

Notes

1. Map is not to scale.
2. Reference: Bricker, I.C. 1934. The History of Waterloo Township up to 1825. Twenty-Second Annual Report of the Waterloo Historical Society. Kitchener: Waterloo Historical Society.



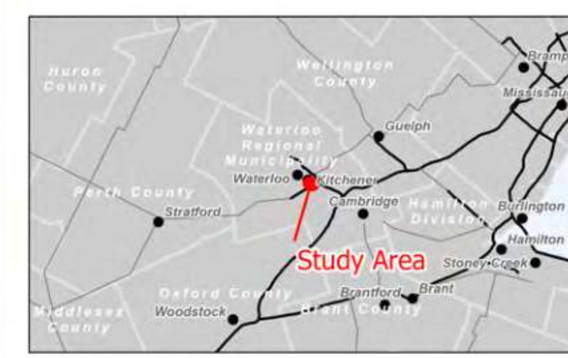
Project Location
City of Kitchener

161414319 REVA
Prepared by bakaur on 2023-07-14
Technical Review by AW on 2023-06-14

Client/Project
CITY OF KITCHENER
SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION
MUNCIPAL CLASS EA: APU REPORT

Figure No.
4

Title
Portion of the 1805 Historical Map of Waterloo Township



Stantec

Legend

Study Area (Approximate)

Notes

1. Map is not to scale.
2. Reference: Tremaine, George. 1861. Tremaine's Map of the County of Waterloo, Canada West. Toronto: George R. & G.M. Tremaine.

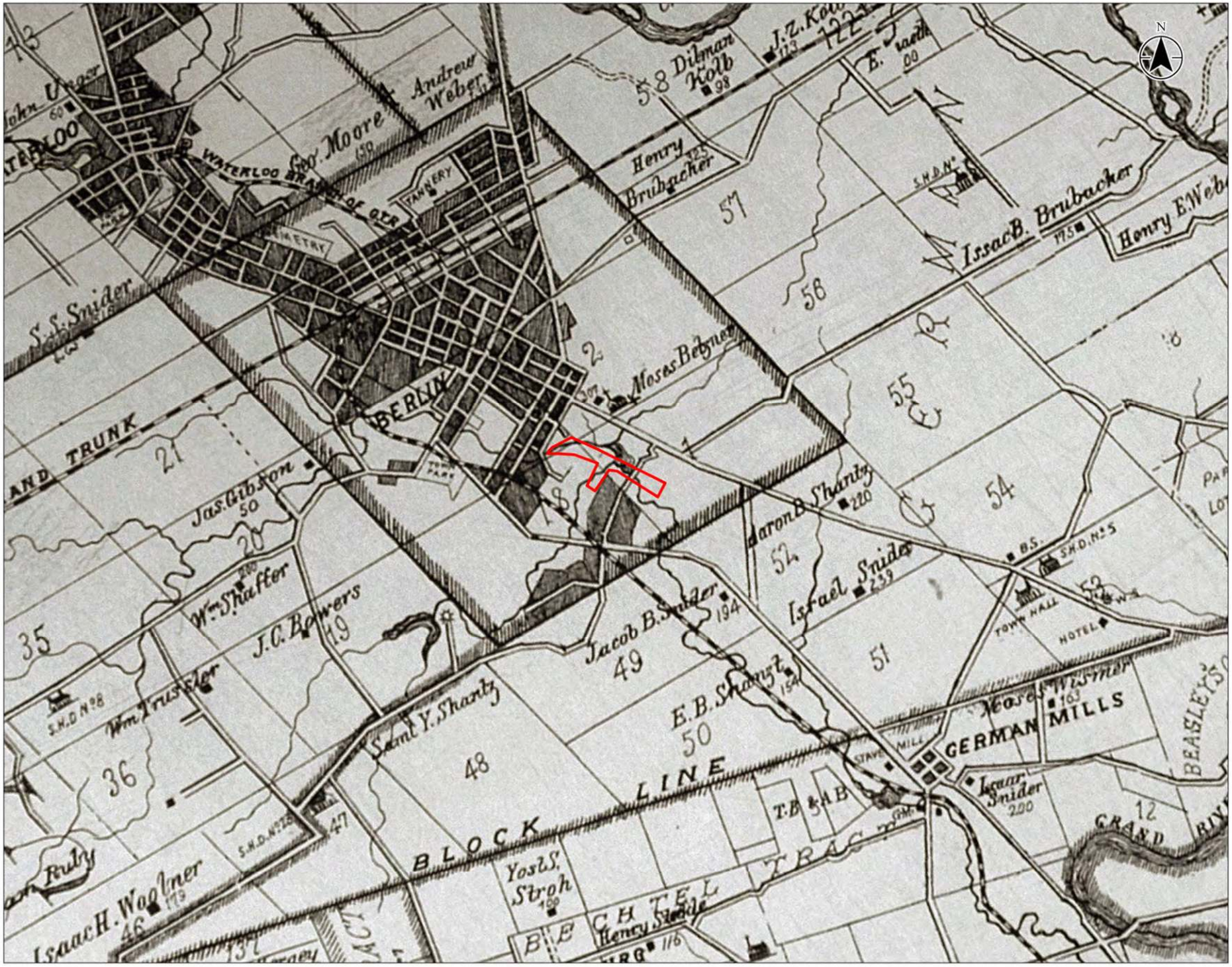
Project Location
City of Kitchener

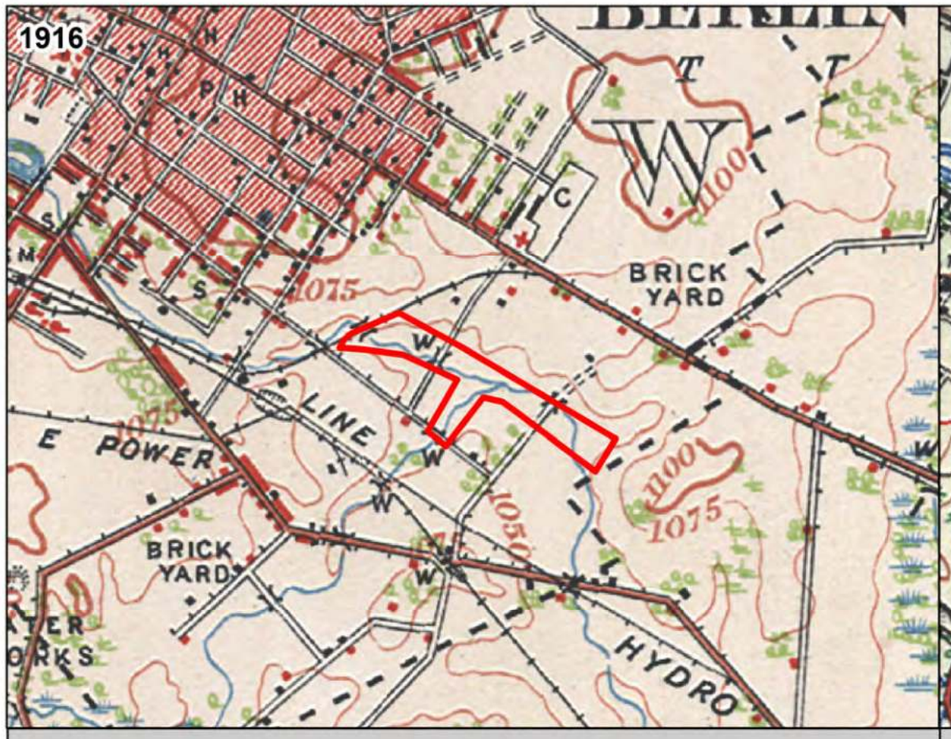
161414319 REVA
Prepared by bakaur on 2023-07-14
Technical Review by AW on 2023-06-14

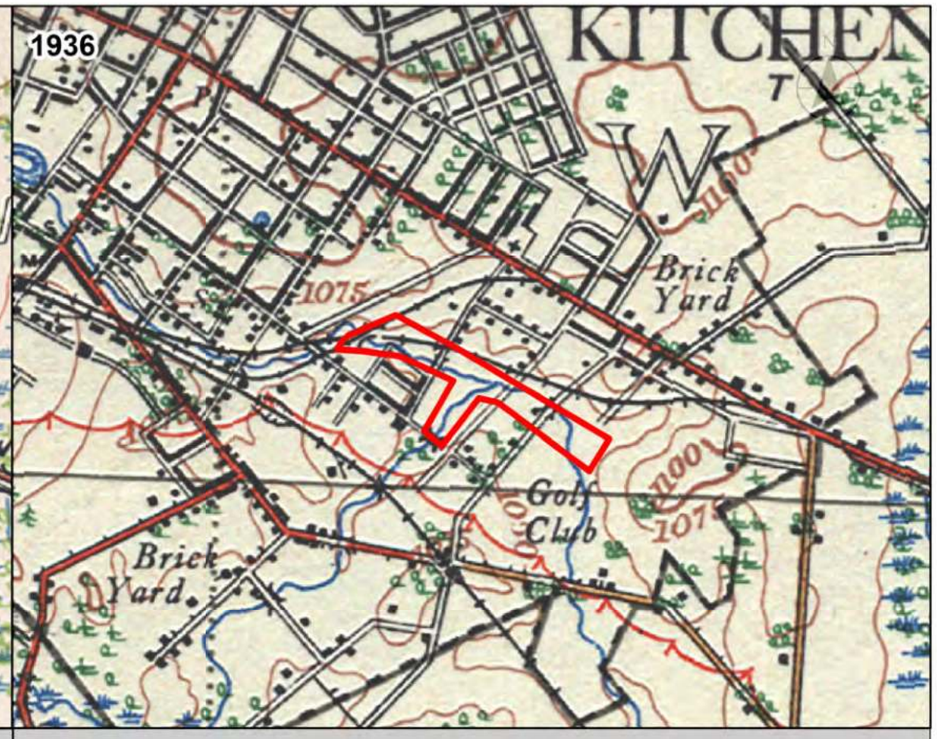
Client/Project
CITY OF KITCHENER
SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION
MUNCIPAL CLASS EA: APU REPORT

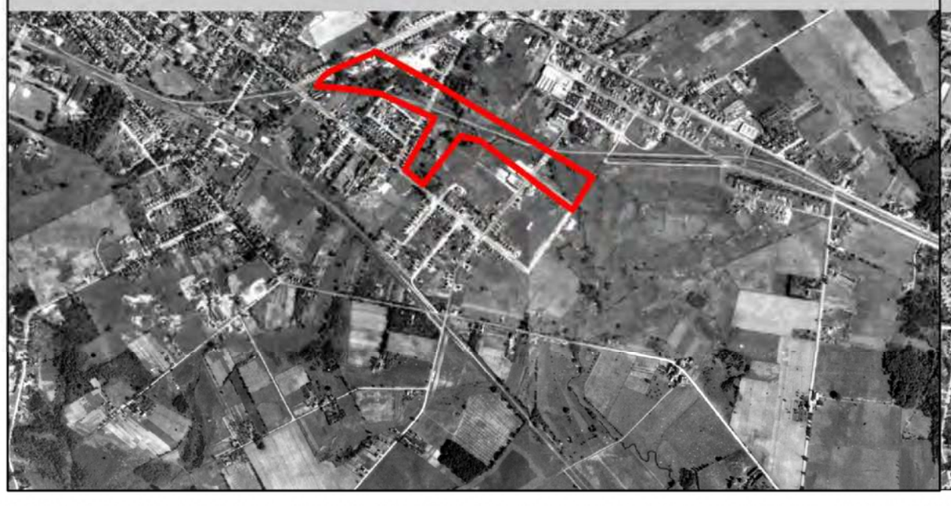
Figure No.
5

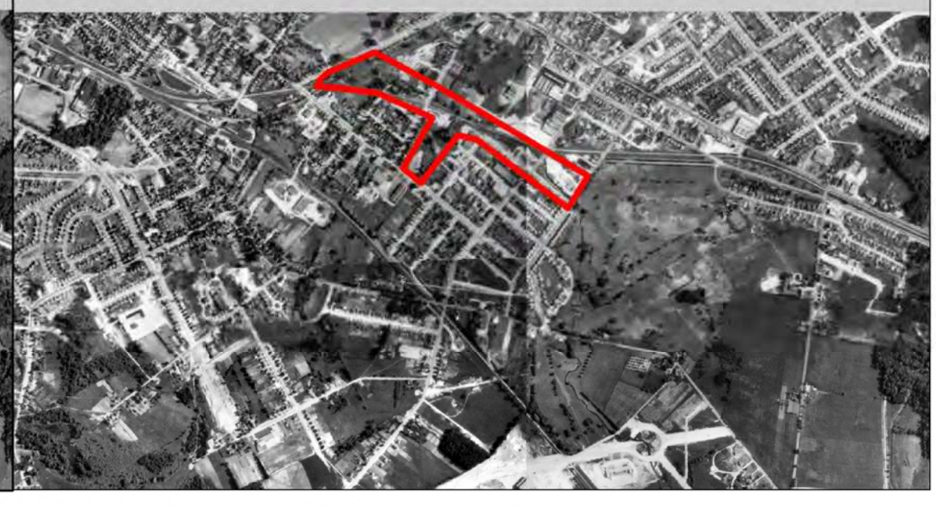
Title
Portion of the 1861 Map of the County of Waterloo


Stantec
Legend
Study Area (Approximate)
N
Notes
1. Map is not to scale.
2. Reference: Parsell, H. 1881. Illustrated Historical Atlas of Waterloo County. Toronto: H. Parsell & Co.
Study Area
Project Location
City of
Kitchener
161414319 REVA
Prepared by bakaur on 2023-07-14
Technical Review by AW on 2023-06-14
Client/Project
CITY OF KITCHENER
SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION
MUNCIPAL CLASS EA: APU REPORT
Figure No.
6
Title
Portion of the 1881 Map of Waterloo Township
Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.







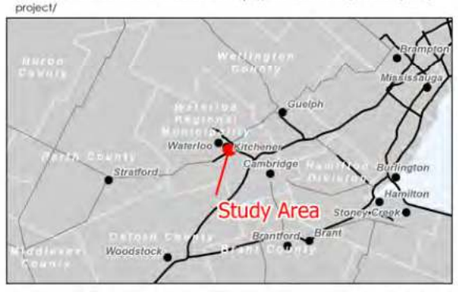


Stantec

Legend
Study Area (Approximate)

Figure Not to Scale

Notes
1. References: Department of Militia and Defence, Survey Division. 1916. Galt, Ontario. 1:63,360. Map Sheet 040P08 (ed. 1).
Department of National Defence, Geographical Section. 1936. Galt, Ontario. 1:63,360. Map Sheet 040P08 (ed. 4).
University of Waterloo, Geospatial Centre. 2008. Digital Historical Air Photos of Kitchener-Waterloo. Electronic database: https://lib.uwaterloo.ca/locations/umd/project/



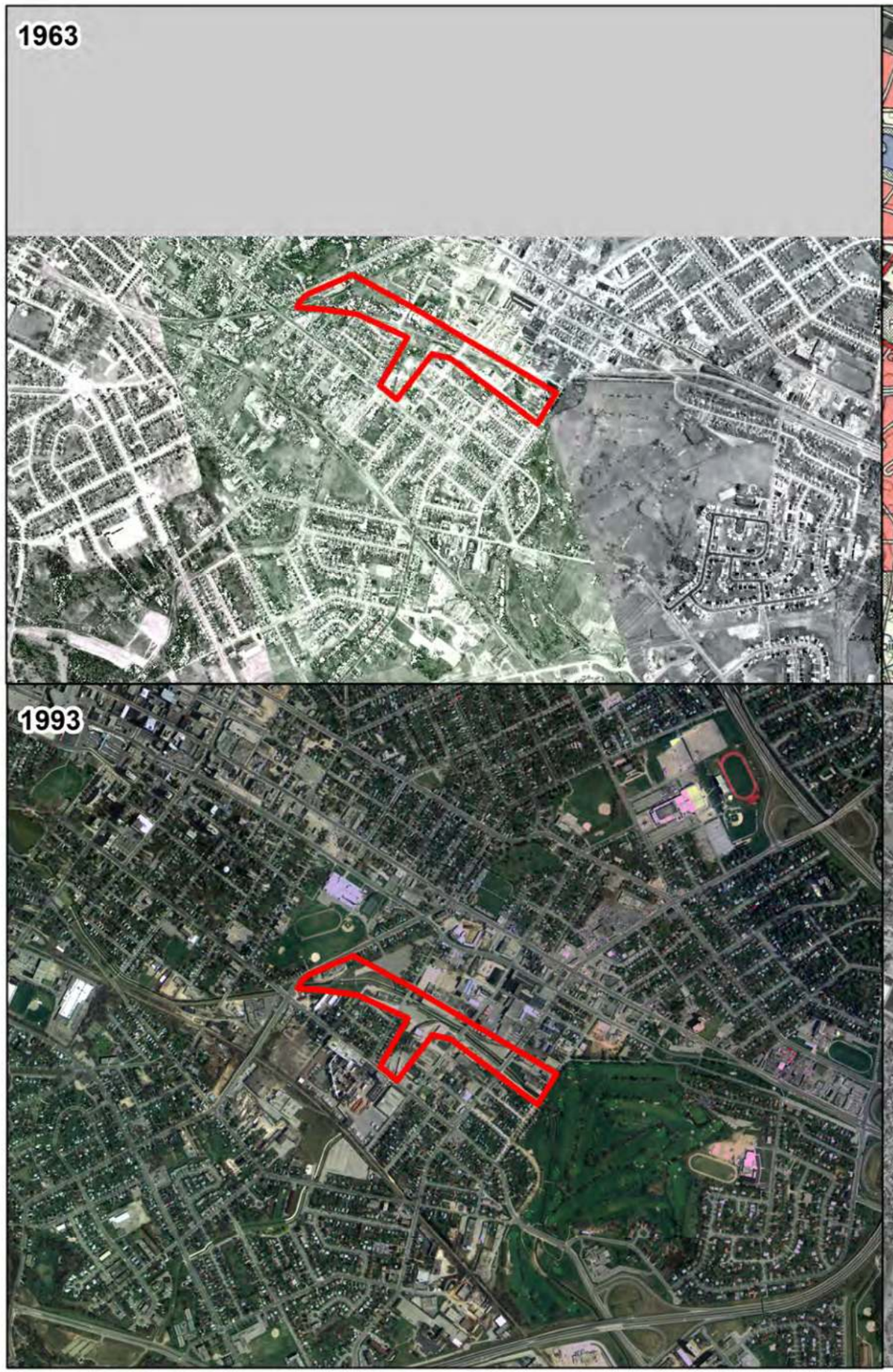
Project Location
City of Kitchener

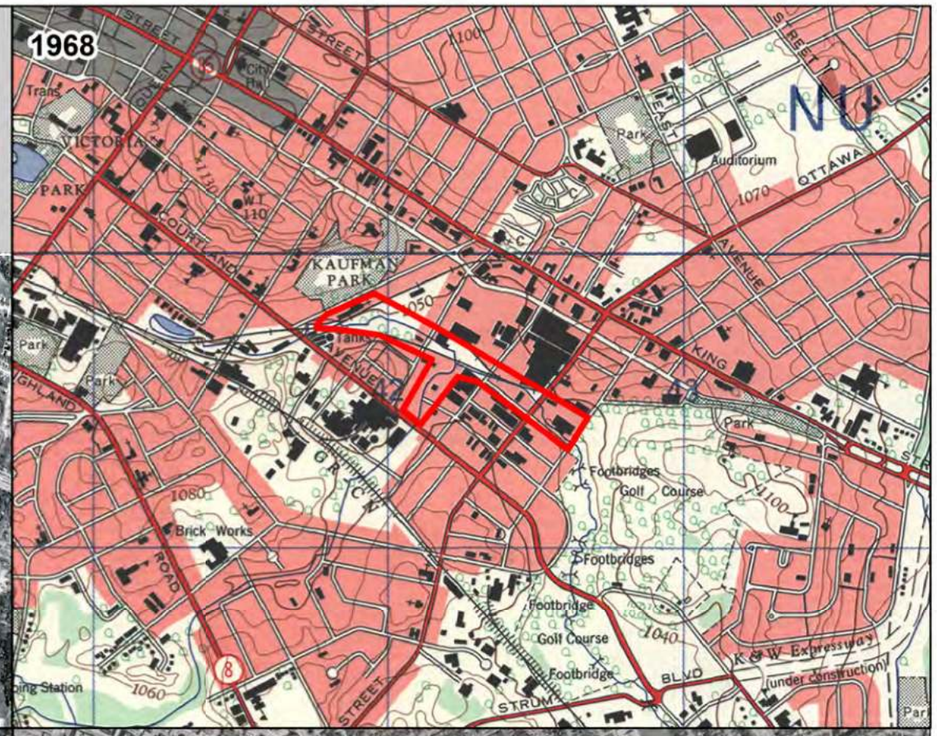
161414319 REVA
Prepared by bakaur on 2023-07-14
Technical Review by AW on 2023-06-14

Client/Project
CITY OF KITCHENER
SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION
MUNCIPAL CLASS EA: APU REPORT

Figure No.
7

Title
Topographical and Aerial Imagery 1916 to 1955





Stantec

Legend

Study Area (Approximate)

Figure Not to Scale

Notes

1. References: Department of Energy, Mines and Resources, Surveys and Mapping Branch. 1968. Kitchener - Breslau (Kitchener East), Ontario. 1:25,000. Map Sheet 040P08E, ed. 1.
University of Waterloo, Geospatial Centre. 2008. Digital Historical Air Photos of Kitchener-Waterloo. Electronic database: https://lib.uwaterloo.ca/locations/umd/project/.

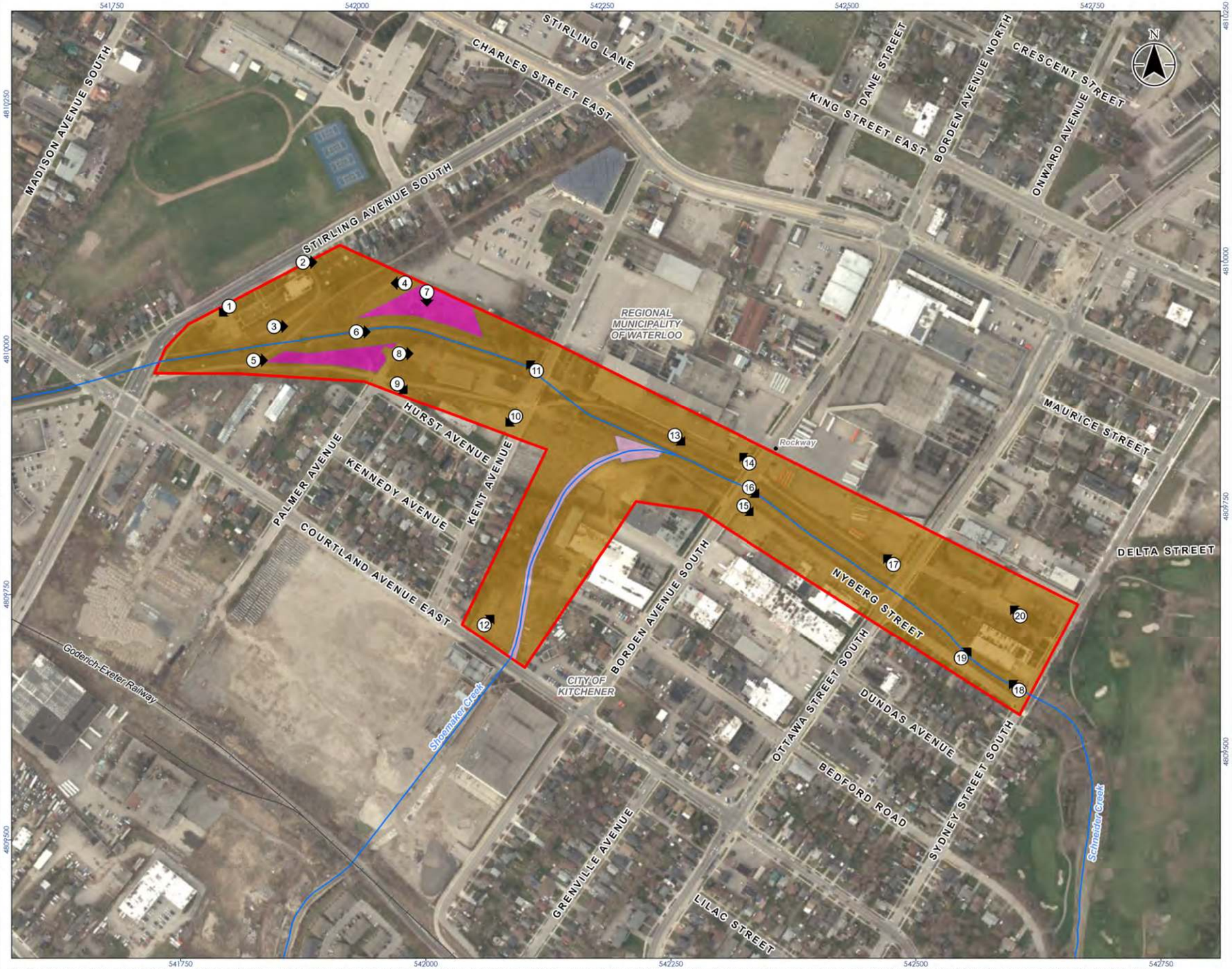
Project Location
City of Kitchener

161414319 REVA
Prepared by bakaur on 2023-07-14
Technical Review by AW on 2023-06-14

Client/Project
CITY OF KITCHENER
SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION
MUNCIPAL CLASS EA: APU REPORT

Figure No.
8

Title
Topographical and Aerial Imagery 1963 to 2000



Stantec

Legend

- Study Area
- Photo Location and Direction
- Railway
- Watercourse (Permanent)

Assessment Method

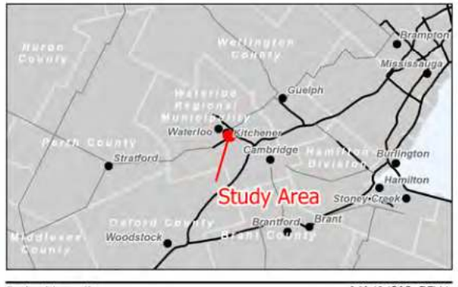
- Area of Archaeological Potential - Further Archaeological Work Recommended (Stage 2)
- Previously Disturbed, Low to No Archaeological Potential - No Further Archaeological Work Recommended
- Previously Assessed, Low to No Archaeological Potential - No Further Archaeological Work Recommended (ARA 2019)

0 100 200 Meters

1:4,000 (At original document size of 11x17)

Notes

1. Coordinate System:NAD 1983 UTM Zone 16N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.
3. Orthoimagery © First Base Solutions, 2023. Imagery Date, 2022.



Project Location
City of Kitchener

161414319 REVA
Prepared by bakaur on 2023-07-14
Technical Review by AW on 2023-06-14

Client/Project
CITY OF KITCHENER
SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION
MUNCIPAL CLASS EA: APU REPORT

Figure No.
9

Title
Archaeological Potential

9 Closure

This report documents work that was performed in accordance with generally accepted professional standards at the time and location in which the services were provided. No other representations, warranties or guarantees are made concerning the accuracy or completeness of the data or conclusions contained within this report, including no assurance that this work has uncovered all potential archaeological resources associated with the identified property.

All information received from the client or third parties in the preparation of this report has been assumed by Stantec to be correct. Stantec assumes no responsibility for any deficiency or inaccuracy in information received from others.

Conclusions made within this report consist of Stantec's professional opinion as of the time of the writing of this report and are based solely on the scope of work described in the report, the limited data available and the results of the work. The conclusions are based on the conditions encountered by Stantec at the time the work was performed. Due to the nature of archaeological assessment, which consists of systematic sampling, Stantec does not warrant against undiscovered environmental liabilities nor that the sampling results are indicative of the condition of the entire property.

This report has been prepared for the exclusive use of the client identified herein and any use by any third party is prohibited. Stantec assumes no responsibility for losses, damages, liabilities, or claims, howsoever arising, from third party use of this report. We trust this report meets your current requirements. Please do not hesitate to contact us should you require further information or have additional questions about any facet of this report.

Quality Review  Dickson, Parker
2023.07.18
11:49:39 -04'00'

(signature)

Parker Dickson – Senior Associate, Environmental Services

Independent Review  Digitally signed by Colin Varley
Date: 2023.07.18
11:10:46 -04'00'

(signature)

Colin Varley – Senior Associate, Senior Archaeologist

STAGE 1 ARCHAEOLOGICAL ASSESSMENT: SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

Parts of Lots 1, 17, and 18, German Company Tract, Geographic Township of Waterloo, former Waterloo County, now City of Kitchener, Regional Municipality of Waterloo, Ontario

July 13, 2023

Prepared for:
City of Kitchener
200 King Street West, 4th Floor
Kitchener, Ontario N2G 4G7

Prepared by:
Stantec Consulting Ltd.
600 – 171 Queens Avenue
London, Ontario N6A 5J7

Licensee: Arthur Figura, MA
License Number: P083
Project Information Form Number:

Project Number:
161414319

SUPPLEMENTARY DOCUMENTATION

Table of Contents

1 Correspondence

The following pages provide a record of correspondence with the City of Kitchener related to the *Region of Waterloo Archaeological Master Plan*. This correspondence and associated mapping is considered confidential information and is not meant to be part of the public record.

From: Roxanna Nazarowicz
To: Dickau, Ruth
Subject: RE: Waterloo Region Archaeology Master Plan - Schneider and Shoemaker Creek Naturalization
Date: Wednesday, June 21, 2023 1:01:43 PM
Attachments: image001.png

Hello Ruth,
Apologies about the delay, it has been quite busy catching up with emails and site visits after I came back from being away.
Yes the area does have some archaeological potential in certain sections that will come up due to hydrology, landform and historic buildings in the area.
Please also note that the screengrab below is confidential and not for public usage, due to confidential information on it, so please keep this internal.

Please do keep me in the loop with this project and how it progresses with Stage 1. By sending me the Ministry letters from AA would be very helpful for my files and to track this project should it move on to Stage 3 or 4!
Thank you and hope this helps!
Please do let me know should you need anything further.
Cheers

Best regards,
Roxanna Nazarowicz
Senior Planner (Cultural Heritage, Archaeology, and Indigenous Engagement)
Community Planning Division
Planning, Development and Legislative Services
Region of Waterloo
150 Frederick St., Kitchener, N2G 4J3
RNazarowicz@regionofwaterloo.ca
Office: (519) 575-4500 ex. 3112 | Cell: (226) 753-6131

From: Dickau, Ruth <Ruth.Dickau@stantec.com>
Sent: June 21, 2023 11:51 AM
To: Roxanna Nazarowicz <RNazarowicz@regionofwaterloo.ca>
Subject: RE: Waterloo Region Archaeology Master Plan - Schneider and Shoemaker Creek Naturalization

****EXTERNAL ALERT** This email originated from outside the Region of Waterloo.**

Hello Roxanna,
I'm reaching out to ask if you could provide archaeological potential mapping for the study area show in the attached map, based on the Waterloo Region AMP.
Thank you,
Ruth

Ruth Dickau Ph.D.
Material Culture Analyst
(she, her, hers)
Mobile: 519-639-1934
Ruth.Dickau@stantec.com
Stantec
600-171 Queens Avenue
London ON N6A 5J7

From: Bridget Coady <BCoady@regionofwaterloo.ca>
Sent: Tuesday, June 6, 2023 11:33 AM
To: Dickau, Ruth <Ruth.Dickau@stantec.com>
Cc: Roxanna Nazarowicz <RNazarowicz@regionofwaterloo.ca>
Subject: FW: Waterloo Region Archaeology Master Plan - Schneider and Shoemaker Creek Naturalization

Hi Ruth,
I am no longer in Cultural Heritage, but have copied in Roxanna Nazarowicz, who will be able to help you on this matter.

Bridget Coady MCIP, RPP
Principal Planner, Transit Development
Region of Waterloo
250 Strasburg Rd., 2nd Floor
Kitchener ON N2E 3M6
Office: (519) 585-7597 ext. 7379– Note: I have limited access to this line at this time.
bcoady@regionofwaterloo.ca

From: Dickau, Ruth <Ruth.Dickau@stantec.com>
Sent: June 6, 2023 11:28 AM
To: Bridget Coady <BCoady@regionofwaterloo.ca>
Subject: Waterloo Region Archaeology Master Plan - Schneider and Shoemaker Creek Naturalization

****EXTERNAL ALERT** This email originated from outside the Region of Waterloo.**

Hello Ms. Coady,
We are working on the Stage 1 archaeological assessment for the Schneider and Shoemaker Creek Naturalization for the City of Kitchener. The portion of the project we are working on is along Schneider Creek from Stirling Avenue and Sydney Street South. I've attached mapping showing the study area. Can you please provide the archaeological master plan potential mapping for this area? I suspect that it is largely disturbed, but we need to include the current AMP assessment as part of our report.
Thank you!
Ruth

Ruth Dickau Ph.D.
Material Culture Analyst
(she, her, hers)
Mobile: 519-639-1934
Ruth.Dickau@stantec.com
Stantec
600-171 Queens Avenue
London ON N6A 5J7

Appendix E Stage 2 Archeological Assessment

Stantec

STAGE 2 ARCHAEOLOGICAL ASSESSMENT: SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

Parts of Lots 1, 17, and 18, German Company Tract, Geographic Township of Waterloo, former Waterloo County, now City of Kitchener, Regional Municipality of Waterloo, Ontario

January 8, 2024

Prepared for:
City of Kitchener
200 King Street West, 4th Floor
Kitchener, Ontario N2G 4G7

Prepared by:
Stantec Consulting Ltd.
400-1305 Riverbend Road
London, Ontario N6K 0J5

Licensee: Arthur Figura, MA
License Number: P083
Project Information Form Number:
P083-0413-2023

Project Number:
161414319

ORIGINAL REPORT

Table of Contents

LIST OF TABLES

LIST OF FIGURES

Executive Summary

Stantec Consulting Ltd. (Stantec) was retained by the City of Kitchener (the City) to complete Stage 2 archaeological assessment as part of a Municipal Class Environmental Assessment (Class EA) for the proposed Schneider and Shoemaker Creek Naturalization (the Project). Previously, Stantec (2023) completed Stage 1 archaeological assessment for the study area for the Project, which is located on part of Lots 1, 17, and 18, German Company Tract, Geographic Township of Waterloo, former Waterloo County, now City of Kitchener, Regional Municipality of Waterloo, Ontario. The study area comprises approximately 12.1 hectares along Schneider Creek between Stirling Avenue South and Sydney Street South, and the lower portion of Shoemaker Creek from Courtland Avenue East to where it joins Schneider Creek between Kent Avenue and Borden Avenue South.

The Stage 2 archaeological assessment was completed under Project Information Form number P083-0413-2023 issued to Arthur Figura, MA, of Stantec, by the Ministry of Citizenship and Multiculturalism (MCM). The Stage 1 archaeological assessment determined that portions of the study area retained potential for the identification and recovery of archaeological resources and Stage 2 archaeological assessment was recommended (Stantec 2023). The Stage 2 archaeological assessment of the areas with archaeological potential were conducted by Stantec on October 31, 2023.

No archaeological resources were identified during the Stage 2 archaeological assessment of the study area. Thus, in accordance with Section 2.2 and Section 7.8.4 of the MTCS' 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), **no further archaeological assessment of the Developable Area is required**.

The MCM is asked to review the results presented and to accept this report into the *Ontario Public Register of Archaeological Reports*.

The Executive Summary highlights key points from the report only; for complete information and findings, the reader should examine the complete report.

Project Personnel

Project Manager:	Steve Brown, MBA, P.Eng.
Licensed Archaeologist:	Arthur Figura, MA (P083)
Task Manager:	Arthur Figura, MA (P083)
Licensed Field Director:	Krista Lane, BA (R382)
Field Crew:	Kevin Atchison, Nathan Lofthouse, Kaiyu Wang
Report Writer:	Krista Lane, BA (R382)
Mapping:	Mike Alcazaren
Quality Review:	Parker Dickson, MA (P256)
Independent Review:	Colin Varley, MA, RPA (P002)

Acknowledgements

City of Kitchener:	Chris Nechacov, C.E.T. – Construction Project Manager
Region of Waterloo:	Roxanna Nazarowicz
Ministry of Citizenship and Multiculturalism:	Robert von Bitter – Archaeological Data Coordinator

1 Project Context

1.1 Development Context

Stantec Consulting Ltd. (Stantec) was retained by the City of Kitchener (the City) to complete Stage 2 archaeological assessment to support the Municipal Class Environmental Assessment (Class EA) of the proposed Schneider and Shoemaker Creek Naturalization (the Project). The archaeological assessment was undertaken to meet the requirements of the *Ontario Environmental Assessment Act* (Government of Ontario 1990a). Previously, Stantec (2023) completed Stage 1 archaeological assessment for the overall study area for the Project. The study area is approximately 12.1 hectares along Schneider Creek between Stirling Avenue South and Sydney Street South, and the lower portion of Shoemaker Creek from Courtland Avenue East to where it joins Schneider Creek between Kent Avenue and Borden Avenue South (Figures 1 and 2).

1.1.1 Objectives

In compliance with the provincial standards and guidelines set out in Ministry of Citizenship and Multiculturalism (MCM) 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), the objectives of the Stage 2 archaeological assessment are as follows:

- To document archaeological resources within the study area.
- To determine whether the study area contains archaeological resources requiring further assessment.
- To recommend appropriate Stage 3 assessment strategies for archaeological resources identified.

Permission to enter the study area to complete the archaeological assessment was provided by the City.

1.2 Historical Context

“Contact” is typically used as a chronological benchmark when discussing Indigenous archaeology in Canada and describes the contact between Indigenous and European cultures. The precise moment of contact is a constant matter of discussion. Contact in what is now the province of Ontario is broadly assigned to the 16th century (Loewen and Chapdelaine 2016).

1.2.1 Pre-Contact Indigenous Resources

This portion of southwestern Ontario has been occupied by Indigenous peoples since the retreat of the Wisconsin glacier approximately 11,000 years ago. Much of what is understood about the lifeways of Indigenous peoples is derived from archaeological evidence and ethnographic analogy. In Ontario, Indigenous culture prior to the period of contact with European peoples has been distinguished into cultural periods based on observed changes in material culture. These cultural periods are largely based in observed changes in formal lithic tools, and separated into the Early Paleo, Late Paleo, Early Archaic, Middle Archaic, and Late Archaic periods. Following the advent of ceramic technology in the Indigenous archaeological record, cultural periods are separated into the Early Woodland, Middle Woodland, and

1 Project Context

Late Woodland periods, based primarily on observed changes in formal ceramic decoration. It should be noted that these cultural periods do not necessarily represent specific cultural identities but are a useful paradigm for understanding changes in Indigenous culture through time. The current understanding of Indigenous archaeological culture is summarized in Table 1, based on Ellis and Ferris (1990). The provided time periods are based on the "Common Era" calendar notation system, i.e., Before Common Era (BCE) and Common Era (CE).

Table 1: Generalized Cultural Chronology of Southern Ontario

Period	Characteristics	Time Period	Comments
Early Paleo	Fluted Projectiles	9000 – 8400 BCE	Spruce parkland/caribou hunters
Late Paleo	Hi-Lo Projectiles	8400 – 8000 BCE	Smaller but more numerous sites
Early Archaic	Kirk and Bifurcate Base Points	8000 – 6000 BCE	Slow population growth
Middle Archaic	Brewerton-like points	6000 – 2500 BCE	Environment similar to present
Late Archaic	Narrow Points	2500 – 1800 BCE	Increasing site size
	Broad Points	1800 – 1500 BCE	Large chipped lithic tools
	Small Points	1500 – 1100 BCE	Introduction of bow hunting
Terminal Archaic	Hind Points	1100 – 950 BCE	Emergence of true cemeteries
Early Woodland	Meadowood Points	950 – 400 BCE	Introduction of pottery
Middle Woodland	Dentate/Pseudo-Scallop Pottery	400 BCE – 500 CE	Increased sedentism
	Princess Point	550 – 900 CE	Introduction of corn
Late Woodland	Early Late Woodland pottery	900 – 1300 CE	Emergence of agricultural villages
	Middle Late Woodland pottery	1300 – 1400 CE	Long longhouses (100+ metres)
	Late Late Woodland pottery	1400 – 1650 CE	Tribal warfare and displacement
Contact Indigenous	Various Algonkian and Iroquoian Groups	1650 – 1875 CE	Early written records and treaties
Late Historical	Euro-Canadian	1796 CE – present	European settlement

Between 9000 and 8000 BCE, Indigenous populations were sustained by hunting, fishing, and foraging and lived a relatively mobile existence across an extensive geographic territory. Despite these wide territories, social ties were maintained between groups; one method was through gift exchange, evident through exotic lithic material documented on many sites (Ellis 2013:35-40).

By approximately 8000 BCE, evidence exists and becomes more common for the production of ground-stone tools such as axes, chisels and adzes. These tools themselves are believed to be indicative specifically of woodworking. This evidence can be extended to indicate an increase in craft production

and arguably craft specialization. This latter statement is also supported by evidence dating to approximately 7000 BCE of ornately carved stone object which would be laborious to produce and have explicit aesthetic qualities (Ellis 2013:41). This is indirectly indicative of changes in social organization which permitted individuals to devote time and effort to craft specialization. Since 8000 BCE, the Great Lakes basin experienced a low-water phase, with shorelines significantly below modern lake levels (Stewart 2013: Figure 1.1.C). It is presumed that the majority of human settlements would have been focused along these former shorelines. At approximately 6500 BCE, the climate had warmed considerably since the recession of the glaciers and the environment had grown more similar to the present day. By approximately 4500 BCE, evidence exists from southern Ontario for the utilization of native copper, i.e., naturally occurring pure copper metal (Ellis 2013:42). The recorded origin of this material along the north shore of Lake Superior indicates the existence of extensive exchange networks across the Great Lakes basin.

At approximately 3500 BCE, the isostatic rebound of the North American plate following the melt of the Laurentide glacier had reaches a point which significantly affected the watershed of the Great Lakes basin. Prior to this, the Upper Great Lakes had drained down the Ottawa Valley via the French and Mattawa River valleys. Following this shift in the watershed, the drainage course of the Great Lakes basin had changed to its present course. This also prompted a significant increase in water-level to approximately modern levels (with a brief high-water period); this change in water levels is believed to have occurred catastrophically (Stewart 2013:28-30). This change in geography coincides with the earliest evidence for cemeteries (Ellis 2013:46). By 2500 BCE, the earliest evidence exists for the construction of fishing weirs (Ellis *et al*. 1990: Figure 4.1). There is some evidence to suggest that fishing weirs had been constructed much earlier. A radiocarbon sample from a weir site in Lovesick Lake along the Trent-Severn Waterway provided a date of 4600 BCE (Stevens 2004). Construction of these weirs would have required a large amount of communal labour and are indicative of the continued development of social organization and communal identity. The large-scale procurement of food at a single location also has significant implications for permanence of settlement within the landscape. This period is also marked by further population increase and by 1500 BCE evidence exists for substantial permanent structures (Ellis 2013:45-46).

By approximately 950 BCE, the earliest evidence exists for populations using ceramics. Populations are understood to have continued to seasonally exploit natural resources. This advent of ceramic technology correlated, however, with the intensive exploitation of seed foods such as goosefoot and knotweed as well as mast such as nuts (Williamson 2013:48). The use of ceramics implies changes in the social organization of food storage as well as in the cooking of food and changes in diet. Fish also continued to be an important facet of the economy at this time. Evidence continues to exist for the expansion of social organization (including hierarchy), group identity, ceremonialism (particularly in burial), interregional exchanges throughout the Great Lakes basin and beyond, and craft production (Williamson 2013:48-54).

By approximately 550 CE, evidence emerges for the introduction of maize into southern Ontario. This crop would have initially only supplemented Indigenous people's diets and economy (Birch and Williamson 2013:13-14). Maize-based agriculture became more important to societies and by approximately 900 CE permanent communities emerge which are primarily focused on agriculture and the storage of crops, with satellite locations oriented toward the procurement of other resources such as

hunting, fishing, and foraging. By approximately 1250 CE, evidence exists for the common cultivation of historical Indigenous cultigens, including maize, beans, squash, sunflower, and tobacco. The extant archaeological record demonstrates many cultural traits similar to historical Indigenous nations (Williamson 2013:55).

1.2.2 Post-Contact Indigenous Resources

Broadly, the post-contact Indigenous occupation of southern Ontario was heavily influenced by the dispersal of various Iroquoian-speaking communities by the New York State Iroquois and the subsequent arrival of Algonkian-speaking groups from northern Ontario at the end of the 17th century and the beginning of the 18th century (Konrad 1981; Schmalz 1991). Numerous Indigenous groups and communities are associated with the post-Contact occupation of southern Ontario and the general area of the Project.

At the turn of the 17th century, the region of the study area was occupied by Iroquoian populations who are historically described as the *Neutre* (by the French), the *Neutral* (by the English), or the *Atawandaron* (by the Huron-Wendat); their autonym is not conclusively known (Birch 2015). This group may be ancestral Haudenosaunee as they had similar culture, language, and ceremonies and were considered by the Haudenosaunee to be under the Great Law governance (Hill 2017). In 1626, French Recollet Father Daillon reportedly travelled the length of the Grand River and counted 28 Neutral villages in the area (Harper 1950:10-11; White 1978:410). This initial survey of the Grand River and the lands adjacent to it demonstrates the significance of the area and its resources to Indigenous peoples and their communities.

To the north was territory occupied by the Wendat-Tionontati (Huron-Petun) (Heidenreich 1978). The Five Nations Iroquois (Mohawk, Oneida, Onondaga, Cayuga, and Seneca), located in present-day upstate New York, failed to convince the Wendat-Tionontati to join them in an alliance (Warrick 2013). In 1649, the Seneca and the Mohawk led a campaign into southern Ontario and dispersed the Atawandaron and the Wendat-Tionontati, and established dominance over the region (Heidenreich 1978; Konrad 1981). In 1667, surviving Huron-Wendat warriors joined the alliance with the French-allied Ojibwa and Mississaugas to counterattack the Iroquois who had settled along the north shore of Lake Ontario. By 1690, Ojibwa (Anishinaabe) speaking people had begun moving south into the lower Great Lakes basin (Konrad 1981; Rogers 1978). Mississauga oral traditions, as related by Chief Robert Paudash and recorded in 1905, indicate that after the Mississauga defeat of the Mohawk, the Mohawk retreated to their homeland south of Lake Ontario and a peace treaty was negotiated between those groups around 1695 (Paudash 1905). Upon their return to southern Ontario, the Mississauga inhabited a large area along the north shore and at the western end of Lake Ontario throughout the 1700s and into the 1800s. Between 1695 and the mid-1820s the Mississauga continued to follow a yearly cycle of resource harvest and movement throughout their southern Ontario territory (Praxis Research Associates n.d.).

Despite the differentiation among these groups in Euro-Canadian sources, there was a considerably different view by Indigenous groups concerning their self-identification during the first few centuries of European contact. These peoples relied upon kinship ties that cut across European notions of nation identity (Bohaker 2006:277-283). Many of the British-imposed names such as Chippewa, Ottawa, Potawatomi, or Mississauga artificially separated how self-identified Indigenous peoples' classified

themselves; these groups were culturally and socially more alike than contemporary European documentation might indicate (Bohaker 2006:1-8).

The study area falls within the historical and traditional territory of several Indigenous communities, including but not limited to the Mississaugas of the Credit First Nation (Wybenga and Dalton 2018), the Six Nations of the Grand River, the Haudenosaunee Confederacy, and the Huron-Wendat Nation. Since contact with European explorers and immigrants, and, later, with the establishment of provincial and federal governments (the Crown), the lands within Ontario have been included in various treaties, land claims, and land cessions. Though not an exhaustive list, Morris (1943) provides a general outline of some of the treaties within the Province of Ontario from 1783 to 1923.

Around 1722, the Tuscarora were accepted into the Iroquois Confederacy, which became known as the Six Nations Iroquois (Haudenosaunee). With the end of the American Revolutionary War in 1783, the Six Nations Iroquois (Haudenosaunee) were forced to leave their traditional homeland in New York State and elsewhere after the 1783 Treaty of Paris surrendered their land to the Americans (Hill 2017). The Six Nations Iroquois (Haudenosaunee) returned to their previous hunting grounds in southern Ontario in land secured by the Crown from Mississauga lands that were part of the Between the Lakes Treaty. Due to the terms of the Royal Proclamation of 1763, this land needed to be purchased from the Mississaugas before the lands could be transferred to the Six Nations Iroquois. Colonel John Butler was sent to negotiate with the Mississaugas, who ceded approximately 3,000,000 acres (1,214,00 hectares) of land located between Lake Huron, Lake Ontario, and Lake Erie to the Crown under Treaty Number 3 (Mississaugas of the Credit First Nation [MCFN] 2024). However, it was later discovered that the upper limits of the cession were in error, based on faulty geographical assumptions (MCFN 2024). The final boundaries were defined, and a confirming document was signed by the Mississaugas and the Crown on December 7, 1792, known as the “Between the Lakes Purchase” Treaty Number 3:

> *… all that tract or parcel of land lying and being between the lake Ontario and Erie beginning at Lake Ontario four miles southwesterly from the point opposite to Niagara fort known by the name of Messisague Point and running from thence along the said lake to the creek that falls from a small lake known by the name of Washquarter into the said Lake Ontario, and from thence north forty-five degrees, west fifty-miles; thence south forty-five degrees, west twenty-miles; and thence south until it strikes the River La Tranche; then down the stream of the said river to that part or place where a due south course will lead part of place of the aforesaid River La Tranche following the south course to the mouth of the said Catfish Creek; thence down Lake Erie to the lands heretofore purchased from the said nation of Messissague Indians; and from thence along the said purchase to Lake Ontario at the place of beginning as above mentioned, together belonging.*
>
> (Government of Canada 2024)

The study area is situated within the Haldimand Tract, which was originally created in 1784 but not formalized until 1793, after the Between the Lake Purchase was made with the Mississaguas. The original tract consisted of approximately 273,000 hectares and occupied an approximately 10-kilometre-deep tract on either side of the Grand River from mouth to source. This tract was granted by the Crown to the Mohawks “…and such others of the Six Nations Indians as wish to settle in that quarter” (Government of Canada 1905) in restitution for the loss of their homeland following the American Revolutionary War

and in recognition of their loyalty to the Crown during that war. The original Six Nations (Haudenosaunee) settlers were also accompanied by Delaware, Nanticoke, Tutelo, Creek, and Cherokee who had previously settled with the Haudenosaunee prior to the beginning of the war. The largest group settled in the Grand River valley near Brantford, Ontario, to become the Six Nations of the Grand River.

While it is difficult to exactly delineate treaty boundaries today, Figure 3 provides an approximate outline of the Between the Lakes Treaty (identified by the letter “D”) and the Haldimand Tract (identified by the letter “E”), based on a compilation from Morris (1943).

The Indigenous economy from the turn of the 18th century focused on fishing and the fur trade, supplemented by agriculture and hunting. An initial controversy existed over the sovereignty of the Haudenosaunee, with the Crown asserting that the lands granted were non-transferrable. The assertion was made in 1792 with the Simcoe patent, stipulating that all land transactions required Crown approval. This patent was rejected by the Haudenosaunee and subsequently more than 142,000 hectares were leased or sold to Euro-Canadian inhabitants. In 1834, a Crown investigation was held: however, the Crown concluded that removal of the Euro-Canadian settlers would be too costly, and the leases were confirmed as legal (Weaver 1978:525).

Further controversy existed over the description of the extent of the Haldimand Tract, specifically regarding the headwaters of the Grand River beyond Nichol Township (in present day Wellington County). Despite the Grand River headwaters extending beyond, the Crown asserted that the Haldimand Tract ended at Nichol Township based on the description of the extent of land purchased in 1784 from the Mississauga (Weaver 1978:525). The inconsistency between the description of the Haldimand Tract in the 1784 treaty and the surveyed extent of the Haldimand Tract asserted by the Crown continues to be a grievance (Six Nations Lands & Resources Department 2015).

In the late 1820s and into the 1830s, itinerant Christian missionaries became increasingly active across the Haldimand Tract and many Haudenosaunee that had settled up-river converted to Christianity. While clan and lineage affiliations under the Longhouse social organization had been important aspects of Haudenosaunee society, this affiliation became rare among Christians for whom the nuclear family became the primary social and economic unit (Weaver 1978:525-527).

From 1830 onward, the Crown pursued an active assimilation policy, such as in 1869 with the statutorily enacted patrilineal kinship, contrary to traditional matrilineal kinship. Despite these policies, Longhouse traditionalism persisted into the late 19th century. By the late 1830s, most of the Haudenosaunee population had left the original villages and settled farms along the Haldimand Tract. Haudenosaunee economy in the 19th century was comparable to that of neighbouring Euro-Canadian inhabitants, cultivating maize only on a small scale, with larger scale cultivation of cash crops such as wheat, oats, hay, and peas. With the continued piecemeal sales of lands, in 1841 the remaining approximate 89,000 hectares of the Haldimand Tract was surrendered to the Crown and the Six Nations reserve was established (Weaver 1978:525-526).

As demonstrated above, the nature of Indigenous settlement size, population distribution, and material culture shifted as European settlers encroached upon their territory. However, despite this shift, “written accounts of material life and livelihood, the correlation of historically recorded villages to their

archaeological manifestations, and the similarities of those sites to more ancient sites have revealed an antiquity to documented cultural expressions that confirms a deep historical continuity to…systems of ideology and thought" (Ferris 2009:114). As a result, Indigenous peoples have left behind archaeological resources throughout Ontario which show continuity with past peoples, even if they have not been recorded in Euro-Canadian documentation.

1.2.3 Euro-Canadian Resources

1.2.3.1 Waterloo Township

In 1796, Richard Beasley and his two associates, John Baptiste Rousseaux and James Wilson, purchased 94,012 acres of the Haldimand Tract from Joseph Brant (Hayes 1997:3). The land was designated Block 2 and was situated near the Grand River, south of the eventual site of the village of Berlin (now Kitchener). Beasley bought out his two associates and, by 1800, had sold more than 14,000 acres of land, which was purchased primarily by German Mennonites from Pennsylvania (Hayes 1997:3). In 1803, Beasley sold 60,000 acres to the German Company of Pennsylvania, a group of Mennonite shareholders lead by Daniel Erb and Samuel Bricker who sought land for settlement in Upper Canada. The 60,000 acres were surveyed by Augustus Jones in 1805. The land was divided into 128 lots of 448 acres each and 32 lots comprising 83 acres each (Hayes 1997:5).

Shortly after the survey in 1805, German Mennonites from Pennsylvania began to migrate to Block 2, which, in 1816, would be renamed to Waterloo Township of the District of Gore. By July of 1805, nearly 35 families or single men owned land in Waterloo Township (Dahms 1991:38). Mennonite settlement of the area continued steadily as the pioneer families of Pennsylvania accounted for 70% of Waterloo Township's population and owned 87% of the land as of 1831 (Bloomfield 2006:34).

After the initial wave of Pennsylvania settlement, other groups entered Waterloo Township, which, by 1842, was a part of the District of Wellington. The area attracted German-speaking Catholics who emigrated from European regions, such as Alsace in France and Baden in Germany, between the late 1820s and the early 1850s. This group mainly settled in the northeast of the township, an area that would be referred to as "Rottenburg" or "Little Germany" by the 1830s (Bloomfield 2006:35). During this same time, immigrants from England, Scotland, and Ireland settled along the eastern and southern edges of the township. These English-speaking settlers provided help to many Mennonite settlers when dealing with matters related to government and local administration with other townships (Bloomfield 2006:36).

In 1851, Waterloo Township had a population of 8,871, making it the most settled township in Waterloo County at the time (Hayes 1997:16). Settlement of the township continued to grow into the latter half of the 19th century with the introduction of multiple railways. In 1856, the Grand Trunk Railway built the first railway in the township, which provided a route to Toronto. Other railways included: the Grand Trunk branch between Preston and Berlin in 1857; a Great Western Line from Galt, Preston, and Guelph in 1857; a Grand Trunk branch between Waterloo, Berlin, and Galt in 1882; and a Grand Trunk branch between Waterloo and Elmira in 1891 (Breithaupt 1917). The presence of the railways accelerated industrial development throughout the township, especially at the village of Berlin, located 6.5 kilometres northwest of the study area, which had become the industrial centre of the township and county.

In 1912, Berlin was incorporated as a city. Its name was changed to Kitchener in 1916 due to anti-German sentiment during the First World War. The Town of Waterloo became a city in 1948. By the mid-20th century, these cities became centres of economic activity and growth that attracted people to live nearby. In 1973, the Regional Municipality of Waterloo was established and as a result many small hamlets were annexed into the City of Kitchener

1.2.3.2 19th Century Historical Mapping Review

The 1805 map of Waterloo Township (Bricker 1934) indicates that Lot 1, 17, and 18 were owned by three of the original 26 shareholders in the German Company (Figure 4). The lots of the German Company Tract were numbered, and the shareholders drew lots to divide up the tract, based on the amount of stock they owned in the company (Bricker 1934:91). Table 2 provides a summary of the landowner information from the 1805 map of Waterloo Township for the study area.

Table 2: Applicable Landowner Information from the 1805 Map of Waterloo Township

Lot	Landowner	Features
1	George Eby	Schneiders and Shoemakers creeks depicted in southwest part of lot.
17	Benjamin Hershey	Schneider's Creek flows through lot.
18	John Eby	Shoemaker's Creek flows through lot.

George Eby was the original owner of Lot 1. He sold a portion to John Groff in 1807, and the remainder to Joseph Eby in 1808. Over the next four years, Joseph Eby proceeded to sell portions of the lot to other shareholders and settlers, such as David Shantz, Jacob Shantz, Samuel Eshelman, Benjamin Eby, and Christian Shantz. In 1816, Joseph Eby and Jacob Shantz sold one and half acres to the Elders of the Mennonite Church (Bricker 1934).

Benjamin Hershey was the original owner of Lot 17. He sold the entire lot to Joseph Snider in 1807. Snider later divided the lot and sold a portion to Jacob Erb in 1810, and Samuel Eshelman in 1814 (Bricker 1934).

John Eby was the original owner of Lot 18. He sold the entire lot to Joseph Eby in 1806, and Joseph Eby sold an unknown portion of the lot to Samuel Eby the following year. Between 1808 and 1823, Joseph and Samuel Eby sold off potions of the lot to John Eckerd, Joseph Clemmer, Jacob Shantz, Benjamin Eby, and Abraham Becker (Bricker 1934).

Tremaine's Map of the County of Waterloo, Canada West (Tremaine 1861) shows that by 1861, Lots 1, 17, and 18 had been subdivided into a series of smaller parcels of various sizes and shapes. The study area in Lot 1 and Lot 18 was within a large parcel owned by Jacob Y. Shantz. A structure is depicted east of the creek, beyond the study area, fronting what later became King Street (Figure 5). The study area within Lot 17 is within a portion of the lot owned by Geo. Davidson, who also owned a portion of the adjacent lot (Lot 2) to the northeast. A structure is depicted in Lot 2, but no features are depicted in Lot 17 near the study area. The Preston and Berlin Railroad (later the Grand Trunk Railway [GTR]) is illustrated west of the study area and the town of Berlin (Kitchener) is illustrated northwest of the study area. Parts

of the original road network exist today, including King Street to the east and part of Ottawa Street to the southwest, but other parts have been changed or realigned.

Parsell's 1881 *Illustrated Historical Atlas of Waterloo County* (Parsell 1881) shows no landowners or structures in the portion of Lots 1, 17, and 18 that contains the study area; most lots in the township also lack specific land ownership details. A wetland or pond is illustrated at the confluence of Shoemaker Creek and Schneider Creek. North of the study area in Lot 2, a church is depicted on the property of Moses Betzner. The town of Berlin (Kitchener) is depicted northwest of the study area and cross-hatching around Lots 1, 17, and 18 indicate that these were part of the designated town lands. A road, now Ottawa Street North, is shown running through the southeast part of the study area.

Late 19th century historical county atlases were produced primarily to identify factories, offices, residences, and landholdings of subscribers and were funded by subscription fees. Landowners who did not subscribe were not always listed on the maps (Caston 1997:100). As such, structures were not necessarily depicted or placed accurately (Gentilcore and Head 1984). Further, review of historical mapping, including treaty maps, also has inherent accuracy difficulties due to potential error in geo-referencing. Geo-referencing is conducted by assigning spatial coordinates to fixed locations and using these points to spatially reference the remainder of the map. Due to changes in "fixed" locations over time (e.g., road intersections, road alignments, watercourses, etc.), errors/difficulties of scale and the relative idealism of historical cartography, historical maps may not translate accurately into real space points. This may provide obvious inconsistencies during historical map review.

1.2.3.3 20th Century Development

Based on topographical mapping and aerial photography (Figure 7), the area around Schneider Creek and lower Shoemaker Creek underwent significant and extensive development in the first half of the 20th century (Department of Militia and Defence 1916; Department of National Defence 1936; University of Waterloo 2008). In 1916, the area around the creeks was still primarily rural; however, a railway spur line had been built in the west part of the study area crossing Schneider Creek and connecting the GTR to a brick yard to the east. By 1936, Kitchener was expanding south into the study area and new transportation infrastructure was being constructed including a new railway, part of the Grand River Railway, along Schneider Creek (Figure 7). Interestingly, Schneider Creek is depicted south of the new rail line, whereas in the 1945 aerial photo, the creek flows along the north side of the rail line. This may be a mapping error on the topographic map, especially given the maturity of the trees that are visible in the 1945 aerial photo along the creek. However, the possibility that portions of Schneider Creek were diverted as early as 1945 cannot entirely be ruled out. Between 1945 and 1968, rapid residential and industrial development occurred in the vicinity of Schneider and Shoemaker creeks (Figures 7 and 8). Sometime between 1963 and 2000, the portions of Schneider and Shoemaker creeks within the study area were channelized with the construction of concrete embankments (Department of Energy, Mines and Resources 1968). By the end of the 20th century, Schneider and Shoemaker creeks were a confined, channelized system that drain a highly urbanized commercial and residential area (City of Kitchener 2018).

1.3 Archaeological Context

1.3.1 The Natural Environment

The study area is situated within the Waterloo Hills physiographic region, as defined by Chapman and Putnam (1984). This region:

> *… occupies about 300 square miles or 192,000 acres, lying chiefly in the Regional Municipality of Waterloo…The surface is composed of sandy hills, some of them being ridges of sandy till while others are kames or kame moraines, with outwash sands occupying the intervening hollows….Adjoining the hilly region is an extensive area of alluvial terraces of the Grand River spillway system which, although more nearly horizontal, contains similar but more uniform sandy and gravelly materials….The original forest consisted of splendid pines and hardwoods such as sugar maple, beech, wild cherry, and red oak.*
>
> (Chapman and Putnam 1984:136)

General elevation of the region ranges from 300 to 425 metres above sea level (Chapman and Putnam 1984:136). Soils within the study area are categorized as urban and not classified (Presant and Wicklund 1971). However, soils in the general region outside of the city are classified as Burford-Fox loams and sands, Brant-Waterloo loams, and Grand-Kirkland loam, and are considered well drained, fertile, and good for agriculture (Presant and Wicklund 1971).

Potable water is the single most important resource for any extended human occupation or settlement and since water sources in southwestern Ontario have remained relatively stable over time, proximity to drinkable water is regarded as a useful index for the evaluation of archaeological site potential. In fact, distance to current water is one of the most commonly used variables for predictive modeling of archaeological site locations in Ontario. The study area encompasses a portion of Schneider Creek and lower Shoemaker Creek.

1.3.2 Registered Archaeological Sites and Surveys

In Canada, archaeological sites are registered within the Borden system, a national grid system designed by Charles Borden in 1952 (Borden 1952). The grid covers the entire surface area of Canada and is divided into major units containing an area that is two degrees in latitude by four degrees in longitude. Major units are designated by upper case letters. Each major unit is subdivided into 288 basic unit areas, each containing an area of 10 minutes in latitude by 10 minutes in longitude. The width of basic units reduces as one moves north due to the curvature of the earth. In southern Ontario, each basic unit measures approximately 13.5 kilometres east-west by 18.5 kilometres north-south. In northern Ontario, adjacent to Hudson Bay, each basic unit measures approximately 10.2 kilometres east-west by 18.5 kilometres north-south. Basic units are designated by lower case letters. Individual sites are assigned a unique, sequential number as they are registered. These sequential numbers are issued by the MTCS who maintain the *Ontario Archaeological Sites Database*. The study area is located within Borden block AiHc.

Information concerning specific site locations is protected by provincial policy and is not fully subject to the *Freedom of Information and Protection of Privacy* Act (Government of Ontario 1990b). The release of such information in the past has led to looting or various forms of illegally conducted site destruction. Confidentiality extends to media capable of conveying location, including maps, drawings, or textual descriptions of a site location. The MTCS will provide information concerning site location to the party or an agent of the party holding title to a property, or to a licensed archaeologist with relevant cultural resource management interests.

An examination of the *Ontario Archaeological Sites Database* has shown that there are five archaeological sites registered within a one-kilometre radius of the study area (Government of Ontario 2024a). None of the registered archaeological sites are located within 50 metres of the study area. Table 3 provides a summary of the registered archaeological sites.

Table 3: Registered Sites within One Kilometre of the Study Area

Borden Number	Site Name	Cultural Affiliation	Site Type
AiHc-13	Roseville	Indigenous	Campsite
AiHc-17	J. Schneider	Euro-Canadian	House
AiHc-18	Waterloo County Jail	Euro-Canadian	Jail
AiHc-66	Sonneck	Euro-Canadian	Homestead
AiHc-166	RMW-HQ	Euro-Canadian	Houses

1.3.3 Previous Archaeological Investigations

An examination of the *Ontario Register of Archaeological Reports* (Government of Ontario 2023b) has shown that two previous archaeological assessments were conducted within 50 metres of the study area. In 2019, Archaeological Research Associates Ltd. (ARA) completed a Stage 1 archaeological assessment as part of the Shoemaker Creek Restoration project from Homer Watson Boulevard to Schneider Creek (ARA 2019). The ARA (2019) study area included the lower portion of Shoemaker Creek and overlaps with the current study area. ARA (2019) determined that while portions of the upper Shoemaker Creek study area retained archaeological potential, the portion of the lower Shoemaker Creek study area from Courtland Avenue East to Schneider Creek within the current study area has been deeply disturbed through channelization and does not retain archaeological potential.

In 2023, Stantec undertook Stage 1 archaeological assessment of the study area (Stantec 2023). The Stage 1 assessment determined that some portions of the study area were extensively disturbed or low and permanently wet and did not retain archaeological potential. However, other portions of the study area, particularly in the west part of the study area, retained archaeological potential and Stage 2 archaeological assessment was required prior to any development or construction impacts.

1.4 Existing Conditions

The study area for the Project comprises 12.1 hectares of parts of Lots 1, 17, and 18, German Company Tract, Geographic Township of Waterloo, former Waterloo County, now City of Kitchener, Regional Municipality of Waterloo, Ontario. The study area encompasses a portion of Schneider Creek and the lower portion of Shoemaker Creek where it joins Schneider Creek, along with approximately 50 metres of land on either side. Both Schneider Creek and Shoemaker Creek within the study area have been heavily modified by channelization and the construction of concrete embankments in the mid to late 20th century. The land adjacent to the creeks is a mix of industrial and residential use with some manicured lawn, parkland, and scrubland, and large areas of previous disturbance including sidewalks, multiuse pathways, paved streets, paved and gravel parking lots, utilities, existing residential and industrial buildings, and former railbeds.

The Stage 2 assessment was limited to areas with archaeological potential of the Project, approximately 0.63 hectares. However, the study area for the Project, approximately 12.1 hectares, and the results of the Stage 1 assessment (Stantec 2023) are included in the following discussion for additional context. The Stage 2 archaeological assessment was completed under Project Information Form (PIF) number P083-0413-2023 issued to Arthur Figura, MA, of Stantec by the MTCS.

2 Field Methods

The Stage 2 archaeological assessment was conducted on October 31, 2023 under PIF number P083-0413-2023 issued to Arthur Figura, MA, of Stantec by the MTCS in accordance with Section 1.2 of the MTCS' 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). For the Stage 2 archaeological assessment, the digital file of study area from the Stage 1 archaeological assessment (Stantec 2023), including the areas evaluated as retaining archaeological potential, was uploaded to ArcGIS Field Maps powered by ESRI, customized by Stantec for archaeological survey and assessment, for digital data recording in the field. Data was recorded in the field on a handheld mobile device paired with a Trimble R1 Global Navigation Satellite System (GNSS) receiver to an accuracy of less than one metre.

During the archaeological assessment, the field, weather, and lighting conditions were suitable and at no time were they detrimental to the identification and recovery of archaeological material (Table 4). Photos 1 to 4 confirm that field conditions met the requirements for Stage 2 archaeological assessment, as per the MTCS's 2011 *Standards and Guidelines for Consultant Archaeologists* (Section 7.8.6 Standard 1.a; Government of Ontario 2011). Figure 9 provides an illustration of the Stage 2 archaeological assessment methods, as well as photograph locations and directions.

Table 4: Weather and Field Conditions

Date	Field Director	Activity	Weather	Field Conditions
October 31, 2023	Krista Lane (R382)	Test pit survey; photo documentation	Sunny, warm	Sandy soil was damp and friable, screens well

Overall, the study area comprises 12.1 hectares. Much of the study area, approximately 94.8%, was previous assessed and no further archaeological work was required (ARA 2019, Stantec 2023).

The remaining portion of the study area, approximately 5.2% (0.63 hectares), was evaluated by Stantec (2023) as retaining archaeological potential. This portion of the study area is inaccessible for ploughing. As such, this portion of the study area was subject to test pit survey in accordance with Section 2.1.2 of the MTCS' 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Each test pit was at least 30 centimetres in diameter and excavated five centimetres into sterile subsoil. The soils and test pits were then examined for stratigraphy, cultural features, or evidence of fill. Soil was screened through six-millimetre mesh hardware cloth to facilitate the recovery of archaeological resources and then used to backfill the pit. The topsoil is a dark brown sandy loam underlain by a pale brown sandy clay subsoil. Disturbance was noted in some test pits, consisting of gravel and mottled clay inclusions. Despite the occasional evidence of disturbance, the test pit interval was maintained at five metres. Test pits were excavated within one metre of existing buildings as per Section 2.1.2 Standard 4 of the MTCS' 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Photos 1 to 4 illustrate the test pit survey of the study area. As no archaeological resources were encountered during the test pit survey no additional test pit survey field methods were employed.

2 Field Methods

During the Stage 2 archaeological assessment, Stantec archaeologists were joined by representatives from Mississauga of the Credit First Nation, Six Nations of the Grand River, and Huron-Wendat First Nations. Additional information on the Indigenous Engagement practices conducted during the Stage 2 archaeological assessment is provided in the Record of Indigenous Engagement. The Record of Indigenous Engagement is a separate document submitted to the MCM which may include who was engaged, engagement procedures, dates of engagement, strategies to incorporate community input, and processes for providing results to the community. The Record of Indigenous Engagement is provided as a separate document and does not form a part of the *Ontario Public Register of Archaeological Reports*.

3 Record of Finds

The Stage 2 archaeological assessment was conducted employing the methods described in Section 2.0. An inventory of the documentary record generated by fieldwork is provided in Table 5.

Table 5: Inventory of Documentary Record

Document Type	Current Location of Document Type	Additional Comments
One page of field notes	Stantec office in London, Ontario	In original field book and scanned in project file
One digital map and data files	Stantec GIS server in Markham, Ontario	Stored digitally on central GIS server
12 digital photographs	Stantec office in London, Ontario	Stored digitally in project file and on central GIS server

No archaeological resources were identified during the Stage 2 assessment and so no material culture was collected. As a result, no artifact storage arrangements were required.

4 Analysis and Conclusions

Stantec was retained by the City to conduct Stage 2 archaeological assessment of the study area for the Project. The Stage 1 archaeological assessment for the Project determined that portions of the study area retained archaeological potential (Stantec 2023). The Stage 2 archaeological assessment was conducted on October 31, 2023. No archaeological resources were identified during the Stage 2 survey of the study area.

5 Recommendations

No archaeological resources were identified during the Stage 2 archaeological assessment of the study area. Thus, in accordance with Section 2.2 and Section 7.8.4 of the MTCS' 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), **no further archaeological assessment of the study area is recommended**.

The MTCS is asked to review the results presented and to accept this report into the *Ontario Public Register of Archaeological Reports.*

6 Advice on Compliance with Legislation

In accordance with Section 7.5.9 of the MTCS's 2011 Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011), the following standard statements are a required component of archaeological reporting and are provided from the MTCS' 2011 Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011).

This report is submitted to the Minister of Tourism, Culture and Sport as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c O.18 (Government of Ontario 1990c). The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the study area of a development proposal have been addressed to the satisfaction of the MTCS, a letter will be issued by the Ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* (Government of Ontario 1990c) for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the *Ontario Public Register of Archaeological Reports* referred to in Section 65.1 of the *Ontario Heritage Act* (Government of Ontario 1990c)

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act* (Government of Ontario 1990c) The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48(1) of the *Ontario Heritage Act* (Government of Ontario 1990c)

The *Funeral, Burial and Cremation Services Act,* 2002, S.O. 2002, c.33 (Government of Ontario 2002), requires that any person discovering or having knowledge of a burial site shall immediately notify the police or coroner. It is recommended that the Registrar of Cemeteries at the Ministry of Public and Business Service Directory is also immediately notified.

7 Bibliography and Sources

Archaeological Research Associates Ltd. 2019. Stage 1 Archaeological Assessment Shoemaker Creek Restoration Homer Watson Boulevard to Schneider Creek City of Kitchener Regional Municipality of Waterloo Part of Lots 1, 18 and 19, German Company Tract, Geographic Township of Waterloo, Waterloo County, Ontario. Report on file with the Ministry of Citizenship and Multiculturalism. PIF number P007-0982-2019.

Birch, Jennifer. 2015. Current Research on the Historical Development of Northern Iroquoian Societies. *Journal of Archaeological Research* 22(4): 263-323.

Birch, Jennifer and Ronald F. Williamson. 2013. *The Mantle Site: An Archaeological History of an Ancestral Huron Wendat Community.* Lanham: Altamira Press.

Bloomfield, Elizabeth. 2006. *Waterloo through Two Centuries.* Revised edition. Waterloo Historical Society. St. Jacobs: St. Jacobs Printery.

Bohaker, Heidi R. 2006. Nindoodemag: Anishinaabe Identities in the Eastern Great Lakes Region, 1600 to 1900. Ph.D. dissertation. University of Toronto.

Borden, Charles E. 1952. A Uniform Site Designation Scheme for Canada. *Anthropology in British Columbia* 3: 44-48.

Breithaupt, W. H. 1917. *Waterloo County Railway History: Fifth Annual Report of the Waterloo Historical Society*. Electronic Document: http://www.transportsourcebook.ca/waterloo-historical-society/yr1917-waterloo-county-railway-history.php. Last accessed December 21, 2023.

Bricker, I.C. 1934. The History of Waterloo Township up to 1825. *Twenty-Second Annual Report of the Waterloo Historical Society*. Kitchener: Waterloo Historical Society.

Caston, Wayne A. 1997. Evolution in the Mapping of Southern Ontario and Wellington County. *Wellington County History* 10:91-106.

Chapman, Lyman John and Donald F. Putnam. 1984. *The Physiography of Southern Ontario*. Third edition. Ontario Geological Survey Special Volume 2. Toronto: Ministry of Natural Resources.

City of Kitchener. 2018. *Terms of Reference P18-173: Professional Services for Detailed Design & Contract Administration for Shoemaker Creek Restoration from Homer Watson Blvd to Schneider Creek*. City of Kitchener.

Dahms, Fred. 1991. Change and Stability Within an Urban Hierarchy: Waterloo County 1864 to 1971. *Urban History Review* 20(1):38-47.

Department of Militia and Defence, Survey Division. 1916. Galt, Ontario. 1:63,360. Map Sheet 040P08 (ed. 1).

7 Bibliography and Sources

Department of National Defence, Geographical Section. 1936. Galt, Ontario. 1:63,360. Map Sheet 040P08 (ed. 4).

Department of Energy, Mines and Resources, Surveys and Mapping Branch. 1968. Kitchener - Breslau (Kitchener East), Ontario. 1:25,000. Map Sheet 040P08E, ed. 1.

Ellis, Christopher J. 2013. Before Pottery: Paleoindian and Archaic Hunter-Gatherers. In *Before Ontario: The Archaeology of a Province*, edited by Marit K. Munson and Susan M. Jamieson, 35-47. Montreal and Kingston: McGill-Queen's University Press.

Ellis, Chris J. and Neal Ferris (editors). 1990. *The Archaeology of Southern Ontario to A.D. 1650*. Occasional Publication of the London Chapter, Ontario Archaeological Society, Number 5.

Ellis, Chris J., Ian T. Kenyon, and Michael W. Spence. 1990. "The Archaic." In Ellis and Ferris 1990, 65-124.

Ferris, Neal. 2009. *The Archaeology of Native-Lived Colonialism: Challenging History in the Great Lakes*. Tucson: University of Arizona Press.

Gentilcore, R. Louis and C. Grant Head. 1984. *Ontario's History in Maps*. Toronto: University of Toronto Press.

Government of Canada. 1905. *Indian Treaties and Surrenders from 1680 to 1890*. Two volumes. 1971 Coles reprint. Ottawa: Queen's Printer.

Government of Canada. 2024. *Treaty Texts - Upper Canada Land Surrenders.* Electronic document: https://www.rcaanc-cirnac.gc.ca/eng/1370372152585/1581293792285#ucls5. Last accessed January 4, 2024.

Government of Ontario. 1990a. *Environmental Assessment Act, R.S.O. 1990, CHAPTER E.18*. Electronic document: https://www.ontario.ca/laws/statute/90e18. Last accessed January 4, 2024.

Government of Ontario. 1990b. *Freedom of Information and Protection of Privacy Act,* R.S.O. 1990, CHAPTER F.31. Electronic document: https://www.ontario.ca/laws/statute/90f31. Last accessed January 4, 2024.

Government of Ontario. 1990c. *Ontario Heritage Act*, R.S.O. 1990, CHAPTER O.18. Electronic document: http://www.ontario.ca/laws/statute/90o18. Last accessed January 4, 2024.

Government of Ontario. 2002. *Funeral, Burial and Cremation Services Act, 2002*, S.O. 2002, CHAPTER 33. Electronic document: https://www.ontario.ca/laws/statute/02f33. Last accessed January 4, 2024.

Government of Ontario. 2011. *Standards and Guidelines for Consultant Archaeologists*. Toronto: Ministry of Citizenship and Multiculturalism.

7 Bibliography and Sources

Government of Ontario. 2024a. *Archaeological Sites Database Files*. Electronic document: https://www.pastport.mtc.gov.on.ca/APSWeb/pif/projectSiteDataSearch.xhtml. Toronto: Ministry of Citizenship and Multiculturalism. Last accessed January 4, 2024.

Government of Ontario. 2024b. *Past Portal Report Database Files*. Electronic document: https://www.pastport.mtc.gov.on.ca/APSWeb/report/reportSearch.xhtml. Toronto: Ministry of Citizenship and Multiculturalism. Last accessed January 4, 2024.

Harper, Russell. 1950. *The Early History of Haldimand County.* Caledonia: Grand River Sachem.

Hayes, Geoffrey. 1997. *Waterloo County: An Illustrated History.* Waterloo: St. Jacobs Printery.

Heidenreich, Conrad E. 1978. Huron. In *Handbook of North American Indians, Volume 15 Northeast*, edited by Bruce G. Trigger, 368-388. Washington: Smithsonian Institution Press.

Hill, Susan M. 2017. *The Clay we are Made of: Haudenosaunee Land Tenure on the Grand River.* Winnipeg: University of Manitoba Press.

Konrad, Victor. 1981. An Iroquois Frontier: The North Shore of Lake Ontario during the Late Seventeenth Century. *Journal of Historical Geography* 7(2): 129-144.

Loewen, Brad and Claude Chapdelaine (editors). 2016. *Contact in the 16th Century: Networks among Fishers, Foragers and Farmers.* Mercury Series Archaeology Paper 176. Ottawa: University of Ottawa Press.

Mississaugas of the Credit First Nation. 2024. Between the Lakes Treaty No. 3 (1792). Electronic document: http://mncfn.ca/treaty3/. Last accessed January 4, 2024.

Morris, J.L. 1943. *Indians of Ontario*. 1964 reprint. Toronto: Department of Lands and Forests, Government of Ontario.

Parsell, H. 1881. *Illustrated Historical Atlas of Waterloo County*. Toronto: H. Parsell & Co.

Paudash, Robert. 1905. *The Coming of the Mississagas*. An oral history prepared by J. Hampden Burnham. Ontario Historical Society Papers and Records, Vol. VI. Toronto: Ontario Historical Society.

Praxis Research Associates. n.d. *The History of the Mississaugas of the New Credit First Nation*. Hagersville: Lands, Research and Membership, Mississaugas of the New Credit First Nation.

Presant, E.W. and R.E. Wicklund. 1971. *The Soils of Waterloo County. Report No. 44 of the Ontario Soil Survey.* Ottawa: Research Branch, Canada Department of Agriculture.

Rogers, E.S. 1978. “Southeastern Ojibwa.” In *Handbook of North American Indians*, *Volume 15, Northeast*, edited by Bruce G. Trigger, 760-771. Washington: Smithsonian Institution Press.

Schmalz, Peter S. 1991. *The Ojibwa of Southern Ontario*. Toronto: University of Toronto Press.

7 Bibliography and Sources

Six Nations Lands & Resources Department. 2015. *Land Rights: A Global Solution for the Six Nations of the Grand River*. Ohsweken: Six Nations Lands & Resources Department. Electronic document: http://www.sixnations.ca/LandsResources/index.htm. Last accessed December 21, 2023.

Stantec Consulting Ltd. 2023. Stage 1 Archaeological Assessment: Schneider and Shoemaker Creek Naturalization Municipal Class Environmental Assessment Parts of Lots 1, 17, and 18, German Company Tract, Geographic Township of Waterloo, former Waterloo County, now City of Kitchener, Regional Municipality of Waterloo, Ontario. Report on file with the Ministry of Citizenship and Multiculturalism. PIF number P083-0408-2023.

Stevens, E. W. 2004. *First Nations underwater archaeology of the Trent-Severn Waterway*. Copy on file at Parks Canada, Ottawa.

Stewart, A.M. 2013. Water and Land. In *Before Ontario: The Archaeology of a Province, e*dited by Marit K. Munson and Susan M. Jamieson, 24-34. Montreal and Kingston: McGill-Queen's University Press.

Tremaine, George. 1861. *Tremaine's Map of the County of Waterloo, Canada West*. Toronto: George R. & G.M. Tremaine.

University of Waterloo. 2008. *Digital Historical Air Photos of Kitchener-Waterloo.* Electronic Resource: https://lib.uwaterloo.ca/locations/umd/project/IM9.html. Last accessed: December 21, 2023.

Warrick, Gary. 2013. The Aboriginal Population of Ontario in Late Prehistory. In *Before Ontario: The Archaeology of a Province*, edited by Marit K. Munson and Susan M. Jamieson, 62-76. Montreal and Kingston: McGill-Queen's University Press.

Weaver, Sally M. 1978. Six Nations of the Grand River, Ontario. In *Handbook of North American Indians, Volume 15 Northeast*, edited by Bruce G. Trigger, 525-536. Washington: Smithsonian Institution Press.

White, Marian. 1978. Neutral and Wenro. In *Handbook of North American Indians, Volume 15 Northeast*, edited by Bruce Trigger, 407-411. Washington: Smithsonian Institution Press.

Williamson, Ronald F. 2013. The Woodland Period, 900 BCE to 1700 CE. In *Before Ontario: The Archaeology of a Province,* edited by Marit K. Munson and Susan M. Jamieson, 48-61. Montreal and Kingston: McGill-Queen's University Press.

Wybenga, Darin P., and Kaytee Dalton. 2018. Mississaugas of the New Credit First Nation: Past and Present. Haggersville, ON: Mississaugas of the New Credit First Nation Administration.

8 Images

8.1 Photographs

Photo 1: Test pit survey, facing south

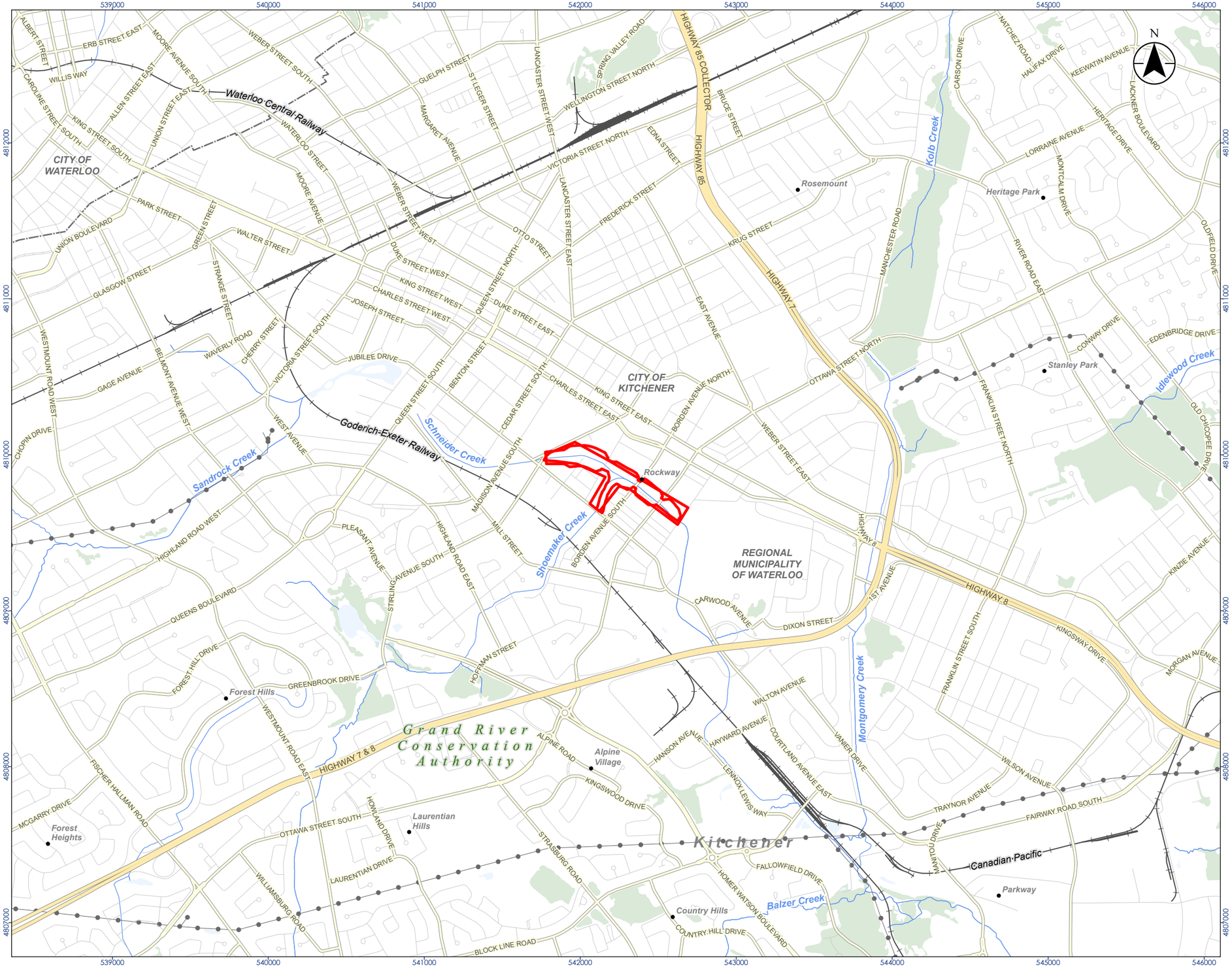
Photo 2: Test pit survey, facing northeast

Photo 3: Test pit survey, facing south

Photo 4: Test pit survey, facing north

9 Maps

General maps of the study area follow on succeeding pages.



Stantec

Legend

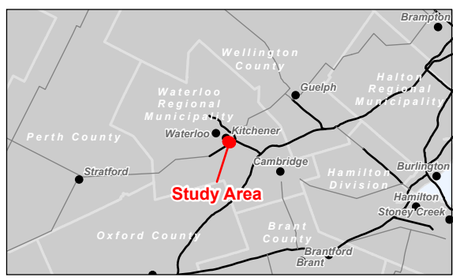
- Study Area
- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Hydro Line
- Watercourse (Permanent)
- Waterbody
- Municipal Boundary - Lower Tier
- Municipal Boundary - Upper Tier
- Wooded Area

0 0.5 1 km

1:25,000 (At original document size of 11x17)

Notes

1. Coordinate System:NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2022.



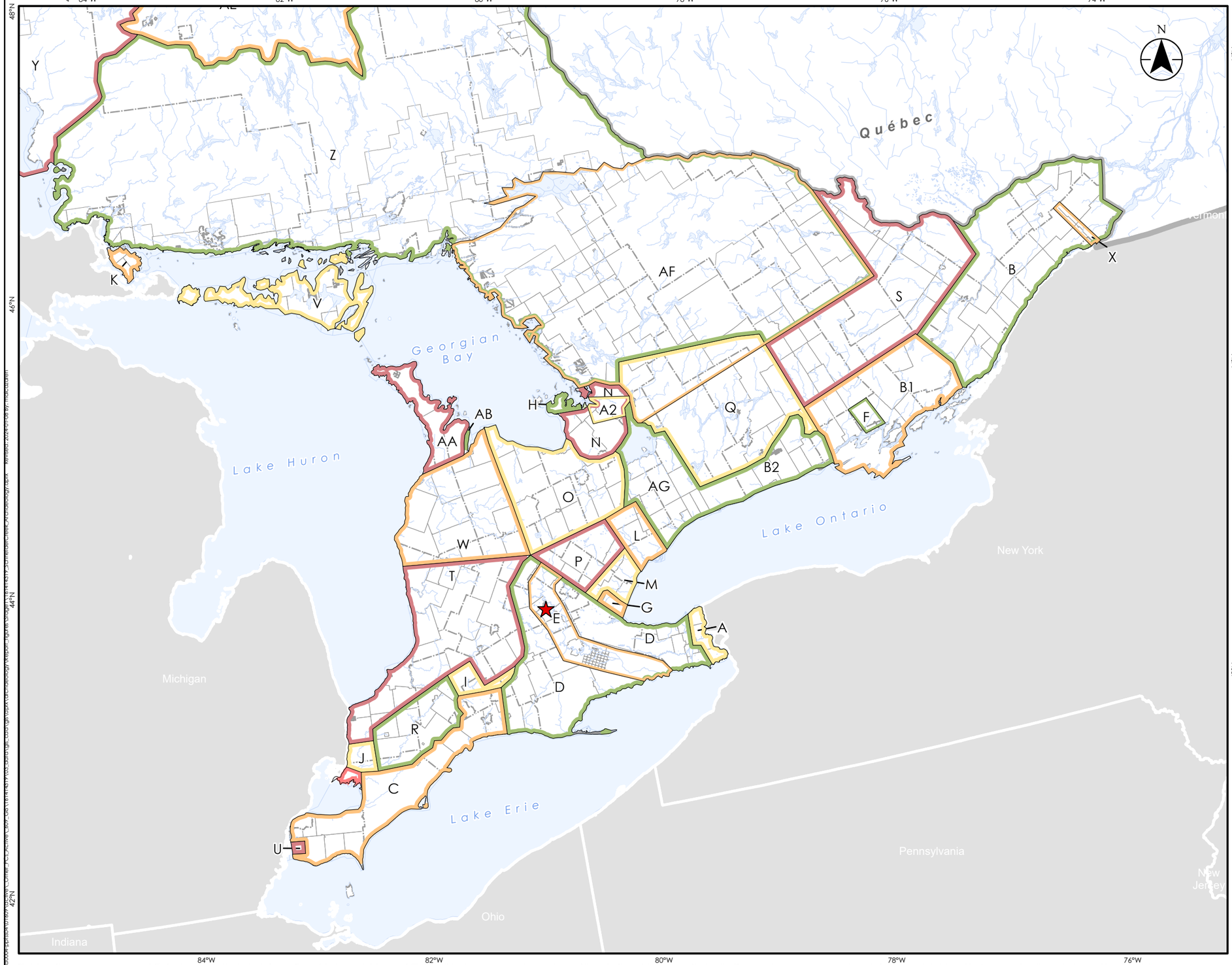
Project Location
City of Kitchener

161414319 REVA
Prepared by malcazaren on 2024-01-08
Technical Review by AW on 2023-06-13

Client/Project
CITY OF KITCHENER
SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION MUNICIPAL CLASS EA

Figure No.
1

Title
Project Location



Legend

- Study Area
- Waterbody

A Treaty No. 381, May 9th, 1781 (Mississauga and Chippewa)
AA Treaty No. 72, October 30th, 1854 (Chippewa)
AB Treaty No. 82, February 9th, 1857 (Chippewa)
AE Treaty No. 9, James Bay 1905, 1906 (Ojibway and Cree)
AF Williams Treaty, October 31st and November 15th, 1923 (Chippewa and Mississauga)
AG Williams Treaty, October 31st, 1923 (Chippewa)
A2 John Collins' Purchase, 1785 (Chippewa)
B Crawford's Purchase, October 9th, 1783 (Algonquin and Iroquois)
B1 Crawford's Purchase, October 9th, 1783 (Mississauga)
B2 Crawford's Purchase, 1783, 1787, 1788 (Mississauga)
C Treaty No. 2, May 19th, 1790 (Odawa, Chippewa, Pottawatomi, and Huron)
D Treaty No. 3, December 2nd, 1792 (Mississauga)
E Haldimand Tract: from the Crown to the Mohawk, 1793
F Tyendinaga: from the Crown to the Mohawk, 1793
G Treaty No. 3 3/4: from the Crown to Joseph Brant, October 24th, 1795
H Treaty No. 5, May 22nd, 1798 (Chippewa)
I Treaty No. 6, September 7th, 1796 (Chippewa)
J Treaty No. 7, September 7th, 1796 (Chippewa)
K Treaty No. 11, June 30th, 1798 (Chippewa)
L Treaty No. 13, August 1st, 1805 (Mississauga)
M Treaty No. 13A, August 2nd, 1805 (Mississauga)
N Treaty No. 16, November 18th, 1815 (Chippewa)
O Treaty No. 18, October 17th, 1818 (Chippewa)
P Treaty No. 19, October 28th 1818 (Chippewa)
Q Treaty No. 20, November 5th, 1818 (Chippewa)
R Treaty No. 21, March 9th, 1819 (Chippewa)
S Treaty No. 27, May 31st, 1819 (Mississauga)
T Treaty No. 27½, April 25th, 1825 (Ojibwa and Chippewa)
U Treaty No. 35, August 13th, 1833 (Wyandot or Huron)
V Treaty No. 45, August 9th, 1836 (Chippewa and Odawa, "For All Indians To Reside Thereon")
W Treaty No. 45½, August 9th, 1836 (Saugeen)
X Treaty No. 57, June 1st, 1847 (Iroquois of St. Regis)
Y Treaty No. 60, Robinson, Superior, September 7th, 1850 (Ojibwa)
Z Treaty No. 61, Robinson, Huron, September 9th, 1850 (Ojibwa)

0 50 100 km
1:3,000,000 (At original document size of 11x17)

Notes
1. Coordinate System: NAD 1983 Statistics Canada Lambert
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.
3. Treaty boundaries adapted from Morris 1943 (1964 reprint). For cartographic representation only.

Project Location
City of Kitchener

161414319 REVA
Prepared by bakaur on 2024-01-08
Technical Review by AW on 2023-06-14

Client/Project
CITY OF KITCHENER
SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION MUNICIPAL CLASS EA

Figure No.
3

Title
Treaties and Purchases (Adapted from Morris 1943)

Stantec

Legend

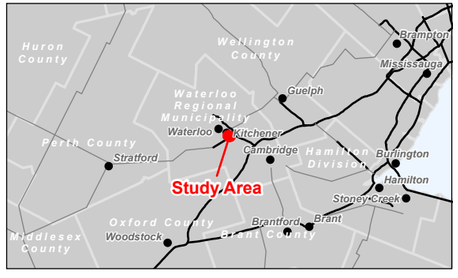
- Study Area
- Railway
- Watercourse (Permanent)

0 100 200 Meters

1:4,000 (At original document size of 11x17)

Notes

1. Coordinate System:NAD 1983 UTM Zone 16N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.
3. Orthoimagery © First Base Solutions, 2023. Imagery Date, 2022.



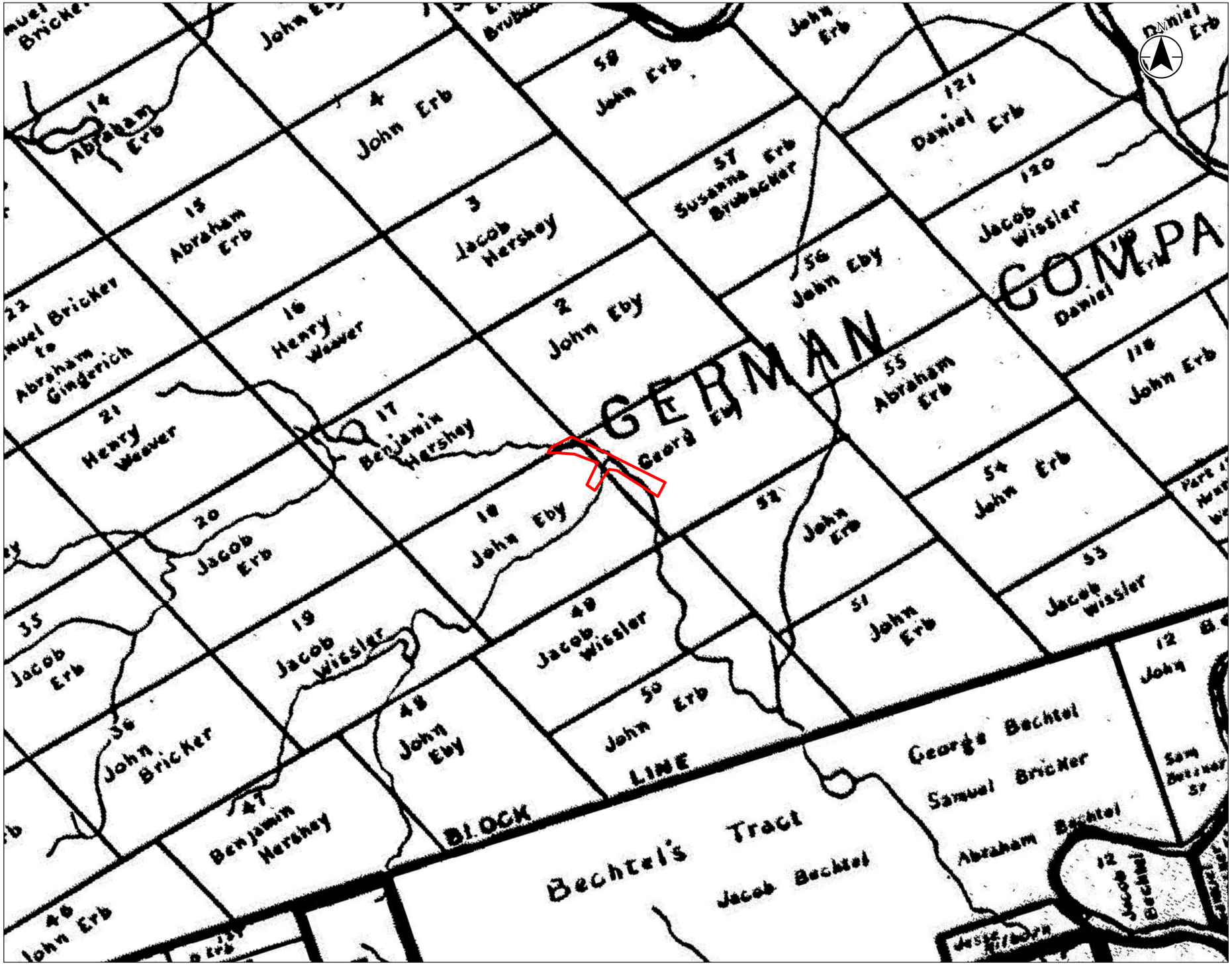
Project Location
City of Kitchener

161414319 REVA
Prepared by malcazaren on 2024-01-08
Technical Review by AW on 2023-06-14

Client/Project
CITY OF KITCHENER
SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION MUNICIPAL CLASS EA

Figure No.
2

Title
Study Area



Stantec

Legend

Study Area (Approximate)

Notes

1. Map is not to scale.
2. Reference: Bricker, I.C. 1934. The History of Waterloo Township up to 1825. Twenty-Second Annual Report of the Waterloo Historical Society. Kitchener: Waterloo Historical Society.

Project Location City of Kitchener	161414319 REVA Prepared by malcazaren on 2024-01-08 Technical Review by AW on 2023-06-14

Client/Project

CITY OF KITCHENER
SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION
MUNICIPAL CLASS EA

Figure No.

4

Title

Portion of the 1805 Historical Map of Waterloo Township

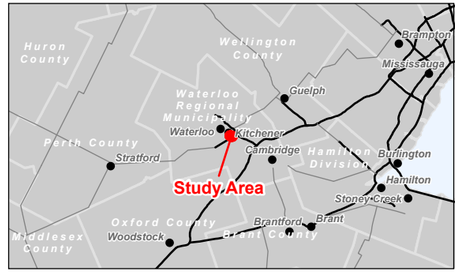
Stantec

Legend

Study Area (Approximate)

Notes

1. Map is not to scale.
2. Reference: Tremaine, George. 1861. Tremaine's Map of the County of Waterloo, Canada West. Toronto: George R. & G.M. Tremaine.



Project Location City of Kitchener	161414319 REVA Prepared by malcazaren on 2024-01-08 Technical Review by AW on 2023-06-14

Client/Project

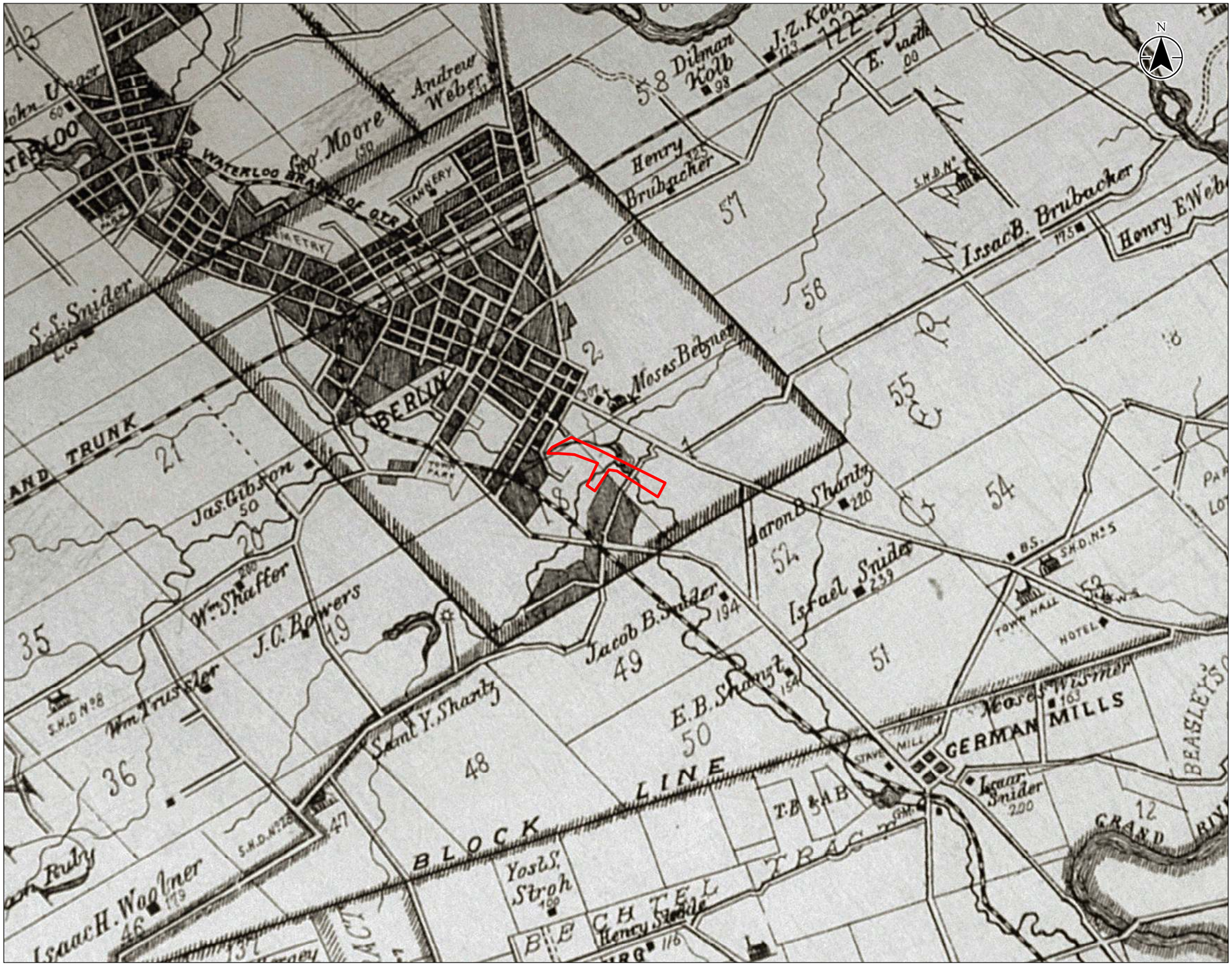
CITY OF KITCHENER
SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION MUNICIPAL CLASS EA

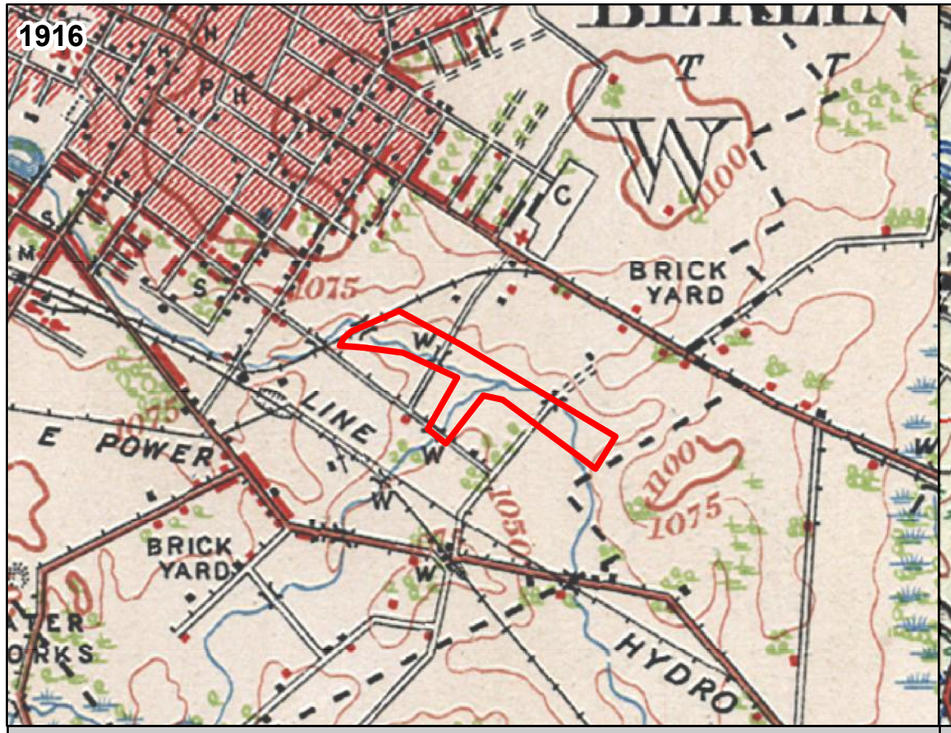
Figure No.

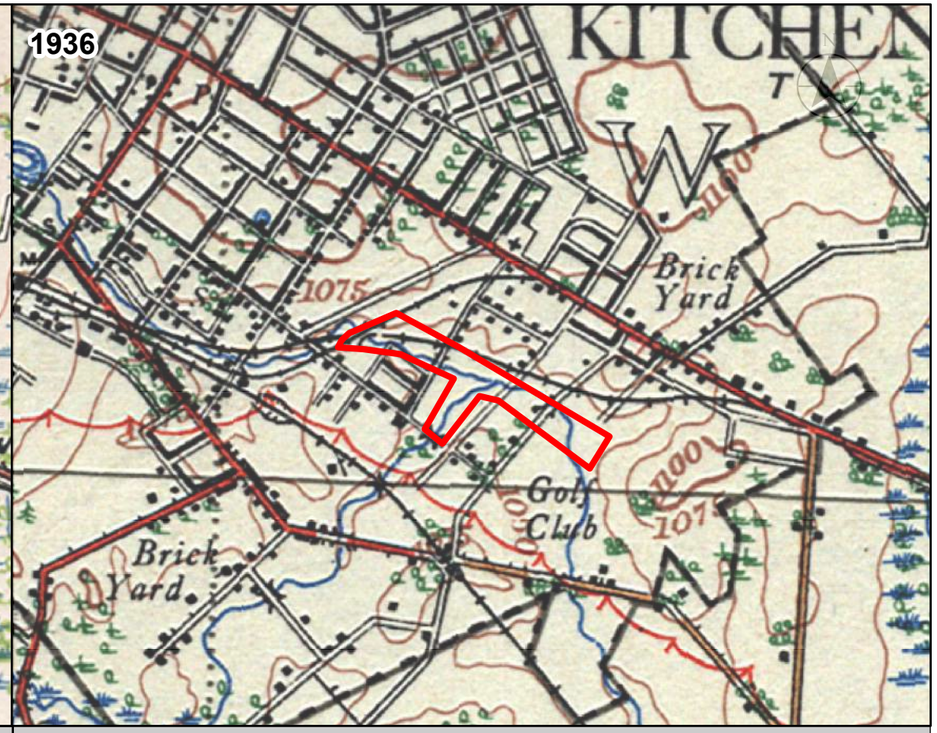
5

Title

Portion of the 1861 Map of the County of Waterloo





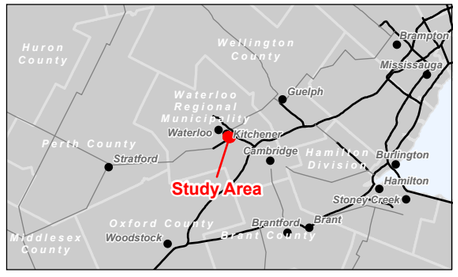


Stantec

Legend
Study Area (Approximate)

Figure Not to Scale

Notes
1. References: Department of Militia and Defence, Survey Division. 1916. Galt, Ontario. 1:63,360. Map Sheet 040P08 (ed. 1).
Department of National Defence, Geographical Section. 1936. Galt, Ontario. 1:63,360. Map Sheet 040P08 (ed. 4).
University of Waterloo, Geospatial Centre. 2008. Digital Historical Air Photos of Kitchener-Waterloo. Electronic database: https://lib.uwaterloo.ca/locations/umd/project/



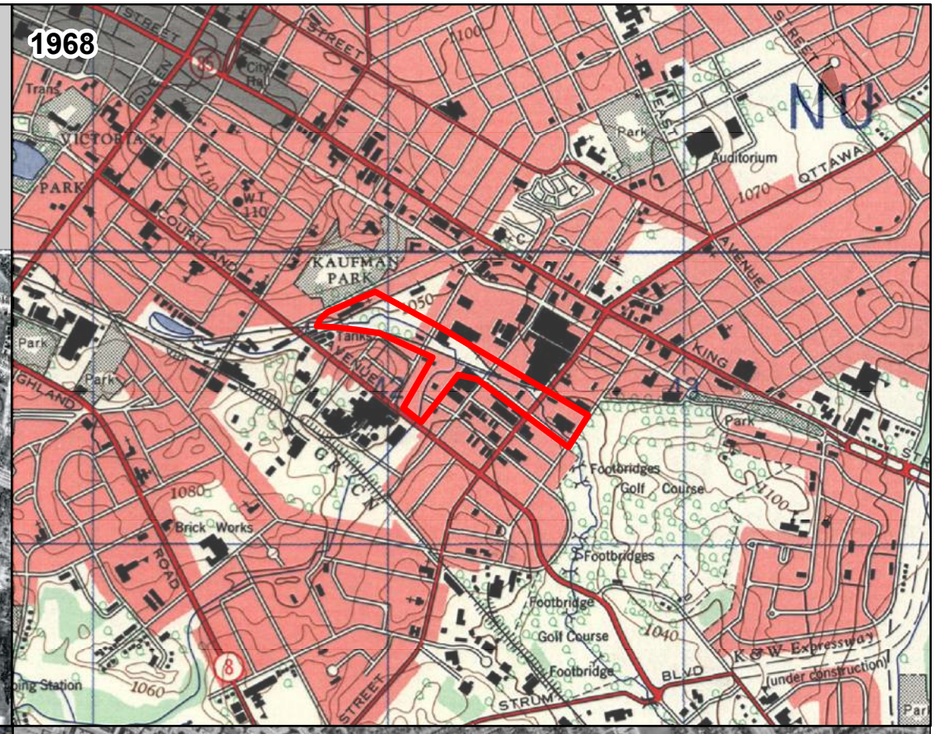
Project Location
City of Kitchener

161414319 REVA
Prepared by bakaur on 2024-01-08
Technical Review by AW on 2023-06-14

Client/Project
CITY OF KITCHENER
SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION MUNICIPAL CLASS EA

Figure No.
7

Title
Topographical and Aerial Imagery 1916 to 1955



Stantec

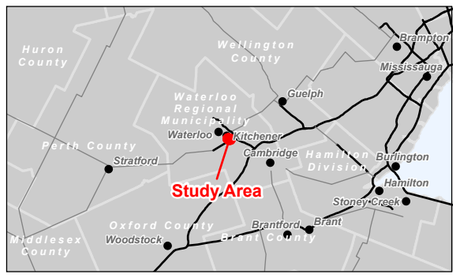
Legend

Study Area (Approximate)

Figure Not to Scale

Notes

1. References: Department of Energy, Mines and Resources, Surveys and Mapping Branch. 1968. Kitchener - Breslau (Kitchener East), Ontario. 1:25,000. Map Sheet 040P08E, ed. 1.
University of Waterloo, Geospatial Centre. 2008. Digital Historical Air Photos of Kitchener-Waterloo. Electronic database: https://lib.uwaterloo.ca/locations/umd/project/.



Project Location
City of Kitchener

161414319 REVA
Prepared by bakaur on 2024-01-08
Technical Review by AW on 2023-06-14

Client/Project
CITY OF KITCHENER
SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION
MUNICIPAL CLASS EA

Figure No.
8

Title
Topographical and Aerial Imagery 1963 to 2000

542000 542500

4810000 4809500

CHURCH STREET
STIRLING LANE
DANE STREET
KING STREET EAST
MADISON AVENUE SOUTH
BORDEN AVENUE NORTH
CRESCENT STREET
ONWARD AVENUE
CHARLES STREET EAST
KENT AVENUE
HURST AVENUE
KENNEDY AVENUE
STIRLING AVENUE SOUTH
PALMER AVENUE
COURTLAND AVENUE EAST
MAURICE STREET
OTTAWA STREET SOUTH
NYBERG STREET
SYDNEY STREET SOUTH
DELTA STREET
DUNDAS AVENUE
BORDEN AVENUE SOUTH
BEDFORD ROAD

1 2 3 4

N

DRAFT

Stantec

Legend

- Study Area
- Photo Location and Direction

Assessment Method

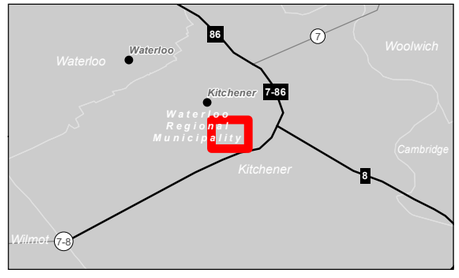
- Test Pit Survey, 5 m Intervals
- Previously Assessed (Stantec 2023), No Further Archaeological Work Required
- Previously Assesed (ARA 2019), No Further Archaeological Work Required

0 100 200 m

1:4,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.
3. Orthoimagery © First Base Solutions, 2023. Imagery Date, 2022.



Project Location
Kitchener, Ontario

161414319 REV1
Prepared by MDA on 2024-01-05
Technical Review by DH on 2024-01-03

Client/Project
CITY OF KITCHENER
STAGE 2 ARCHAEOLOGICAL ASSESSMENT: SCHENIDER AND SHOEMAKER CREEK NATURALIZATION MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

Figure No.
9

DRAFT

Title
Stage 2 Methods

10 Closure

This report documents work that was performed in accordance with generally accepted professional standards at the time and location in which the services were provided. No other representations, warranties or guarantees are made concerning the accuracy or completeness of the data or conclusions contained within this report, including no assurance that this work has uncovered all potential archaeological resources associated with the identified property.

All information received from the client or third parties in the preparation of this report has been assumed by Stantec to be correct. Stantec assumes no responsibility for any deficiency or inaccuracy in information received from others.

Conclusions made within this report consist of Stantec's professional opinion as of the time of the writing of this report and are based solely on the scope of work described in the report, the limited data available and the results of the work. The conclusions are based on the conditions encountered by Stantec at the time the work was performed. Due to the nature of archaeological assessment, which consists of systematic sampling, Stantec does not warrant against undiscovered environmental liabilities nor that the sampling results are indicative of the condition of the entire property.

This report has been prepared for the exclusive use of the client identified herein and any use by any third party is prohibited. Stantec assumes no responsibility for losses, damages, liabilities, or claims, howsoever arising, from third party use of this report. We trust this report meets your current requirements. Please do not hesitate to contact us should you require further information or have additional questions about any facet of this report.

Quality Review _____
(signature)

Parker Dickson – Senior Associate, Senior Archaeologist

Independent Review _____
(signature)

Colin Varley – Senior Associate, Senior Archaeologist

STAGE 2 ARCHAEOLOGICAL ASSESSMENT: SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

Parts of Lots 1, 17, and 18, German Company Tract, Geographic Township of Waterloo, former Waterloo County, now City of Kitchener, Regional Municipality of Waterloo, Ontario

January 5, 2024

Prepared for:
City of Kitchener
200 King Street West, 4th Floor
Kitchener, Ontario N2G 4G7

Prepared by:
Stantec Consulting Ltd.
400-1305 Riverbend Road
London, Ontario N6K 0J5

Licensee: Arthur Figura, MA
License Number: P083
Project Information Form Number:
P083-0413-2023

Project Number: 160940742

RECORD OF INDIGENOUS ENGAGEMENT

Table of Contents

List of Tables

1.0 INDIGENOUS ENGAGEMENT

This document provides a description of the engagement practices that were conducted by Stantec Consulting Ltd. (Stantec) during Stage 2 archaeological assessment of the proposed Schneider and Shoemaker Creek Naturalization (the Project). No additional documentation arose from the engagement process.

Section 1.1 of the Ministry of Citizenship and Multiculturalism (the Ministry) draft technical bulletin titled *Engaging Aboriginal Communities in Archaeology* encourages engagement with Indigenous communities in Stage 2, when assessing a property and determining archaeological sites that require Stage 3 fieldwork.

The groups engaged with during the Stage 2 archaeological assessment of the study area included the Mississaugas of the Credit First Nation (MCFN), Six Nations Grand River Elected Council (SNGREC), and Huron-Wendat First Nations (HWFN). Arrangements to have Indigenous representatives on site were made through Tanya Hill-Montour, Archaeology Supervisor with SNGREC, Adam LaForme and Joelle Williams, Field Coordinators with MCFN, and Dominique Lesage, Operations Coordinator for HWFN.

The Stage 2 archaeological assessment of the study area was conducted on October 31, 2023. Table 1 provides a summary of the Indigenous representatives that joined Stantec in the field during the Stage 2 assessment of the study area.

Table 1: Indigenous Representatives on Site during Stage 2 Archaeological Assessment

Date	MCFN	SNGREC	HWFN
October 31, 2023	Rebecca Sault	Danielle Hughes	Anthony Bond

2.0 CORRESPONDENCE

From:	Figura, Arthur
To:	Adam LaForme; Field Coordinator
Cc:	Brown, Steve (Waterloo); Abby LaForme; Chris Nechacov; Samantha Brickman; Sarah Anderson; Lane, Krista
Subject:	RE: Schneider and Shoemaker Creek Naturalization - Stage 2 Archaeological Assessment DOCA#2023-0265
Date:	Thursday, October 26, 2023 2:45:58 PM
Attachments:	Schneider Creek archaeology parking.pdf image001.png

Good afternoon Adam and Joelle,

I can confirm that Stantec archaeology team is scheduled to conduct the Stage 2 testing of the Schneider and Shoemaker Creek Naturalization project next week on Tuesday October 31st 2023. Our licensed archaeologist Krista Lane will lead a team of four to conduct the test pit survey for the areas of archaeological potential within the subject property.

Krista's cell # 226-219-8221. She can also be reached at krista.lane@stantec.com

The team will meet on **Tuesday October 31st 2023 at 9am** at the parking lot of the Beth Jacob Synagogue & Jewish Community Centre located at **161 Stirling Avenue S. in Kitchener** (also see attached map with parking location).
We will let you know in case there will be any changes due to inclement weather etc.
Kind regards,
Arthur

Arthur Figura, MA
Project Archaeologist

Mobile: 226 927-1026
arthur.figura@stantec.com

Stantec
600-171 Queens Avenue
London ON N6A 5J7

From: Brown, Steve (Waterloo) <steve.brown@stantec.com>
Sent: Monday, October 16, 2023 8:48 AM
To: Adam LaForme <Adam.LaForme@mncfn.ca>; Field Coordinator <field.coordinator@mncfn.ca>
Cc: Abby LaForme <Abby.LaForme@mncfn.ca>; Chris Nechacov <Chris.Nechacov@kitchener.ca>; Samantha Brickman <Samantha.Brickman@kitchener.ca>; Sarah Anderson <Sarah.Anderson@kitchener.ca>; Figura, Arthur <Arthur.Figura@stantec.com>
Subject: RE: Schneider and Shoemaker Creek Naturalization - Stage 2 Archaeological Assessment DOCA#2023-0265

Good morning, Adam and Joelle. I hope you had a good weekend.

We are scheduling the Stage 2 Archaeological Assessment work for the Schneider and Shoemaker Creeks Naturalization project for Tuesday, Oct. 31. Arthur Figura (cc'd on this message) is the field lead and will be confirming specific details a bit closer to the date. Please let us know if you have any

questions. Thanks.

Steve.

Steve Brown MBA, P.Eng.
Surface Water Lead, Canada East

Direct: 519 585-7446
Mobile: 519 577-2551
steve.brown@stantec.com

Stantec
100-300 Hagey Boulevard
Waterloo ON N2L 0A4

From: Adam LaForme <Adam.LaForme@mncfn.ca>
Sent: Friday, October 6, 2023 3:13 PM
To: Brown, Steve (Waterloo) <steve.brown@stantec.com>; Field Coordinator <field.coordinator@mncfn.ca>
Cc: Abby LaForme <Abby.LaForme@mncfn.ca>; Chris Nechacov <Chris.Nechacov@kitchener.ca>; Samantha Brickman <Samantha.Brickman@kitchener.ca>; Sarah Anderson <Sarah.Anderson@kitchener.ca>
Subject: RE: Schneider and Shoemaker Creek Naturalization - Stage 2 Archaeological Assessment DOCA#2023-0265

Good Afternoon Steve,

Please find the attached, signed agreements for your records.

When scheduling fieldwork please contact DOCA's @Field Coordinator Joelle Williams.

We look forward to working with you on this project.

Thank you,

Adam LaForme (he/him)
Archaeological Operations Supervisor

Mississaugas of the Credit First Nation (MCFN)
Department of Consultation and Accommodation (DOCA)
4065 Highway 6 North, Hagersville, ON N0A 1H0

Cell 289-527-2763

From: Brown, Steve (Waterloo) <steve.brown@stantec.com>
Sent: September 29, 2023 3:05 PM
To: Adam LaForme <Adam.LaForme@mncfn.ca>
Cc: Abby LaForme <Abby.LaForme@mncfn.ca>; Chris Nechacov <Chris.Nechacov@kitchener.ca>; Samantha Brickman <Samantha.Brickman@kitchener.ca>; Sarah Anderson <Sarah.Anderson@kitchener.ca>
Subject: RE: Schneider and Shoemaker Creek Naturalization - Stage 2 Archaeological Assessment

Hi Adam. Please find attached:

- A signed version of the Mississaugas of the Credit First Nation Field Liaison Representative Participation Agreement.
- An unsigned version of the same agreement showing tracked changes (Word format).
- A copy of the original contract between Stantec and the City of Kitchener for reference.

I've tried to be consistent with previous/standard practices between the MCFN and Stantec for this type of project, so have used a modified version of the agreement you provided that has been approved for other projects, but if there are any questions, please don't hesitate to reach out to me. .

Could you please sign and return the agreement for our files. Thanks

Steve.

Steve Brown MBA, P.Eng.
Surface Water Lead, Canada East

Direct: 519 585-7446
Mobile: 519 577-2551
steve.brown@stantec.com

Stantec
100-300 Hagey Boulevard
Waterloo ON N2L 0A4

From: Adam LaForme <Adam.LaForme@mncfn.ca>
Sent: Friday, September 1, 2023 1:42 PM
To: Brown, Steve (Waterloo) <steve.brown@stantec.com>
Cc: Abby LaForme <Abby.LaForme@mncfn.ca>; Chris Nechacov <Chris.Nechacov@kitchener.ca>; Samantha Brickman <Samantha.Brickman@kitchener.ca>; Sarah Anderson <Sarah.Anderson@kitchener.ca>
Subject: RE: Schneider and Shoemaker Creek Naturalization - Stage 2 Archaeological Assessment

Good Afternoon Steve,

Thank you for reaching out to the Mississaugas of the Credit First Nation (MCFN) to confirm our interest in this project. MCFN would like to have a Field Liaison Representative on site for the Archaeological Assessment.

I believe Kitchener has a copy of our Participation agreement, but if not please let me know and I will send a copy.

If you have any questions or concerns about this process please contact me.

Thank you,

Adam LaForme (he/him)
Archaeological Operations Supervisor

Mississaugas of the Credit First Nation (MCFN)
Department of Consultation and Accommodation (DOCA)
4065 Highway 6 North, Hagersville, ON N0A 1H0
Cell 289-527-2763

From: Brown, Steve (Waterloo) <steve.brown@stantec.com>
Sent: September 1, 2023 11:31 AM
To: Adam LaForme <Adam.LaForme@mncfn.ca>
Cc: Abby LaForme <Abby.LaForme@mncfn.ca>; Chris Nechacov <Chris.Nechacov@kitchener.ca>; Samantha Brickman <Samantha.Brickman@kitchener.ca>; Sarah Anderson <Sarah.Anderson@kitchener.ca>
Subject: Schneider and Shoemaker Creek Naturalization - Stage 2 Archaeological Assessment

Hello.

The Schneider and Shoemaker Creek Naturalization project is proceeding with subsequent design stages. As per the recommendations of the Stage 1 Archaeological Assessment (Stantec, July 13, 2023 – circulated previously), Stage 2 assessments are required at two locations within the study area. We are currently working to schedule that field work for the fall of 2023.

Please confirm if you want to have monitors present during the field work. Thanks.

Steve.

Steve Brown MBA, P.Eng.
Surface Water Lead, Canada East

Direct: 519 585-7446

Mobile: 519 577-2551
steve.brown@stantec.com

Stantec
100-300 Hagey Boulevard
Waterloo ON N2L 0A4

Caution: This email originated from outside of Stantec. Please take extra precaution.

Attention: Ce courriel provient de l'extérieur de Stantec. Veuillez prendre des précautions supplémentaires.

Atención: Este correo electrónico proviene de fuera de Stantec. Por favor, tome precauciones adicionales.

From:	Figura, Arthur
To:	Dawn LaForme; Tanya Hill-Montour
Cc:	Chris Nechacov; Brown, Steve (Waterloo); Samantha Brickman; Sarah Anderson; Lane, Krista
Subject:	RE: Schneider and Shoemaker Creek Naturalization - Stage 2 Archaeological Assessment
Date:	Thursday, October 26, 2023 2:45:03 PM
Attachments:	Schneider Creek archaeology parking.pdf

Good afternoon Tanya and Dawn,

I can confirm that Stantec archaeology team is scheduled to conduct the Stage 2 testing of the Schneider and Shoemaker Creek Naturalization project next week on Tuesday October 31st 2023. Our licensed archaeologist Krista Lane will lead a team of four to conduct the test pit survey for the areas of archaeological potential within the subject property.

Krista's cell # 226-219-8221. She can also be reached at krista.lane@stantec.com

The team will meet on **Tuesday October 31st 2023 at 9am** at the parking lot of the Beth Jacob Synagogue & Jewish Community Centre located at **161 Stirling Avenue S. in Kitchener** (also see attached map with parking location).
We will let you know in case there will be any changes due to inclement weather etc.
Kind regards,
Arthur

Arthur Figura, MA
Project Archaeologist

Mobile: 226 927-1026
arthur.figura@stantec.com

Stantec
600-171 Queens Avenue
London ON N6A 5J7

From: Brown, Steve (Waterloo) <steve.brown@stantec.com>
Sent: Monday, October 16, 2023 8:48 AM
To: Dawn LaForme <dlaforme@sixnations.ca>; Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Cc: Chris Nechacov <Chris.Nechacov@kitchener.ca>; Samantha Brickman <Samantha.Brickman@kitchener.ca>; Sarah Anderson <Sarah.Anderson@kitchener.ca>; Figura, Arthur <Arthur.Figura@stantec.com>
Subject: RE: Schneider and Shoemaker Creek Naturalization - Stage 2 Archaeological Assessment

Good morning, Dawn and Tanya. I hope you had a good weekend.

We are scheduling the Stage 2 Archaeological Assessment work for the Schneider and Shoemaker Creeks Naturalization project for Tuesday, Oct. 31. Arthur Figura (cc'd on this message) is the field lead and will be confirming specific details a bit closer to the date. Please let us know if you have any questions. Thanks.

Steve.

Steve Brown MBA, P.Eng.
Surface Water Lead, Canada East

Direct: 519 585-7446
Mobile: 519 577-2551
steve.brown@stantec.com

Stantec
100-300 Hagey Boulevard
Waterloo ON N2L 0A4

From: Dawn LaForme <dlaforme@sixnations.ca>
Sent: Wednesday, October 4, 2023 3:24 PM
To: Brown, Steve (Waterloo) <steve.brown@stantec.com>
Cc: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>; Chris Nechacov <Chris.Nechacov@kitchener.ca>; Samantha Brickman <Samantha.Brickman@kitchener.ca>; Sarah Anderson <Sarah.Anderson@kitchener.ca>; Molnar, Leslie <leslie.molnar@stantec.com>
Subject: RE: Schneider and Shoemaker Creek Naturalization - Stage 2 Archaeological Assessment

Good afternoon Steve,
Attached please find a signed copy of the monitor agreement for your files along with the WSIB and COI.

Thank you kindly,
Dawn LaForme, Secretary/Receptionist, Six Nations Lands & Resources (519) 753-0665

From: Brown, Steve (Waterloo) <steve.brown@stantec.com>
Sent: Friday, September 29, 2023 3:05 PM
To: Dawn LaForme <dlaforme@sixnations.ca>
Cc: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>; Chris Nechacov <Chris.Nechacov@kitchener.ca>; Samantha Brickman <Samantha.Brickman@kitchener.ca>; Sarah Anderson <Sarah.Anderson@kitchener.ca>; Molnar, Leslie <leslie.molnar@stantec.com>
Subject: [External] RE: Schneider and Shoemaker Creek Naturalization - Stage 2 Archaeological Assessment

Hi Dawn. Please find attached:

- A signed version of the Six Nations of the Grand River Elected Council Archaeological Monitoring Agreement.
- A signed Stantec field work agreement.
- A copy of the original contract between Stantec and the City of Kitchener for reference.

Could you please sign and return the two agreements for our files.

I've tried to be consistent with previous/standard practices between the SNGREC and Stantec for this type of project, but if there are any questions, please don't hesitate to reach out to me. Thanks.

Steve.

Steve Brown MBA, P.Eng.
Surface Water Lead, Canada East

Direct: 519 585-7446
Mobile: 519 577-2551
steve.brown@stantec.com

Stantec
100-300 Hagey Boulevard
Waterloo ON N2L 0A4

From: Dawn LaForme <dlaforme@sixnations.ca>
Sent: Friday, September 1, 2023 11:38 AM
To: Brown, Steve (Waterloo) <steve.brown@stantec.com>
Cc: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>; Chris Nechacov <Chris.Nechacov@kitchener.ca>; Samantha Brickman <Samantha.Brickman@kitchener.ca>; Sarah Anderson <Sarah.Anderson@kitchener.ca>
Subject: RE: Schneider and Shoemaker Creek Naturalization - Stage 2 Archaeological Assessment

Good morning Steve,
Attached please find the Archaeology Monitor Agreement to be filled in, signed and send back at your earliest convenience for processing.

Thank you kindly,
Dawn LaForme, Secretary/Receptionist, Six Nations Lands & Resources (519) 753-0665

From: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Sent: Friday, September 1, 2023 11:36 AM
To: Brown, Steve (Waterloo) <steve.brown@stantec.com>; Dawn LaForme <dlaforme@sixnations.ca>
Cc: Chris Nechacov <Chris.Nechacov@kitchener.ca>; Samantha Brickman <Samantha.Brickman@kitchener.ca>; Sarah Anderson <Sarah.Anderson@kitchener.ca>
Subject: RE: Schneider and Shoemaker Creek Naturalization - Stage 2 Archaeological Assessment

Good Morning Steve

SNGREC has interest in the : Schneider and Shoemaker Creek Naturalization - Stage 2 Archaeological Assessment.

I have cc'd Dawn Laforme to assist in executing a standard agreement for participation.

Have a great weekend!

Nia':wen ko:wa (thankyou)

Tanya Hill-Montour
SNGR Archaeological Supervisor
226.388.0665

From: Brown, Steve (Waterloo) <steve.brown@stantec.com>
Sent: Friday, September 1, 2023 11:31 AM
To: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Cc: Chris Nechacov <Chris.Nechacov@kitchener.ca>; Samantha Brickman <Samantha.Brickman@kitchener.ca>; Sarah Anderson <Sarah.Anderson@kitchener.ca>
Subject: [External] Schneider and Shoemaker Creek Naturalization - Stage 2 Archaeological Assessment

Hello.

The Schneider and Shoemaker Creek Naturalization project is proceeding with subsequent design stages. As per the recommendations of the Stage 1 Archaeological Assessment (Stantec, July 13, 2023 – circulated previously), Stage 2 assessments are required at two locations within the study area. We are currently working to schedule that field work for the fall of 2023.

Please confirm if you want to have monitors present during the field work. Thanks.

Steve.

Steve Brown MBA, P.Eng.
Surface Water Lead, Canada East

Direct: 519 585-7446
Mobile: 519 577-2551
steve.brown@stantec.com

Stantec
100-300 Hagey Boulevard
Waterloo ON N2L 0A4

From:	Figura, Arthur
To:	Dominique Lesage
Cc:	Thiefaine Terrier; Brown, Steve (Waterloo); consultations; Chris.Nechacov@kitchener.ca; Samantha Brickman; Sarah.Anderson@kitchener.ca; Lane, Krista
Subject:	RE: Schneider and Shoemaker Creek Naturalization - Stage 2 Archaeological Assessment
Date:	Thursday, October 26, 2023 2:46:22 PM
Attachments:	Schneider Creek archaeology parking.pdf image001.png image004.png image005.png image006.png image003.png

---

Good afternoon Dominique,

I can confirm that Stantec archaeology team is scheduled to conduct the Stage 2 testing of the Schneider and Shoemaker Creek Naturalization project next week on Tuesday October 31st 2023. Our licensed archaeologist Krista Lane will lead a team of four to conduct the test pit survey for the areas of archaeological potential within the subject property.

Krista's cell # 226-219-8221. She can also be reached at krista.lane@stantec.com

The team will meet on **Tuesday October 31st 2023 at 9am** at the parking lot of the Beth Jacob Synagogue & Jewish Community Centre located at **161 Stirling Avenue S. in Kitchener** (also see attached map with parking location).
We will let you know in case there will be any changes due to inclement weather etc.
Kind regards,
Arthur

Arthur Figura, MA
Project Archaeologist

Mobile: 226 927-1026
arthur.figura@stantec.com

Stantec
600-171 Queens Avenue
London ON N6A 5J7

From: Brown, Steve (Waterloo) <steve.brown@stantec.com>
Sent: Monday, October 16, 2023 8:48 AM
To: Dominique Lesage <Dominique.Lesage@wendake.ca>
Cc: Thiefaine Terrier <Thiefaine.Terrier@wendake.ca>; consultations <consultations@wendake.ca>; Chris.Nechacov@kitchener.ca; Samantha Brickman <Samantha.Brickman@kitchener.ca>; Sarah.Anderson@kitchener.ca; Figura, Arthur <Arthur.Figura@stantec.com>
Subject: RE: Schneider and Shoemaker Creek Naturalization - Stage 2 Archaeological Assessment

Good morning, Dominique. I hope you had a good weekend.

We are scheduling the Stage 2 Archaeological Assessment work for the Schneider and Shoemaker Creeks Naturalization project for Tuesday, Oct. 31. Arthur Figura (cc'd on this message) is the field lead

and will be confirming specific details a bit closer to the date. Please let us know if you have any questions. Thanks.

Steve.

Steve Brown MBA, P.Eng.
Surface Water Lead, Canada East

Direct: 519 585-7446
Mobile: 519 577-2551
steve.brown@stantec.com

Stantec
100-300 Hagey Boulevard
Waterloo ON N2L 0A4

From: Dominique Lesage <Dominique.Lesage@wendake.ca>
Sent: Wednesday, October 11, 2023 9:44 AM
To: Brown, Steve (Waterloo) <steve.brown@stantec.com>
Cc: Thiefaine Terrier <Thiefaine.Terrier@wendake.ca>; consultations <consultations@wendake.ca>; Chris.Nechacov@kitchener.ca; Samantha Brickman <Samantha.Brickman@kitchener.ca>; Sarah.Anderson@kitchener.ca
Subject: RE: Schneider and Shoemaker Creek Naturalization - Stage 2 Archaeological Assessment

Kwe Steve,

I hope you had a nice long weekend. Attached is the signed agreement, the certificate of insurance and the WSIB. You will notice a correction above the signature on the agreement. The agreements must be signed by the director Vincent Bourret, I do not have the clearance to do it myself.
Do not hesitate if you have questions.

Tiawenhk inenh!
Dominique

NATION HURONNE-WENDAT
BUREAU DU NIONWENTSÏO

Dominique Lesage
Coordonnatrice des opérations

255, place Chef Michel Laveau
Wendake (QC) G0A 4V0
T : 418 843-3767
C : 581 305-5069
@ : dominique.lesage@Wendake.ca

WENDAKE.CA

De : Brown, Steve (Waterloo) <steve.brown@stantec.com>
Envoyé : 5 octobre 2023 14:42
À : Dominique Lesage <Dominique.Lesage@wendake.ca>
Cc : Thiefaine Terrier <Thiefaine.Terrier@wendake.ca>; consultations <consultations@wendake.ca>; Chris.Nechacov@kitchener.ca; Samantha Brickman <Samantha.Brickman@kitchener.ca>; Sarah.Anderson@kitchener.ca
Objet : RE: Schneider and Shoemaker Creek Naturalization - Stage 2 Archaeological Assessment

Hi Dominique, thanks for the information. Can you please sign the attached agreement for this work for our files (your quote is incorporated into the document)? I believe this agreement is a standard format for this type of project, but if you have any questions, please let me know. Thanks.

Steve.

Steve Brown MBA, P.Eng.
Surface Water Lead, Canada East

Direct: 519 585-7446
Mobile: 519 577-2551
steve.brown@stantec.com

Stantec
100-300 Hagey Boulevard
Waterloo ON N2L 0A4

From: Dominique Lesage <Dominique.Lesage@wendake.ca>
Sent: Wednesday, October 4, 2023 10:16 AM
To: Brown, Steve (Waterloo) <steve.brown@stantec.com>
Cc: Thiefaine Terrier <Thiefaine.Terrier@wendake.ca>; consultations <consultations@wendake.ca>; Chris.Nechacov@kitchener.ca; Samantha Brickman <Samantha.Brickman@kitchener.ca>; Sarah.Anderson@kitchener.ca
Subject: RE: Schneider and Shoemaker Creek Naturalization - Stage 2 Archaeological Assessment

Kwe Steve,

I am sorry for the late reply. Attached is the quote for the Huron Wendat nation participation to the Schneider and Shoemaker Creek Naturalization Stage 2 AA fieldwork.
Do not hesitate if you have questions.

Best regards,
Dominique

NATION HURONNE-WENDAT
BUREAU DU NIONWENTSÏO

Dominique Lesage
Coordonnatrice des opérations

255, place Chef Michel Laveau
Wendake (QC) G0A 4V0
T : 418 843-3767
C : 581 305-5069
@ : dominique.lesage@Wendake.ca

WENDAKE.CA

De : Brown, Steve (Waterloo) <steve.brown@stantec.com>
Envoyé : 22 septembre 2023 09:53
À : Dominique Lesage <Dominique.Lesage@wendake.ca>
Cc : Thiefaine Terrier <Thiefaine.Terrier@wendake.ca>; consultations <consultations@wendake.ca>; Chris.Nechacov@kitchener.ca; Samantha Brickman <Samantha.Brickman@kitchener.ca>; Sarah.Anderson@kitchener.ca
Objet : RE: Schneider and Shoemaker Creek Naturalization - Stage 2 Archaeological Assessment

Hi Dominique. We're expecting the field work will only last one day and hope to be in the field in about 2 weeks.

Steve.

Steve Brown MBA, P.Eng.
Surface Water Lead, Canada East

Direct: 519 585-7446
Mobile: 519 577-2551
steve.brown@stantec.com

Stantec
100-300 Hagey Boulevard
Waterloo ON N2L 0A4

From: Dominique Lesage <Dominique.Lesage@wendake.ca>
Sent: Tuesday, September 19, 2023 2:42 PM
To: Brown, Steve (Waterloo) <steve.brown@stantec.com>
Cc: Thiefaine Terrier <Thiefaine.Terrier@wendake.ca>; consultations <consultations@wendake.ca>; Chris.Nechacov@kitchener.ca; Samantha Brickman <Samantha.Brickman@kitchener.ca>;

Sarah.Anderson@kitchener.ca
Subject: RE: Schneider and Shoemaker Creek Naturalization - Stage 2 Archaeological Assessment

Kwe Mr Brown,

Thank you for contacting us. Could you tell us the approximate duration of the fieldwork and the precise period during which the work is scheduled? With this information we can confirm the availability of our teams.
Best regards,

Dominique

NATION HURONNE-WENDAT
BUREAU DU NIONWENTSÏO

Dominique Lesage
Coordonnatrice des opérations

255, place Chef Michel Laveau
Wendake (QC) G0A 4V0
T : 418 843-3767
C : 581 305-5069
@ : dominique.lesage@Wendake.ca

WENDAKE.CA

De : Brown, Steve (Waterloo) <steve.brown@stantec.com>
Envoyé : 14 septembre 2023 13:35
À : Thiefaine Terrier <Thiefaine.Terrier@wendake.ca>
Cc : Dominic Ste-Marie <Dominic.Sainte-Marie@wendake.ca>; Chris Nechacov <Chris.Nechacov@kitchener.ca>; Samantha Brickman <Samantha.Brickman@kitchener.ca>; Sarah Anderson <Sarah.Anderson@kitchener.ca>
Objet : RE: Schneider and Shoemaker Creek Naturalization - Stage 2 Archaeological Assessment

Hello. I'm following up to confirm if you would like to have monitors present for the Stage 2 Archaeological Assessment field work that will be proceeding this fall. Please let me know. Thanks.

Steve.

Steve Brown MBA, P.Eng.
Surface Water Lead, Canada East

Direct: 519 585-7446
Mobile: 519 577-2551
steve.brown@stantec.com

Stantec

100-300 Hagey Boulevard
Waterloo ON N2L 0A4

From: Brown, Steve (Waterloo)
Sent: Friday, September 1, 2023 11:31 AM
To: thiefaine.terrier@wendake.ca
Cc: Dominic.Sainte-Marie@wendake.ca; Chris Nechacov <Chris.Nechacov@kitchener.ca>; Samantha.Brickman@kitchener.ca; Sarah Anderson <Sarah.Anderson@kitchener.ca>
Subject: Schneider and Shoemaker Creek Naturalization - Stage 2 Archaeological Assessment

Hello.

The Schneider and Shoemaker Creek Naturalization project is proceeding with subsequent design stages. As per the recommendations of the Stage 1 Archaeological Assessment (Stantec, July 13, 2023 – circulated previously), Stage 2 assessments are required at two locations within the study area. We are currently working to schedule that field work for the fall of 2023.

Please confirm if you want to have monitors present during the field work. Thanks.

Steve.

Steve Brown MBA, P.Eng.
Surface Water Lead, Canada East

Direct: 519 585-7446
Mobile: 519 577-2551
steve.brown@stantec.com

Stantec
100-300 Hagey Boulevard
Waterloo ON N2L 0A4

The content of this email is the confidential property of Stantec and should not be copied, modified, retransmitted, or used for any purpose except with Stantec's written authorization. If you are not the intended recipient, please delete all copies and notify us immediately.
Please consider the environment before printing this email.

Caution: This email originated from outside of Stantec. Please take extra precaution.

Attention: Ce courriel provient de l'extérieur de Stantec. Veuillez prendre des précautions supplémentaires.

Atención: Este correo electrónico proviene de fuera de Stantec. Por favor, tome precauciones adicionales.

Appendix F Assessment of Past Uses

Assessment of Past Uses, Naturalization of Schneider Creek and Shoemaker Creek Corridor, Kitchener, Ontario

Final Report

October 11, 2023

Prepared for:

City of Kitchener
200 King Street West
Kitchener ON N2G 4G7

Prepared by:

Stantec Consulting Ltd.
100-300 Hagey Boulevard
Waterloo ON N2L 0A4

Project No.: 161414319

Table of Contents

LIST OF TABLES

LIST OF APPENDICES

Executive Summary

Stantec Consulting Ltd. (Stantec) has been retained by The City of Kitchener ("Kitchener") to provide excess soil services as part of site redevelopment (naturalization) at the Schneider and Shoemaker Creek Corridor, referenced herein as the "Site" or "project area".

The project area and study area are illustrated on **Figure 1**, **Appendix A**. Excess soil assessment is required to support the anticipated movement of excess soil from the project area for off-Site reuse or disposal.

The anticipated quantity and location(s) of excess soil are currently not known. Kitchener has retained Stantec to complete an Assessment of Past Uses (APU) for the project area to inform future planning for excess soil management. The objective of the APU is to determine if Areas of Potential Environmental Concern (APECs) exist in the project area, which may be present as a result of current and/or past Potentially Contaminating Activities (PCAs) at the project area or adjacent/neighbouring properties within at least 250 m of the perimeter of the project area (i.e., the study area).

To fulfill the objective of the APU, historical records and documentation available for the project area and the surrounding areas were reviewed, and a site reconnaissance was completed on June 16, 2023. Following the review of available information, PCAs in or near the project area were identified and were evaluated to determine if they contributed to APECs. The following is a summary of the identified APECs, which are also illustrated on **Figure 3, Appendix A**:

Table 1-1: Summary of Areas of Potential Environmental Concern

APEC #	Location and Description of APEC	Description of PCA	Approximate Distance from the Project Area	Contaminant(s) of Potential Concern
1	Trail portion of project area from northwest to southeast limit (Former rail corridor)	PCA 46 – Rail Yards, Tracks and Spurs	On-Site	Metals and inorganics including EC and SAR, PHC F1 to F4/BTEX, VOCs, PAHs
2	Entire project area (Potential fill importation for road, rail and property development)	PCA 30 – Importation of Fill Material of Unknown Quality	On-Site	Metals & inorganics including EC and SAR, PHC F1 to F4/BTEX, PAHs

APEC #	Location and Description of APEC	Description of PCA	Approximate Distance from the Project Area	Contaminant(s) of Potential Concern
3	South portion of project area (east of Shoemaker Creek, south of Schneider Creek, west of Borden Avenue South)	*PCA B – Known soil and groundwater impacts at 170 Borden Avenue South	On-Site, south portion of project area (170 Borden Avenue South)	PHC F1 to F4/BTEX Metals and Inorganics including EC and SAR, VOCs
		PCA 27 – Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles		
		PCA 34 – Metal Fabrication		
4	South portion of project area (east of Shoemaker Creek, south of Bedford Road, west of Borden Avenue South)	PCA 27 – Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	On-Site, south portion of project area (380 Courtland Avenue East, 59 Bedford Road)	PHC F1 to F4/BTEX Metals and Inorganics including EC and SAR, VOCs
		PCA28 - Gasoline and Associated Products Storage in Fixed Tanks		
5	West-central portion of project area (south side of Schneider Creek between Kent Avenue and Palmer Avenue)	*PCA B – Known Metals Impacts in Soil near 20 Hurst Avenue	On-Site (20 Hurst Avenue)	Metals & inorganics including EC and SAR, PHC F1 to F4/BTEX, VOCs
		PCA 27 – Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	On-Site (116 Kent Avenue, 118 Kent Avenue)	
		PCA 28 – Gasoline and Associated Products Storage in Fixed Tanks	On-Site (20 Hurst Avenue)	
6	North-central portion of project area (north side of Schneider Creek between Kent Avenue and Borden Avenue South)	*PCA B – Known off-site VOC groundwater impacts	Adjacent to the north of the project area (94 and 70-74 Borden Avenue South, 61-97 Kent Avenue)	Metals & inorganics including EC and SAR, PHC F1 to F4/BTEX, VOCs, PAHs, PCBs
		PCA 34 – Metal Fabrication	On-Site (97 Kent Avenue)	
		PCA 39 - Paints Manufacturing, Processing and Bulk Storage		
		*PCA C – Generation of Hazardous Wastes		
7	South-central portion of project area (west side of Shoemaker Creek, south of Schneider Creek, east of Kent Avenue)	PCA 58 - Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners	Adjacent to the west of the south portion of the project area	Metals & inorganics including EC and SAR, PHC F1 to F4/BTEX, PAHs, VOCs

APEC #	Location and Description of APEC	Description of PCA	Approximate Distance from the Project Area	Contaminant(s) of Potential Concern
8	East-central portion of the project area (north side of Schneider Creek between Borden Avenue South and Ottawa Street South)	PCA 34 – Metal Fabrication	Adjacent to the north of the project area (60 Ottawa Street South)	Metals & inorganics including EC and SAR, PHC F1 to F4/BTEX, VOCs
9	East portion of the project area (north side of Schneider Creek east of Ottawa Street South)	*PCA B – Known soil and groundwater impacts at 108 Sydney St. S., PAH soil impacts near 123 Ottawa Street South	North adjacent (108 Sydney Street) On-Site (123 Ottawa Street South)	Metals & inorganics including EC and SAR, PHC F1 to F4/BTEX, PAHs, VOCs
		*PCA C – Generation of Hazardous Wastes	On-Site and north adjacent (108 Sydney Street)	
		PCA 33 – Metal Treatment, Coating, Plating and Finishing	On-Site (109 Ottawa Street South)	
		PCA 34 – Metal Fabrication		
		PCA 43 - Plastics (including Fibreglass) Manufacturing and Processing		
		PCA 57 – Vehicles and Associated Parts Manufacturing	On-Site (134 Sydney Street South)	
10	Southeast portion of project area (Nyberg Street east of Ottawa Street South)	*PCA B – Known PHC Soil Impacts along Nyberg Street	On-Site	Metals & inorganics including EC and SAR, PHC F1 to F4/BTEX, VOCs
		PCA 27 - Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	Approximately 85 m southwest of the project area	
		PCA 28 – Gasoline and Associated Products Storage in Fixed Tanks	Approximately 40 m southwest of the project area (135 Ottawa Street South)	
		PCA 37 - Operation of Dry Cleaning Equipment (where chemicals are used)		
11	South-central portion of project area (between Borden Avenue South and Ottawa Street South)	*PCA B – Known soil and groundwater impacts at 405-409 Nyberg Street and along Nyberg Street	On-Site (405-409 Nyberg Street and 124 Ottawa Street South) and approximately 70 m	Metals & inorganics including EC and SAR, PHC F1 to F4/BTEX, VOCs, PCBs
		*PCA C – Generation of hazardous wastes		

APEC #	Location and Description of APEC	Description of PCA	Approximate Distance from the Project Area	Contaminant(s) of Potential Concern
		PCA 28 - Gasoline and Associated Products Storage in Fixed Tanks	southwest (129 and 133 Dundas Avenue)	
		PCA 33 – Metal Treatment, Coating, Plating and Finishing		
		PCA 34 – Metal Fabrication		
		PCA 43 - Plastics (including Fibreglass) Manufacturing and Processing		
		PCA 55 - Transformer Manufacturing, Processing and Use	Approximately 40 m south of the project area (136 Ottawa Street South)	
12	Southwest portion of the project area	*PCA A - Spills	Approximately 10 m south of the project area (260 Courtland Avenue East)	Metals & inorganics including EC and SAR, PHC F1 to F4/BTEX, VOCs
		PCA 10 – Commercial Autobody Shops	Approximately 60 m south of the project area (249 Courtland Avenue East)	
		PCA 27 - Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	Approximately 60 m and 80 m south of the project area (249 Courtland Avenue East)	
		PCA 28 – Gasoline and Associated Products Storage in Fixed Tanks	Approximately 10 m and 70 m south of the project area (260 and 249 Courtland Avenue East)	
13	Northwest portion of project area	*PCA B – Known metals impacts in soil	On-Site, former Kent Avenue landfill	Metals & inorganics including EC and SAR, PHC F1 to F4/BTEX, VOCs
		PCA58 - Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners		

Note(s):

PHC F1 to F4 - Petroleum hydrocarbon fractions 1 to 4; BTEX - benzene, toluene, ethylbenzene, and xylene; PAHs - polycyclic aromatic hydrocarbons, VOCs – Volatile organic compounds, PCBs – Polychlorinated Biphenyls, * - PCA Not Defined in standard list.

Based on the above, the following recommendations are provided:

- O.Reg. 406/19 (On-Site and Excess Soil Management) and the associated MECP *document Rules for Soil Management and Excess Soil Quality Standards* referenced by O.Reg. 406/19 should be followed for soil that is excavated and managed on-site or off-site during construction.
- O.Reg. 406/19 requires sampling of soil that will be disturbed during construction, according to a sampling and analysis plan and analyzing for the specific contaminants of potential concern as described in the APEC summary table. Sampling programs should be developed and undertaken under the supervision of a qualified person as defined in O.Reg. 406/19 and sample selection should take into consideration the presence of anthropogenic substances such as debris/waste, and unusual odours or staining.
- Stockpiling and transport of excavated soil during construction should be done in accordance with the requirements specified in O.Reg. 406/19.

Should contaminated soil be suspected during future construction activities (e.g., staining, odours, debris/waste, petroleum hydrocarbon sheen), a qualified person should be retained to identify and collect representative soil samples for chemical analysis to determine management options and appropriate handling in accordance with O.Reg. 406/19

The statements made in this Executive Summary text are subject to the limitations included in **Section 5.0** and are to be read in conjunction with the remainder of this report.

1.0 INTRODUCTION

Stantec Consulting Ltd. (Stantec) has been retained by the City of Kitchener (Kitchener) to provide excess soil services as part of proposed site redevelopment activities at the Schneider and Shoemaker Creek corridor south of the intersection of Charles Street East and Sterling Avenue South in Kitchener, Ontario, referenced herein as the “project area”.

The location and setting of the project area are presented on **Figure 1**, **Appendix A**. Excess soil assessment is required to support the anticipated movement of excavated soil from the project area for off-site reuse or disposal. Stantec has completed this Assessment of Past Uses (APU) for the project area to inform future planning for excess soil management. The anticipated volume and specific location(s) of excess soil generation are not known at this time.

The project area is currently occupied by various land uses but is proposed to be altered through naturalization of Schneider and Shoemaker Creeks, which currently flow within concrete channels.

The City of Kitchener is understood to be the Project Leader. Contact information for the Project Leader and the Qualified Person overseeing the completion of this APU is as follows:

City of Kitchener:

Chris Nechacov, Design and Construction Project Manager
131 Goodrich Drive
Kitchener ON N2C 2E8
Chris.Nechacov@kitchener.ca

Qualified Person:

Grace Ferguson, M.Sc., P.Eng., QP_{ESA}
Stantec Consulting Ltd.
100-300 Hagey Boulevard
Waterloo ON N2L 0A4
Grace.Ferguson@stantec.com
226-339-6720

1.1 OBJECTIVE

The objective of the APU is to determine if Areas of Potential Environmental Concern (APECs) exist in the project area, which may be present as a result of current and/or past Potentially Contaminating Activities (PCAs) in the project area or adjacent/neighbouring properties within at least 250 m of the project area ("Study Area"). This will allow a preliminary determination of the likelihood that one or more contaminants have affected soil in a location where soil is to be excavated within the project area, and identification of contaminants of potential concern (COPCs) to consider in a sampling and analysis plan, should APECs be identified within the areas of excavation.

1.2 SCOPE OF WORK

The scope of work completed to fulfill the objective of the APU was as follows:

- Review of historical records and documentation available for the project area and study area (within 250 m of the project area) that included, but was not limited to, the following where available:
    - Publicly available aerial photographs.
    - An Environmental Risk Information Services (ERIS) report consisting of a search of all databases within a 250 m search radius from the perimeter of the project area.
    - Previous environmental reports completed within the project area that includes the project area.
- Completion of a site reconnaissance of the Project and the project area.
- Interviews with persons knowledgeable about the project area history, if available (see below).
- Review and evaluation of gathered information.
- Preparation of this APU report, including a conceptual site model and documentation of APECs and COPCs.

The APU did not include city directory searches, title searches, or requests to the Ontario Ministry of the Environment, Conservation and Parks (MECP) for information they have on file for the properties comprising the project area. Much of this information was obtained through a database search completed by ERIS and the available previous environmental reports or was not considered to provide significant additional information beyond the other sources reviewed, for the purposes of identifying APECs. The absence of this information is not considered to have impacted the conclusions of the APU.

An APU does not include sampling or testing of air, soil, ground water, surface water or building materials. This assessment did not include a review or audit of compliance with any environmental legislation applicable to the project area, or of any environmental management systems which may exist for the project area.

2.0 METHODS

This section describes the methods used to complete the historical records review and the site reconnaissance activities. The APU followed the guidance provided in Ontario Regulation (O.Reg.) 406/19, *On-Site and Excess Soil Management*, as amended, to conduct the investigation.

2.1 HISTORICAL RECORDS REVIEW

The historical records review consisted of a review of information available from government, public and other agencies or parties, and information on file at Stantec. In addition, topographic mapping and geological reference maps were reviewed to develop a conceptual understanding of site physiography and hydrogeology. Information was reviewed from the following sources:

- Aerial/Satellite Imagery:
    - University of Toronto Aerial Photographs (1954)
    - National Air Photo Library (1945, 1972, 1982, 2021)
    - Google Earth Pro Aerial Photographs (2005, 2014, 2022)

- ERIS report – The ERIS report documented the database search for the project area and properties within 250 m of the project area. The ERIS report, including full references for each database searched, is provided in **Appendix C**, and included searches of federal, provincial and private databases relating to storage tanks, hazardous materials generation or storage, landfills, environmental approvals and orders, landfills and other listings.

- Previous Environmental Reports:
    - Phase II Environmental Site Assessment, 170 Borden Avenue, Kitchener, Ontario, prepared by XCG for The Estate of Joseph Zettel, dated January 24, 2007 (XCG, 2007a)
    - Supplemental Phase II Environmental Site Assessment, 170 Borden Avenue, Kitchener Ontario, prepared by XCG for The Estate of Joseph Zettel, dated October 16, 2007 (XCG, 2007b)
    - Phase I Environmental Site Assessment, 59 Bedford Road, Kitchener, Ontario, prepared by XCG for The Estate of Joseph Zettel, dated June 12, 2008 (XCG, 2008)
    - Soil and Groundwater Sampling and Analysis Program, Schneider Creek and Shoemaker Creek Between Madison Avenue South and Sydney Street South, Kitchener, Ontario, prepared by Englobe for the City of Kitchener, dated February 2020 (Englobe, 2020)
    - Schneider Creek Soil and Groundwater Assessment, Kitchener, Ontario, prepared by Stantec for City of Kitchener, dated May 5, 2020 (Stantec, 2020a)
    - Phase One Environmental Site Assessment, 405-409 Nyberg Street, Kitchener, Ontario, prepared by Stantec for Giesbrecht, Griffin, Funk & Irvine LLP, dated August 6, 2020 (Stantec, 2020b)

  - Phase Two Environmental Site Assessment, 405-409 Nyberg Street, Kitchener, Ontario, prepared by Stantec for Giesbrecht, Griffin, Funk & Irvine LLP, dated August 7, 2020 (Stantec, 2020c)
  - Letter Addressed to City of Kitchener, Re: Kitchener Flood Protection Project, prepared by Stantec, dated April 30, 2021 (Stantec, 2021)

- Topographic/Geologic/Physiographic Mapping:

  - Ontario Geological Survey 2010. Surficial geology of Southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data 128-REV
  - Ontario Geological Survey 2011. 1:250 000 scale bedrock geology of Ontario; Ontario Geological Survey, Miscellaneous Release---Data 126-Revision 1
  - Ontario Ministry of Natural Resources and Forestry, 2022. Make a Topographic Map

A response from the MECP to a request for information was included as part of a previous Phase One ESA (Stantec, 2020b) which was reviewed for this assessment. The MECP response included an HWIN record for 405 Nyberg Street. The HWIN record indicated the property was generating liquid halogenated solvents under generator number ON8633278 between 2020 and 2021.

2.2 SITE RECONNAISSANCE

A site reconnaissance was conducted by Aman Singh of Stantec on June 16, 2023. The project area and readily visible and publicly accessible portions of the study area were observed for PCAs. Selected photographs from the site reconnaissance are included in **Appendix B**.

2.3 INTERVIEWS

An interview was conducted with the City of Kitchener's Project Manager for the project, Chris Nechacov. Mr. Nechacov has been associated with the project area since the spring of 2022. Mr. Nechacov confirmed that property uses within the project area included commercial and industrial as well as historical landfill and rail lands. It was confirmed that there are multiple automotive servicing properties within the project area and study area.

Mr. Nechacov noted that he was aware of historical fuel tanks located at a former contractor's yard at 191 – 193 Borden Avenue South. This was confirmed through the records review completed as part of this assessment.

It was revealed through the interview that a layer of fill soil was placed on the north side of 59 Bedford Road in 1940 when the area was developed. This was also confirmed through the records review completed as part of this assessment.

Mr. Nechacov included information related to a lawsuit in 2022 which found chlorinated solvents were used between 1948 and 1974 at 70 – 74 Borden Avenue. The lawsuit ruled that the 70 – 74 Borden Avenue South was the source of VOC groundwater contamination at 61-97 Kent Avenue, 94 Borden Avenue South and the west side of 60 Ottawa Street South. Known groundwater contamination at the above-noted properties is considered a PCA (PCA B – Known Soil and/or Groundwater Contamination) that contributes to an APEC on the project area (**APEC #6**).

3.0 RESULTS

3.1 HISTORICAL RECORDS REVIEW

This section presents the findings of the historical records review. As discussed in Section 1.2, for the purposes of the APU, city directory searches and title searches were not completed. A response from the MECP to a request for information was included as part of a previous Phase One ESA (Stantec, 2020b) which was reviewed for this assessment. The MECP response included an HWIN record for 405 Nyberg Street. The HWIN record indicated the property was generating liquid halogenated solvents under generator number ON8633278 between 2020 and 2021. Generation of hazardous wastes at this property is considered a PCA (PCA C – Generation of Hazardous Wastes) that contributes to an APEC on the project area (**APEC #11**). The MECP Response is provided in **Appendix C**.

3.1.1 Aerial and Satellite Imagery

Aerial photographs and satellite imagery were reviewed to provide adequate timeline coverage of the project area and study area. **Table 3-1** provides a summary of pertinent information obtained from the aerial photographs and satellite imagery.

Table 3-1: Summary of Aerial and Satellite Imagery

Year	Summary
1945	Based on a review of the aerial image from 1945 the project area was mostly occupied by undeveloped land with some residential streets, and apparent industrial or commercial properties near the eastern and western extents. A rail line and a creek were visible running through the project area, and a disturbed area that was a suspected landfill was observed north of the western portion of the project area.
1954	The project area in the 1954 aerial photograph appeared to be similar to 1945, but with additional industrial or commercial development in the eastern and northeastern portions of the project area. An industrial development to the south of the project area was visible. The railway, creek and disturbed area to the north appeared similar to the previous photograph.
1972	The project area appeared to have undergone significant industrial development by 1972 relative to earlier aerial photographs, with buildings generally in the currently-observed configuration. The rail line appears to be undergoing decommissioning and ended at Ottawa Street South at the eastern extent. Schneider Creek appeared to run within a concrete channel through the east portion of the project area. The former disturbed area to the north was observed to be a parking lot in the 1972 aerial photograph.
1982	Based on a review of the 1982 aerial photo, some industrial properties in the northern portion of the project area appeared to have expanded since 1972. Schneider and Shoemaker Creeks appear to run within concrete channels across the length of the project area. The former rail line was no longer visible and appears to have been decommissioned.
2005	There did not appear to be any significant changes to the project area or to the study area when comparing the 2005 aerial photo to the 1982 aerial photo.
2014	There did not appear to be any significant changes to the project area or to the study area when comparing the 2014 aerial photo to the 2005 aerial photo.

Year	Summary
2021	There did not appear to be any significant changes to the project area when comparing the 2021 aerial photo to the 2014 aerial photo. The former rail line was visible as a trail within the western and central portions of the project area. The project area appeared generally similar to the conditions observed during the site reconnaissance. The industrial block bounded by Courtland Avenue East, Borden Avenue South and Palmer Avenue appears to have been cleared of structures between 2014 and 2021.

Historical records and previous reports reviewed as part of this assessment indicated that a rail line formerly ran through the project area. The presence of a historical rail line through the project area is considered a PCA (PCA#46 – Rail Yards, Tracks and Spurs) that contributes to an APEC across the project area (**APEC #1**). The disturbed area observed historically in the northern portion of the project area, west of Kent Avenue, was interpreted to be a former landfill that correlated to historical records included in the ERIS report discussion in Section 3.1.4 and represents a PCA (PCA #58 Waste Disposal and Waste Management) that contributes to an APEC at the project area (**APEC #13)**.

3.1.2 Physiographic Setting

According to the Surficial Geology of Southern Ontario map published by the Ontario Geological Survey (2010), the surficial soil in the project area generally consists of ice-contact stratified deposits of sand and gravel, minor silt, clay and till.

Ninety-seven (97) well records were identified in the ERIS search of the Water Well Information Systems (WWIS) database (**Appendix C**). In general, the overburden material of the boreholes consisted of brown sand and silt underlain by clay. A review of the well records revealed bedrock was not encountered at any wells to the maximum investigated depth of 15.0 m below ground surface (BGS). These observations were generally consistent with past investigations as reported by Stantec (Stantec, 2020) and discussed in Section 3.1.5.

According to bedrock geology mapping published by the Ontario Geological Survey (2011), bedrock in the vicinity of the project area is classified as sandstone, shale, dolostone and siltstone of the Guelph Formation. Previous investigations at the project area did not encounter bedrock within the project area to a maximum investigated depth of 9.8 m BGS. (Englobe, 2020).

3.1.3 Topography and Hydrogeological Setting

The Study Area has a gradual slope toward the southeast with elevations of approximately 320 m above sea level (ASL) in the northwest portion of the Study Area and approximately 318 m ASL in the southeast (Englobe, 2020). Based on the observations of the site visit, the project area was generally flat, with a slight slope to the southeast. The adjacent properties were generally at the same grade as the project area, with an overall slope to the southeast.

Previous environmental investigations reviewed as part of this assessment indicated that fill was encountered across the project area to depths between 1.5 m and 4.0 m BGS. It was also indicated that fill soil was placed across the south extents of the project area, in the area of 170 Borden Avenue South and 59 Bedford Road in the 1940s. Historical importation of fill soil to the project area is considered a PCA (PCA#30 – Importation of Fill Material of Unknown Quality) that contributes to an APEC across the entire project area (**APEC #2**).

Based on a review of available maps and the topography observed in the vicinity of the project area, together with findings reported by Englobe (2020), Stantec (2020c) and XCG, (2007a), the inferred local groundwater flow is predominantly toward Schneider and Shoemaker Creeks, with regional groundwater inferred to flow to the southeast toward the Grand River, approximately 5.3 km east of the project area. The observed groundwater elevations were generally higher in the western portion of the Site relative to the eastern portion, consistent with the regional inferred southeasterly direction of groundwater flow.

The elevation of the local groundwater table can generally mimic the local topography and may not reflect the regional trend in drainage. The local shallow groundwater flow pattern can also be influenced by subsurface structures in the vicinity, such as building foundations, weeping tiles, and utility trenches.

3.1.4 ERIS Historical Database Review

This section summarizes pertinent information provided by the ERIS database review.

Main listings of potential environmental concern are separated by property in the following sections. Records relating to the project area are presented, followed by those that relate to properties within the study area. The complete ERIS report is included in **Appendix C**.

Note that PCAs identified from other sources, including previous environmental investigations or the site reconnaissance are discussed in Section 3.1.5 and Section 3.2, respectively.

3.1.4.1 Project Area

Schneider and Shoemaker Creeks

- A review of the Ontario Spills database revealed that various releases to Schneider Creek have occurred between 1991 and 2012. Some of these produced an oil sheen, as identified on Schneider Creek at Borden Avenue and Nyberg Street in 2004 and 2007, at Nyberg Street and Sydney Street South in 2012 and at the Sydney Street South bridge in 2017. Approximately 4,500 L of dye rinse was spilled to Schneider Creek near Sydney Street South in 1991. An unspecified quantity of water-based paint was also spilled to Schneider Creek at 175 Borden Avenue South in 2009. Observations of an oily sheen on Schneider Creek at various times in the past suggest that spills may have impacted the surface water quality; however, given the presence of concrete engineered channels throughout the project area, spills to surface water are not considered to have significantly impacted the underlying soil or groundwater. Consequently, these spills were not considered to contribute to an APEC at the project area.

- Previous environmental investigations reviewed as part of this assessment indicated that fill soil was encountered across the project area to depths between 1.5 and 4.0 m BGS. It was also indicated that fill soil was placed across the south extents of the project area, in the area of 170 Borden Avenue South and 59 Bedford Road in the 1940s. Historical importation of fill soil to the project area is considered a PCA (PCA#30 – Importation of Fill Material of Unknown Quality) that contributes to an APEC across the entire project area (**APEC #2**).

A discussion of PCAs related to information gathered from previous environmental reports is provided in Section 3.1.5.

170 Borden Avenue South

The west portion of 170 Borden Avenue South is located within the south-central portion of the project area. The following listings of potential environmental concern were identified in the ERIS report at this neighbouring property, identified as Zettel Manufacturing Ltd.:

- The ERIS report identified two Certificate of Approval (CA) records related to approvals for air emissions and for sound and vibration related to a stamping press.
- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
    - Oil skimmings and sludges (1986 – 2004)
    - Oil skimmings and sludges, emulsified oils, organic laboratory chemicals (2006)
- A review of Scott's Manufacturing Directory (SCT) indicated this property was registered as stamping, plate work and fabricated product manufacturing, machine shops, motor vehicle metal stamping, established in 1949.

Metal fabrication at 170 Borden Avenue South is considered a PCA (PCA#34 – Metal Fabrication) that contributes to an APEC on the project area (**APEC #3**).

A discussion of PCAs related to information gathered from previous environmental reports is provided in Section 3.1.5.

380 Courtland Avenue East

380 Courtland Avenue East is located adjacent to the east of the southern tip of the project area on the northwest corner of the intersection of Borden Avenue South and Courtland Avenue East. The following listings of potential environmental concern were identified in the ERIS report at this neighbouring property, identified as Courtland Cars:

- A search of the Delisted Fuel Tanks (DTNK) database identified two records at this property. The records were related to a fuel tank which expired in 1992.
- A search of the Fuel Storage Tank (FST) database identified one record at this property. The record was related to a single-wall, steel gasoline UST which was installed in 1989.

- A search of the Private and Retail Fuel Storage Tanks (PRT) database identified one record at this property. The record was related to a 20,498 L fuel tank which expired in 1993.

Fuel storage at 380 Courtland Avenue East is considered a PCA (PCA#28 – Gasoline and Associated Products Storage in Fixed Tanks) that contributes to an APEC on the southern extents of the project area (**APEC #4**).

20 Hurst Avenue

20 Hurst Avenue is located on the west-central portion of the project area. The following listings of potential environmental concern were identified in the ERIS report at this property, identified as Tughan Express Inc. and Hanover Storage Inc.:

- A search of the Delisted Fuel Tanks (DTNK) database identified three records at this property. The records were related to a fuel tank and related piping which expired in 2012.
- A search of the Fuel Storage Tank (FST) database identified two records at this property. The records were related to a 13,638 L single-wall steel diesel UST which was installed in 1986 and a 22,700 L single-wall steel diesel UST which was installed in 1983.
- A search of the Historic Fuel Storage Tank (FSTH) database identified two records at this property. The property was registered as an active private fuel outlet with a storage capacity of 13,638 L as of 2007 and 2008.
- A search of the Private and Retail Fuel Storage Tanks (PRT) database identified two records at this property. The records were related to a 13638 L fuel tank and a 22,700 L fuel tank.
- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
    - Waste oils and lubricants (2016)

Fuel storage at 20 Hurst Avenue is considered a PCA (PCA#28 – Gasoline and Associated Products Storage in Fixed Tanks) which contributes to an APEC on the west portion of the project area (**APEC #5**).

97 Kent Avenue

The south portion of 97 Kent Avenue is located within the north-central portion of the project area. The following listings of potential environmental concern were identified in the ERIS report at this neighbouring property, identified as MTD Products Limited:

- The ERIS report identified four Certificate of Approval (CA) records related to approvals for air emissions of phosphoric acid and various VOCs related to paining operations.
- A search of the Delisted Fuel Tanks (DTNK) database indicated that this property was registered as a propane refill centre.

- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
  - Paint/pigment/coating residues, aromatic solvents, acid wastes, alkaline wastes, light fuels, emulsified oils, petroleum distillates (1986 – 2001)
  - PCBs, acid wastes, oil skimmings and sludges, alkaline wastes, paint/pigment/coating residues, aromatic solvents, light fuels, emulsified oils (2002 – 2008)
  - Acid wastes, oil skimmings and sludges, alkaline wastes, paint/pigment/coating residues, aromatic solvents, light fuels, emulsified oils (2009 – 2016)
  - Paint/pigment/coating residues, halogenated solvents, emulsified oils (2018 – 2020)

- A review of Scott's Manufacturing Directory (SCT) indicated this property was registered as automotive stamping and agricultural implement manufacturing, established in 1949.

Metal fabrication, industrial painting and generation of hazardous wastes at this property are considered PCAs (PCA#34 – Metal Fabrication, PCA#39 Paints Manufacturing, Processing and Bulk Storage) that contribute to an APEC on the north central portion of the project area (**APEC #6**).

Hurst Street Dump

The Hurst Avenue Dump is located beneath a parking lot in the project area to the north of Courtland Avenue East, approximately between Kent Avenue and Borden Avenue South. The following listings of potential environmental concern were identified in the ERIS report:

- A review of Anderson's Waste Disposal Sites (ANDR) indicated this dump was active between 1954 and 1969. No waste type was provided in the record.

The presence of a waste disposal site at this location is considered a PCA (PCA 58 - Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners) that contributes to an APEC on the south and central portion of the project area (**APEC #7**).

Kent Avenue Dump

The Kent Avenue Dump is located beneath a parking lot on the west side of Kent Avenue in the northern portion of the project area, adjacent to the north of Schneider Creek and west of Kent Avenue. The following listings of potential environmental concern were identified in the ERIS report:

- A review of Anderson's Waste Disposal Sites (ANDR) indicated this property was approximately 2.25 hectares in area and was active between 1954 and 1969. No waste type was provided in the record.

The presence of a waste disposal site at this location is considered a PCA (PCA 58 - Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners) that contributes to an APEC in the northern portion of the project area (**APEC #13**).

405 Nyberg Street

405 Nyberg Street is located on the east-central portion of the project area. The following listings of potential environmental concern were identified in the ERIS report at this property, identified as several tenants, including Four Seasons Sunrooms, Alpine Glass & Mirror Inc., Artals Laser Engraving, Braun's Property Management Inc.:

- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
    - Halogenated solvents (2020 – 2005, 2009, 2010)
- A review of Scott's Manufacturing Directory (SCT) indicated this property was registered as coating, engraving, heat treating and allied activities, established in 1995.
- Phase One and Phase Two ESAs were completed for 405 – 409 Nyberg Street in 2020 and were reviewed as part of this assessment. The reports indicated that the property was first developed in 1953 as Kuntz Electroplating until 1965 and by various individuals between 1965 and 2012 before being purchased by Braun's Property Management Inc. Historical tenants at the Phase One Property included Oden Machine Works Limited (machine shop) and a shoe counter manufacturer in 1975, Mitchell Plastics and Twin City Mechanical in 1989, Alpine Glass and Mirror in 1996, and Groff Holdings (office space). Summaries of the findings of the Phase One and Two ESAs are provided in Section 3.1.5.

Metal coating and treating activities at this property are considered a PCA (PCA#33 – Metal Treatment, Coating, Plating and Finishing) that contributes to an APEC on the east-central portion of the project area (**APEC #11)**. Based on a review of the previous ESA report (Stantec 2020b), historical plastic manufacturing at this property is considered a PCA (PCA 43 – Plastics (including Fibreglass) Manufacturing and Processing) that contributes to an APEC on the east-central portion of the project area (**APEC #11**).

A discussion of PCAs related to information gathered from previous environmental reports is provided in Section 3.1.5.

409 Nyberg Street

409 Nyberg Street is located on the east-central portion of the project area. The following listings of potential environmental concern were identified in the ERIS report at this property, identified as Paul Davis Systems:

- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
    - Paint/pigment/coating residues, petroleum distillates, organic and inorganic laboratory chemicals, aromatic and aliphatic solvents, waste oils and lubricants (2002 – 2021)
- As indicated for 405 Nyberg Street, Phase One and Phase Two ESAs were completed for 405 – 409 Nyberg Street in 2020 and were reviewed as part of this assessment. The reports indicated that the property was first developed in 1953 as Kuntz Electroplating until 1965 and by various individuals between 1965 and 2012 before being purchased by Braun's Property Management Inc. Historical tenants at the Phase One Property included Oden Machine Works Limited (machine shop) and a shoe counter manufacturer in 1975, Mitchell Plastics and Twin City Mechanical in 1989, Alpine Glass and Mirror in 1996, and Groff Holdings (office space). Summaries of the findings of the Phase One and Two ESAs are provided in Section 3.1.5.

Generation of hazardous waste at this property is not considered a PCA that contributes to an APEC on the project area.

A discussion of PCAs related to information gathered from previous environmental reports is provided in Section 3.1.5.

150 Borden Avenue South

The north portion of 150 Borden Avenue South is located within the central portion of the project area. The following listings of potential environmental concern were identified in the ERIS report at this property, identified as Borden Cold Storage and Heidelberg Foods Cold Storage:

- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
    - Acid Wastes (2011, 2016)
    - Aliphatic solvents (2022)

Due to the nature of the land use (i.e., warehousing) and the limited timeframe of waste generation, waste generation at this property is not considered a PCA which contributes to an APEC on the project area .

109 Ottawa Street South

109 Ottawa Street South is located on the east portion of the project area. The following listings of potential environmental concern were identified in the ERIS report at this neighbouring property, identified as Lee Craft, L J Lee Manufacturing Ltd. and Bert Dietrich Office Equipment:

- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
    - Petroleum distillates (1989, 1992 – 2004)
- A review of Scott's Manufacturing Directory (SCT) indicated this property was registered as plastic product manufacturing, coating, engraving and heat treating, fabricated metal product manufacturing, established in 1972.

Plastics manufacturing, metal coating and metal fabrication at 109 Ottawa Street South are considered PCAs (PCA#33 - Metal Treatment, Coating, Plating and Finishing, PCA#34 – Metal Fabrication, PCA#43 – Plastics (including Fibreglass) Manufacturing and Processing) that contribute to an APEC on the east portion of the project area (**APEC #9**).

124 Ottawa Street South

124 Ottawa Street South is located approximately on the southeast portion of the project area. The following listings of potential environmental concern were identified in the ERIS report at this property, identified as Schatten Design:

- A review of Scott's Manufacturing Directory (SCT) indicated this property was registered as cutlery and hand tool manufacturing, established in 1992.

Metal fabrication at 124 Ottawa Street South is considered a PCA (PCA#34 – Metal Fabrication) that contributes to an APEC on the project area (**APEC #11**).

134 Sydney Street South

134 Sydney Street South is located on the east end of the project area. The following listings of potential environmental concern were identified in the ERIS report at this property, identified as Twin City Auto Parts Inc.:

- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
    - Waste oils and lubricants, emulsified oils, alkaline wastes, oil skimmings and sludges (1990 – 2017)
- A review of Scott's Manufacturing Directory (SCT) indicated this property was registered as motor vehicle gasoline engine parts manufacturing and machine shops, established in 1932.

Manufacturing of automotive parts at 134 Sydney Street South is considered a PCA (PCA#57 – Vehicles and Associated Parts Manufacturing) that contributes to an APEC on the project area (**APEC #9**).

140 Sydney Street South

140 Sydney Street South is located on the east end of the project area. The following listings of potential environmental concern were identified in the ERIS report at this property, associated with MTD Products Limited and Polywood Cabinets Ltd.:

- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
    - Emulsified oils, petroleum distillates (1986 - 1998)
    - Light fuels, halogenated solvents, oil skimmings and sludges (2007, 2008)
    - Paint/pigment/coating residues, petroleum distillates (2015 – 2022)

Waste generation at 140 Sydney Street South is considered a PCA (PCA C – Generation of Hazardous Wastes) that contributes to an APEC on the project area (**APEC #9**).

3.1.4.2 Study Area

160 Borden Avenue South

160 Borden Avenue South is located within the central portion of the project area. The following listings of potential environmental concern were identified in the ERIS report at this neighbouring property:

- A review of Scott's Manufacturing Directory (SCT) indicated this property was registered as Kitchener Pallet Services under wood container and pallet manufacturing.

Wood container and pallet manufacturing operations at 160 Borden Avenue are not considered PCAs that would contribute to an APEC on the project area.

33 Kent Avenue

33 Kent Avenue is located approximately 190 m northeast of the project area. The following listings of potential environmental concern were identified in the ERIS report at this neighbouring property, identified as Pandora Press:

- A review of Scott's Manufacturing Directory (SCT) indicated this property was registered as book publishing, established in 1994.

Due to the nature of the site use and its distance from the project area, manufacturing of printed books at 33 Kent Avenue is not considered to contribute to an APEC on the project area.

39 Kent Avenue

39 Kent Avenue is located approximately 165 m north of the project area. The following listings of potential environmental concern were identified in the ERIS report at this neighbouring property, identified as Farrtronics Ltd.:

- A review of Scott's Manufacturing Directory (SCT) indicated this property was registered as household audio and video equipment, radio and television broadcasting equipment manufacturing, established in 1969.

Due to the nature of the site use and its distance from the project area, manufacturing of electronic equipment at 39 Kent Avenue is not considered to contribute to an APEC on the project area.

43 Kent Avenue

43 Kent Avenue is located approximately 150 m north of the project area. The following listings of potential environmental concern were identified in the ERIS report at this neighbouring property, identified as Ideal Auto Tech and the Corporation of the City of Kitchener:

- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of unspecified wastes in 2011.
- A pipeline incident record indicated a 1.9 cm (3/4") pipeline was damaged in 2014 with no other details provided. Based on the size of the pipeline, the pipeline likely conveyed natural gas and the incident is not considered to contribute to an APEC.
- Based on the limited timeframe of hazardous waste generation at this property, generation of hazardous waste at this property is not considered a PCA which contributes to an APEC on the project area.

207 Madison Avenue South

207 Madison Avenue South is located approximately 220 m southwest of the west portion of the project area. The following listings of potential environmental concern were identified in the ERIS report at this neighbouring property, identified as Woodhouse Group Inc. and Woodhouse Contracting Ltd.:

- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
    - Pathological wastes (2021 – 2022)

Given the nature of the property use and type of waste, generation of hazardous waste at this property is expected to be limited and is not considered a PCA which contributes to an APEC on the project area.

248 Stirling Avenue

248 Stirling Avenue is located approximately 125 m south of the west portion of the project area. The following listings of potential environmental concern were identified in the ERIS report at this neighbouring property, identified as EFC Trade and Westervelt College Inc. and J&K Pharmacy Inc.:

- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
    - Pathological wastes (2003 – 2013)
    - Pharmaceuticals, photoprocessing wastes, inorganic laboratory chemicals, pathological wastes (2014 – 2022)

Given the nature of the property use and type of wastes generated, generation of hazardous waste at this property is expected to be limited and is not considered a PCA which contributes to an APEC on the project area.

129 Dundas Avenue

129 Dundas Avenue is located approximately 75 m south of the central portion of the project area. The following listings of potential environmental concern were identified in the ERIS report at this neighbouring property, identified as MTD:

- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of unspecified wastes from 1986 to 1994.

Generation of hazardous wastes related to metal fabrication at this property is considered a PCA (PCA 34 – Metal Fabrication) that contributes to an APEC on the project area (**APEC #11**).

133 Dundas Avenue

This property is located approximately 65 m south of the east-central portion of the project area. The following listings of potential environmental concern were identified in the ERIS report at this neighbouring property, identified as Advance Metal Industries Limited:

- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
    - Emulsified oils (1986 – 1990)
    - Waste oils and lubricants, emulsified oils (1992 – 2001)
    - Waste oils and lubricants, inorganic laboratory chemicals, emulsified oils (2002 – 2004)

- A review of Scott's Manufacturing Directory (SCT) indicated this property was registered under metal working machinery, machine shops, industrial and commercial machinery and equipment, established in 1950.

Metal fabrication at this property is considered a PCA (PCA#34 – Metal Fabrication) that contributes to an APEC on the central and eastern portions of the project area (**APEC #11**).

249 Courtland Avenue East

249 Courtland Avenue East is located approximately 60 m southwest of the west end of the project area. The following listings of potential environmental concern were identified in the ERIS report at this neighbouring property, identified as Adriatic Auto Service Ltd., N & G Custom Woodworking and 12102315 Canada Inc.:

- A search of the Delisted Fuel Tanks (DTNK) database identified five records at this property. The records were related to two fuel tanks and associated piping which expired in 2020.
- A search of the Fuel Storage Tank (FST) database identified two records at this property. The records were related to two 20,000 L single-wall, 3.13iberglass gasoline USTs which were installed in 1983.
- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
    - Waste crankcase oils and lubricants (2021)
- A search of the Private and Retail Fuel Storage Tanks (PRT) database identified one record at this property. The record was related to retail fuel storage with a capacity of 15,000 L which expired in 1995.

Fuel storage at 249 Courtland Avenue East is considered a PCA (PCA#28 – Gasoline and Associated Products Storage in Fixed Tanks) that contributes to an APEC on the western extents of the project area (**APEC #12**).

260 Courtland Avenue East

260 Courtland Avenue East is located adjacent to the south of the east portion of the project area. The following listings of potential environmental concern were identified in the ERIS report at this neighbouring property, identified as Hogg Fuel and Supply Limited and Cornerstone Engineering & Restoration Inc.:

- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
    - Paint/pigment/coating residues (1997 – 2001)
    - Light fuels (2001 – 2004)
- A search of the Private and Retail Fuel Storage Tanks (PRT) database identified one record at this property. The record was related to retail fuel storage with a capacity of 904,750 L which expired in 1995.
- A review of the Ontario Spills database indicated a spill of 400 to 600 L of fuel oil spilled to the parking lot in 1988 and a spill of 25 L of gasoline to a dyke in 1988.

Fuel storage at 260 Courtland Avenue East is considered a PCA (PCA#28 – Gasoline and Associated Products Storage in Fixed Tanks) that contributes to an APEC on the western extents of the project area (**APEC #12**).

50 Borden Avenue South

50 Borden Avenue South is located approximately 160 m north of the central portion of the project area. The following listings of potential environmental concern were identified in the ERIS report at this neighbouring property, with multiple tenants identified as Sign Depot Inc., Jahm Custom Woodworking Inc., Grandlinq Contractors and Woodhouse Investments Inc.:

- The ERIS report identified a Certificate of Property Use (CPU #3061-C7NLFZ) which was registered to 50 Borden Avenue South as of July 5, 2022. Risk Management Measures (RMMs) were included in the CPU indicating soil and groundwater contamination are present. Contaminants of concern (COCs) in soil and groundwater included metals, PAHs, PHCs and VOCs.
- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
    - Aromatic solvents (2007, 2008)
    - Inorganic sludges, slurries or solids (2017, 2018)
- A review of Scott's Manufacturing Directory (SCT) indicated this property was registered as sign manufacturing, established in 1990 and as wood kitchen cabinet and counter top manufacturing, established in 2002.

Due to the distance of this property from the project area and its cross-gradient location with respect to the anticipated groundwater flow direction, the identified historical soil and groundwater impacts are not considered to contribute to an APEC on the project area.

70 Borden Avenue South

70 Borden Avenue South is located approximately 95 m north of the central portion of the project area. The following listings of potential environmental concern were identified in the ERIS report at this property, identified as Tuffee Mfg. Inc. and Johnson Fluid Systems Inc.:

- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
    - Petroleum distillates, waste oils and lubricants (1986 – 2001)
- A review of Scott's Manufacturing Directory (SCT) indicated this property was registered as manufacturing cutting tools and machinery, industrial machinery and equipment, fluid power cylinders and actuators, established in 1985.

Manufacturing of metal products at 70 Borden Avenue South is considered a PCA (PCA#34 – Metal Fabrication) that contributes to an APEC on the central and eastern portions of the project area (**APEC #6**).

100 Borden Avenue South

100 Borden Avenue South is located approximately 80 m north of the central portion of the project area. The following listings of potential environmental concern were identified in the ERIS report at this property:

- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
    - Specified inorganics (2014, 2015)

Generation of hazardous waste at this property is not considered a PCA which contributes to an APEC on the project area.

175 Borden Avenue South

175 Borden Avenue South is located approximately 75 m south of the central portion of the project area. The following listings of potential environmental concern were identified in the ERIS report at this neighbouring property:

- A review of the Ontario Spills database indicated that an unspecified quantity of paint was spilled to Schneider Creek in 2009.

Due to the age of this spill record, and the flow of the creek through a concrete channel in this area, it is not considered a PCA that contributes to an APEC on the project area.

449 Charles Street East

449 Charles Street East is located approximately 155 m north of the project area. The following listings of potential environmental concern were identified in the ERIS report at this property, identified as Tilden Rent-a-Car, Riordan Car and Truck Rentals and MTD Products Limited:

- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
    - Waste oils and lubricants (1988 – 2004)
    - Light fuels (2002 – 2004)

Waste generation at 449 Charles Street East is not considered a PCA that contributes to an APEC on the project area.

475 Charles Street East

475 Charles Street East is located approximately 160 m north of the project area. The following listings of potential environmental concern were identified in the ERIS report at this property, identified as Thruway Muffler & Brake Centre:

- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of unspecified wastes from 1986 to 1994.

Due to the age of the above-mentioned records and the distance and cross-gradient location of this property in relation to the project area, waste generation at 475 Charles Street East is not considered a PCA that contributes to an APEC on the project area.

485 Charles Street East

485 Charles Street East is located approximately 160 m north of the project area. The following listings of potential environmental concern were identified in the ERIS report at this property, identified as Kitchener Waterloo Regional Ambulance Ltd.:

- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
    - Oil skimmings and sludges (1986 – 2001)

Given the nature of the site use, waste generation at 485 Charles Street East is expected to be limited and is not considered a PCA that contributes to an APEC on the project area.

60 Ottawa Street South

60 Ottawa Street South is located adjacent to the north of the east-central portion of the project area. The following listings of potential environmental concern were identified in the ERIS report at this neighbouring property, identified as Titan Systems, Budd Canada Inc. and MTD Products Ltd.:

- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
    - Unspecified (1986 – 1994)
    - Waste oils/sludges (2021)

- A search of the Ontario Regulation 347 Waste Receivers database revealed this property was a receiver of unspecified wastes from 1987 to 2008.

- A review of Scott's Manufacturing Directory (SCT) indicated this property was registered as general industrial machinery and equipment manufacturing, established in 1989.

Industrial machinery and equipment manufacturing at 60 Ottawa Street South is considered a PCA (PCA#34 – Metal Fabrication) that contributes to an APEC on the project area (**APEC #8)**.

135 Ottawa Street South

135 Ottawa Street South is located approximately 30 m south of the east portion of the project area. The following listings of potential environmental concern were identified in the ERIS report at this neighbouring property, identified as Newtex Cleaners Ltd.:

- The ERIS report identified one record of a dry cleaning facility at this property. The record was registered to Newtex Cleaners Ltd. This property generated 236 kg of perchloroethylene waste in 2012, 942 kg in 2011 and 349 kg in 2004.
- A search of the Commercial Fuel Oil Tanks (CFOT) database identified one 22,712 L single-wall steel underground storage tank (UST) which was installed in 2005.
- A search of the Delisted Fuel Tanks (DTNK) database identified two records at this property. The records were related to a 6,000 L fuel oil tank which expired in 2013.
- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
    - Halogenated solvents (1986 – 2008)
    - Light fuel, halogenated solvents (2009 – 2013)
- The ERIS report identified one spill record related to a release of waste particulate to the ground in 2019. The record was described as dumping of particulate to the ground from clean-out of a catch basin.

Fuel storage and dry cleaning operations at 135 Ottawa Street South are considered PCAs (PCA#28 – Gasoline and Associated Products Storage in Fixed Tanks, PCA#37 – Operation of Dry Cleaning Equipment (where chemicals are used)) that contribute to an APEC on the southeast portion of the project area (**APEC #10)**.

136 Ottawa Street South

136 Ottawa Street South is located approximately 50 m south of the east portion of the project area. The following listings of potential environmental concern were identified in the ERIS report at this neighbouring property, identified as MTD Products Ltd.:

- A search of the Delisted Fuel Tanks (DTNK) database identified two records at this property. The records were related to a propane tank which expired in 2012.
- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
    - Emulsified oils (1986 – 1989)
    - Alkaline wastes, petroleum distillates, emulsified oils (1990)
    - Alkaline wastes, petroleum distillates, emulsified oils, PCBs (1992 – 1996)

- Halogenated solvents, paint/pigment/coating residues, alkaline wastes, petroleum distillates, PCBs, emulsified oils, oil skimmings and sludges (1997 – 2009)
- Petroleum distillates (2015 – 2016)
- Halogenated solvents (2022)

- A search of the National PCB Inventory (NPCB) identified three records for this property. This property was storing 1301 kg of askarel PCB oil in 1996.

- A search of the Ontario PCB Inventory (OPCB) identified four records for this property. This property had one capacitor with high-level PCBs in 1995, 1998, 1999 and 2000.

PCB storage and waste generation related to metal fabrication at 136 Ottawa Street South are considered PCAs (PCA#34 – Metal Fabrication, PCA#55 – Transformer Manufacturing, Processing and Use) that contribute to an APEC on the eastern portion of the project area (**APEC #11)**.

128 Bedford Road

128 Bedford Road is located approximately 105 m southwest of the project area. The following listings of potential environmental concern were identified in the ERIS report at this property, identified as Spreitzer Meats Ltd.:

- A search of the Scott's Manufacturing Directory indicated that this property was registered as 'sausages and other prepared meat products' established in 1953.

Based on the size of the property and its distance and cross-gradient location in relation to the project area, meat processing at 128 Bedford Road is not considered a PCA that contributes to an APEC on the project area.

148 Bedford Road

148 Bedford Road is located approximately 135 m south of the east portion of the project area. The following listings of potential environmental concern were identified in the ERIS report at this property, identified as John Hauser Iron Works Ltd.:

- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:

    - Aromatic solvents (1986 – 1998)

Based on the size of the property and its distance and cross-gradient location in relation to the project area, metal fabrication at 148 Bedford Road is not considered a PCA that contributes to an APEC on the project area.

156 Bedford Road

156 Bedford Road is located approximately 125 m south of the east portion of the project area. The following listings of potential environmental concern were identified in the ERIS report at this property, identified as The New Place, and individual occupants:

- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
    - Paint/pigment/coating residues, alkaline wastes, aliphatic and halogenated solvents (2005, 2007 - 2013)

Based on the size of the property and its distance and cross-gradient location in relation to the project area, generation of wastes at 156 Bedford Road is not considered a PCA that contributes to an APEC on the project area.

108 Sydney Street South

108 Sydney Street South is located adjacent to the north of the east end of the project area. The following listings of potential environmental concern were identified in the ERIS report at this property, associated with KW Habilitation Services:

- A search of the RSC database indicated that RSC # 223430 was on file for this property. The RSC was filed in 2017 for residential land use. A Risk Assessment (RA #1506-16) was completed at this property as part of the RSC filing. Certificate of Property Use (CPU # 7557-AGGL8B) is on file for this property. Risk Management Measures (RMMs) indicated in the CPU included the requirement to include a vapour mitigation system in any new buildings on the property, implementing a groundwater monitoring program and a health and safety plan for any intrusive work being undertaken at the property. The RMMs also included a prohibition on the planting of fruit or vegetables for consumption and on the use of groundwater from the property. Contaminants in soil and groundwater at this property included metals, PHCs and VOCs.
- A search of the Ontario Regulation 347 Waste Generators Summary database revealed this property was a generator of the following waste classes:
    - Light fuels (2009 – 2013)
    - Light fuels, halogenated solvents (2014 – 2022)

Details from the RSC record related to this property indicated there is known contamination in soil and groundwater at this property. Known soil and groundwater contamination and generation of hazardous waste are considered PCAs (PCA B – Known soil and groundwater impacts, PCA C – Generation of Hazardous Waste) that contribute to an APEC on the east portion of the project area (**APEC #8**).

3.1.4.3 Other Records

Unplottable records that were not considered to be within the vicinity of the study area based on the available address information in the ERIS report were not considered in this assessment.

The ERIS report identified three Anderson's Waste Disposal Sites along the west side of Kent Avenue, north of Schneider Creek and along the east side of Kent Avenue between Schneider Creek and Courtland Avenue East. The waste disposal sites are considered PCAs (PCA 58 - Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners) that contribute to APECs on the central and western portions of the project area (**APECs #7** and **#13**).

There were no other records expected to contribute to an APEC in the project area based on their nature of activity or distance from the project area. The complete ERIS report is included in **Appendix C**.

3.1.5 Previous Environmental Reports

Stantec reviewed the previous environmental reports as part of this assessment (refer to Section 2.1). Relevant information provided by the reports is summarized in the following sections.

Phase II Environmental Site Assessment, 170 Borden Avenue, Kitchener, Ontario, prepared by XCG for The Estate of Joseph Zettel, dated January 24, 2007 (XCG, 2007a)

A Phase II ESA was completed for 170 Borden Avenue, which is situated in the south-central portion of the project area. The report indicated that a Phase I ESA was previously completed for this property in 2006, which identified five potential sources of contamination including: two areas of historical surficial staining, three "press pits" in the building floor, a stained area beneath a compressed air holding tank, the presence of fill material imported by the City of Kitchener circa 1940 and two USTs historically located on the neighbouring property to the southeast.

The scope of work for this Phase II ESA included the advancement of seven boreholes in the identified areas of potential environmental concern to a maximum depth of 6.0 m BGS with three of the boreholes completed as monitoring wells. Soil encountered generally comprised silty sand and gravel fill to approximately 2.3 m BGS, overlying silty sand and silty clay to a maximum investigated depth of 6.1 m BGS. Bedrock was not encountered during the investigation, and groundwater was encountered at an approximate depth of 1.5 m BGS. Groundwater flow was interpreted to be in a northerly direction.

Twelve soil samples and three groundwater samples were collected and analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX), petroleum hydrocarbon fractions 1 to 4 (PHCs F1 to F4), metals and inorganic parameters. Soil and groundwater results were compared to the 2004 MECP Table 1 Site Condition Standards (SCS) since the property was situated within 30 m of a water body (i.e., Schneider Creek adjacent to the northwest). PHC F1 to F4 concentrations were compared to the 2004 Table 2 SCS as there were no 2004 Table 1 SCS for these parameters. Stantec completed a cursory review of the reported results relative to the 2011 Table 8 SCS, which were considered the applicable SCS for use within 30 m of a waterbody.

Analytical results indicated concentrations of PHCs in excess of the current Table 8 SCS in soil and groundwater at BH6, in the south-central portion of this property. Concentrations of metals exceeding the Table 8 SCS in shallow soil were noted at BH6 and at MW1, which was in the southeast corner of the property. The presence of known impacts at 170 Borden Avenue was considered a PCA (PCA B – Known soil and groundwater impacts) that contributes to an APEC at the project area (**APEC #3**).

Supplemental Phase II Environmental Site Assessment, 170 Borden Avenue South, Kitchener, Ontario, prepared by XCG for The Estate of Joseph Zettel, dated January 24, 2007 (XCG, 2007b)

A supplemental Phase II ESA was completed for 170 Borden Avenue, with the objective of delineating soil and groundwater impacts identified in the area of BH6 on the south-central portion of the property in the Phase II ESA referenced above.

Five boreholes were advanced at the property in the area of BH6 to a maximum depth of 5.0 m BGS with two boreholes completed as monitoring wells. Observations of fill, native soil and of groundwater were similar to the Phase II ESA described above.

Soil and groundwater samples were collected and analyzed for PHC F1 to F4, BTEX, metals and inorganic parameters. Concentrations of metals and PHCs in soil and groundwater at the five delineation locations (BH7 to BH11) met the Table 8 SCS and delineated the PHCs impacts in soil and groundwater to the north of BH6. Concentrations of PHCs and metals in soil and groundwater to the south of BH6 were not assessed.

The presence of soil and groundwater impacts at this property represents a known environmental concern in this portion of the project area. The unconfirmed lateral and vertical extents of these impacts was considered a PCA (PCA B – Known soil and groundwater impacts) contributing to an APEC at the project area (**APEC #3**).

Phase I Environmental Site Assessment, 59 Bedford Road, Kitchener, Ontario, prepared by XCG for The Estate of Joseph Zettel, dated June 12, 2008 (XCG, 2008)

A Phase I ESA was conducted for 59 Bedford Road, which is located on the south-central portion of the project area, adjacent to the south of 170 Borden Avenue. This property was occupied by Fitzgerald Motors and was operating as an automotive repair shop at the time of the assessment. The Phase I ESA indicated that the south adjacent property (i.e., 380 Courtland Avenue) was historically occupied by a gasoline service station from approximately 1960 to 1990. The neighbouring property to the southeast (191-193 Borden Avenue South) was reportedly historically occupied by a contractor's yard with two fuel USTs.

The Phase I ESA report indicated that the property was historically low-lying land that was reclaimed by the City of Kitchener and that 1 to 2 m of fill soil of unknown quality was placed on the property in the 1940s.

The presence of a gasoline service station, fuel storage and an auto service shop represent PCAs (PCA#27 – Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles, PCA#28 – Gasoline and Associated Products Storage in Fixed Tanks) contributing to an APEC at the project area (**APEC #4)**.

Schneider Creek Soil and Groundwater Assessment, Kitchener, Ontario, prepared by Stantec for the City of Kitchener, dated May 5, 2020 (Stantec, 2020a)

Stantec was retained by the City of Kitchener to develop a soil and groundwater sampling and analysis plan to assess soil and groundwater quality within the Schneider Creek corridor between Madison Avenue and Sydney Street. The purpose of this report was to review the soil and groundwater analytical results collected during the work so as to identify and assess potential contaminant sources and potential implications for remediation or risk management for redevelopment to open space uses near Schneider Creek and Shoemaker Creek.

The City of Kitchener retained Englobe to implement the soil and groundwater sampling and analysis plan provided by Stantec and the results of Englobe's assessment work were included as a separate report in an appendix to the Stantec (2020a) report (Englobe, 2020). The investigation included the advancement of twenty-two boreholes across the corridor with the installation of eight monitoring wells. The report indicated that fill soil was encountered across the area to depths between 1.5 m and 4.0 m BGS overlying native deposits of silt and sand extending to the maximum depth investigated of 9.8 m BGS. Groundwater levels were measured at depths between 1.90 m and 3.64 m BGS. The report indicated that an assessment of inferred groundwater flow direction was not provided in the Englobe report but that shallow groundwater is generally expected to flow toward either Shoemaker Creek or Schneider Creek.

Soil and groundwater samples were analyzed for PHCs, BTEX, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), metals and inorganic parameters. Soil and groundwater analytical results were compared to the MECP Table 8 SCS for portions of the area within 30 m of Schneider and Shoemaker Creeks and to the MECP Table 2 SCS for industrial/ commercial/community (ICC) property uses for the remainder of the area further than 30 m from the creeks.

Concentrations of selected metals, PHCs, BTEX and PAHs in fill soils exceeded the Table 8 SCS at all but four of the boreholes within 30 m of Schneider Creek. Of these, selected PHCs and PAHs exceeded the Table 2 SCS in the southeastern portion of the Site and were close to properties associated with PCAs contributing to APECs at the project area. Similarly, concentrations of metals in soil exceeded the Table 2 SCS at three boreholes on the project area and were near properties with PCAs contributing to APECs in northern portions of the project area. The arsenic concentration in groundwater exceeded the Table 2 and Table 8 SCS at BH19-16 in the central portion of the project area.

The presence of known soil and groundwater impacts across the project area, that are associated with nearby PCAs, represents a PCA (PCA B – Known Soil and Groundwater Impacts) contributing to APECs across the project area (**APECs 5, 9, 10, 11**).

Phase One Environmental Site Assessment, 405-409 Nyberg Street, Kitchener, Ontario, prepared by Stantec for Giesbrecht, Griffin, Funk & Irvine LLP, dated August 6, 2020 (Stantec, 2020b)

This Phase One ESA was conducted for due diligence purposes at 405-409 Nyberg Street which is situated on the southeast portion of the project area. The first developed of the property was in 1953 as Kuntz Electroplating until 1965 and by various individuals between 1965 and 2012 before being purchased by Braun's Property Management Inc. Historical tenants at the Phase One Property included Oden Machine Works Limited (machine shop) and a shoe counter manufacturer in 1975, Mitchell Plastics and Twin City Mechanical in 1989, Alpine Glass and Mirror in 1996, and Groff Holdings (office space).

The Phase One ESA identified three APECs on the property related to on-site PCAs, comprising metal fabrication, metal treatment/coating, importation of fill material and fuel storage. Two additional APECs were identified on the property related to off-site PCAs, comprising metal fabrication, PCB storage, dry cleaning and historical waste generation and spills.

A 1975 site inspection report provided by Opta indicated that the site building was heated by a boiler fueled by heating oil, indicating that heating oil was stored on site. A cut off steel pipe was observed on the northeastern side of the site building during the site reconnaissance. This cut off pipe indicated the potential presence of an abandoned or decommissioned UST.

The Phase One ESA recommended a Phase Two ESA to investigate the identified APECs at this property.

Phase Two Environmental Site Assessment, 405-409 Nyberg Street, Kitchener, Ontario, prepared by Stantec for Giesbrecht, Griffin, Funk & Irvine LLP, dated August 7, 2020 (Stantec, 2020c)

The Phase Two ESA included advancement of six boreholes each to a depth of 6.1 m BGS and each completed as a monitoring well. The Phase Two ESA work was limited to exterior drilling although the building footprint covered approximately half of the property. The report indicated that it was expected that portions of the property would require further investigation to satisfy the requirements of O.Reg.153/04.

Stratigraphy encountered at the property consisted of fill described as sand, silty sand, trace gravel and asphalt to depths up to 2.0 m BGS overlying native sand, silty sand, sandy silt and clayey silt to the maximum depth investigated (6.1 m BGS). Bedrock was not encountered during the Phase Two ESA. The depth to groundwater ranged from 1.7 m to 2.9 m BGS and the groundwater flow direction was interpreted to be north to northeast across the property.

The Phase Two ESA identified concentrations of metals, PAHs, PHCs and VOCs exceeding the MECP Table 8 in groundwater and in fill soil. Known contaminants in soil and groundwater at this property are considered a PCA (PCA B – Known soil and groundwater impacts at 405-409 Nyberg Street and along Nyberg Street) that contributes to an APEC on the east portion of the project area (**APEC #11**).

3.2 SITE RECONNAISSANCE

The results of the site reconnaissance conducted on June 16, 2023, are summarized in the following sections. Pertinent photographs of the project area are provided in **Appendix B**, and the project area details are indicated on **Figures 2** and **3**, **Appendix A**.

3.2.1 General Site Layout and Observations

The project area is located along the corridors of Shoemaker Creek and Schneider Creek within an area bounded generally by Stirling Avenue South, Charles Street East, Sydney Street South and Courtland Avenue East in the City of Kitchener, Ontario. The observed surface features at the project area included asphalt (roadway surfaces, parking areas for commercial and industrial properties), concrete (sidewalks and lining the creek channels) and landscaped areas along Schneider Creek and the Ironhorse Trail (former rail line converted into a recreational trail). The project area includes properties with commercial and industrial land uses, as illustrated on **Figure 2, Appendix A**. Land use surrounding the project area within the study area was observed to be a mix of residential, commercial, institutional and industrial.

3.2.2 Site Services

Overhead electrical lines were observed running adjacent to the roadways within the project area. Various underground telecommunication lines, hydro, natural gas, water and sewer utilities are expected to be present near and within the project area.

3.2.3 Storage Tanks

No above ground storage tanks (ASTs) were observed at the project area during the site reconnaissance.

No evidence of the potential presence of USTs, such as fill or vent pipes, were observed during the site reconnaissance. Based on a review of the previous Phase One ESA (Stantec, 2020b) vent/fill pipes were observed on the southeast portion of 405-409 Nyberg Street associated with a potential historical fuel storage tank. The presence of historical fuel storage at this location is considered a PCA (PCA #28 – Gasoline and Associated Products Storage in Fixed Tanks) that contributes to an APEC on the project area (**APEC #11**).

3.2.4 PCBs

There were no pad-mounted transformers observed on the project area during the site reconnaissance. Several small pole-mounted transformers were observed along the roadways within the project area. The pole-mounted transformers are not considered to contribute to an APEC on the project area.

3.2.5 Chemical Storage

No outdoor chemical storage was observed in the project area during the site reconnaissance. It is expected that chemicals may be stored within the various commercial and industrial buildings within the project area.

3.2.6 Waste Generation and Disposal

Solid waste was disposed of in commercial/industrial garbage and recycling bins at properties throughout the project area. The temporary management of such wastes generated on-site is not considered to contribute to an APEC at the project area.

3.2.7 Surficial Staining, Fill, Debris, and Vegetation Observations

No surficial staining was observed in the project area. There was no stressed vegetation observed in the project area. No observations of debris were made during the site reconnaissance.

There were no observations of fill piles or obvious imported fill during the site reconnaissance. As discussed in **Section 3.1.5**, fill soil was encountered in several areas within the project area during previous investigations, and it is expected that fill was used in the construction of roadways, decommissioning of the former rail line and in the development of commercial and industrial properties in the project area and study area. As described in Section 3.1.5, in-filling of the southern portion of the project area has been documented (i.e., at 59 Bedford Road). Fill material on the project area associated with the above-mentioned areas is considered a PCA (PCA 30 – Importation of Fill Material of Uknown Quality) that contributes to an APEC on the project area (**APEC #2**).

3.2.8 Neighbouring Properties

Neighbouring property land uses within the study area are identified on **Figure 2, Appendix A**. Surrounding the project area, the land use in the study area is generally commercial, industrial or residential purposes.

Lands to the south of the project area were observed to be a mix of residential, commercial and industrial. Properties were consistent with those identified in the database reviews described in Section 3.1 and included PCAs which contributed to APEC #3, APEC #4, APEC #10, APEC #11 and APEC #12,

Lands on the east portions of the study area were under commercial or parkland (golf course) and residential land use, respectively. Properties were consistent with those identified in the database reviews described in Section 3.1 and did not include PCAs that contributed to APECs on the project area.

Properties to the north of the project area were observed to be mainly under industrial land use. Properties were consistent with those identified in the database reviews described in Section 3.1 and included PCAs that contributed to APEC #6, APEC #8 and APEC #9.

Properties to the west of the project area were a mix of residential, commercial, community (synagogue) and institutional (secondary school) property uses. Properties were consistent with those identified in the database reviews described in Section 3.1 and did not include PCAs that contributed to APECs on the project area.

PCAs and property uses within the study area are indicated on **Figure 2, Appendix A**.

4.0 SUMMARY OF ENVIRONMENTAL CONCERNS

4.1 AREAS OF POTENTIAL ENVIRONMENTAL CONCERN

Several APECs were identified within the project area and are summarized in **Table 4-1**, below, along with the identified COPC in soil that may be present.

Table 4-1: Summary of Areas of Potential Environmental Concern

APEC #	Location and Description of APEC	Description of PCA	Approximate Distance from the Project Area	Contaminant(s) of Potential Concern
1	Trail portion of project area from northwest to southeast limit (Former rail corridor)	PCA 46 – Rail Yards, Tracks and Spurs	On-Site	Metals and inorganics including EC and SAR, PHC F1 to F4/BTEX, VOCs, PAHs
2	Entire project area (Potential fill importation for road, rail and property development)	PCA 30 – Importation of Fill Material of Unknown Quality	On-Site	Metals & inorganics including EC and SAR, PHC F1 to F4/BTEX, PAHs
3	South portion of project area (east of Shoemaker Creek, south of Schneider Creek, west of Borden Avenue South)	*PCA B – Known soil and groundwater impacts at 170 Borden Avenue South	On-Site, south portion of project area (170 Borden Avenue South)	PHC F1 to F4/BTEX Metals and Inorganics including EC and SAR, VOCs
		PCA 27 – Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles		
		PCA 34 – Metal Fabrication		
4	South portion of project area (east of Shoemaker Creek, south of Bedford Road, west of Borden Avenue South)	PCA 27 – Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	On-Site, south portion of project area (380 Courtland Avenue East, 59 Bedford Road)	PHC F1 to F4/BTEX Metals and Inorganics including EC and SAR, VOCs
		PCA28 - Gasoline and Associated Products Storage in Fixed Tanks		

APEC #	Location and Description of APEC	Description of PCA	Approximate Distance from the Project Area	Contaminant(s) of Potential Concern
5	West-central portion of project area (south side of Schneider Creek between Kent Avenue and Palmer Avenue)	*PCA B – Known Metals Impacts in Soil near 20 Hurst Avenue	On-Site (20 Hurst Avenue)	Metals & inorganics including EC and SAR, PHC F1 to F4/BTEX, VOCs
		PCA 27 – Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	On-Site (116 Kent Avenue, 118 Kent Avenue)	
		PCA 28 – Gasoline and Associated Products Storage in Fixed Tanks	On-Site (20 Hurst Avenue)	
6	North-central portion of project area (north side of Schneider Creek between Kent Avenue and Borden Avenue South)	*PCA B – Known off-site VOC groundwater impacts	Adjacent to the north of the project area (94 and 70-74 Borden Avenue South, 61-97 Kent Avenue)	Metals & inorganics including EC and SAR, PHC F1 to F4/BTEX, VOCs, PAHs, PCBs
		PCA 34 – Metal Fabrication	On-Site (97 Kent Avenue)	
		PCA 39 - Paints Manufacturing, Processing and Bulk Storage		
		*PCA C – Generation of Hazardous Wastes		
7	South-central portion of project area (west side of Shoemaker Creek, south of Schneider Creek, east of Kent Avenue)	PCA 58 - Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners	Adjacent to the west of the south portion of the project area	Metals & inorganics including EC and SAR, PHC F1 to F4/BTEX, PAHs, VOCs
8	East-central portion of the project area (north side of Schneider Creek between Borden Avenue South and Ottawa Street South)	PCA 34 – Metal Fabrication	Adjacent to the north of the project area (60 Ottawa Street South)	Metals & inorganics including EC and SAR, PHC F1 to F4/BTEX, VOCs
9	East portion of the project area (north side of Schneider Creek east of Ottawa Street South)	*PCA B – Known soil and groundwater impacts at 108 Sydney St. S., PAH soil impacts near 123 Ottawa Street South	North adjacent (108 Sydney Street) On-Site (123 Ottawa Street South)	Metals & inorganics including EC and SAR, PHC F1 to F4/BTEX, PAHs, VOCs
		*PCA C – Generation of Hazardous Wastes	On-Site and north adjacent (108 Sydney Street)	
		PCA 33 – Metal Treatment, Coating, Plating and Finishing	On-Site (109 Ottawa Street South)	

APEC #	Location and Description of APEC	Description of PCA	Approximate Distance from the Project Area	Contaminant(s) of Potential Concern
		PCA 34 – Metal Fabrication		
		PCA 43 - Plastics (including Fibreglass) Manufacturing and Processing		
		PCA 57 – Vehicles and Associated Parts Manufacturing	On-Site (134 Sydney Street South)	
10	Southeast portion of project area (Nyberg Street east of Ottawa Street South)	*PCA B – Known PHC Soil Impacts along Nyberg Street	On-Site	Metals & inorganics including EC and SAR, PHC F1 to F4/BTEX, VOCs
		PCA 27 - Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	Approximately 85 m southwest of the project area	
		PCA 28 – Gasoline and Associated Products Storage in Fixed Tanks	Approximately 40 m southwest of the project area (135 Ottawa Street South)	
		PCA 37 - Operation of Dry Cleaning Equipment (where chemicals are used)		
11	South-central portion of project area (between Borden Avenue South and Ottawa Street South)	*PCA B – Known soil and groundwater impacts at 405-409 Nyberg Street and along Nyberg Street	On-Site (405-409 Nyberg Street and 124 Ottawa Street South) and approximately 70 m southwest (129 and 133 Dundas Avenue)	Metals & inorganics including EC and SAR, PHC F1 to F4/BTEX, VOCs, PCBs
		*PCA C – Generation of hazardous wastes		
		PCA 28 - Gasoline and Associated Products Storage in Fixed Tanks		
		PCA 33 – Metal Treatment, Coating, Plating and Finishing		
		PCA 34 – Metal Fabrication		
		PCA 43 - Plastics (including Fibreglass) Manufacturing and Processing		
		PCA 55 - Transformer Manufacturing, Processing and Use	Approximately 40 m south of the project area (136 Ottawa Street South)	

APEC #	Location and Description of APEC	Description of PCA	Approximate Distance from the Project Area	Contaminant(s) of Potential Concern
12	Southwest portion of the project area	*PCA A - Spills	Approximately 10 m south of the project area (260 Courtland Avenue East)	Metals & inorganics including EC and SAR, PHC F1 to F4/BTEX, VOCs
		PCA 10 – Commercial Autobody Shops	Approximately 60 m south of the project area (249 Courtland Avenue East)	
		PCA 27 - Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	Approximately 60 m and 80 m south of the project area (249 Courtland Avenue East)	
		PCA 28 – Gasoline and Associated Products Storage in Fixed Tanks	Approximately 10 m and 70 m south of the project area (260 and 249 Courtland Avenue East)	
13	Northwest portion of project area	*PCA B – Known metals impacts in soil	On-Site, former Kent Avenue landfill	Metals & inorganics including EC and SAR, PHC F1 to F4/BTEX, VOCs
		PCA58 - Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners		

Note(s):

[1] PHC F1 to F4 - Petroleum hydrocarbon fractions 1 to 4; BTEX - benzene, toluene, ethylbenzene, and xylene; PAHs - polycyclic aromatic hydrocarbons, VOCs – Volatile organic compounds, PCBs – Polychlorinated Biphenyls, * - PCA Not Defined in standard list

4.2 SUMMARY OF PAST USES

The current activities at the project area at the time of the site reconnaissance, and a summary of historical information gathered through the records review dating back to 1945, confirm the project area was historically occupied by a mix of industrial, commercial and residential land uses.

Table 4-2: Table of Current and Past Uses of the Project Area

Year	Name of Owner	Description of Property Use	Property Use	Other Observations from Aerial Photographs, Fire Insurance Plans, etc.
1940s	Various	Agricultural or undeveloped land with some industrial properties and roadways	Industrial and Agricultural or Undeveloped, Community	Based on a review of the aerial image from 1945 the project area was mostly occupied by undeveloped land with a few industrial properties on the east and west extents. A rail line was visible running through the project area. Based on a review of existing environmental reports the east portion of the project area was formerly low-lying and was in-filled with fill of unknown quality in the 1940s.
1950s - 1960s	Various	Industrial and roadways	Industrial, Community	Based on aerial image from 1954 to the project area appears to be developed as industrial lands. A rail line runs through the project area from west to east.
1970s	Various	Industrial and roadways	Industrial, Community	The project area appears to be developed as industrial land. The former rail line appears to be under decommissioning and ends at Ottawa Street South. Schneider Creek appears to run within a concrete channel across the east portion of the project area.
1980s - Present	Various	Industrial and roadways	Industrial, Community	Based on a review of the 1982 aerial photo, industrial properties within the project area appeared to have expanded since 1972. Schneider and Shoemaker Creeks appeared to run within concrete channels across the length of the project area. The former rail line was no longer visible and appeared to have been decommissioned. Industrial land uses were focused throughout the project area with the exception of the western extents of the project area.

4.3 CONCEPTUAL SITE MODEL

In developing the Conceptual Site Model, the following physical characteristics/pathways were evaluated to assess whether PCAs have contributed to an APEC at the project area:

Table 4-3: Conceptual Site Model

Physical Characteristics/ Pathways	Description
Subsurface Soils	According to the Surficial Geology of Southern Ontario map published by the Ontario Geological Survey (2010), the surficial soil in the project area generally consists of quaternary overburden deposits within the Site, including modern alluvial deposits (i.e., clay, silt, sand, gravel, possible organic remains) which flank both Schneider Creek and Shoemaker Creek, and ice contact stratified drift (i.e., sand and gravel, minor silt, clay, and till) which covers the remainder of the Site. Well records identified in the WWIS database and from Phase II ESA work in the project area, discussed in Section 3.1.5, generally indicated that the overburden material consisted of brown sand and silt underlain by clay. Previous environmental investigations reviewed as part of this assessment indicated that fill soil was encountered across the project area to depths between 1.5 m and 4.0 m BGS. It was also indicated that fill soil was placed across the south extents of the project area, in the area of 170 Borden Avenue South and 59 Bedford Road in the 1940s.
Bedrock	According to bedrock geology mapping published by the Ontario Geological Survey (2011), bedrock in the vicinity of the project area is classified as limestone and dolostone of the Guelph formation. A review of the well records discussed in Section 3.1.3 and 3.1.5 revealed that bedrock was not encountered at any wells to a maximum depth of 9.8 m BGS.
Inferred Groundwater Flow Direction	Based on a review of available maps and the topography observed in the vicinity of the project area, together with findings reported by Englobe (2020), Stantec (2020c) and XCG (2007a), the inferred local groundwater flow is predominantly toward Schneider and Shoemaker Creeks, with regional groundwater inferred to flow to the southeast toward the Grand River, approximately 5.3 km east of the project area. The observed groundwater elevations were generally higher in the western portion of the Site relative to the eastern portion, consistent with the regional inferred southeasterly direction of groundwater flow. The elevation of the local groundwater table can generally mimic the local topography and may not reflect the regional trend in drainage. The local shallow groundwater flow pattern can also be influenced by subsurface structures in the vicinity, such as building foundations, weeping tiles, and utility trenches.
Underground Utilities	Buried utilities for telecommunications, natural gas, water and sewer services are expected to be present throughout the project area serving the various adjacent properties. Overhead electrical lines were observed in the project area during the site reconnaissance.

The figures provided in **Appendix A** include features and details in relation to the project area. In general, the figures illustrate the following where applicable: road names and existing buildings and structures, water bodies, location of areas of natural significance, adjoining property usage types, PCAs and APECs and general direction of groundwater flow in the vicinity of the project area.

4.4 UNCERTAINTY

The past use of the project area is well understood based on historical information sources obtained and reviewed during the APU. The physical characteristics of the land area comprising the project area are inferred from available regional mapping, environmental reports, ERIS report and historical water well and monitoring well records. No other potential uncertainties or missing information were encountered during completion of the APU.

It was determined that some of the applicable requirements in Schedule D of O.Reg 153/04, including insurance plan and MECP file reviews, were not required to meet the objectives of the APU. The information provided by other sources (i.e., ERIS) and the general continuity in site observations between 1954 and 2022 in aerial imagery were sufficient to achieve the objectives of the historical review portion of the APU.

4.5 RECOMMENDATIONS

Based on the APECs identified in **Section 4.1**, the following recommendations are provided:

- O.Reg. 406/19 (On-Site and Excess Soil Management) and the associated MECP *document Rules for Soil Management and Excess Soil Quality Standards* referenced by O.Reg. 406/19 should be followed for soil that is excavated and managed on-site or off-site during construction.
- O.Reg. 406/19 requires sampling of soil that will be disturbed during construction, according to a sampling and analysis plan and analyzing for the specific contaminants of potential concern as described in the APEC summary table. Sampling programs should be developed and undertaken under the supervision of a qualified person as defined in O.Reg. 406/19 and sample selection should take into consideration the presence of anthropogenic substances such as debris/waste, and unusual odours or staining.
- Stockpiling and transport of excavated soil during construction should be done in accordance with the requirements specified in O.Reg. 406/19.

Should contaminated soil be suspected during future construction activities (e.g., staining, odours, debris/waste, petroleum hydrocarbon sheen), a qualified person should be retained to identify and collect representative soil samples for chemical analysis to determine management options and appropriate handling in accordance with O.Reg. 406/19.

5.0 QP DECLARATION

The QP declares that the Project Leader has provided the necessary information and access to the Project Area and has authorized the QP or individuals supervised by them to make inquiries of the Project Leader's employees and agents, for the purpose of assisting the QP in preparing and overseeing the preparation of this document.

The QP named herein has prepared or overseen the preparation of this SCR and declares that they are complete and accurate to meet the requirements of O.Reg. 406/19 and the Soil Rules, to the best of the QP's knowledge.

6.0 LIMITATIONS

This report documents work that was performed in accordance with generally accepted professional standards at the time and location in which the services were provided. No other representations, warranties or guarantees are made concerning the accuracy or completeness of the data or conclusions contained within this report, including no assurance that this work has uncovered all potential liabilities associated with the identified property.

This report provides an evaluation of selected environmental conditions associated with the identified portion of the property that was assessed at the time the work was conducted and is based on information obtained by and/or provided to Stantec at that time. There are no assurances regarding the accuracy and completeness of this information. All information received from the client or third parties in the preparation of this report has been assumed by Stantec to be correct. Stantec assumes no responsibility for any deficiency or inaccuracy in information received from others.

The opinions in this report can only be relied upon as they relate to the condition of the portion of the identified property that was assessed at the time the work was conducted. Activities at the property subsequent to Stantec's assessment may have significantly altered the property's condition. Stantec cannot comment on other areas of the property that were not assessed.

Conclusions made within this report consist of Stantec's professional opinion as of the time of the writing of this report and are based solely on the scope of work described in the report, the limited data available and the results of the work. They are not a certification of the property's environmental condition. This report should not be construed as legal advice.

This report has been prepared for the exclusive use of the client identified herein and any use by any third party is prohibited. Stantec assumes no responsibility for losses, damages, liabilities or claims, howsoever arising, from third party use of this report.

The locations of any utilities, buildings and structures, and property boundaries illustrated in or described within this report, if any, including pole lines, conduits, water mains, sewers and other surface or sub-surface utilities and structures are not guaranteed. Before starting work, the exact location of all such utilities and structures should be confirmed and Stantec assumes no liability for damage to them.

The conclusions are based on the project area conditions encountered by Stantec at the time the work was performed at the specific testing and/or sampling locations, and conditions may vary among sampling locations. Factors such as areas of potential concern identified in previous studies, site conditions (e.g., utilities) and cost may have constrained the sampling locations used in this assessment.

In addition, analysis has been carried out for only a limited number of chemical parameters, and it should not be inferred that other chemical species are not present. Due to the nature of the investigation and the limited data available, Stantec does not warrant against undiscovered environmental liabilities nor that the sampling results are indicative of the condition of the entire site.

As the purpose of this report is to identify site conditions which may pose an environmental risk; the identification of non-environmental risks to structures or people in the project area is beyond the scope of this assessment.

Should additional information become available which differs significantly from our understanding of conditions presented in this report, Stantec specifically disclaims any responsibility to update the conclusions in this report.

This report was prepared by Philip Resendes, B.Sc., and reviewed by Grace Ferguson, M.Sc., P.Eng., QP$_{ESA}$.

All of which is respectfully submitted,

STANTEC CONSULTING LTD.

Digitally signed by Resendes, Philip
Date: 2023.10.12 08:20:21 -04'00'

Philip Resendes, B.Sc.
Environmental Site Assessor
Tel: 519 585 7440
Philip.Resendes@stantec.com

Digitally signed by Grace Ferguson
Date: 2023.10.12 10:08:00 -04'00'

Grace Ferguson, M.Sc., P.Eng., QP$_{ESA}$
Senior Hydrogeologist
Tel: 226 339 6720
Grace.Ferguson@stantec.com

PR/GF/jt/de

7.0 REFERENCES

Englobe, 2020. Soil and Groundwater Sampling and Analysis Program, Schneider Creek and Shoemaker Creek Between Madison Avenue South and Sydney Street South, Kitchener, Ontario, prepared for the City of Kitchener, dated February 2020 (Englobe, 2020).

Environmental Risk Information Services (ERIS), 2023. Schneider Creek, Kitchener, ON N2G, 23032700420, dated May 15, 2023.

Ontario Geological Survey, 2011. 1:250 000 scale Bedrock geology of Ontario; Ontario Geological Survey, Miscellaneous Release---Data 126-Revision 1.

Ontario Ministry of Natural Resources and Forestry (MNRF), 2022. Topographic Maps - https://www.lioapplications.lrc.gov.on.ca/MakeATopographicMap/index.html?viewer=Make_A_Topographic_Map.MATM&locale=en-CA, site accessed on June 6, 2023.

Stantec Consulting Ltd. (Stantec), 2020a. Schneider Creek Soil and Groundwater Assessment, Kitchener, Ontario, prepared for the City of Kitchener, dated May 5, 2020.

Stantec Consulting Ltd. (Stantec), 2020b. Phase One Environmental Site Assessment, 405-409 Nyberg Street, Kitchener, Ontario, prepared for Giesbrecht, Griffin, Funk & Irvine LLP, dated August 6, 2020.

Stantec Consulting Ltd. (Stantec), 2020c. Phase Two Environmental Site Assessment, 405-409 Nyberg Street, Kitchener, Ontario, prepared for Giesbrecht, Griffin, Funk & Irvine LLP, dated August 6, 2020.

Stantec Consulting Ltd. (Stantec), 2021. Letter Addressed to City of Kitchener, Re: Kitchener Flood Protection, prepared for City of Kitchener, dated April 30, 2021.

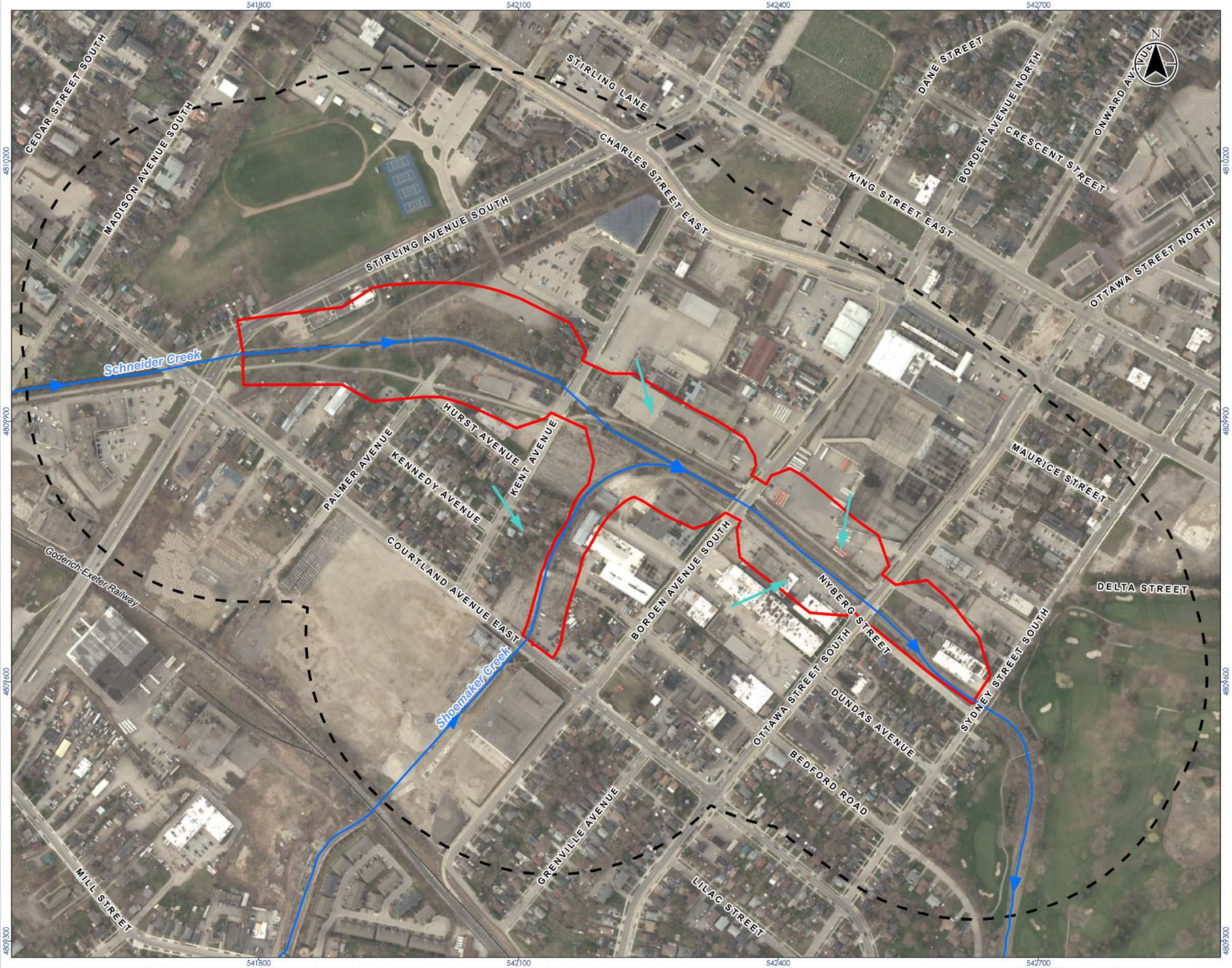
XCG, 2007a. Phase II Environmental Site Assessment, 170 Borden Avenue, Kitchener, Ontario, prepared for The Estate of Joseph Zettel, dated January 24, 2007.

XCG, 2007b. Supplemental Phase II Environmental Site Assessment, 170 Borden Avenue, Kitchener, Ontario, prepared for The Estate of Joseph Zettel, dated October 16, 2007.

XCG, 2008. Phase I Environmental Site Assessment, 59 Bedford Road, Kitchener, Ontario, prepared for The Estate of Joseph Zettel, dated June 12, 2008.

APPENDICES

APPENDIX A FIGURES



Stantec

Legend

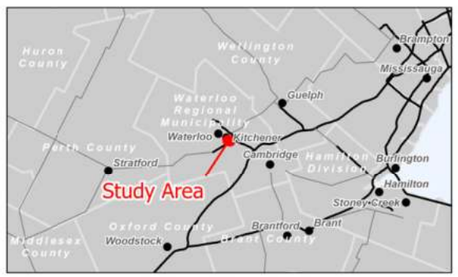
- Project Area
- Study Area (250 m)
- Flow Direction
- Inferred Groundwater Flow Direction
- Railway
- Watercourse (Permanent)

0 100 200 Metres

1:4,500 (At original document size of 11x17)

Notes

1. Coordinate System:NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.
3. Orthomagery © First Base Solutions, 2023. Imagery Date, 2022.



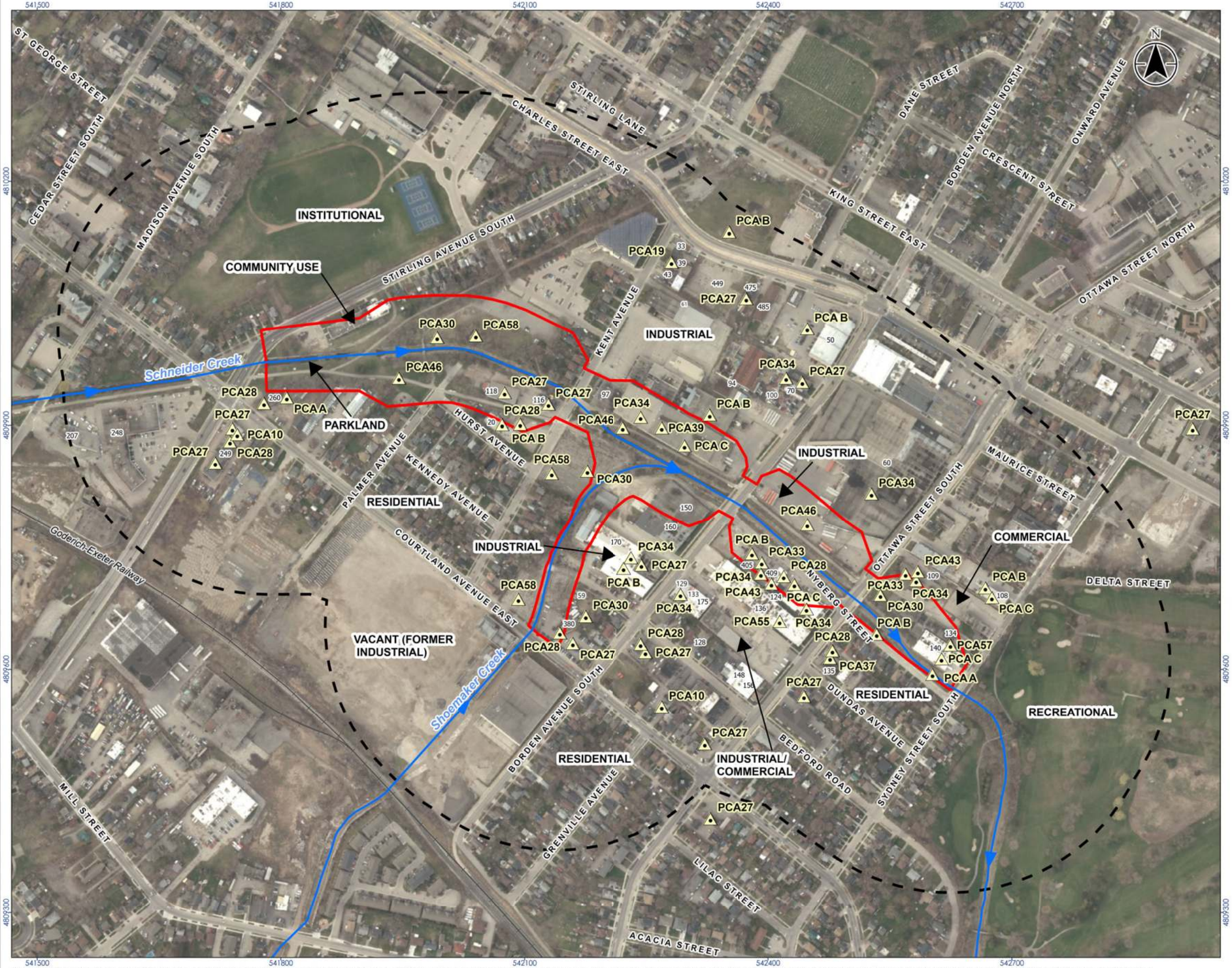
Project Location
City of Kitchener

161414319 REVA
Prepared by bakaur on 2023-10-11
Technical Review by AW on 2023-06-14

Client/Project
CITY OF KITCHENER
SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION ASSESSMENT OF PAST USES

Figure No.
1

Title
Project and Study Area Location



Stantec

Legend

- Project Area
- Study Area (250 m)
- 197 Address #
- Potentially Contaminating Activity (PCA)
- Flow Direction
- Railway
- Watercourse (Permanent)

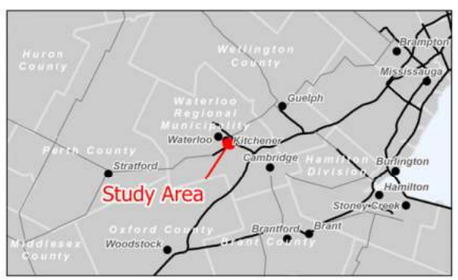
PCA Description:

PCA 10 - Commercial Automobile Shops
PCA 27 - Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles
PCA 28 - Gasoline and Associated Products Storage in Fixed Tanks
PCA 30 - Importation of Fill Material of Unknown Quality
PCA 33 - Metal Treatment, Coating, Plating and Finishing
PCA 34 - Metal Fabrication
PCA 39 - Paints Manufacturing, Processing and Bulk Storage
PCA 37 - Operation of Dry Cleaning Equipment (where chemicals are used)
PCA 43 - Plastics (including Fiberglass) Manufacturing and Processing
PCA 46 - Rail Yards, Tracks and Spurs
PCA 55 - Transformer Manufacturing, Processing and Use
PCA 57 - Vehicles and Associated Parts Manufacturing
PCA 58 - Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of bio-soils as soil conditioners
*PCA A - Spill
*PCA B - Known soil and groundwater impacts at 108 Sydney St. S.
*PCA C - Generation of Hazardous Wastes

0 100 200 Metres
1:4,800 (At original document size of 11x17)

Notes

1. Coordinate System:NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.
3. Orthomagery © First Base Solutions, 2023. Imagery Date, 2022.



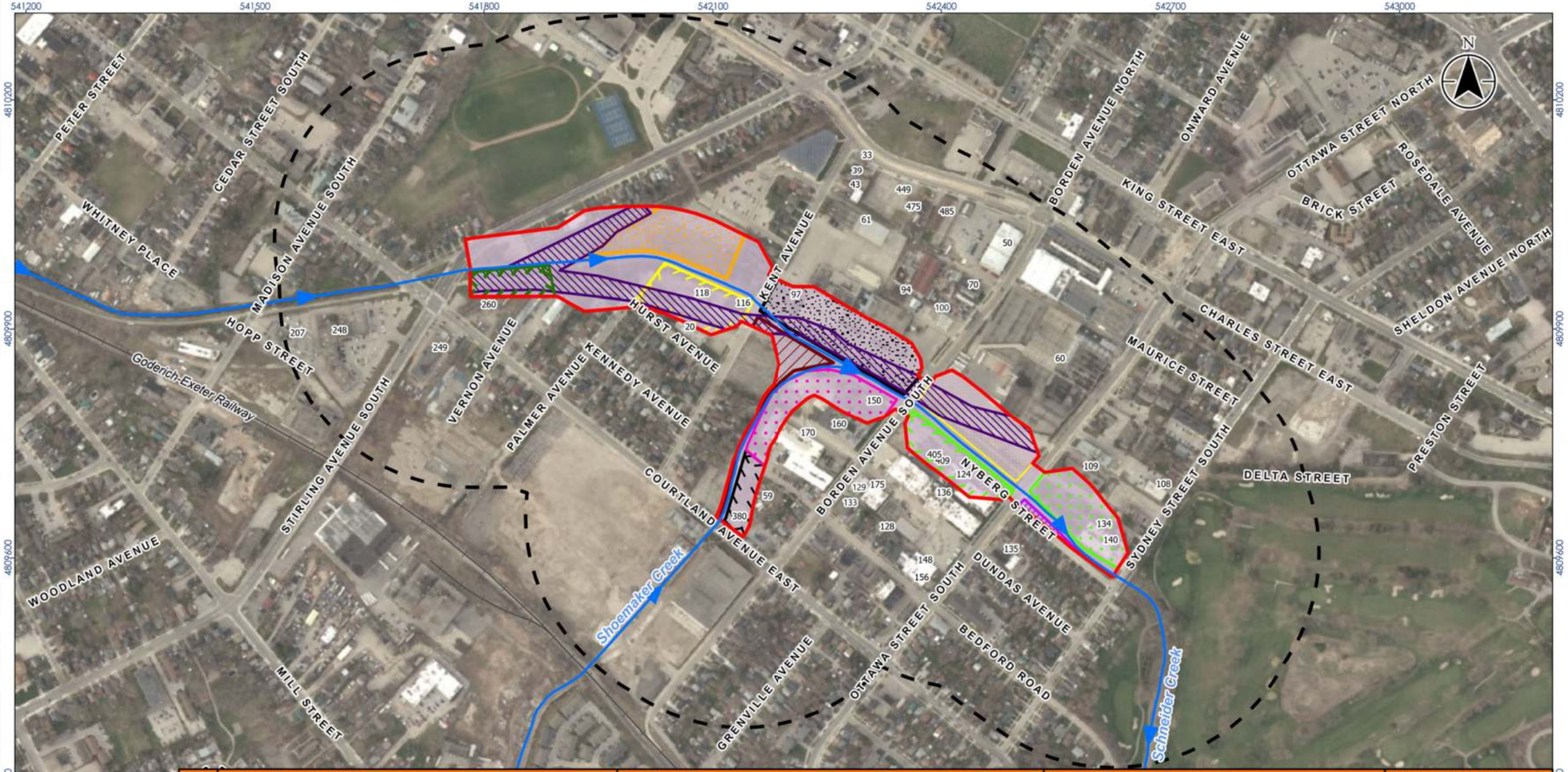
Project Location
City of Kitchener

161414319 REVA
Prepared by bakaur on 2023-10-11
Technical Review by AW on 2023-06-14

Client/Project
CITY OF KITCHENER
SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION ASSESSMENT OF PAST USES

Figure No.
2

Title
Project Area Layout and Surrounding Property Uses



APEC #	Location and Description of APEC	Description of PCA	Approximate Distance from the project area	Contaminant(s) of Potential Concern
1	Trail portion from northwest to southeast limit (Former rail corridor)	PCA 46 – Rail Yards, Tracks and Spurs	On-Site	M&I, PHC F1 to F4/BTEX, VOCs, PAHs
2	Entire project area (Potential fill importation for road, rail and property development)	PCA 30 – Importation of Fill Material of Unknown Quality	On-Site	M&I, PHC F1 to F4/BTEX, PAHs
3	South portion (east of Shoemaker Creek, south of Schneider Creek, west of Borden Avenue South)	*PCA B – Known soil and groundwater impacts at 170 Borden Avenue South PCA 27 – Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles PCA 34 – Metal Fabrication	On-Site, south portion (170 Borden Avenue South)	M&I, PHC F1 to F4/BTEX, VOCs
4	South portion (east of Shoemaker Creek, south of Bedford Road, west of Borden Avenue South)	PCA 27 – Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles PCA28 - Gasoline and Associated Products Storage in Fixed Tanks	On-Site, south portion (380 Courtland Avenue East, 59 Bedford Road)	M&I, PHC F1 to F4/BTEX, VOCs
5	West-central portion (south side of Schneider Creek between Kent Avenue and Palmer Avenue)	*PCA B – Known Metals Impacts in Soil near 20 Hurst Avenue PCA 27 – Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles PCA 28 – Gasoline and Associated Products Storage in Fixed Tanks	On-Site (20 Hurst Avenue) On-Site (116 Kent Avenue, 118 Kent Avenue) On-Site (20 Hurst Avenue)	M&I, PHC F1 to F4/BTEX, VOCs
6	North-central portion (north side of Schneider Creek between Kent Avenue and Borden Avenue South)	*PCA B – Known off-site VOC groundwater impacts PCA 34 – Metal Fabrication PCA 39 - Paints Manufacturing, Processing and Bulk Storage *PCA C – Generation of Hazardous Wastes	Adjacent to the north (94 and 70-74 Borden Avenue South, 61-97 Kent Avenue) On-Site (97 Kent Avenue)	M&I, PHC F1 to F4/BTEX, VOCs, PAHs, PCBs
7	South-central portion (west side of Shoemaker Creek, south of Schneider Creek, east of Kent Avenue)	PCA58 - Waste Disposal and Waste Management	Adjacent to the west of south portion	M&I, PHC F1 to F4/BTEX, PAHs, VOCs
8	East-central portion (north side of Schneider Creek between Borden Avenue South and Ottawa Street South)	PCA 34 – Metal Fabrication	Adjacent to the north (60 Ottawa Street South)	M&I, PHC F1 to F4/BTEX, VOCs
9	East portion (north side of Schneider Creek east of Ottawa Street South)	*PCA B – Known soil and groundwater impacts at 108 Sydney St. S., PAH soil impacts near 123 Ottawa Street South *PCA C – Generation of Hazardous Wastes PCA 33 – Metal Treatment, Coating, Plating and Finishing PCA 34 – Metal Fabrication PCA 43 – Plastics (including Fibreglass) Manufacturing and Processing PCA 57 – Vehicles and Associated Parts Manufacturing	North adjacent (108 Sydney Street) On-Site and north adjacent (108 Sydney Street) On-Site (109 Ottawa Street South) On-Site (134 Sydney Street South)	M&I, PHC F1 to F4/BTEX, PAHs, VOCs
10	Southeast portion (Nyberg Street east of Ottawa Street South)	*PCA B – Known PHC Soil Impacts along Nyberg Street PCA 27 – Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles PCA 28 – Gasoline and Associated Products Storage in Fixed Tanks PCA 37 - Operation of Dry Cleaning Equipment (where chemicals are used)	On-Site Approximately 85 m southwest Approximately 40 m southwest (135 Ottawa Street South)	M&I, PHC F1 to F4/BTEX, VOCs
11	South-central portion (between Borden Avenue South and Ottawa Street South)	*PCA B – Known soil and groundwater impacts at 405-409 Nyberg Street and along Nyberg Street *PCA C – Generation of hazardous wastes PCA 28 - Gasoline and Associated Products Storage in Fixed Tanks PCA 33 – Metal Treatment, Coating, Plating and Finishing PCA 34 – Metal Fabrication PCA 43 – Plastics (including Fibreglass) Manufacturing and Processing PCA 55 - Transformer Manufacturing, Processing and Use	On-Site (405-409 Nyberg Street), approximately 70 m southwest (129, 133 Dundas Avenue) Approximately 40 m south (136 Ottawa Street South)	M&I, PHC F1 to F4/BTEX, VOCs, PCBs
12	West portion	*PCA A - Spills PCA 10 – Commercial Autobody Shops PCA 27 - Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles PCA 28 – Gasoline and Associated Products Storage in Fixed Tanks	Approximately 10 m south (260 Courtland Avenue East) Approximately 60 m south (249 Courtland Avenue East) Approximately 60 m and 80 m south (249 Courtland Avenue East) Approximately 10 m and 70 m south (260 and 249 Courtland Avenue East)	M&I, PHC F1 to F4/BTEX, VOCs
13	Northwest portion	*PCA B – Known metals impacts in soil PCA58 - Waste Disposal and Waste Management	On-Site, former Kent Avenue landfill	M&I, PHC F1 to F4/BTEX, VOCs

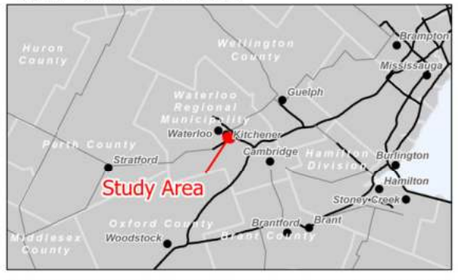
Stantec

Legend
- Project Area
- Study Area (250 m)
- 197 Address #
- Flow Direction
- Railway
- Watercourse (Permanent)
- Waterbody

APEC #
- APEC 1
- APEC 2
- APEC 3
- APEC 4
- APEC 5
- APEC 6
- APEC 7
- APEC 8
- APEC 9
- APEC 10
- APEC 11
- APEC 12
- APEC 13

0 100 200 Metres
1:6,500 (At original document size of 11x17)

Notes
1. Coordinate System:NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.
3. Orthoimagery © First Base Solutions, 2023. Imagery Date, 2022.
4. M&I – Metals and Inorganics, PHC F1 to F4 - Petroleum hydrocarbon fractions 1 to 4; BTEX - benzene, toluene, ethylbenzene, and xylene; PAHs - polycyclic aromatic hydrocarbons, VOCs – Volatile organic compounds, PCBs – Polychlorinated Biphenyls, * - PCA Not Defined in standard list



Project Location
City of Kitchener

161414319 REVA
Prepared by bakaur on 2023-10-11
Technical Review by AW on 2023-06-14

Client/Project
CITY OF KITCHENER
SCHNEIDER AND SHOEMAKER CREEK NATURALIZATION ASSESSMENT OF PAST USES

Figure No.
3

Title
Site Plan Showing APECs

APPENDIX B PHOTOGRAPHIC LOG

Photo 1 – View of 170 Borden Avenue South, facing north.

Photo 2 – View of 380 Courtland Avenue South, facing north

Photo 3 – View of auto service garage at 116 Kent Avenue, facing northwest.

Photo 4 – View of 97 Kent Avenue, facing east.

Stantec

Client/Project	Date
City of Kitchener Schneider and Shoemaker Creek Corridor Assessment of Past Uses	July 2023
	Project No. 161414319
Title PHOTOGRAPHIC RECORD	Page Page 1 of 3

Photo 5 – View of Newtex Cleaners at 135 Ottawa Street South, facing northeast.

Photo 6 – Auto service garage at 145 Ottawa Street South, facing east.

Photo 7 – Auto service garage at 440 Courtland Avenue East, facing north.

Photo 8 – View of Schneider Creek from Ottawa Street South, facing northwest.

Photo 9 – View of Schneider Creek from Sydney Street South, facing northwest.

Photo 10 – View of Shoemaker Creek at Courtland Avenue East, facing northeast.

Photo 11 – Vacant lot on east side of Kent Avenue, adjacent to the south of Schneider Creek, facing east.

Photo 12 – View of auto service garage at 475 Charles Street East, facing south.

APPENDIX C SUPPORTING DOCUMENTATION

DATABASE REPORT

Project Property:	*Schneider Creek, Kitchener, ON* *Schneider Creek, Kitchener* *Kitchener ON N2G*
Project No:	*161414319*
Report Type:	*Quote - Custom-Build Your Own Report*
Order No:	*23032700420*
Requested by:	*Stantec Consulting Ltd.*
Date Completed:	*May 15, 2023*

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

Table of Contents

Executive Summary

Property Information:

Project Property:	*Schneider Creek, Kitchener, ON* *Schneider Creek, Kitchener Kitchener ON N2G*
Project No:	*161414319*

Order Information:

Order No:	*23032700420*
Date Requested:	*March 27, 2023*
Requested by:	*Stantec Consulting Ltd.*
Report Type:	*Quote - Custom-Build Your Own Report*

Historical/Products:

Aerial Photographs	*Aerials - National Collection*
ERIS Xplorer	*ERIS Xplorer*

Executive Summary: Report Summary

Database	Name	Searched	Project Property
AAGR	*Abandoned Aggregate Inventory*	*Y*	*0*
AGR	*Aggregate Inventory*	*Y*	*0*
AMIS	*Abandoned Mine Information System*	*Y*	*0*
ANDR	*Anderson's Waste Disposal Sites*	*Y*	*3*
AST	*Aboveground Storage Tanks*	*Y*	*0*
AUWR	*Automobile Wrecking & Supplies*	*Y*	*0*
BORE	*Borehole*	*Y*	*31*
CA	*Certificates of Approval*	*Y*	*11*
CDRY	*Dry Cleaning Facilities*	*Y*	*1*
CFOT	*Commercial Fuel Oil Tanks*	*Y*	*1*
CHEM	*Chemical Manufacturers and Distributors*	*Y*	*0*
CHM	*Chemical Register*	*Y*	*0*
CNG	*Compressed Natural Gas Stations*	*Y*	*0*
COAL	*Inventory of Coal Gasification Plants and Coal Tar Sites*	*Y*	*0*
CONV	*Compliance and Convictions*	*Y*	*0*
CPU	*Certificates of Property Use*	*Y*	*2*
DRL	*Drill Hole Database*	*Y*	*0*
DTNK	*Delisted Fuel Tanks*	*Y*	*21*
EASR	*Environmental Activity and Sector Registry*	*Y*	*3*
EBR	*Environmental Registry*	*Y*	*3*
ECA	*Environmental Compliance Approval*	*Y*	*4*
EEM	*Environmental Effects Monitoring*	*Y*	*0*
EHS	*ERIS Historical Searches*	*Y*	*33*
EIIS	*Environmental Issues Inventory System*	*Y*	*0*
EMHE	*Emergency Management Historical Event*	*Y*	*0*
EPAR	*Environmental Penalty Annual Report*	*Y*	*0*
EXP	*List of Expired Fuels Safety Facilities*	*Y*	*0*
FCON	*Federal Convictions*	*Y*	*0*
FCS	*Contaminated Sites on Federal Land*	*Y*	*0*
FOFT	*Fisheries & Oceans Fuel Tanks*	*Y*	*0*
FRST	*Federal Identification Registry for Storage Tank Systems (FIRSTS)*	*Y*	*0*
FST	*Fuel Storage Tank*	*Y*	*5*
FSTH	*Fuel Storage Tank - Historic*	*Y*	*2*
GEN	*Ontario Regulation 347 Waste Generators Summary*	*Y*	*157*
GHG	*Greenhouse Gas Emissions from Large Facilities*	*Y*	*0*
HINC	*TSSA Historic Incidents*	*Y*	*0*

Database	Name	Searched	Project Property
IAFT	Indian & Northern Affairs Fuel Tanks	Y	0
INC	Fuel Oil Spills and Leaks	Y	0
LIMO	Landfill Inventory Management Ontario	Y	0
MINE	Canadian Mine Locations	Y	0
MNR	Mineral Occurrences	Y	0
NATE	National Analysis of Trends in Emergencies System (NATES)	Y	0
NCPL	Non-Compliance Reports	Y	0
NDFT	National Defense & Canadian Forces Fuel Tanks	Y	0
NDSP	National Defense & Canadian Forces Spills	Y	0
NDWD	National Defence & Canadian Forces Waste Disposal Sites	Y	0
NEBI	National Energy Board Pipeline Incidents	Y	0
NEBP	National Energy Board Wells	Y	0
NEES	National Environmental Emergencies System (NEES)	Y	0
NPCB	National PCB Inventory	Y	3
NPRI	National Pollutant Release Inventory	Y	1
OGWE	Oil and Gas Wells	Y	0
OOGW	Ontario Oil and Gas Wells	Y	0
OPCB	Inventory of PCB Storage Sites	Y	4
ORD	Orders	Y	0
PAP	Canadian Pulp and Paper	Y	0
PCFT	Parks Canada Fuel Storage Tanks	Y	0
PES	Pesticide Register	Y	0
PINC	Pipeline Incidents	Y	4
PRT	Private and Retail Fuel Storage Tanks	Y	5
PTTW	Permit to Take Water	Y	0
REC	Ontario Regulation 347 Waste Receivers Summary	Y	1
RSC	Record of Site Condition	Y	1
RST	Retail Fuel Storage Tanks	Y	0
SCT	Scott's Manufacturing Directory	Y	31
SPL	Ontario Spills	Y	22
SRDS	Wastewater Discharger Registration Database	Y	0
TANK	Anderson's Storage Tanks	Y	0
TCFT	Transport Canada Fuel Storage Tanks	Y	0
VAR	Variances for Abandonment of Underground Storage Tanks	Y	0
WDS	Waste Disposal Sites - MOE CA Inventory	Y	0
WDSH	Waste Disposal Sites - MOE 1991 Historical Approval Inventory	Y	2
WWIS	Water Well Information System	Y	97
		Total:	448

Executive Summary: Site Report Summary - Project Property

Map Key	DB	Company/Site Name	Address	Page Number
1	EHS		Schneider Creek Kitchener ON	100
1	EHS		Schneider Creek Kitchener ON	100
1	EHS		Schneider Creek Kitchener ON	100
2	BORE		ON	100
3	BORE		ON	102
4	BORE		ON	103
5	EHS		150 Borden Avenue South Kitchener ON N2G 3R5	105
5	GEN	Borden Cold Storage	150 Borden Ave S Kitchener ON N2G 3R5	105
5	SPL	Borden Cold Storage	150 Borden Ave S Kitchener ON N2G 3R5	105

Map Key	DB	Company/Site Name	Address	Page Number
5	GEN	Heidelberg Foods Cold Storage	150 Borden Ave. S. Kitchener ON N2G 3R7	106
5	GEN	Borden Cold Storage Heidelberg Foods Ltd.	150 Borden Ave South Kitchener ON N2G3R5	106
6	BORE		ON	106
7	WWIS		321 COURTLAND AVENUE EAST Kitchener ON ***Well ID:*** 7269229	108
8	SPL		85 Kent Ave Kitchener ON	111
8	PINC	PIPELINE HIT - 2"	85 KENT AVE,,KITCHENER,ON,N2G 3R2,CA ON	111
9	SCT	Kitchener Pallet Services	160 Borden Ave S Kitchener ON N2G 3R5	112
10	BORE		ON	112
11	WWIS		ON ***Well ID:*** 7168748	114

Map Key	DB	Company/Site Name	Address	Page Number
12	CA	MTD PRODUCTS LTD.	97 KENT AVE. KITCHENER CITY ON N2G 3R2	11
12	CA	MTD PRODUCTS LTD.	97 KENT AVE. KITCHENER CITY ON N2G 3R2	11
12	SCT	M.T.D. PRODUCTS LIMITED	97 KENT AVE KITCHENER ON N2G 4J1	11
12	SCT	MTD Products Ltd.	97 Kent Ave Kitchener ON N2G 3R2	116
12	SCT	MTD PARTS DISTRIBUTION	97 Kent Ave Kitchener ON N2G 3R2	116
12	CA	M.T.D.PRODUCTS LTD.	97 KENT AVE. KITCHENER ON N2G 3R2	116
12	CA	MTD PRODUCTS LTD.	97 KENT AVE. KITCHENER ON N2G 3R2	116
12	GEN	MTD PRODUCTS LIMITED	61-97 KENT AVENUE KITCHENER ON N2G 3R2	117
12	GEN	MTD PRODUCTS LIMITED 25-134	61-97 KENT AVENUE KITCHENER ON N2G 4J1	117
12	GEN	MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 3R2	118

Map Key	DB	Company/Site Name	Address	Page Number
12	NPRI	MTD PRODUCTS LIMITED	97 KENT AVE NOT AVAILABLE KITCHENER ON N2G3R2	119
12	DTNK	MTD PRODUCTS LTD	97 KENT AV KITCHENER ON	120
12	DTNK	MTD PRODUCTS LTD	97 KENT AV KITCHENER ON	120
12	GEN	MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 3R2	121
12	GEN	MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 3R2	122
12	GEN	MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 3R2	123
12	GEN	MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 3R2	123
12	GEN	MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON	124
12	GEN	MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 4J1	125

Map Key	DB	Company/Site Name	Address	Page Number
12	GEN	MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 4J1	126
12	GEN	MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 4J1	127
12	GEN	MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 4J1	127
12	GEN	MTD Products Canada Limited	97 Kent Avenue Kitchener ON N2G 4J1	128
12	GEN	MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 4J1	128
12	PINC	PIPELINE HIT - 2"	97 KENT AVE,,KITCHENER,ON,N2G 3R2,CA ON	129
12	GEN	MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 4J1	129
12	GEN	MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 4J1	130
13	BORE		ON	130
14	WWIS		321 COURTLAND AVENUE Kitchener ON	132

Map Key	DB	Company/Site Name	Address	Page Number
			Well ID: 7269096	
15	WWIS		ON	135
			Well ID: 7362344	
16	WWIS		IRON HORSETRAIL + BORDEN AVE SOUTH con -00 Kitchener ON	136
			Well ID: 7353929	
17	CA	ZETTEL MANUFACTURING LIMITED	170 BORDEN AVE. SOUTH KITCHENER CITY ON N2G 3R7	13
17	SPL	ZETTEL MANUFACTURING LTD.	KITCHENER PLANT 170 BORDEN AVENUE SOUTH KITCHENER CITY ON N2G 3R7	13
17	SCT	ZETTEL MANUFACTURING LTD.	170 BORDEN AVE S KITCHENER ON N2G 3R7	14
17	CA	ZETTEL MFG.LTD.	170 BORDEN AVE.S. KITCHENER CITY ON N2G 3R7	141
17	SCT	Amteck Group of Companies, Inc. - Zettel Manufacturing (2002) Inc.	170 Borden Ave S Kitchener ON N2G 3R7	141
17	GEN	ZETTEL MANUFACTURING LIMITED	170 BORDEN AVENUE SOUTH KITCHENER ON N2G 3R7	142
17	GEN	ZETTEL MANUFACTURING LIMITED	170 BORDEN AVENUE SOUTH KITCHENER ON N2G 3R7	142

Map Key	DB	Company/Site Name	Address	Page Number
17	GEN	ZETTEL MANUFACTURING LIMITED 43-163	170 BORDEN AVENUE SOUTH KITCHENER ON N2G 3R7	142
17	GEN	ZETTEL MANUFACTURING (2002) Inc.	170 Borden Ave South Kitchener ON N2G 3R7	143
17	SCT	Amtek Group - Zettel Mfg Inc	170 Borden Ave S Kitchener ON N2G 3R7	143
17	WWIS		170 BORDEN AVE KITCHENER ON ***Well ID:*** 7041627	144
17	GEN	Adamson & Associates Inc.	170 Borden Avenue South Kitchener ON N2G 3R7	146
17	EASR	506165 ONTARIO LIMITED	170 BORDEN AVE. SOUTH KITCHENER ON N2G 3R7	147
17	EASR	944846 ONTARIO LTD.	170 BORDEN AVE S KITCHENER ON N2G 3R7	147
18	WWIS		ON ***Well ID:*** 7166283	147
19	WWIS		BORDEN AVENUE Kitchener ON ***Well ID:*** 7229711	148
20	BORE		ON	151

Map Key	DB	Company/Site Name	Address	Page Number
21	WWIS		ON **Well ID:** 7362345	152
22	SPL	UNKNOWN	SNIDER CREEK NEAR KENT AVE. KITCHENER CITY ON	15
23	WWIS		BORDEN AVE S DUNDAS AVE Kitchener ON **Well ID:** 7205601	154
24	WWIS		97 BORDON STREET SOUTH lot 1 Kitchener ON **Well ID:** 7175603	158
25	SPL		SCHNEIDER CREEK, AT NYBERG STREET AND BORDEN AVE.<UNOFFICIAL> Kitchener ON	161
25	SPL		Schneider's Creek at Borden Avenue and Nyberg Street<UNOFFICIAL> Kitchener ON	162
26	BORE		ON	162
27	WWIS		405 409 NYBERG ST Kitchener ON **Well ID:** 7360771	164
28	WWIS		405 409 NYBERG ST Kitchener ON **Well ID:** 7360772	167

Map Key	DB	Company/Site Name	Address	Page Number
29	GEN	MTD Products Limited	94 Borden Ave Kitchener ON N2G 3R5	170
30	WWIS		KENT AVE ALONG ROADWAY ON ***Well ID:*** 7139465	170
31	WWIS		94 BORTEN AVENUE SOUTH Kitchener ON ***Well ID:*** 7175602	181
32	WWIS		20 HURST AVENUE Kitchener ON ***Well ID:*** 7197513	184
33	WWIS		BORDEN AVE. S KITCHENER ON ***Well ID:*** 7197916	187
34	BORE		ON	190
35	WWIS		NYBERG ST 405-409 KITCHENER ON ***Well ID:*** 7161419	192
36	WWIS		94 BORDEN AVENUE SOUTH lot 1 Kitchener ON ***Well ID:*** 7175605	195
37	GEN	GrandLinq Contractors	100 Borden Ave. S. Kitchener ON N2G 2R1	198
37	GEN	GrandLinq Contractors	100 Borden Ave. S. Kitchener ON N2G 2R1	199

Map Key	DB	Company/Site Name	Address	Page Number
38	WWIS		136 OTTAWA STREET SOUTH Kitchener ON ***Well ID:*** 7126921	199
39	WWIS		136 OTTAWA STREET Kitchener ON ***Well ID:*** 7175596	202
40	PRT	TUGHAN EXPRESS INC	20 HURST AV KITCHENER ON N2G 2Z7	20
40	PRT	TUGHAN EXPRESS INC	20 HURST AV KITCHENER ON N2G 2Z7	20
40	FSTH	TUGHAN EXPRESS INC	20 HURST AV KITCHENER ON N2G 2Z7	206
40	FSTH	TUGHAN EXPRESS INC	20 HURST AV KITCHENER ON N2G 2Z7	206
40	DTNK	TUGHAN EXPRESS INC	20 HURST AV KITCHENER ON	206
40	DTNK	TUGHAN EXPRESS INC	20 HURST AV KITCHENER ON	207
40	EHS		20 Hurst Ave Kitchener ON N2G 2Z7	207

Map Key	DB	Company/Site Name	Address	Page Number
40	FST	TUGHAN EXPRESS INC	20 HURST AV KITCHENER N2G 2Z7 ON CA ON	208
40	DTNK	TUGHAN EXPRESS INC	20 HURST AV KITCHENER N2G 2Z7 ON CA ON	208
40	GEN	Hanover Storage Inc	20 Hurst Ave Kitchener ON N2G2Z7	209
40	FST	TUGHAN EXPRESS INC	20 HURST AV KITCHENER N2G 2Z7 ON CA ON	209
41	EHS		445-449 Charles St, 61-97 Kent Ave, 94 Borden Ave & 60 Ottawa Street, Kitchener, ON Kitchener ON N2G 3R5	210
41	EHS		445-449 Charles St, 61-97 Kent Ave, 94 Borden Ave & 60 Ottawa Street, Kitchener, ON Kitchener ON N2G 3R5	210
41	EHS		445-449 Charles St, 61-97 Kent Ave, 94 Borden Ave & 60 Ottawa Street, Kitchener, ON Kitchener ON N2G 3R5	210
42	WWIS		BORDEN AVENUE Kitchener ON ***Well ID:*** 7229712	210
43	WWIS		20 Queen St North Kitchener ON ***Well ID:*** 7355639	213
44	BORE		ON	216

Map Key	DB	Company/Site Name	Address	Page Number
45	ANDR	Hurst St Dump	Kitchener ON N2G 2Z	21
46	WWIS		405 409 NYBERG ST Kitchener ON ***Well ID:*** 7360774	218
47	WWIS		BORDEN AVE.\BEDFORD RD. KITCHENER ON ***Well ID:*** 7209441	221
48	WWIS		405 409 NYBERG ST Kitchener ON ***Well ID:*** 7360773	224
49	WWIS		97 BORDEN AVENUE SOUTH Kitchener ON ***Well ID:*** 7175604	227
50	WWIS		20 HURST AVE. KITCHENER ON ***Well ID:*** 7218061	230
51	BORE		ON	234
52	WWIS		97 KENT AVE Kitchener ON ***Well ID:*** 7169512	235
53	WWIS		BORDEN AVE S/ CHARLES ST. E FITCHENER ON ***Well ID:*** 7205598	239

Map Key	DB	Company/Site Name	Address	Page Number
54	WDSH		Hurst Ave. KITCHENER ON	242
55	WWIS		ON **Well ID:** 7253114	243
56	WWIS		136 OTTAWA STREET SOUTH lot 1 Kitchener ON **Well ID:** 7175595	244
57	SPL		175 Borden Avenue Kitchener ON	247
58	WWIS		BORDEN AVE Kitchener ON **Well ID:** 7229715	248
59	WWIS		IRON HORSETRAIL + BORDEN AVE SOUTH con -00 Kitchener ON **Well ID:** 7353928	250
60	BORE		ON	253
61	WWIS		136 OTTAWA ST. S. Kitchener ON **Well ID:** 7127224	255
62	CA	KITCHENER CITY	BEDFORD RD./BORDEN AVE. KITCHENER CITY ON	26
63	SCT	FOUR SEASONS SUNROOMS	405 NYBERG ST KITCHENER ON N2G 2Z1	26

Map Key	DB	Company/Site Name	Address	Page Number
63	SCT	Alpine Glass & Mirror Inc.	405 Nyberg St Kitchener ON N2G 2Z1	26
63	SCT	Artals Laser Engraving	405 Nyberg St Kitchener ON N2G 2Z1	262
63	GEN	Braun¿s Property Management Inc.	405 Nyberg Street Kitchener ON N2G 2Z1	262
63	GEN	Braun¿s Property Management Inc.	405 Nyberg Street Kitchener ON N2G 2Z1	263
64	WWIS		LION HORSE TRAIL con -00 Kitchener ON ***Well ID:*** 7353962	263
65	WWIS		136 OTTAWA ST. S. Kitchener ON ***Well ID:*** 7125486	266
66	SCT	ADVANCE METAL INDUSTRIES LTD.	133 DUNDAS ST KITCHENER ON N2G 2Z3	27
66	SCT	Advance Metal Industries Ltd.	133 Dundas Ave Kitchener ON N2G 2Z3	270
66	GEN	ADVANCE METAL INDUSTRIES LIMITED	133 DUNDAS STREET KITCHENER ON N2G 2Z3	270

Map Key	DB	Company/Site Name	Address	Page Number
66	GEN	ADVANCE METAL INDUSTRIES LIMITED	133 DUNDAS STREET KITCHENER ON N2G 2Z3	271
66	GEN	ADVANCE METAL INDUSTRIES LIMITED 01-052	133 DUNDAS STREET KITCHENER ON N2G 2Z3	271
66	GEN	ADVANCE METAL INDUSTRIES LIMITED	133 DUNDAS Avenue KITCHENER ON N2G 2Z3	271
67	WWIS		BORDEN AVE S.\CHARLES ST. E KITCHENER ON ***Well ID:*** 7209435	272
68	WWIS		405 409 NYBERG ST Kitchener ON ***Well ID:*** 7360775	275
69	GEN	PAUL DAVIS SYSTEMS	409 NYBERG ST KITCHER ON N2G 2Z1	278
69	GEN	PAUL DAVIS SYSTEMS	409 NYBERG ST KITCHENER ON	279
69	GEN	PAUL DAVIS SYSTEMS	409 NYBERG ST KITCHENER ON	279
70	SCT	TUFFEE MFG. INC.	70 BORDEN AVE S KITCHENER ON N2G 3R5	280
70	GEN	JOHNSON FLUID SYSTEMS INC.	70 BORDEN AVE. S. KITCHENERS ON N2G 3R5	281

Map Key	DB	Company/Site Name	Address	Page Number
70	GEN	JOHNSON FLUID SYSTEMS INC.	70 BORDEN AVE. S. KITCHENERS ON N2G 3R5	281
70	GEN	JOHNSON FLUID SYSTEMS (1994) LTD.	70 BORDEN AVENUE SOUTH KITCHENER ON N2G 3R5	281
70	GEN	JOHNSON FLUID SYSTEMS (1994) LIMITED	70 BORDEN AVENUE SOUTH KITCHENER ON N2G 3R5	282
70	EHS		70 Borden Ave Kitchener ON	282
70	EHS		70 Borden Ave Kitchener ON	282
70	EHS		70 Borden Ave Kitchener ON	283
71	BORE		ON	283
72	ANDR	Kent Ave Dump (official)	Kitchener ON N2G 3R1	28
73	WWIS		136 OTTAWA ST S Kitchener ON	285
			Well ID: 7139457	

Map Key	DB	Company/Site Name	Address	Page Number
74	WDSH		Kent Ave. KITCHENER ON	301
75	EHS		405-409 Nyberg Street Kitchener ON N2G	301
75	EHS		405-409 Nyberg Street Kitchener ON N2G	301
75	EHS		405-409 Nyberg Street Kitchener ON N2G	301
76	SPL	Section 21<UNOFFICIAL>; The Regional Municipality of Waterloo	Borden Ave, approx 70 Borden Ave; 50 Ottawa St Kitchener; Kitchener ON	302
77	WWIS		136 OTTAWA ST. S. Kitchener ON ***Well ID:*** 7129311	302
78	WWIS		ON ***Well ID:*** 7365650	305
79	BORE		ON	306
80	WWIS		BEDFORD RD Kitchener ON ***Well ID:*** 7353930	307
81	WWIS		405 409 NYBERG ST Kitchener ON	310

Map Key	DB	Company/Site Name	Address	Page Number
			Well ID: 7360776	
82	PRT	COURTLAND CARS	380 COURTLAND AV E KITCHENER ON N2G 2W2	31
82	DTNK	COURTLAND CARS	380 COURTLAND AV E KITCHENER ON N2G 2W2	313
82	DTNK	COURTLAND CARS	380 COURTLAND AV E KITCHENER N2G 2W2 ON CA ON	314
82	FST	COURTLAND CARS	380 COURTLAND AV E KITCHENER N2G 2W2 ON CA ON	314
83	SCT	SPREITZER MEATS LTD.	128 BEDFORD RD KITCHENER ON N2G 3A4	315
83	SCT	Spreitzer Meats Ltd.	128 Bedford Rd Kitchener ON N2G 3A4	315
83	SCT	Spreitzer's Meats Ltd.	128 Bedford Rd Kitchener ON N2G 3A4	315
84	WWIS		BORDEN AVE, S KITCHENER ON	316
			Well ID: 7197917	
85	WWIS		50 BORDEN ST S Kitchener ON	319
			Well ID: 7342794	

Map Key	DB	Company/Site Name	Address	Page Number
86	WWIS		BORDEN AVE. S. KITCHENER ON ***Well ID:*** 7197918	323
87	GEN	TILDEN RENT-A-CAR SERVICE	RIORDAN CAR AND TRUCK RENTALS 449 CHARLES STREET EAST KITCHENER ON N2G 2R1	326
87	GEN	TILDEN RENT-A-CAR SERVICE 37-393	RIORDAN CAR AND TRUCK RENTALS 449 CHARLES STREET EAST KITCHENER ON N2G 2R1	326
87	GEN	NATIONAL TILDEN CAR & TRUCK RENTAL	RIORDAN CAR AND TRUCK RENTALS, OP. AS 449 CHARLES STREET EAST KITCHENER ON N2G 4G1	326
87	GEN	MTD Products Limited	449 Charles Street East Kitchener ON N2G 2R1	327
88	GEN	Ideal Auto Tech	43 Kent Avenue Kitchener ON N2G 3R2	327
88	PINC	PIPELINE HIT - 3/4"	43 KENT AVENUE,,KITCHENER,ON,N2G 3R2,CA ON	327
88	SPL	The Corporation of the City of Kitchener	43 Kent Avenue Kitchener ON	328
88	EHS		43 Kent Avenue Kitchener ON N2G 3R2	329
88	EHS		43 Kent Avenue Kitchener ON N2G 3R2	329

Map Key	DB	Company/Site Name	Address	Page Number
88	EHS		43 Kent Avenue Kitchener ON N2G 3R2	329
89	NPCB	MTD PRODUCTS LTD	136 OTTAWA STREET SOUTH KITCHENER ON N2G 3S9	32
89	NPCB	MTD PRODUCTS	136 OTTAWA ST. KITCHENER ON N2G 3S9	33
89	OPCB	MTD PRODUCTS LTD	136 OTTAWA STREET SOUTH KITCHENER ON N2G 3S9	330
89	OPCB	MTD PRODUCTS LTD	136 OTTAWA STREET SOUTH KITCHENER ON N2G 3S9	330
89	OPCB	MTD PRODUCTS LTD	136 OTTAWA STREET SOUTH KITCHENER ON N2G 3S9	331
89	OPCB	MTD PRODUCTS	136 OTTAWA ST. KITCHENER ON N2G 3S9	331
89	GEN	MTD PRODUCTS LIMITED	136 OTTAWA STREET SOUTH KITCHENER ON N2G 3S9	331
89	GEN	MTD PRODUCTS LIMITED	136 OTTAWA ST. SOUTH/129 DUNDAS ST. C/O 97 KENT AVE. KITCHENER ON N2G 4J1	331

Map Key	DB	Company/Site Name	Address	Page Number
89	GEN	MTD PRODUCTS LIMITED 25-136	136 OTTAWA STREET SOUTH KITCHENER ON N2G 3S9	332
89	GEN	MTD PRODUCTS LIMITED 25-136	136 OTTAWA ST. SOUTH/129 DUNDAS ST. C/O 97 KENT AVE. KITCHENER ON N2G 4J1	332
89	GEN	MTD PRODUCTS LIMITED	136 OTTAWA STREET SOUTH KITCHENER ON N2G 3S9	333
89	GEN	MTD (SEE & USE ON0116902) MTD	129 DUNDAS STREET KITCHENER ON N2G 2Z3	334
89	GEN	MTD (SEE & USE ON0116902) MTD 25-137	129 DUNDAS STREET KITCHENER ON N2G 2Z3	334
89	EBR	MTD Products Limited	136 Ottawa St S Kitchener Ontario Kitchener ON	334
89	EHS		136 Ottawa St South Kitchener ON	335
89	NPCB	MTD PRODUCTS LTD	136 OTTAWA STREET SOUTH KITCHENER ON N2B 3R2	335
89	WWIS		136 OTTAWA ST S Kitchener ON ***Well ID:*** 7139458	335
89	DTNK	MTD PRODUCTS LTD	136 OTTAWA ST S KITCHENER ON	344

Map Key	DB	Company/Site Name	Address	Page Number
89	DTNK	MTD PRODUCTS LTD	136 OTTAWA ST S KITCHENER ON	345
89	GEN	MTD PRODUCTS LIMITED	136 OTTAWA STREET SOUTH KITCHENER ON N2G 3S9	345
89	GEN	JAZ INTERGRATED GRAPHICS INC	136 OTTAWA ST S KITCHENER ON N2G 3SM	346
89	GEN	JAZ INTERGRATED GRAPHICS INC	136 OTTAWA ST S KITCHENER ON N2G 3SM	346
89	GEN	JAZ INTERGRATED GRAPHICS INC	136 OTTAWA ST S KITCHENER ON N2G 3SM	347
89	GEN	D5D Enterprises Ltd. & Ratford Enterprises Inc	136 Ottawa Street South Kitchener ON N2G 3S9	347
90	ANDR	Kent Ave Dump (alt)	Kitchener ON N2G 3R1	34
91	GEN	WATERLOO, REGIONAL MUNICIPALITY OF	KITCHENER WATERLOO REGIONAL AMBULANCE LTD., 485 CHARLES ST. E. KITCHENER ON N2G 2R1	348
91	GEN	WATERLOO, REGIONAL MUNICIPALITY OF41-165	KITCHENER WATERLOO REGIONAL AMBULANCE LTD., 485 CHARLES ST. E. KITCHENER ON N2G 2R1	348

Map Key	DB	Company/Site Name	Address	Page Number
91	GEN	WATERLOO, REGIONAL MUNICIPALITY OF	485 CHARLES STREET EAST KITCHENER ON N2C 1W4	349
91	GEN	Region of Waterloo EMS	485 CHARLES STREET EAST KITCHENER ON	349
91	EHS		485 Charles Street Kitchener ON	349
92	SCT	FARRTRONICS LTD.	39 KENT AVE KITCHENER ON N2G 3R2	35
93	WWIS		50 BORDEN ST S Kitchener ON ***Well ID:*** 7342795	350
94	EHS		39 Kent Avenue Kitchener Kitchener ON N2G 3R2	354
95	WWIS		PALMER AVENUE Kitchener ON ***Well ID:*** 7246640	354
96	WWIS		PALMER AVE. BETWEEN HOURT AVE. & DEAD END KITCHENER ON ***Well ID:*** 7153318	356
97	WWIS		ON ***Well ID:*** 7180441	360
98	WWIS		50 BORDAN AVE Kitchener ON	361

Map Key	DB	Company/Site Name	Address	Page Number
			Well ID: 7314919	
99	GEN	THRUWAY MUFFLER & BRAKE CENTRE	475 CHARLES ST. E. KITCHENER ON N2G 2R1	364
99	GEN	THRUWAY MUFFLER & BRAKE CENTRE 37-217	475 CHARLES ST. E. KITCHENER ON N2G 2R1	364
99	SPL	GrandLinq Contractors	475 Charles Street East Kitchener ON	365
100	BORE		ON	365
101	BORE		ON	367
102	SCT	SCHATTEN DESIGN	124 OTTAWA ST S KITCHENER ON N2G 3S9	36
103	BORE		ON	369
104	WWIS		NYBERG ST + OTTAWA ST con -00 Kitchener ON	370
			Well ID: 7353927	
105	SCT	Pandora Press	33 Kent Ave Kitchener ON N2G 3R2	374

Map Key	DB	Company/Site Name	Address	Page Number
105	SCT	Pandora Press Inc.	33 Kent Ave Kitchener ON N2G 3R2	374
105	EHS		33 Kent Avenue Kitchener ON N2G 3R2	374
106	WWIS		ON ***Well ID:*** 7180442	375
107	WWIS		50 BORDEN ST S Kitchener ON ***Well ID:*** 7342797	376
108	WWIS		CHARLES ST AND KENT ST Kitchener ON ***Well ID:*** 7231759	380
109	ECA	AECON Construction and Materials Limited and Peter Kiewit Infrastructure Co.	operating as GrandLinq Contractors 495 Charles St E Kitchener ON N2H 4B1	382
110	WWIS		50 BORDEN AVE Kitchener ON ***Well ID:*** 7314921	382
111	WWIS		50 KENT ST Waterloo ON ***Well ID:*** 7143071	386
112	SCT	TITAN SYSTEMS	60 OTTAWA ST S UNIT 2007 KITCHENER ON N2G 3S7	39
112	GEN	BUDD CANADA INC.	60 OTTAWA ST. C/O 1011 HOMER WATSON BLVD. KITCHENER ON K2G 4G5	398

Map Key	DB	Company/Site Name	Address	Page Number
112	GEN	BUDD CANADA INC. 00-000	60 OTTAWA ST. C/O 1011 HOMER WATSON BLVD. KITCHENER ON K2G 4G5	399
112	GEN	BUDD CANADA INC.	(SITE - 60 OTTAWA ST. S., KITCHENER) C/O 1011 HOMER WATSON BLVD. KITCHENER ON N2G 3S7	399
112	SCT	MTD	60 Ottawa St S Kitchener ON N2G 3S7	399
112	EHS		60 Ottawa Street South Kitchener ON N2G 3S7	399
112	REC	BUDD CANADA INC.	60 OTTAWA ST. S. KITCHENER ON	400
112	GEN	MTD Products Limited	60 Ottawa St S Kitchener ON N2G 3R5	400
113	GEN	JOHN HAUSER IRON WORKS LTD.	P.O. BOX 51 148 BEDFORD RD. KITCHENER ON N2G 3A4	400
113	GEN	JOHN HAUSER IRON(OUT OF BUSINESS)	P.O. BOX 51 148 BEDFORD RD. KITCHENER ON N2G 3A4	401
113	GEN	JOHN HAUSER IRON(OUT OF BUSINESS) 22-083	P.O. BOX 51 148 BEDFORD RD. KITCHENER ON N2G 3A4	401

Map Key	DB	Company/Site Name	Address	Page Number
113	GEN	JOHN HAUSER IRONWORKS (OUT OF BUSINESS)	148 BEDFORD ROAD KITCHENER ON N2G 3A4	401
114	WWIS		50 BORDEN ST S Kitchener ON ***Well ID:*** 7342796	402
115	WWIS		BORDEN AVE Kitchener ON ***Well ID:*** 7229716	406
116	WWIS		ON ***Well ID:*** 7203015	408
117	WWIS		50 BORDEN AUES KITCHENR ON ***Well ID:*** 6509545	409
118	WWIS		OTTAWA ST. KITCHENER ON ***Well ID:*** 7197912	412
119	WWIS		BORDEN AVE. S\CHARLES ST. E. KITCHENER ON ***Well ID:*** 7209436	415
120	EHS		50 Borden Avenue South Kitchener ON	419
120	SCT	Sign Depot Inc.	50 Borden Ave S Unit 1 Kitchener ON N2G 3R5	419
120	SCT	Jahm Custom Woodworking Inc.	50 Borden Ave S Unit 2 Kitchener ON N2G 3R5	420

Map Key	DB	Company/Site Name	Address	Page Number
120	GEN	Sign Depot	50 Borden Avenue South Kitchener ON N2G 3R5	420
120	GEN	Grandlinq Contractors	50 Borden Avenue Kitchener ON N2G3R5	420
120	EHS		50 Borden Ave S Kitchener ON N2G3R5	421
120	GEN	Grandlinq Contractors	50 Borden Avenue Kitchener ON N2G 3R5	421
120	CPU	Woodhouse Investments Inc.	50 Bordon Avenue South City of Kitchener, ON Canada ON	421
121	WWIS		136 OTTAWA ST. S Kitchener ON ***Well ID:*** 7125515	422
122	BORE		ON	425
123	WWIS		ON ***Well ID:*** 7231760	427
124	WWIS		OTTAWA ST. & NYBERG STREET KITCHENER ON ***Well ID:*** 7206271	429

Map Key	DB	Company/Site Name	Address	Page Number
125	BORE		ON	432
126	DTNK	PETRO CANADA	130 OTTAWA ST S KITCHENER ON N2G 3S9	433
126	DTNK	PETRO CANADA	130 OTTAWA ST S KITCHENER N2G 3S9 ON CA ON	434
126	DTNK	PETRO CANADA	130 OTTAWA ST S KITCHENER N2G 3S9 ON CA ON	435
126	DTNK	PETRO CANADA	130 OTTAWA ST S KITCHENER N2G 3S9 ON CA ON	435
126	DTNK	PETRO CANADA	130 OTTAWA ST S KITCHENER N2G 3S9 ON CA ON	436
127	WWIS		60 OTTAWA ST. S KITCHENER ON ***Well ID:*** 7197933	437
128	GEN	The New Place	156 Bedford Road Kitchener ON N2G 3A4	440
128	EBR	Larry Allen Reichert, Steven Reichert, and Mark Larry Reichert	156A Bedford Road Kitchener Ontario N2G 3A4 Kitchener ON	440
128	CA	Larry Allen Reichert, Steven Reichert, and Mark Larry Reichert	156A Bedford Road Kitchener ON N2G 3A4	441

Map Key	DB	Company/Site Name	Address	Page Number
128	GEN	The New Place	156 Bedford Road Kitchener ON N2G 3A4	441
128	GEN	The New Place	156 Bedford Road Kitchener ON N2G 3A4	441
128	GEN	The New Place	156 Bedford Road Kitchener ON N2G 3A4	442
128	GEN	The New Place	156 Bedford Road Kitchener ON	442
128	GEN	The New Place	156 Bedford Road Kitchener ON N2G 3A4	443
128	ECA	Larry Allen Reichert, Steven Reichert, and Mark Larry Reichert	156A Bedford Road Kitchener ON N2G 3A4	443
129	SPL	UNKNOWN	SCHNEIDER CREEK OTTAWA ST AND NYBERG ST KITCHENER CITY ON	44
130	WWIS		50 BORDEN AVE Kitchener ON	444
			Well ID: 7314920	
131	WWIS		OTTAWA ST. KITCHENER ON	447
			Well ID: 7197913	

Map Key	DB	Company/Site Name	Address	Page Number
132	WWIS		135 OTTAWA ST S Kitchener ON ***Well ID:*** 7179934	450
133	GEN	GrandLinq Contractors	129 Ottawa Street South KITCHENER ON N2G2Z2	453
134	BORE		ON	454
135	BORE		ON	455
136	WWIS		OTTAWA ST S AND DUNDAS AVE Kitchener ON ***Well ID:*** 7231764	457
137	WWIS		135 OTTAWA ST SOUTH Kitchener ON ***Well ID:*** 7179935	459
138	PINC	MOUNT ROYAL LAUNDROMAT	160 BEDFORD RD,,KITCHENER,ON,N2G 3A4,CA ON	463
139	WWIS		DUNDAS ST. 7 OTTAWA ST. S KITCHENER ON ***Well ID:*** 7206267	463
140	WWIS		135 OTTAWA ST. S lot 1 Kitchener ON ***Well ID:*** 7227691	466
141	SPL	Kitchener Utilities<UNOFFICIAL>	Ottawa Street and Bedford Road Intersection Kitchener ON	469

Map Key	DB	Company/Site Name	Address	Page Number
142	GEN	NEWTEX CLEANERS LTD.	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	470
142	GEN	NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	470
142	GEN	NEWTEX CLEANERS LTD. 28-083	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	471
142	DTNK	Newtex Limited	135 Ottawa St S KITCHENER ON N2G 3T1	471
142	EHS		135 Ottawa Street South Kitchener ON N2G 3T1	471
142	GEN	NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	472
142	GEN	NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	472
142	GEN	NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	472
142	DTNK	NEWTEX LIMITED	135 OTTAWA ST S KITCHENER N2G 3T1 ON CA ON	473

Map Key	DB	Company/Site Name	Address	Page Number
142	GEN	NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	473
142	GEN	NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON	474
142	CFOT	NEWTEX LIMITED	135 OTTAWA ST S KITCHENER N2G 3T1 ON CA ON	474
142	GEN	NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	475
142	GEN	NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	475
142	GEN	NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	476
142	GEN	NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	476
142	CDRY	Newtex Cleaners Ltd	135 Ottawa St S Kitchener ON N2G3T1	477
142	GEN	NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	477
142	SPL	Newtex Limited	135 Ottawa St S Kitchener ON N2G 3T1	478

Map Key	DB	Company/Site Name	Address	Page Number
142	GEN	NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	478
142	GEN	NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	479
143	WWIS		135 OTTAWA ST S Kitchener ON ***Well ID:*** 7179911	479
144	WWIS		108 SYDNEY ST. SIOUTH Kitchener ON ***Well ID:*** 7197469	482
145	WWIS		108 SUDNEY ST. SOUTH Kitchener ON ***Well ID:*** 7197470	486
146	WWIS		NYBERG ST + OTTAWA ST con -00 Kitchener ON ***Well ID:*** 7353926	490
147	SCT	LEE CRAFT DIV OF L J LEE MANUF	109 OTTAWA ST S KITCHENER ON N2G 3S8	493
147	SCT	L J LEE MANUFACTURING LTD.	109 Ottawa St S Kitchener ON N2G 3S8	494
147	GEN	BERT DIETRICH OFFICE EQUIPMENT	109 OTTAWA ST. SOUTH KITCHENER ON N2G 3S8	494

Map Key	DB	Company/Site Name	Address	Page Number
147	GEN	BERT DIETRICH OFFICE EQUIPMENT 05-340	109 OTTAWA ST. SOUTH KITCHENER ON N2G 3S8	494
147	GEN	BERT DIETRICH OFFICE EQUIPMENT	109 OTTAWA STREET SOUTH KITCHENER ON N2G 3S8	495
147	GEN	BERT DIETRICH OFFICE EQUIPMENT	109 OTTAWA STREET SOUTH KITCHENER ON N2G 3S8	495
147	GEN	BERT DIETRICH OFFICE EQUIPMENT	109 OTTAWA STREET SOUTH KITCHENER ON N2G 3S8	495
147	SCT	Advantedge Mailing Solutions	109 Ottawa St S Kitchener ON N2G 3S8	496
147	EHS		109 Ottawa Street South Kitchener ON N2G 3S8	496
147	EHS		109 Ottawa Street South Kitchener ON N2G 3S8	496
147	EHS		109 Ottawa Street South Kitchener ON N2G 3S8	496
148	EBR	K-W Habilitation Services	99 Ottawa Street South Kitchener, Regional Municipality of Waterloo N2G 3S8 CITY OF KITCHENER ON	497
148	ECA	K-W Habilitation Services	99 Ottawa St S Kitchener ON N2G 3V2	497

Map Key	DB	Company/Site Name	Address	Page Number
148	GEN	Grandlinq Contractors	99 Ottawa Street South Kitchener ON N2G 3S8	497
149	BORE		ON	498
150	BORE		ON	499
151	BORE		ON	500
152	SCT	Twin City Auto Parts Inc	134 Sydney St S Kitchener ON N2G 3V2	50
152	SCT	Twin City Auto Parts Inc.	134 Sydney St S Kitchener ON N2G 3V2	502
152	GEN	TWIN CITY AUTO PARTS INC.	134 SYDNEY STREET SOUTH KITCHENER ON N2G 3Y9	502
152	GEN	TWIN CITY AUTO PARTS INC. 37-755	134 SYDNEY STREET SOUTH KITCHENER ON N2G 3Y9	503
152	GEN	TWIN CITY AUTO PARTS INC.	134 Sydney St S Kitchener ON N2G 3V2	503

Map Key	DB	Company/Site Name	Address		Page Number
152	GEN	TWIN CITY AUTO PARTS INC.	134 Sydney St S	Kitchener ON N2G 3V2	504
152	GEN	TWIN CITY AUTO PARTS INC.	134 Sydney St S	Kitchener ON N2G 3V2	504
152	GEN	TWIN CITY AUTO PARTS INC.	134 Sydney St S	Kitchener ON N2G 3V2	505
152	GEN	TWIN CITY AUTO PARTS INC.	134 Sydney St S	Kitchener ON N2G 3V2	505
152	GEN	TWIN CITY AUTO PARTS INC.	134 Sydney St S	Kitchener ON	506
152	GEN	TWIN CITY AUTO PARTS INC.	134 Sydney St S	Kitchener ON N2G3V2	506
152	GEN	TWIN CITY AUTO PARTS INC.	134 Sydney St S	Kitchener ON N2G3V2	506
152	GEN	TWIN CITY AUTO PARTS INC.	134 Sydney St S	Kitchener ON N2G3V2	507
152	GEN	TWIN CITY AUTO PARTS INC.	134 Sydney St S	Kitchener ON N2G3V2	507
152	EHS		134 Sydney St S	Kitchener ON N2G3V2	508

Map Key	DB	Company/Site Name	Address	Page Number
153	WWIS		108 SYDNEY ST S Kitchener ON ***Well ID:*** 7215998	508
154	WWIS		108 SYDNEY ST Kitchener ON ***Well ID:*** 7216000	511
155	WWIS		108 SYDNEY ST S Kitchener ON ***Well ID:*** 7215997	515
156	BORE		ON	518
157	BORE		ON	519
157	BORE		ON	521
158	GEN	MTD PRODUCTS LIMITED	140 SYDNEY STREET SOUTH KITCHENER ON N2G 3V2	523
158	GEN	MTD PRODUCTS LIMITED 25-135	140 SYDNEY STREET SOUTH KITCHENER ON N2G 3V2	523
158	GEN	MTD PRODUCTS LIMITED	140 SYDNEY STREET SOUTH KITCHENER ON N2G 3V2	524

Map Key	DB	Company/Site Name	Address	Page Number
158	SCT	Polwood Cabinets Ltd.	140 Sydney St S Kitchener ON N2G 3V2	524
158	GEN	MTD Products	140 Sydney Street South Kitchener ON N2G 3V2	525
158	GEN	Polwood Cabinets	140 Sydney Street South Kitchener ON N2G 3V3	525
158	GEN	Polwood Cabinets	140 Sydney Street South Kitchener ON N2G 3V3	525
158	GEN	Polwood Cabinets	140 Sydney Street South Kitchener ON N2G 3V3	526
158	GEN	Polwood Cabinets	140 Sydney Street South Kitchener ON N2G 3V3	526
158	GEN	Polwood Cabinets	140 Sydney Street South Kitchener ON N2G 3V3	527
158	GEN	Polwood Cabinets	140 Sydney Street South Kitchener ON N2G 3V3	527
159	WWIS		108 SYDNEY ST S KITCHENER ON ***Well ID:*** 7237604	528
160	BORE		ON	530

Map Key	DB	Company/Site Name	Address	Page Number
161	WWIS		108 SYDNEY ST S ON **Well ID:** 7237601	532
162	EHS		108 Sydney Street South Kitchener ON N2G 3V2	534
162	GEN	K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON N2G 3V2	534
162	EHS		108 Sydney St S Kitchener ON N2G 3V2	535
162	GEN	K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON N2G 3V2	535
162	GEN	K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON N2G 3V2	535
162	GEN	K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON	536
162	GEN	K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON N2G 3V2	536
162	EHS		108 Sydney St S Kitchener ON N2G3V2	537

Map Key	DB	Company/Site Name	Address	Page Number
162	CPU	K-W Habilitation Services	ON	537
162	RSC	K-W HABILITATION SERVICES	108 SYDNEY STREET SOUTH, KITCHENER, ON N2G 3V2 Kitchener ON	537
162	GEN	K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON N2G 3V2	539
162	GEN	K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON N2G 3V2	539
162	GEN	K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON N2G 3V2	539
162	GEN	K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON N2G 3V2	540
162	EASR	K-W HABILITATION SERVICES	108 Sydney ST Kitchener ON N2G 3V2	540
162	GEN	K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON N2G 3V2	540
162	SPL	K-W Habilitation Services	108 Sydney St S Kitchener ON N2G 3S8	541
162	GEN	K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON N2G 3V2	542

Map Key	DB	Company/Site Name	Address	Page Number
162	GEN	K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON N2G 3V2	542
163	BORE		ON	542
164	BORE		ON	544
165	WWIS		260 COURTLAND AVE KITCHENER ON ***Well ID:*** 7186637	546
166	WWIS		108 SYDNEY STREET SOUTH Kitchener ON ***Well ID:*** 7250410	548
167	WWIS		108 SYDNEY STREET SOUTH Kitchener ON ***Well ID:*** 7250409	551
168	WWIS		108 SYDNEY ST S KITCHENER ON ***Well ID:*** 7237602	555
169	WWIS		ON ***Well ID:*** 7103545	558
170	BORE		ON	561

Map Key	DB	Company/Site Name	Address	Page Number
171	WWIS		108 SYDNEY ST S Kitchener ON ***Well ID:*** 7215999	563
172	WWIS		LION HORSE TRAIL Kitchener ON ***Well ID:*** 7353963	566
173	SPL	RUMPLE FELT	IN SCHNEIDER CREEK NEAR SYDNEY ST. KITCHENER CITY ON	56
173	SPL		Schneider Creek, at Niberg and Sydney Street Kitchener ON	570
174	SPL	UNKNOWN	SCHNEIDER'S CREEK AT THE CORNER OF SIDNEY ST. & NYBERG ST. KITCHENER CITY ON	571
175	CA	KITCHENER CITY	SYDNEY ST./NYBERG ST KITCHENER CITY ON	57
175	SPL		Intersection of Nyberg St. and Sydney St. S Kitchener ON	572
176	SPL		At Sydney Street Bridge Kitchener ON	573
177	SPL	HOGG FUELS	260 COURTLAND AVE. TANK CONTAINMENT AREA KITCHENER DEPOT 5 HILL STREET KITCHENER CITY ON N2G 2V7	57
177	SPL	HOGG FUELS	260 COURTLAND AVENUE EAST KITCHENER DEPOT 5 HILL STREET KITCHENER CITY ON N2G 2V7	57

Map Key	DB	Company/Site Name	Address	Page Number
177	PRT	HOGG FUEL AND SUPPLY LTD	260 COURTLAND AV KITCHENER ON N2G2V7	57
177	GEN	CORNERSTONE ENGINEERING&RESTORATION INC.	260 COURTLAND AVENUE EAST KITCHENER ON N2G 2V7	575
177	GEN	HOGG FUEL AND SUPPLY LIMITED	260 COURTLAND AVENUE KITCHENER ON N2G 2V7	575
177	GEN	Hogg Fuel and Supply Limited	260 Courtland Aveue Kitchener ON N2G 2V7	576
178	WWIS		- Sydney Street South Area lot 1 Kitchener ON	576
			Well ID: 7387644	
179	WWIS		108 SYDNEY ST S ON	578
			Well ID: 7237603	
180	WWIS		260 COURTLAND AVE KITCHENER ON	581
			Well ID: 7186636	
181	WWIS		128 SYDNY ST Kitchener ON	583
			Well ID: 7299211	
182	WWIS		ON	586
			Well ID: 6507420	

Map Key	DB	Company/Site Name	Address	Page Number
183	PRT	ADRIATIC AUTO SERVICE LTD	249 COURTLAND AV AND STERLING KITCHENER ON	59
183	SCT	N & G Custom Woodworking	249 Courtland Ave E Unit 2 Kitchener ON N2G 2V6	590
183	DTNK	ADRIATIC AUTO SERVICE LTD	249 COURTLAND AV AND STERLING KITCHENER ON M1T 3K3	590
183	DTNK	ADRIATIC AUTO SERVICE LTD	249 COURTLAND AV AND STERLING KITCHENER ON	591
183	DTNK	ADRIATIC AUTO SERVICE LTD	249 COURTLAND AV AND STERLING KITCHENER ON	592
183	DTNK	ADRIATIC AUTO SERVICE LTD	249 COURTLAND AV AND STERLING KITCHENER M1T 3K3 ON CA ON	592
183	DTNK	ADRIATIC AUTO SERVICE LTD	249 COURTLAND AV AND STERLING KITCHENER M1T 3K3 ON CA ON	593
183	FST	ADRIATIC AUTO SERVICE LTD	249 COURTLAND AV AND STERLING KITCHENER M1T 3K3 ON CA ON	593
183	FST	ADRIATIC AUTO SERVICE LTD	249 COURTLAND AV AND STERLING KITCHENER M1T 3K3 ON CA ON	594
183	GEN	12102315 Canada Inc.	249 Courtland Ave. East, Unit 8 Kitchener ON N2G 2V6	594

Map Key	DB	Company/Site Name	Address	Page Number
184	SPL	UNKNOWN	SCHNEIDERS CREEK NEAR COURTLAND AND STIRLING. KITCHENER CITY ON	59
184	CA	KITCHENER CITY	STIRLING AVE/COURTLAND AVE. KITCHENER CITY ON	59
185	GEN	EFC TRADE	248 STIRLING AVENUE UNIT #14 KITCHENER ON	596
185	GEN	EFC TRADE	248 STIRLING AVENUE UNIT #14 KITCHENER ON	596
185	GEN	EFC TRADE	248 STIRLING AVENUE UNIT #14 KITCHENER ON	596
185	GEN	EFC TRADE	248 STIRLING AVENUE UNIT #14 KITCHENER ON	597
185	GEN	EFC TRADE	248 STIRLING AVENUE UNIT #14 KITCHENER ON	597
185	GEN	EFC TRADE	248 STIRLING AVENUE UNIT #14 KITCHENER ON	598
185	GEN	EFC TRADE	248 STIRLING AVENUE UNIT #14 KITCHENER ON N2G 4L1	598

Map Key	DB	Company/Site Name	Address	Page Number
185	GEN	EFC TRADE	248 STIRLING AVENUE UNIT #14 KITCHENER ON N2G 4L1	598
185	GEN	EFC TRADE	248 STIRLING AVENUE UNIT #14 KITCHENER ON N2G 4L1	599
185	GEN	EFC TRADE	248 STIRLING AVENUE UNIT #14 KITCHENER ON N2G 4L1	599
185	GEN	Westervelt College Inc.	248 STIRLING AVENUE UNIT #14 KITCHENER ON N2G 4L1	600
185	GEN	Westervelt College Inc.	248 STIRLING AVENUE UNIT #14 KITCHENER ON N2G 4L1	601
185	GEN	Westervelt College Inc.	248 STIRLING AVENUE UNIT #14 KITCHENER ON N2G 4L1	601
185	GEN	J&K Pharmacy Inc.	248 Stirling Ave. S. unit 15 Kitchener ON N2G 4L1	602
186	EHS		207 Madison Avenue South Kitchener ON N2G 3M7	602
186	CA	Woodhouse Contracting Ltd.	207 Madison Avenue South Kitchener ON N2G 3M7	602
186	ECA	Woodhouse Contracting Ltd.	207 Madison Avenue South Kitchener ON N2G 3M7	603

Map Key	DB	Company/Site Name	Address	Page Number
186	GEN	Woodhouse Group Inc.	207 Madison Ave., S. Kitchener ON N2G 3M7	603
186	GEN	Woodhouse Group Inc.	207 Madison Ave., S. Kitchener ON N2G 3M7	603

Executive Summary: Summary By Data Source

ANDR - Anderson's Waste Disposal Sites

A search of the ANDR database, dated 1860s-Present has found that there are 3 ANDR site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
Hurst St Dump	Kitchener ON N2G 2Z	0.0	45
Kent Ave Dump (official)	Kitchener ON N2G 3R1	0.0	72
Kent Ave Dump (alt)	Kitchener ON N2G 3R1	0.0	90

BORE - Borehole

A search of the BORE database, dated 1875-Jul 2018 has found that there are 31 BORE site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
	ON	0.0	2
	ON	0.0	3
	ON	0.0	4
	ON	0.0	6
	ON	0.0	10

Site	Address	Distance (m)	Map Key
	ON	0.0	13
	ON	0.0	20
	ON	0.0	26
	ON	0.0	34
	ON	0.0	44
	ON	0.0	51
	ON	0.0	60
	ON	0.0	71
	ON	0.0	79
	ON	0.0	100
	ON	0.0	101

Site	Address	Distance (m)	Map Key
	ON	0.0	103
	ON	0.0	122
	ON	0.0	125
	ON	0.0	134
	ON	0.0	135
	ON	0.0	149
	ON	0.0	150
	ON	0.0	151
	ON	0.0	156
	ON	0.0	157
	ON	0.0	157
	ON	0.0	160

Site	Address	Distance (m)	Map Key
	ON	0.0	163
	ON	0.0	164
	ON	0.0	170

CA - Certificates of Approval

A search of the CA database, dated 1985-Oct 30, 2011* has found that there are 11 CA site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
MTD PRODUCTS LTD.	97 KENT AVE. KITCHENER ON N2G 3R2	0.0	12
MTD PRODUCTS LTD.	97 KENT AVE. KITCHENER CITY ON N2G 3R2	0.0	12
MTD PRODUCTS LTD.	97 KENT AVE. KITCHENER CITY ON N2G 3R2	0.0	12
M.T.D.PRODUCTS LTD.	97 KENT AVE. KITCHENER ON N2G 3R2	0.0	12
ZETTEL MFG.LTD.	170 BORDEN AVE.S. KITCHENER CITY ON N2G 3R7	0.0	17
ZETTEL MANUFACTURING LIMITED	170 BORDEN AVE. SOUTH KITCHENER CITY ON N2G 3R7	0.0	17

Site	Address	Distance (m)	Map Key
KITCHENER CITY	BEDFORD RD./BORDEN AVE. KITCHENER CITY ON	0.0	62
Larry Allen Reichert, Steven Reichert, and Mark Larry Reichert	156A Bedford Road Kitchener ON N2G 3A4	0.0	128
KITCHENER CITY	SYDNEY ST./NYBERG ST KITCHENER CITY ON	0.0	175
KITCHENER CITY	STIRLING AVE/COURTLAND AVE. KITCHENER CITY ON	0.0	184
Woodhouse Contracting Ltd.	207 Madison Avenue South Kitchener ON N2G 3M7	0.0	186

CDRY - Dry Cleaning Facilities

A search of the CDRY database, dated Jan 2004-Dec 2021 has found that there are 1 CDRY site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
Newtex Cleaners Ltd	135 Ottawa St S Kitchener ON N2G3T1	0.0	142

CFOT - Commercial Fuel Oil Tanks

A search of the CFOT database, dated Feb 28, 2022 has found that there are 1 CFOT site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
NEWTEX LIMITED	135 OTTAWA ST S KITCHENER N2G 3T1 ON CA ON	0.0	142

CPU - Certificates of Property Use

A search of the CPU database, dated 1994 - Mar 31, 2023 has found that there are 2 CPU site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
Woodhouse Investments Inc.	50 Bordon Avenue South City of Kitchener, ON Canada ON	0.0	120
K-W Habilitation Services	 ON	0.0	162

DTNK - Delisted Fuel Tanks

A search of the DTNK database, dated Feb 28, 2022 has found that there are 21 DTNK site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
MTD PRODUCTS LTD	97 KENT AV KITCHENER ON	0.0	12
MTD PRODUCTS LTD	97 KENT AV KITCHENER ON	0.0	12
TUGHAN EXPRESS INC	20 HURST AV KITCHENER N2G 2Z7 ON CA ON	0.0	40
TUGHAN EXPRESS INC	20 HURST AV KITCHENER ON	0.0	40
TUGHAN EXPRESS INC	20 HURST AV KITCHENER ON	0.0	40
COURTLAND CARS	380 COURTLAND AV E KITCHENER ON N2G 2W2	0.0	82
COURTLAND CARS	380 COURTLAND AV E KITCHENER N2G 2W2 ON CA ON	0.0	82

Site	Address	Distance (m)	Map Key
MTD PRODUCTS LTD	136 OTTAWA ST S KITCHENER ON	0.0	89
MTD PRODUCTS LTD	136 OTTAWA ST S KITCHENER ON	0.0	89
PETRO CANADA	130 OTTAWA ST S KITCHENER ON N2G 3S9	0.0	126
PETRO CANADA	130 OTTAWA ST S KITCHENER N2G 3S9 ON CA ON	0.0	126
PETRO CANADA	130 OTTAWA ST S KITCHENER N2G 3S9 ON CA ON	0.0	126
PETRO CANADA	130 OTTAWA ST S KITCHENER N2G 3S9 ON CA ON	0.0	126
PETRO CANADA	130 OTTAWA ST S KITCHENER N2G 3S9 ON CA ON	0.0	126
Newtex Limited	135 Ottawa St S KITCHENER ON N2G 3T1	0.0	142
NEWTEX LIMITED	135 OTTAWA ST S KITCHENER N2G 3T1 ON CA ON	0.0	142
ADRIATIC AUTO SERVICE LTD	249 COURTLAND AV AND STERLING KITCHENER ON M1T 3K3	0.0	183
ADRIATIC AUTO SERVICE LTD	249 COURTLAND AV AND STERLING KITCHENER ON	0.0	183
ADRIATIC AUTO SERVICE LTD	249 COURTLAND AV AND STERLING KITCHENER ON	0.0	183

Site	Address	Distance (m)	Map Key
ADRIATIC AUTO SERVICE LTD	249 COURTLAND AV AND STERLING KITCHENER M1T 3K3 ON CA ON	0.0	183
ADRIATIC AUTO SERVICE LTD	249 COURTLAND AV AND STERLING KITCHENER M1T 3K3 ON CA ON	0.0	183

EASR - Environmental Activity and Sector Registry

A search of the EASR database, dated Oct 2011- Mar 31, 2023 has found that there are 3 EASR site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
506165 ONTARIO LIMITED	170 BORDEN AVE. SOUTH KITCHENER ON N2G 3R7	0.0	17
944846 ONTARIO LTD.	170 BORDEN AVE S KITCHENER ON N2G 3R7	0.0	17
K-W HABILITATION SERVICES	108 Sydney ST Kitchener ON N2G 3V2	0.0	162

EBR - Environmental Registry

A search of the EBR database, dated 1994 - Mar 31, 2023 has found that there are 3 EBR site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
MTD Products Limited	136 Ottawa St S Kitchener Ontario Kitchener ON	0.0	89
Larry Allen Reichert, Steven Reichert, and Mark Larry Reichert	156A Bedford Road Kitchener Ontario N2G 3A4 Kitchener ON	0.0	128
K-W Habilitation Services	99 Ottawa Street South Kitchener, Regional Municipality of Waterloo N2G 3S8 CITY OF KITCHENER ON	0.0	148

Site	Address	Distance (m)	Map Key

ECA - Environmental Compliance Approval

A search of the ECA database, dated Oct 2011- Mar 31, 2023 has found that there are 4 ECA site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
AECON Construction and Materials Limited and Peter Kiewit Infrastructure Co.	operating as GrandLinq Contractors 495 Charles St E Kitchener ON N2H 4B1	0.0	109
Larry Allen Reichert, Steven Reichert, and Mark Larry Reichert	156A Bedford Road Kitchener ON N2G 3A4	0.0	128
K-W Habilitation Services	99 Ottawa St S Kitchener ON N2G 3V2	0.0	148
Woodhouse Contracting Ltd.	207 Madison Avenue South Kitchener ON N2G 3M7	0.0	186

EHS - ERIS Historical Searches

A search of the EHS database, dated 1999-Dec 31, 2022 has found that there are 33 EHS site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
	Schneider Creek Kitchener ON	0.0	1
	Schneider Creek Kitchener ON	0.0	1
	Schneider Creek Kitchener ON	0.0	1
	150 Borden Avenue South Kitchener ON N2G 3R5	0.0	5

Site	Address	Distance (m)	Map Key
	20 Hurst Ave Kitchener ON N2G 2Z7	0.0	40
	445-449 Charles St, 61-97 Kent Ave, 94 Borden Ave & 60 Ottawa Street, Kitchener, ON Kitchener ON N2G 3R5	0.0	41
	445-449 Charles St, 61-97 Kent Ave, 94 Borden Ave & 60 Ottawa Street, Kitchener, ON Kitchener ON N2G 3R5	0.0	41
	445-449 Charles St, 61-97 Kent Ave, 94 Borden Ave & 60 Ottawa Street, Kitchener, ON Kitchener ON N2G 3R5	0.0	41
	70 Borden Ave Kitchener ON	0.0	70
	70 Borden Ave Kitchener ON	0.0	70
	70 Borden Ave Kitchener ON	0.0	70
	405-409 Nyberg Street Kitchener ON N2G	0.0	75
	405-409 Nyberg Street Kitchener ON N2G	0.0	75
	405-409 Nyberg Street Kitchener ON N2G	0.0	75
	43 Kent Avenue Kitchener ON N2G 3R2	0.0	88

Site	Address	Distance (m)	Map Key
	43 Kent Avenue Kitchener ON N2G 3R2	0.0	88
	43 Kent Avenue Kitchener ON N2G 3R2	0.0	88
	136 Ottawa St South Kitchener ON	0.0	89
	485 Charles Street Kitchener ON	0.0	91
	39 Kent Avenue Kitchener Kitchener ON N2G 3R2	0.0	94
	33 Kent Avenue Kitchener ON N2G 3R2	0.0	105
	60 Ottawa Street South Kitchener ON N2G 3S7	0.0	112
	50 Borden Avenue South Kitchener ON	0.0	120
	50 Borden Ave S Kitchener ON N2G3R5	0.0	120
	135 Ottawa Street South Kitchener ON N2G 3T1	0.0	142
	109 Ottawa Street South Kitchener ON N2G 3S8	0.0	147

Site	Address	Distance (m)	Map Key
	109 Ottawa Street South Kitchener ON N2G 3S8	0.0	147
	109 Ottawa Street South Kitchener ON N2G 3S8	0.0	147
	134 Sydney St S Kitchener ON N2G3V2	0.0	152
	108 Sydney St S Kitchener ON N2G3V2	0.0	162
	108 Sydney St S Kitchener ON N2G 3V2	0.0	162
	108 Sydney Street South Kitchener ON N2G 3V2	0.0	162
	207 Madison Avenue South Kitchener ON N2G 3M7	0.0	186

FST - Fuel Storage Tank

A search of the FST database, dated Feb 28, 2022 has found that there are 5 FST site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
TUGHAN EXPRESS INC	20 HURST AV KITCHENER N2G 2Z7 ON CA ON	0.0	40
TUGHAN EXPRESS INC	20 HURST AV KITCHENER N2G 2Z7 ON CA ON	0.0	40
COURTLAND CARS	380 COURTLAND AV E KITCHENER N2G 2W2 ON CA ON	0.0	82

Site	Address	Distance (m)	Map Key
ADRIATIC AUTO SERVICE LTD	249 COURTLAND AV AND STERLING KITCHENER M1T 3K3 ON CA ON	0.0	183
ADRIATIC AUTO SERVICE LTD	249 COURTLAND AV AND STERLING KITCHENER M1T 3K3 ON CA ON	0.0	183

FSTH - Fuel Storage Tank - Historic

A search of the FSTH database, dated Pre-Jan 2010* has found that there are 2 FSTH site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
TUGHAN EXPRESS INC	20 HURST AV KITCHENER ON N2G 2Z7	0.0	40
TUGHAN EXPRESS INC	20 HURST AV KITCHENER ON N2G 2Z7	0.0	40

GEN - Ontario Regulation 347 Waste Generators Summary

A search of the GEN database, dated 1986-Oct 31, 2022 has found that there are 157 GEN site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
Borden Cold Storage	150 Borden Ave S Kitchener ON N2G 3R5	0.0	5
Heidelberg Foods Cold Storage	150 Borden Ave. S. Kitchener ON N2G 3R7	0.0	5
Borden Cold Storage Heidelberg Foods Ltd.	150 Borden Ave South Kitchener ON N2G3R5	0.0	5
MTD PRODUCTS LIMITED	61-97 KENT AVENUE KITCHENER ON N2G 3R2	0.0	12

Site	Address	Distance (m)	Map Key
MTD PRODUCTS LIMITED 25-134	61-97 KENT AVENUE KITCHENER ON N2G 4J1	0.0	12
MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 3R2	0.0	12
MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 3R2	0.0	12
MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 3R2	0.0	12
MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 3R2	0.0	12
MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 3R2	0.0	12
MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON	0.0	12
MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 4J1	0.0	12
MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 4J1	0.0	12
MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 4J1	0.0	12
MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 4J1	0.0	12

Site	Address	Distance (m)	Map Key
MTD Products Canada Limited	97 Kent Avenue Kitchener ON N2G 4J1	0.0	12
MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 4J1	0.0	12
MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 4J1	0.0	12
MTD PRODUCTS LIMITED	97 KENT AVENUE KITCHENER ON N2G 4J1	0.0	12
ZETTEL MANUFACTURING LIMITED	170 BORDEN AVENUE SOUTH KITCHENER ON N2G 3R7	0.0	17
ZETTEL MANUFACTURING LIMITED	170 BORDEN AVENUE SOUTH KITCHENER ON N2G 3R7	0.0	17
ZETTEL MANUFACTURING LIMITED 43-163	170 BORDEN AVENUE SOUTH KITCHENER ON N2G 3R7	0.0	17
ZETTEL MANUFACTURING (2002) Inc.	170 Borden Ave South Kitchener ON N2G 3R7	0.0	17
Adamson & Associates Inc.	170 Borden Avenue South Kitchener ON N2G 3R7	0.0	17
MTD Products Limited	94 Borden Ave Kitchener ON N2G 3R5	0.0	29
GrandLinq Contractors	100 Borden Ave. S. Kitchener ON N2G 2R1	0.0	37
GrandLinq Contractors	100 Borden Ave. S. Kitchener ON N2G 2R1	0.0	37

Site	Address	Distance (m)	Map Key
Hanover Storage Inc	20 Hurst Ave Kitchener ON N2G2Z7	0.0	40
Braun¿s Property Management Inc.	405 Nyberg Street Kitchener ON N2G 2Z1	0.0	63
Braun¿s Property Management Inc.	405 Nyberg Street Kitchener ON N2G 2Z1	0.0	63
ADVANCE METAL INDUSTRIES LIMITED	133 DUNDAS STREET KITCHENER ON N2G 2Z3	0.0	66
ADVANCE METAL INDUSTRIES LIMITED	133 DUNDAS STREET KITCHENER ON N2G 2Z3	0.0	66
ADVANCE METAL INDUSTRIES LIMITED 01-052	133 DUNDAS STREET KITCHENER ON N2G 2Z3	0.0	66
ADVANCE METAL INDUSTRIES LIMITED	133 DUNDAS Avenue KITCHENER ON N2G 2Z3	0.0	66
PAUL DAVIS SYSTEMS	409 NYBERG ST KITCHER ON N2G 2Z1	0.0	69
PAUL DAVIS SYSTEMS	409 NYBERG ST KITCHENER ON	0.0	69
PAUL DAVIS SYSTEMS	409 NYBERG ST KITCHENER ON	0.0	69
JOHNSON FLUID SYSTEMS (1994) LTD.	70 BORDEN AVENUE SOUTH KITCHENER ON N2G 3R5	0.0	70

Site	Address	Distance (m)	Map Key
JOHNSON FLUID SYSTEMS (1994) LIMITED	70 BORDEN AVENUE SOUTH KITCHENER ON N2G 3R5	0.0	70
JOHNSON FLUID SYSTEMS INC.	70 BORDEN AVE. S. KITCHENERS ON N2G 3R5	0.0	70
JOHNSON FLUID SYSTEMS INC.	70 BORDEN AVE. S. KITCHENERS ON N2G 3R5	0.0	70
TILDEN RENT-A-CAR SERVICE	RIORDAN CAR AND TRUCK RENTALS 449 CHARLES STREET EAST KITCHENER ON N2G 2R1	0.0	87
TILDEN RENT-A-CAR SERVICE 37-393	RIORDAN CAR AND TRUCK RENTALS 449 CHARLES STREET EAST KITCHENER ON N2G 2R1	0.0	87
NATIONAL TILDEN CAR & TRUCK RENTAL	RIORDAN CAR AND TRUCK RENTALS, OP. AS 449 CHARLES STREET EAST KITCHENER ON N2G 4G1	0.0	87
MTD Products Limited	449 Charles Street East Kitchener ON N2G 2R1	0.0	87
Ideal Auto Tech	43 Kent Avenue Kitchener ON N2G 3R2	0.0	88
MTD PRODUCTS LIMITED	136 OTTAWA STREET SOUTH KITCHENER ON N2G 3S9	0.0	89
MTD PRODUCTS LIMITED	136 OTTAWA ST. SOUTH/129 DUNDAS ST. C/O 97 KENT AVE. KITCHENER ON N2G 4J1	0.0	89
MTD PRODUCTS LIMITED 25-136	136 OTTAWA STREET SOUTH KITCHENER ON N2G 3S9	0.0	89
MTD PRODUCTS LIMITED 25-136	136 OTTAWA ST. SOUTH/129 DUNDAS ST. C/O 97 KENT AVE. KITCHENER ON N2G 4J1	0.0	89

Site	Address	Distance (m)	Map Key
MTD PRODUCTS LIMITED	136 OTTAWA STREET SOUTH KITCHENER ON N2G 3S9	0.0	89
MTD (SEE & USE ON0116902) MTD	129 DUNDAS STREET KITCHENER ON N2G 2Z3	0.0	89
MTD (SEE & USE ON0116902) MTD 25-137	129 DUNDAS STREET KITCHENER ON N2G 2Z3	0.0	89
MTD PRODUCTS LIMITED	136 OTTAWA STREET SOUTH KITCHENER ON N2G 3S9	0.0	89
JAZ INTERGRATED GRAPHICS INC	136 OTTAWA ST S KITCHENER ON N2G 3SM	0.0	89
JAZ INTERGRATED GRAPHICS INC	136 OTTAWA ST S KITCHENER ON N2G 3SM	0.0	89
JAZ INTERGRATED GRAPHICS INC	136 OTTAWA ST S KITCHENER ON N2G 3SM	0.0	89
D5D Enterprises Ltd. & Ratford Enterprises Inc	136 Ottawa Street South Kitchener ON N2G 3S9	0.0	89
WATERLOO, REGIONAL MUNICIPALITY OF	KITCHENER WATERLOO REGIONAL AMBULANCE LTD., 485 CHARLES ST. E. KITCHENER ON N2G 2R1	0.0	91
WATERLOO, REGIONAL MUNICIPALITY OF41-165	KITCHENER WATERLOO REGIONAL AMBULANCE LTD., 485 CHARLES ST. E. KITCHENER ON N2G 2R1	0.0	91
WATERLOO, REGIONAL MUNICIPALITY OF	485 CHARLES STREET EAST KITCHENER ON N2C 1W4	0.0	91

Site	Address	Distance (m)	Map Key
Region of Waterloo EMS	485 CHARLES STREET EAST KITCHENER ON	0.0	91
THRUWAY MUFFLER & BRAKE CENTRE	475 CHARLES ST. E. KITCHENER ON N2G 2R1	0.0	99
THRUWAY MUFFLER & BRAKE CENTRE 37-217	475 CHARLES ST. E. KITCHENER ON N2G 2R1	0.0	99
BUDD CANADA INC.	60 OTTAWA ST. C/O 1011 HOMER WATSON BLVD. KITCHENER ON K2G 4G5	0.0	112
BUDD CANADA INC. 00-000	60 OTTAWA ST. C/O 1011 HOMER WATSON BLVD. KITCHENER ON K2G 4G5	0.0	112
BUDD CANADA INC.	(SITE - 60 OTTAWA ST. S., KITCHENER) C/O 1011 HOMER WATSON BLVD. KITCHENER ON N2G 3S7	0.0	112
MTD Products Limited	60 Ottawa St S Kitchener ON N2G 3R5	0.0	112
JOHN HAUSER IRON WORKS LTD.	P.O. BOX 51 148 BEDFORD RD. KITCHENER ON N2G 3A4	0.0	113
JOHN HAUSER IRON(OUT OF BUSINESS)	P.O. BOX 51 148 BEDFORD RD. KITCHENER ON N2G 3A4	0.0	113
JOHN HAUSER IRON(OUT OF BUSINESS) 22-083	P.O. BOX 51 148 BEDFORD RD. KITCHENER ON N2G 3A4	0.0	113
JOHN HAUSER IRONWORKS(OUT OF BUSINESS)	148 BEDFORD ROAD KITCHENER ON N2G 3A4	0.0	113
Sign Depot	50 Borden Avenue South Kitchener ON N2G 3R5	0.0	120

Site	Address	Distance (m)	Map Key
Grandlinq Contractors	50 Borden Avenue Kitchener ON N2G3R5	0.0	120
Grandlinq Contractors	50 Borden Avenue Kitchener ON N2G 3R5	0.0	120
The New Place	156 Bedford Road Kitchener ON N2G 3A4	0.0	128
The New Place	156 Bedford Road Kitchener ON N2G 3A4	0.0	128
The New Place	156 Bedford Road Kitchener ON N2G 3A4	0.0	128
The New Place	156 Bedford Road Kitchener ON N2G 3A4	0.0	128
The New Place	156 Bedford Road Kitchener ON	0.0	128
The New Place	156 Bedford Road Kitchener ON N2G 3A4	0.0	128
GrandLinq Contractors	129 Ottawa Street South KITCHENER ON N2G2Z2	0.0	133
NEWTEX CLEANERS LTD.	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	0.0	142
NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	0.0	142

Site	Address	Distance (m)	Map Key
NEWTEX CLEANERS LTD. 28-083	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	0.0	142
NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	0.0	142
NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	0.0	142
NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	0.0	142
NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	0.0	142
NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON	0.0	142
NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	0.0	142
NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	0.0	142
NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	0.0	142
NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	0.0	142
NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	0.0	142
NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	0.0	142

Site	Address	Distance (m)	Map Key
NEWTEX CLEANERS LIMITED	135 OTTAWA STREET SOUTH KITCHENER ON N2G 3T1	0.0	142
BERT DIETRICH OFFICE EQUIPMENT	109 OTTAWA ST. SOUTH KITCHENER ON N2G 3S8	0.0	147
BERT DIETRICH OFFICE EQUIPMENT 05-340	109 OTTAWA ST. SOUTH KITCHENER ON N2G 3S8	0.0	147
BERT DIETRICH OFFICE EQUIPMENT	109 OTTAWA STREET SOUTH KITCHENER ON N2G 3S8	0.0	147
BERT DIETRICH OFFICE EQUIPMENT	109 OTTAWA STREET SOUTH KITCHENER ON N2G 3S8	0.0	147
BERT DIETRICH OFFICE EQUIPMENT	109 OTTAWA STREET SOUTH KITCHENER ON N2G 3S8	0.0	147
Grandlinq Contractors	99 Ottawa Street South Kitchener ON N2G 3S8	0.0	148
TWIN CITY AUTO PARTS INC.	134 SYDNEY STREET SOUTH KITCHENER ON N2G 3Y9	0.0	152
TWIN CITY AUTO PARTS INC. 37-755	134 SYDNEY STREET SOUTH KITCHENER ON N2G 3Y9	0.0	152
TWIN CITY AUTO PARTS INC.	134 Sydney St S Kitchener ON N2G 3V2	0.0	152
TWIN CITY AUTO PARTS INC.	134 Sydney St S Kitchener ON N2G 3V2	0.0	152

Site	Address	Distance (m)	Map Key
TWIN CITY AUTO PARTS INC.	134 Sydney St S Kitchener ON N2G 3V2	0.0	152
TWIN CITY AUTO PARTS INC.	134 Sydney St S Kitchener ON N2G 3V2	0.0	152
TWIN CITY AUTO PARTS INC.	134 Sydney St S Kitchener ON N2G 3V2	0.0	152
TWIN CITY AUTO PARTS INC.	134 Sydney St S Kitchener ON	0.0	152
TWIN CITY AUTO PARTS INC.	134 Sydney St S Kitchener ON N2G3V2	0.0	152
TWIN CITY AUTO PARTS INC.	134 Sydney St S Kitchener ON N2G3V2	0.0	152
TWIN CITY AUTO PARTS INC.	134 Sydney St S Kitchener ON N2G3V2	0.0	152
TWIN CITY AUTO PARTS INC.	134 Sydney St S Kitchener ON N2G3V2	0.0	152
MTD PRODUCTS LIMITED	140 SYDNEY STREET SOUTH KITCHENER ON N2G 3V2	0.0	158
MTD PRODUCTS LIMITED 25-135	140 SYDNEY STREET SOUTH KITCHENER ON N2G 3V2	0.0	158
MTD PRODUCTS LIMITED	140 SYDNEY STREET SOUTH KITCHENER ON N2G 3V2	0.0	158
MTD Products	140 Sydney Street South Kitchener ON N2G 3V2	0.0	158

Site	Address	Distance (m)	Map Key
Polwood Cabinets	140 Sydney Street South Kitchener ON N2G 3V3	0.0	158
Polwood Cabinets	140 Sydney Street South Kitchener ON N2G 3V3	0.0	158
Polwood Cabinets	140 Sydney Street South Kitchener ON N2G 3V3	0.0	158
Polwood Cabinets	140 Sydney Street South Kitchener ON N2G 3V3	0.0	158
Polwood Cabinets	140 Sydney Street South Kitchener ON N2G 3V3	0.0	158
Polwood Cabinets	140 Sydney Street South Kitchener ON N2G 3V3	0.0	158
K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON N2G 3V2	0.0	162
K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON N2G 3V2	0.0	162
K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON N2G 3V2	0.0	162
K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON	0.0	162
K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON N2G 3V2	0.0	162

Site	Address	Distance (m)	Map Key
K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON N2G 3V2	0.0	162
K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON N2G 3V2	0.0	162
K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON N2G 3V2	0.0	162
K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON N2G 3V2	0.0	162
K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON N2G 3V2	0.0	162
K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON N2G 3V2	0.0	162
K-W Habilitation Services Day Options	108 Sydney Street South Kitchener ON N2G 3V2	0.0	162
CORNERSTONE ENGINEERING&RESTORATION INC.	260 COURTLAND AVENUE EAST KITCHENER ON N2G 2V7	0.0	177
HOGG FUEL AND SUPPLY LIMITED	260 COURTLAND AVENUE KITCHENER ON N2G 2V7	0.0	177
Hogg Fuel and Supply Limited	260 Courtland Aveue Kitchener ON N2G 2V7	0.0	177
12102315 Canada Inc.	249 Courtland Ave. East, Unit 8 Kitchener ON N2G 2V6	0.0	183
EFC TRADE	248 STIRLING AVENUE UNIT #14 KITCHENER ON	0.0	185

Site	Address	Distance (m)	Map Key
EFC TRADE	248 STIRLING AVENUE UNIT #14 KITCHENER ON	0.0	185
EFC TRADE	248 STIRLING AVENUE UNIT #14 KITCHENER ON	0.0	185
EFC TRADE	248 STIRLING AVENUE UNIT #14 KITCHENER ON	0.0	185
EFC TRADE	248 STIRLING AVENUE UNIT #14 KITCHENER ON	0.0	185
EFC TRADE	248 STIRLING AVENUE UNIT #14 KITCHENER ON	0.0	185
EFC TRADE	248 STIRLING AVENUE UNIT #14 KITCHENER ON N2G 4L1	0.0	185
EFC TRADE	248 STIRLING AVENUE UNIT #14 KITCHENER ON N2G 4L1	0.0	185
EFC TRADE	248 STIRLING AVENUE UNIT #14 KITCHENER ON N2G 4L1	0.0	185
EFC TRADE	248 STIRLING AVENUE UNIT #14 KITCHENER ON N2G 4L1	0.0	185
Westervelt College Inc.	248 STIRLING AVENUE UNIT #14 KITCHENER ON N2G 4L1	0.0	185
Westervelt College Inc.	248 STIRLING AVENUE UNIT #14 KITCHENER ON N2G 4L1	0.0	185

Site	Address	Distance (m)	Map Key
Westervelt College Inc.	248 STIRLING AVENUE UNIT #14 KITCHENER ON N2G 4L1	0.0	185
J&K Pharmacy Inc.	248 Stirling Ave. S. unit 15 Kitchener ON N2G 4L1	0.0	185
Woodhouse Group Inc.	207 Madison Ave., S. Kitchener ON N2G 3M7	0.0	186
Woodhouse Group Inc.	207 Madison Ave., S. Kitchener ON N2G 3M7	0.0	186

NPCB - National PCB Inventory

A search of the NPCB database, dated 1988-2008* has found that there are 3 NPCB site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
MTD PRODUCTS LTD	136 OTTAWA STREET SOUTH KITCHENER ON N2G 3S9	0.0	89
MTD PRODUCTS	136 OTTAWA ST. KITCHENER ON N2G 3S9	0.0	89
MTD PRODUCTS LTD	136 OTTAWA STREET SOUTH KITCHENER ON N2B 3R2	0.0	89

NPRI - National Pollutant Release Inventory

A search of the NPRI database, dated 1993-May 2017 has found that there are 1 NPRI site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
MTD PRODUCTS LIMITED	97 KENT AVE NOT AVAILABLE KITCHENER ON N2G3R2	0.0	12

OPCB - Inventory of PCB Storage Sites

A search of the OPCB database, dated 1987-Oct 2004; 2012-Dec 2013 has found that there are 4 OPCB site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
MTD PRODUCTS LTD	136 OTTAWA STREET SOUTH KITCHENER ON N2G 3S9	0.0	89
MTD PRODUCTS	136 OTTAWA ST. KITCHENER ON N2G 3S9	0.0	89
MTD PRODUCTS LTD	136 OTTAWA STREET SOUTH KITCHENER ON N2G 3S9	0.0	89
MTD PRODUCTS LTD	136 OTTAWA STREET SOUTH KITCHENER ON N2G 3S9	0.0	89

PINC - Pipeline Incidents

A search of the PINC database, dated Feb 28, 2021 has found that there are 4 PINC site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
PIPELINE HIT - 2"	85 KENT AVE,,KITCHENER,ON,N2G 3R2,CA ON	0.0	8
PIPELINE HIT - 2"	97 KENT AVE,,KITCHENER,ON,N2G 3R2,CA ON	0.0	12
PIPELINE HIT - 3/4"	43 KENT AVENUE,,KITCHENER,ON,N2G 3R2,CA ON	0.0	88
MOUNT ROYAL LAUNDROMAT	160 BEDFORD RD,,KITCHENER,ON,N2G 3A4,CA ON	0.0	138

PRT - Private and Retail Fuel Storage Tanks

A search of the PRT database, dated 1989-1996* has found that there are 5 PRT site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
TUGHAN EXPRESS INC	20 HURST AV KITCHENER ON N2G 2Z7	0.0	40
TUGHAN EXPRESS INC	20 HURST AV KITCHENER ON N2G 2Z7	0.0	40
COURTLAND CARS	380 COURTLAND AV E KITCHENER ON N2G 2W2	0.0	82
HOGG FUEL AND SUPPLY LTD	260 COURTLAND AV KITCHENER ON N2G2V7	0.0	177
ADRIATIC AUTO SERVICE LTD	249 COURTLAND AV AND STERLING KITCHENER ON	0.0	183

REC - Ontario Regulation 347 Waste Receivers Summary

A search of the REC database, dated 1986-1990, 1992-2020 has found that there are 1 REC site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
BUDD CANADA INC.	60 OTTAWA ST. S. KITCHENER ON	0.0	112

RSC - Record of Site Condition

A search of the RSC database, dated 1997-Sept 2001, Oct 2004-Mar 2023 has found that there are 1 RSC site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
K-W HABILITATION SERVICES	108 SYDNEY STREET SOUTH, KITCHENER, ON N2G 3V2 Kitchener ON	0.0	162

SCT - Scott's Manufacturing Directory

A search of the SCT database, dated 1992-Mar 2011* has found that there are 31 SCT site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
Kitchener Pallet Services	160 Borden Ave S Kitchener ON N2G 3R5	0.0	9
MTD Products Ltd.	97 Kent Ave Kitchener ON N2G 3R2	0.0	12
MTD PARTS DISTRIBUTION	97 Kent Ave Kitchener ON N2G 3R2	0.0	12
M.T.D. PRODUCTS LIMITED	97 KENT AVE KITCHENER ON N2G 4J1	0.0	12
Amtek Group - Zettel Mfg Inc	170 Borden Ave S Kitchener ON N2G 3R7	0.0	17
Amteck Group of Companies, Inc. - Zettel Manufacturing (2002) Inc.	170 Borden Ave S Kitchener ON N2G 3R7	0.0	17
ZETTEL MANUFACTURING LTD.	170 BORDEN AVE S KITCHENER ON N2G 3R7	0.0	17
Artals Laser Engraving	405 Nyberg St Kitchener ON N2G 2Z1	0.0	63
Alpine Glass & Mirror Inc.	405 Nyberg St Kitchener ON N2G 2Z1	0.0	63
FOUR SEASONS SUNROOMS	405 NYBERG ST KITCHENER ON N2G 2Z1	0.0	63
Advance Metal Industries Ltd.	133 Dundas Ave Kitchener ON N2G 2Z3	0.0	66

Site	Address	Distance (m)	Map Key
ADVANCE METAL INDUSTRIES LTD.	133 DUNDAS ST KITCHENER ON N2G 2Z3	0.0	66
TUFFEE MFG. INC.	70 BORDEN AVE S KITCHENER ON N2G 3R5	0.0	70
SPREITZER MEATS LTD.	128 BEDFORD RD KITCHENER ON N2G 3A4	0.0	83
Spreitzer Meats Ltd.	128 Bedford Rd Kitchener ON N2G 3A4	0.0	83
Spreitzer's Meats Ltd.	128 Bedford Rd Kitchener ON N2G 3A4	0.0	83
FARRTRONICS LTD.	39 KENT AVE KITCHENER ON N2G 3R2	0.0	92
SCHATTEN DESIGN	124 OTTAWA ST S KITCHENER ON N2G 3S9	0.0	102
Pandora Press Inc.	33 Kent Ave Kitchener ON N2G 3R2	0.0	105
Pandora Press	33 Kent Ave Kitchener ON N2G 3R2	0.0	105
TITAN SYSTEMS	60 OTTAWA ST S UNIT 2007 KITCHENER ON N2G 3S7	0.0	112
MTD	60 Ottawa St S Kitchener ON N2G 3S7	0.0	112

Site	Address	Distance (m)	Map Key
Sign Depot Inc.	50 Borden Ave S Unit 1 Kitchener ON N2G 3R5	0.0	120
Jahm Custom Woodworking Inc.	50 Borden Ave S Unit 2 Kitchener ON N2G 3R5	0.0	120
Advantedge Mailing Solutions	109 Ottawa St S Kitchener ON N2G 3S8	0.0	147
L J LEE MANUFACTURING LTD.	109 Ottawa St S Kitchener ON N2G 3S8	0.0	147
LEE CRAFT DIV OF L J LEE MANUF	109 OTTAWA ST S KITCHENER ON N2G 3S8	0.0	147
Twin City Auto Parts Inc.	134 Sydney St S Kitchener ON N2G 3V2	0.0	152
Twin City Auto Parts Inc	134 Sydney St S Kitchener ON N2G 3V2	0.0	152
Polwood Cabinets Ltd.	140 Sydney St S Kitchener ON N2G 3V2	0.0	158
N & G Custom Woodworking	249 Courtland Ave E Unit 2 Kitchener ON N2G 2V6	0.0	183

SPL - Ontario Spills

A search of the SPL database, dated 1988-Mar 2021; May 2021-Nov 2021 has found that there are 22 SPL site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
Borden Cold Storage	150 Borden Ave S Kitchener ON N2G 3R5	0.0	5

Site	Address	Distance (m)	Map Key
	85 Kent Ave Kitchener ON	0.0	8
ZETTEL MANUFACTURING LTD.	KITCHENER PLANT 170 BORDEN AVENUE SOUTH KITCHENER CITY ON N2G 3R7	0.0	17
UNKNOWN	SNIDER CREEK NEAR KENT AVE. KITCHENER CITY ON	0.0	22
	Schneider's Creek at Borden Avenue and Nyberg Street<UNOFFICIAL> Kitchener ON	0.0	25
	SCHNEIDER CREEK, AT NYBERG STREET AND BORDEN AVE.<UNOFFICIAL> Kitchener ON	0.0	25
	175 Borden Avenue Kitchener ON	0.0	57
Section 21<UNOFFICIAL>; The Regional Municipality of Waterloo	Borden Ave, approx 70 Borden Ave; 50 Ottawa St Kitchener; Kitchener ON	0.0	76
The Corporation of the City of Kitchener	43 Kent Avenue Kitchener ON	0.0	88
GrandLinq Contractors	475 Charles Street East Kitchener ON	0.0	99
UNKNOWN	SCHNEIDER CREEK OTTAWA ST AND NYBERG ST KITCHENER CITY ON	0.0	129
Kitchener Utilities<UNOFFICIAL>	Ottawa Street and Bedford Road Intersection Kitchener ON	0.0	141

Site	Address	Distance (m)	Map Key
Newtex Limited	135 Ottawa St S Kitchener ON N2G 3T1	0.0	142
K-W Habilitation Services	108 Sydney St S Kitchener ON N2G 3S8	0.0	162
	Schneider Creek, at Niberg and Sydney Street Kitchener ON	0.0	173
RUMPLE FELT	IN SCHNEIDER CREEK NEAR SYDNEY ST. KITCHENER CITY ON	0.0	173
UNKNOWN	SCHNEIDER'S CREEK AT THE CORNER OF SIDNEY ST. & NYBERG ST. KITCHENER CITY ON	0.0	174
	Intersection of Nyberg St. and Sydney St. S Kitchener ON	0.0	175
	At Sydney Street Bridge Kitchener ON	0.0	176
HOGG FUELS	260 COURTLAND AVENUE EAST KITCHENER DEPOT 5 HILL STREET KITCHENER CITY ON N2G 2V7	0.0	177
HOGG FUELS	260 COURTLAND AVE. TANK CONTAINMENT AREA KITCHENER DEPOT 5 HILL STREET KITCHENER CITY ON N2G 2V7	0.0	177
UNKNOWN	SCHNEIDERS CREEK NEAR COURTLAND AND STIRLING. KITCHENER CITY ON	0.0	184

WDSH - Waste Disposal Sites - MOE 1991 Historical Approval Inventory

A search of the WDSH database, dated Up to Oct 1990* has found that there are 2 WDSH site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
	Hurst Ave. KITCHENER ON	0.0	54
	Kent Ave. KITCHENER ON	0.0	74

WWIS - Water Well Information System

A search of the WWIS database, dated Jun 30 2022 has found that there are 97 WWIS site(s) within approximately 0.00 kilometers of the project property.

Site	Address	Distance (m)	Map Key
	321 COURTLAND AVENUE EAST Kitchener ON ***Well ID:*** 7269229	0.0	7
	ON ***Well ID:*** 7168748	0.0	11
	321 COURTLAND AVENUE Kitchener ON ***Well ID:*** 7269096	0.0	14
	ON ***Well ID:*** 7362344	0.0	15
	IRON HORSETRAIL + BORDEN AVE SOUTH con -00 Kitchener ON ***Well ID:*** 7353929	0.0	16
	170 BORDEN AVE KITCHENER ON ***Well ID:*** 7041627	0.0	17
	ON ***Well ID:*** 7166283	0.0	18
	BORDEN AVENUE Kitchener ON	0.0	19

Site	Address	Distance (m)	Map Key
	Well ID: 7229711		
	ON ***Well ID:*** 7362345	0.0	21
	BORDEN AVE S DUNDAS AVE Kitchener ON ***Well ID:*** 7205601	0.0	23
	97 BORDON STREET SOUTH lot 1 Kitchener ON ***Well ID:*** 7175603	0.0	24
	405 409 NYBERG ST Kitchener ON ***Well ID:*** 7360771	0.0	27
	405 409 NYBERG ST Kitchener ON ***Well ID:*** 7360772	0.0	28
	KENT AVE ALONG ROADWAY ON ***Well ID:*** 7139465	0.0	30
	94 BORTEN AVENUE SOUTH Kitchener ON ***Well ID:*** 7175602	0.0	31
	20 HURST AVENUE Kitchener ON ***Well ID:*** 7197513	0.0	32
	BORDEN AVE. S KITCHENER ON ***Well ID:*** 7197916	0.0	33
	NYBERG ST 405-409 KITCHENER ON ***Well ID:*** 7161419	0.0	35
	94 BORDEN AVENUE SOUTH lot 1 Kitchener ON ***Well ID:*** 7175605	0.0	36

Site	Address	Distance (m)	Map Key
	136 OTTAWA STREET SOUTH Kitchener ON ***Well ID:*** 7126921	0.0	38
	136 OTTAWA STREET Kitchener ON ***Well ID:*** 7175596	0.0	39
	BORDEN AVENUE Kitchener ON ***Well ID:*** 7229712	0.0	42
	20 Queen St North Kitchener ON ***Well ID:*** 7355639	0.0	43
	405 409 NYBERG ST Kitchener ON ***Well ID:*** 7360774	0.0	46
	BORDEN AVE.\BEDFORD RD. KITCHENER ON ***Well ID:*** 7209441	0.0	47
	405 409 NYBERG ST Kitchener ON ***Well ID:*** 7360773	0.0	48
	97 BORDEN AVENUE SOUTH Kitchener ON ***Well ID:*** 7175604	0.0	49
	20 HURST AVE. KITCHENER ON ***Well ID:*** 7218061	0.0	50
	97 KENT AVE Kitchener ON ***Well ID:*** 7169512	0.0	52
	BORDEN AVE S/ CHARLES ST. E FITCHENER ON ***Well ID:*** 7205598	0.0	53
	ON	0.0	55

Site	Address	Distance (m)	Map Key
	Well ID: 7253114		
	136 OTTAWA STREET SOUTH lot 1 Kitchener ON ***Well ID:*** 7175595	0.0	56
	BORDEN AVE Kitchener ON ***Well ID:*** 7229715	0.0	58
	IRON HORSETRAIL + BORDEN AVE SOUTH con -00 Kitchener ON ***Well ID:*** 7353928	0.0	59
	136 OTTAWA ST. S. Kitchener ON ***Well ID:*** 7127224	0.0	61
	LION HORSE TRAIL con -00 Kitchener ON ***Well ID:*** 7353962	0.0	64
	136 OTTAWA ST. S. Kitchener ON ***Well ID:*** 7125486	0.0	65
	BORDEN AVE S.\CHARLES ST. E KITCHENER ON ***Well ID:*** 7209435	0.0	67
	405 409 NYBERG ST Kitchener ON ***Well ID:*** 7360775	0.0	68
	136 OTTAWA ST S Kitchener ON ***Well ID:*** 7139457	0.0	73
	136 OTTAWA ST. S. Kitchener ON ***Well ID:*** 7129311	0.0	77
	ON ***Well ID:*** 7365650	0.0	78

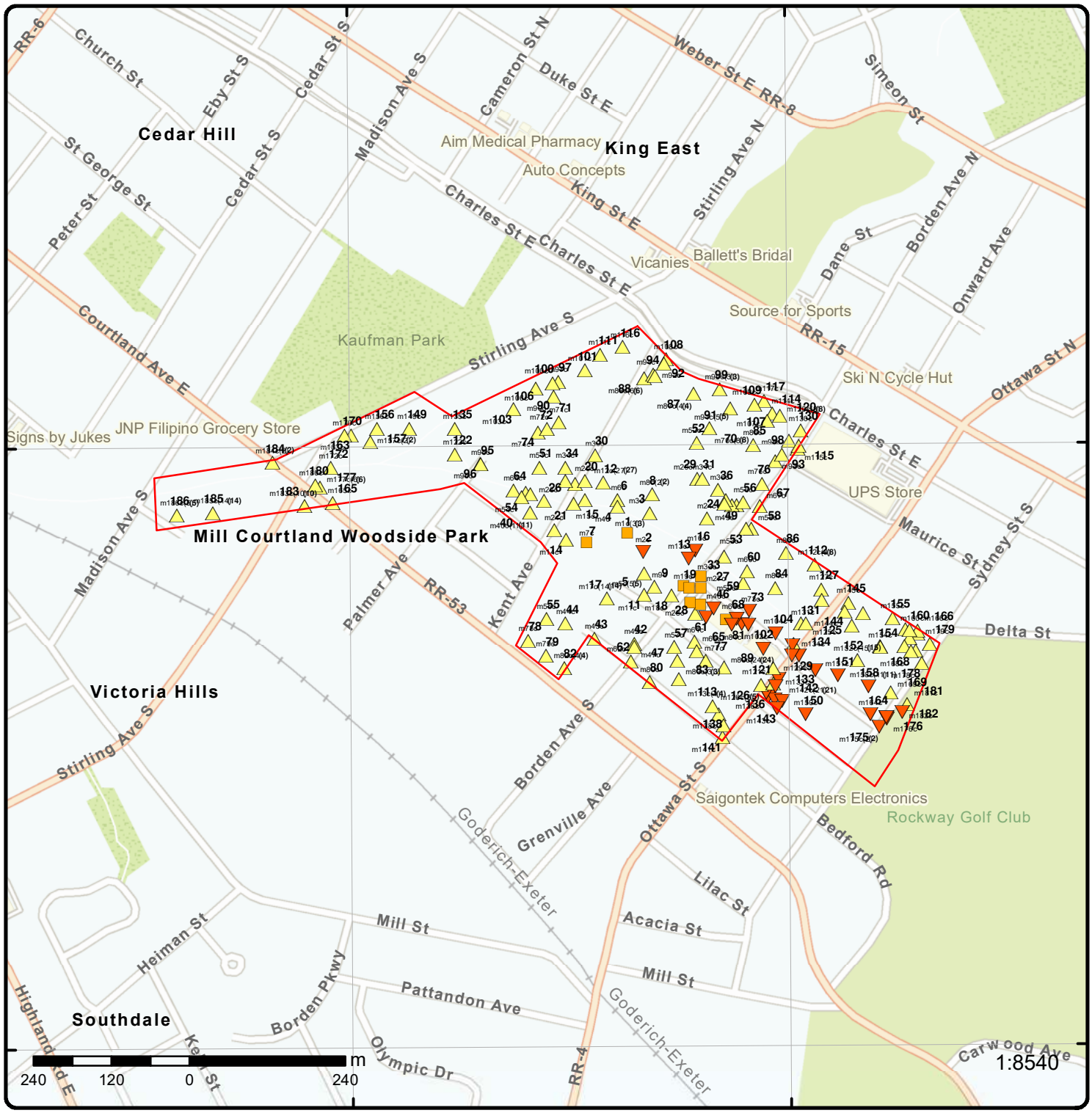
Site	Address	Distance (m)	Map Key
	BEDFORD RD Kitchener ON ***Well ID:*** 7353930	0.0	80
	405 409 NYBERG ST Kitchener ON ***Well ID:*** 7360776	0.0	81
	BORDEN AVE, S KITCHENER ON ***Well ID:*** 7197917	0.0	84
	50 BORDEN ST S Kitchener ON ***Well ID:*** 7342794	0.0	85
	BORDEN AVE. S. KITCHENER ON ***Well ID:*** 7197918	0.0	86
	136 OTTAWA ST S Kitchener ON ***Well ID:*** 7139458	0.0	89
	50 BORDEN ST S Kitchener ON ***Well ID:*** 7342795	0.0	93
	PALMER AVENUE Kitchener ON ***Well ID:*** 7246640	0.0	95
	PALMER AVE. BETWEEN HOURT AVE. & DEAD END KITCHENER ON ***Well ID:*** 7153318	0.0	96
	ON ***Well ID:*** 7180441	0.0	97
	50 BORDAN AVE Kitchener ON ***Well ID:*** 7314919	0.0	98
	NYBERG ST + OTTAWA ST con -00 Kitchener ON	0.0	104

Site	Address	Distance (m)	Map Key
	Well ID: 7353927		
	ON ***Well ID:*** 7180442	0.0	106
	50 BORDEN ST S Kitchener ON ***Well ID:*** 7342797	0.0	107
	CHARLES ST AND KENT ST Kitchener ON ***Well ID:*** 7231759	0.0	108
	50 BORDEN AVE Kitchener ON ***Well ID:*** 7314921	0.0	110
	50 KENT ST Waterloo ON ***Well ID:*** 7143071	0.0	111
	50 BORDEN ST S Kitchener ON ***Well ID:*** 7342796	0.0	114
	BORDEN AVE Kitchener ON ***Well ID:*** 7229716	0.0	115
	ON ***Well ID:*** 7203015	0.0	116
	50 BORDEN AUES KITCHENR ON ***Well ID:*** 6509545	0.0	117
	OTTAWA ST. KITCHENER ON ***Well ID:*** 7197912	0.0	118
	BORDEN AVE. S\CHARLES ST. E. KITCHENER ON ***Well ID:*** 7209436	0.0	119

Site	Address	Distance (m)	Map Key
	136 OTTAWA ST. S Kitchener ON ***Well ID:*** 7125515	0.0	121
	ON ***Well ID:*** 7231760	0.0	123
	OTTAWA ST. & NYBERG STREET KITCHENER ON ***Well ID:*** 7206271	0.0	124
	60 OTTAWA ST. S KITCHENER ON ***Well ID:*** 7197933	0.0	127
	50 BORDEN AVE Kitchener ON ***Well ID:*** 7314920	0.0	130
	OTTAWA ST. KITCHENER ON ***Well ID:*** 7197913	0.0	131
	135 OTTAWA ST S Kitchener ON ***Well ID:*** 7179934	0.0	132
	OTTAWA ST S AND DUNDAS AVE Kitchener ON ***Well ID:*** 7231764	0.0	136
	135 OTTAWA ST SOUTH Kitchener ON ***Well ID:*** 7179935	0.0	137
	DUNDAS ST. 7 OTTAWA ST. S KITCHENER ON ***Well ID:*** 7206267	0.0	139
	135 OTTAWA ST. S lot 1 Kitchener ON ***Well ID:*** 7227691	0.0	140
	135 OTTAWA ST S Kitchener ON	0.0	143

Site	Address	Distance (m)	Map Key
	Well ID: 7179911		
	108 SYDNEY ST. SIOUTH Kitchener ON ***Well ID:*** 7197469	0.0	144
	108 SUDNEY ST. SOUTH Kitchener ON ***Well ID:*** 7197470	0.0	145
	NYBERG ST + OTTAWA ST con -00 Kitchener ON ***Well ID:*** 7353926	0.0	146
	108 SYDNEY ST S Kitchener ON ***Well ID:*** 7215998	0.0	153
	108 SYDNEY ST Kitchener ON ***Well ID:*** 7216000	0.0	154
	108 SYDNEY ST S Kitchener ON ***Well ID:*** 7215997	0.0	155
	108 SYDNEY ST S KITCHENER ON ***Well ID:*** 7237604	0.0	159
	108 SYDNEY ST S ON ***Well ID:*** 7237601	0.0	161
	260 COURTLAND AVE KITCHENER ON ***Well ID:*** 7186637	0.0	165
	108 SYDNEY STREET SOUTH Kitchener ON ***Well ID:*** 7250410	0.0	166
	108 SYDNEY STREET SOUTH Kitchener ON ***Well ID:*** 7250409	0.0	167

Site	Address	Distance (m)	Map Key
	108 SYDNEY ST S KITCHENER ON ***Well ID:*** 7237602	0.0	168
	ON ***Well ID:*** 7103545	0.0	169
	108 SYDNEY ST S Kitchener ON ***Well ID:*** 7215999	0.0	171
	LION HORSE TRAIL Kitchener ON ***Well ID:*** 7353963	0.0	172
	- Sydney Street South Area lot 1 Kitchener ON ***Well ID:*** 7387644	0.0	178
	108 SYDNEY ST S ON ***Well ID:*** 7237603	0.0	179
	260 COURTLAND AVE KITCHENER ON ***Well ID:*** 7186636	0.0	180
	128 SYDNY ST Kitchener ON ***Well ID:*** 7299211	0.0	181
	ON ***Well ID:*** 6507420	0.0	182



Map:

Order Number: 23032700420

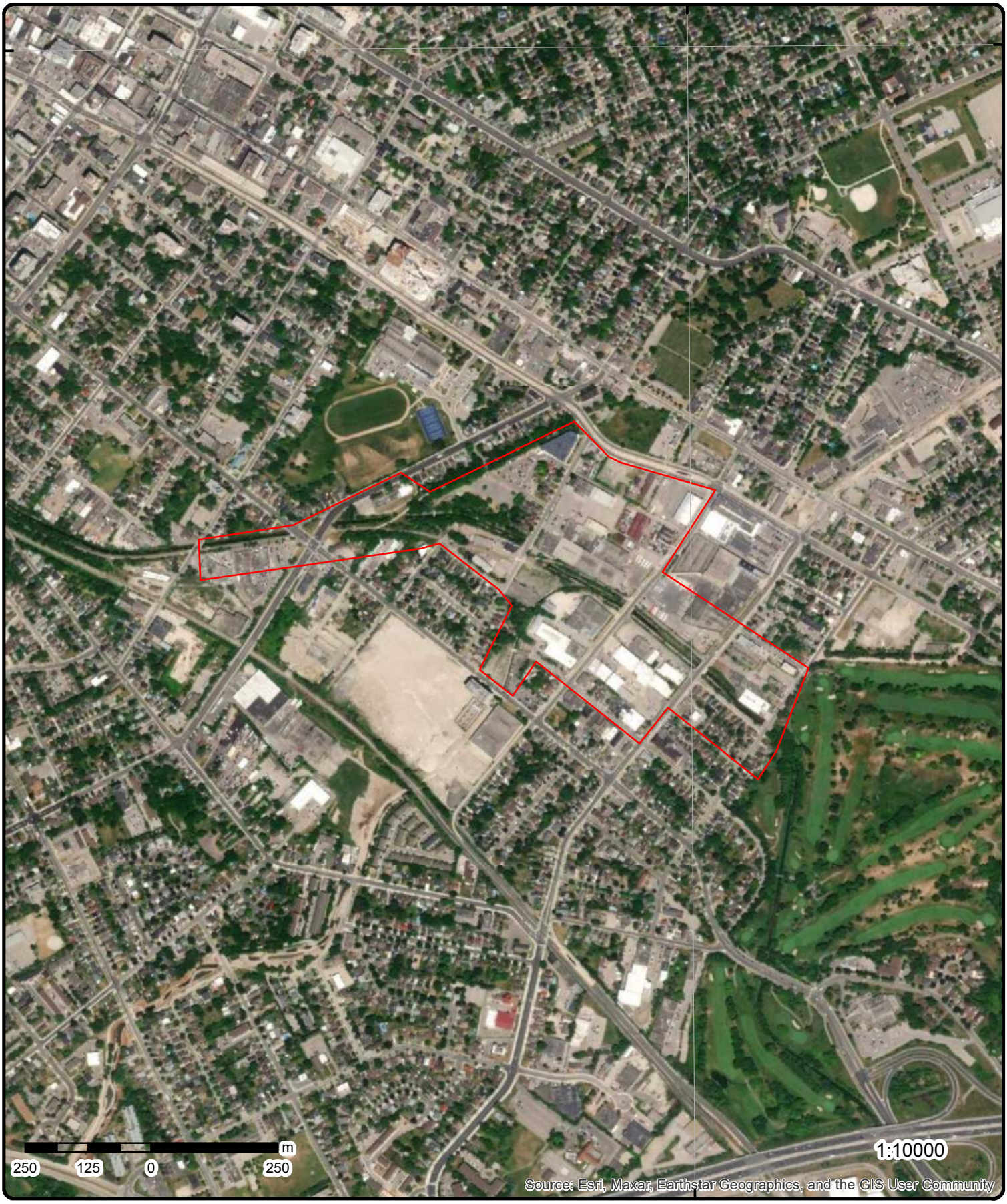
Address: Schneider Creek, Kitchener, Kitchener, ON

ERIS

- Project Property
- Buffer Outline
- Eris Sites with Higher Elevation
- Eris Sites with Same Elevation
- Eris Sites with Lower Elevation
- Eris Sites with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major Arterial; Minor Arterial
- Local Road
- Service Road; Traffic Circle; Ramp
- Rail
- Beach
- Airport
- Industrial Area
- Military Base
- Aircraft Roads
- Native Reservation
- Hospital
- Shopping & Sports Area
- University/College
- Cemetery; Golf Course
- Parkt (National)
- Park (City/County)

80°28'30"W

43°27'N



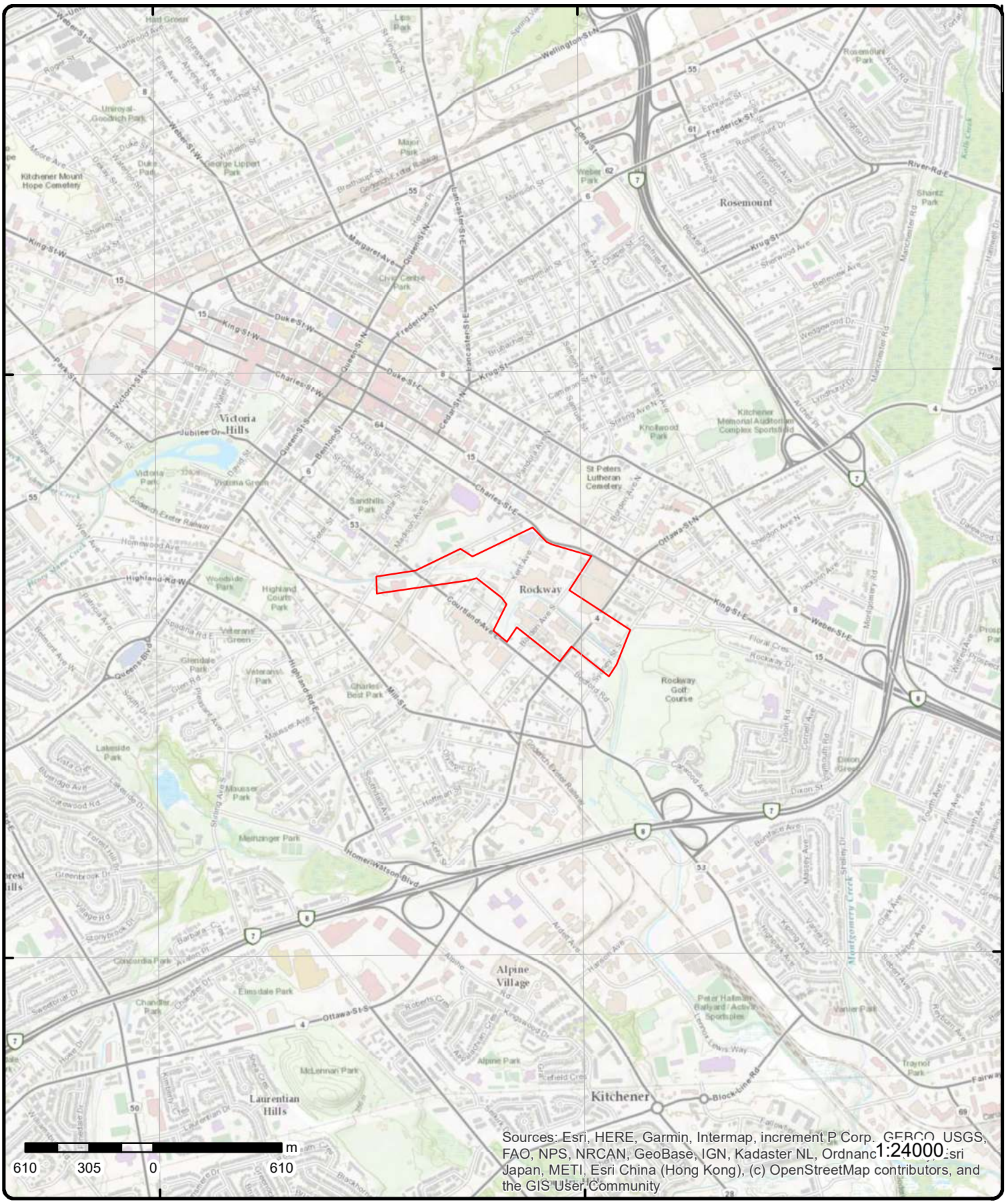
Aerial

Year: 2022

Order Number: 23032700420

Address: Schneider Creek, Kitchener, Kitchener, ON

Source: ESRI World Imagery



Topographic Map

Order Number: 23032700420

Address: Schneider Creek, Kitchener, ON

Source: ESRI World Topographic Map

Detail Report

Map Key	Number of Records	Elevation (m)	Site	DB
1	1 of 3	315.9	Schneider Creek Kitchener ON	EHS

Order No:	20191114131	**Nearest Intersection:**	
Status:	C	**Municipality:**	
Report Type:	Custom Report	**Client Prov/State:**	ON
Report Date:	28-NOV-19	**Search Radius (km):**	0
Date Received:	14-NOV-19	**X:**	-80.478071
Previous Site Name:		**Y:**	43.440444
Lot/Building Size:			
Additional Info Ordered:			

Map Key	Number of Records	Elevation (m)	Site	DB
1	2 of 3	315.9	Schneider Creek Kitchener ON	EHS

Order No:	20191114131	**Nearest Intersection:**	
Status:	C	**Municipality:**	
Report Type:	Custom Report	**Client Prov/State:**	ON
Report Date:	28-NOV-19	**Search Radius (km):**	0
Date Received:	14-NOV-19	**X:**	-80.478071
Previous Site Name:		**Y:**	43.440444
Lot/Building Size:			
Additional Info Ordered:			

Map Key	Number of Records	Elevation (m)	Site	DB
1	3 of 3	315.9	Schneider Creek Kitchener ON	EHS

Order No:	20191114131	**Nearest Intersection:**	
Status:	C	**Municipality:**	
Report Type:	Custom Report	**Client Prov/State:**	ON
Report Date:	28-NOV-19	**Search Radius (km):**	0
Date Received:	14-NOV-19	**X:**	-80.478071
Previous Site Name:		**Y:**	43.440444
Lot/Building Size:			
Additional Info Ordered:			

Map Key	Number of Records	Elevation (m)	Site	DB
2	1 of 1	315.8	ON	BORE

Borehole ID:	683281	**Inclin FLG:**	No
OGF ID:	215560277	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:	Geotechnical/Geological Investigation	**Primary Name:**	
Completion Date:	JAN-1972	**Municipality:**	
Static Water Level:	2.0	**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	43.440186
Total Depth m:	5	**Longitude DD:**	-80.47777
Depth Ref:	Ground Surface	**UTM Zone:**	17

Depth Elev:		**Easting:**	542261
Drill Method:	Power auger	**Northing:**	4809831
Orig Ground Elev m:	317	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	318		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218560667	**Mat Consistency:**	Loose
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	1.8	**Material Texture:**	
Material Color:	Dark	**Non Geo Mat Type:**	
Material 1:	Fill	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	fill
Gsc Material Description:			

Stratum Description: BROWN SAND, DARK BROWN SILT SOME SAND AND GRAVEL WOODBITS SATURATED, LOOSE **Note: Many records provided by the department have a truncated [Stratum Description] field.

Geology Stratum ID:	218560668	**Mat Consistency:**	Compact
Top Depth:	1.8	**Material Moisture:**	
Bottom Depth:	2.7	**Material Texture:**	
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:	Gravel	**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			

Stratum Description: GREY, SATURATED, COMPACT **Note: Many records provided by the department have a truncated [Stratum Description] field.

Geology Stratum ID:	218560669	**Mat Consistency:**	Compact
Top Depth:	2.7	**Material Moisture:**	
Bottom Depth:	5	**Material Texture:**	
Material Color:	Brown	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:	Sand	**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			

Stratum Description: BROWN, SATURATED, LOOSE TO COMPACT **Note: Many records provided by the department have a truncated [Stratum Description] field.

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	4
Source Date:	1900 - 1977	**Scale or Res:**	Varies
Confidence:	H	**Horizontal:**	NAD27
Observatio:	1972/1	**Verticalda:**	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Details:	12869		
Confiden 1:			

Source List

Source Identifier:	4	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level

Source Date:	1900 - 1977	**Projection Name:**	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Originators:	Geological Survey of Canada		

3 **1 of 1** **316.9** **ON** **BORE**

Borehole ID:	682445	**Inclin FLG:**	No
OGF ID:	215559441	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:	Geotechnical/Geological Investigation	**Primary Name:**	
Completion Date:	APR-1973	**Municipality:**	
Static Water Level:	0.0	**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	43.440725
Total Depth m:	6.2	**Longitude DD:**	-80.477642
Depth Ref:	Ground Surface	**UTM Zone:**	17
Depth Elev:		**Easting:**	542271
Drill Method:	Power auger	**Northing:**	4809891
Orig Ground Elev m:	318	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	318		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218557635	**Mat Consistency:**	
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	.6	**Material Texture:**	
Material Color:		**Non Geo Mat Type:**	
Material 1:	Fill	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	fill
Gsc Material Description:			
Stratum Description:	SAND, GRAVEL, SOME ORGANICS **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218557637	**Mat Consistency:**	Compact
Top Depth:	1.2	**Material Moisture:**	
Bottom Depth:	1.7	**Material Texture:**	
Material Color:	Brown	**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	WITH GRAVEL, BROWN, COMPACT **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218557638	**Mat Consistency:**	Dense
Top Depth:	1.7	**Material Moisture:**	
Bottom Depth:	3	**Material Texture:**	Medium
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			

Stratum Description: GREY, MEDIUM, DENSE **Note: Many records provided by the department have a truncated [Stratum Description] field.

Geology Stratum ID: 218557636
Top Depth: .6
Bottom Depth: 1.2
Material Color: Yellow
Material 1: Silt
Material 2:
Material 3:
Material 4:
Gsc Material Description:
Mat Consistency:
Material Moisture:
Material Texture:
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen:
Stratum Description: SOME SAND, YELLOW BROWN, COM-PACT **Note: Many records provided by the department have a truncated [Stratum Description] field.

Geology Stratum ID: 218557639
Top Depth: 3
Bottom Depth: 6.2
Material Color: Grey
Material 1: Silt
Material 2:
Material 3:
Material 4:
Gsc Material Description:
Mat Consistency: Dense
Material Moisture:
Material Texture:
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen:
Stratum Description: LAYERS OF CLAYEY SILT, GREY, DENSE **Note: Many records provided by the department have a truncated [Stratum Description] field.

Source

Source Type: Data Survey
Source Orig: Geological Survey of Canada
Source Date: 1900 - 1977
Confidence: H
Observatio: 1973/4
Source Name: Waterloo Area Geology Automated Information System (WAGAIS)
Source Details: 11933
Confiden 1:
Source Appl: Spatial/Tabular
Source Iden: 4
Scale or Res: Varies
Horizontal: NAD27
Verticalda: Mean Average Sea Level

Source List

Source Identifier: 4
Source Type: Data Survey
Source Date: 1900 - 1977
Scale or Resolution: Varies
Source Name: Waterloo Area Geology Automated Information System (WAGAIS)
Source Originators: Geological Survey of Canada
Horizontal Datum: NAD27
Vertical Datum: Mean Average Sea Level
Projection Name: Universal Traverse Mercator

---

4 **1 of 1** **316.7** **ON** **BORE**

Borehole ID: 682444
OGF ID: 215559440
Status:
Type: Borehole
Use: Geotechnical/Geological Investigation
Completion Date: APR-1972
Static Water Level: 0.5
Primary Water Use:
Sec. Water Use:
Total Depth m: 6.4
Depth Ref: Ground Surface
Depth Elev:
Drill Method: Power auger
Inclin FLG: No
SP Status: Initial Entry
Surv Elev: No
Piezometer: No
Primary Name:
Municipality:
Lot:
Township:
Latitude DD: 43.440818
Longitude DD: -80.478259
UTM Zone: 17
Easting: 542221
Northing: 4809901

Orig Ground Elev m:	318	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	318		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218557634	**Mat Consistency:**	Compact
Top Depth:	1.5	**Material Moisture:**	
Bottom Depth:	6.4	**Material Texture:**	
Material Color:	Grey-Brown	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	LAYERS OF CLAYEY SILT, GREY BROWN, COMPACT TO VERY DENSE **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218557632	**Mat Consistency:**	
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	.6	**Material Texture:**	
Material Color:		**Non Geo Mat Type:**	
Material 1:	Fill	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	fill
Gsc Material Description:			
Stratum Description:	SAND&GRAVEL **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218557633	**Mat Consistency:**	Loose
Top Depth:	.6	**Material Moisture:**	
Bottom Depth:	1.5	**Material Texture:**	
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	organic
Gsc Material Description:			
Stratum Description:	DK GREY, ORGANIC, LOOSE **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	4
Source Date:	1900 - 1977	**Scale or Res:**	Varies
Confidence:	H	**Horizontal:**	NAD27
Observatio:	1972/4	**Verticalda:**	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Details:	11932		
Confiden 1:			

Source List

Source Identifier:	4	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1900 - 1977	**Projection Name:**	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		

Source Originators: Geological Survey of Canada

---

5 | ***1 of 5*** | ***316.3*** | ***150 Borden Avenue South*** ***Kitchener ON N2G 3R5*** | ***EHS***

Order No:	20110429019	***Nearest Intersection:***	
Status:	C	***Municipality:***	
Report Type:	Standard Report	***Client Prov/State:***	ON
Report Date:	5/4/2011	***Search Radius (km):***	0.25
Date Received:	4/29/2011 11:56:39 AM	***X:***	-80.476922
Previous Site Name:		***Y:***	43.439779
Lot/Building Size:			
Additional Info Ordered:			

---

5 | ***2 of 5*** | ***316.3*** | ***Borden Cold Storage*** ***150 Borden Ave S*** ***Kitchener ON N2G 3R5*** | ***GEN***

Generator No:	ON8124232
SIC Code:	493110, 493120
SIC Description:	
Approval Years:	2011
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

---

5 | ***3 of 5*** | ***316.3*** | ***Borden Cold Storage*** ***150 Borden Ave S*** ***Kitchener ON N2G 3R5*** | ***SPL***

Ref No:	4142-9MVPA6	***Contaminant Qty:***	272 kg
Site No:	8598-9P9NKE	***Nature of Damage:***	
Incident Dt:	2014/08/11	***Discharger Report:***	
Year:		***Material Group:***	
Incident Cause:	Leak/Break	***Health/Env Conseq:***	
Incident Event:		***Agency Involved:***	
Environment Impact:	Possible	***Site Lot:***	
Nature of Impact:	Air Pollution	***Site Conc:***	
MOE Response:	No Field Response	***Site Geo Ref Accu:***	NA
Dt MOE Arvl on Scn:		***Site Map Datum:***	NA
MOE Reported Dt:	2014/08/11	***Northing:***	NA
Dt Document Closed:	2014/12/11	***Easting:***	NA
Municipality No:			
System Facility Address:			
Client Type:			
Call Report Location Geodata:			
Contaminant Code:	38		
Contaminant Name:	REFRIGERANT GAS, N.O.S.		
Contaminant Limit 1:			
Contam Limit Freq 1:			
Contaminant UN No 1:			
Receiving Medium:			
Receiving Environment:			
Incident Reason:	Material Failure - Poor Design/Substandard Material		
Incident Summary:	JMK Borden Inc., 272kg, R22 to atm		
Site Region:			
Site Municipality:	Kitchener		

Activity Preceding Spill:	
Property 2nd Watershed:	
Property Tertiary Watershed:	
Sector Type:	Valve/Fitting/Piping
SAC Action Class:	Air Spills - Gases and Vapours
Source Type:	
Site County/District:	
Site Geo Ref Meth:	NA
Site District Office:	
Nearest Watercourse:	
Site Name:	150 Borden Avenue South
Site Address:	150 Borden Ave S
Client Name:	Borden Cold Storage

---

5 | ***4 of 5*** | ***316.3*** | ***Heidelberg Foods Cold Storage***
150 Borden Ave. S.
Kitchener ON N2G 3R7 | ***GEN***

Generator No:	ON7706148
SIC Code:	418990
SIC Description:	ALL OTHER WHOLESALER-DISTRIBUTORS
Approval Years:	2016
PO Box No:	
Country:	Canada
Status:	
Co Admin:	
Choice of Contact:	CO_OFFICIAL
Phone No Admin:	
Contaminated Facility:	No
MHSW Facility:	No

Detail(s)

Waste Class:	113
Waste Class Name:	ACID WASTE - OTHER METALS

---

5 | ***5 of 5*** | ***316.3*** | ***Borden Cold Storage Heidelberg Foods Ltd.***
150 Borden Ave South
Kitchener ON N2G3R5 | ***GEN***

Generator No:	ON3340169
SIC Code:	
SIC Description:	
Approval Years:	As of Oct 2022
PO Box No:	
Country:	Canada
Status:	Registered
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	212 L
Waste Class Name:	ALIPHATIC SOLVENTS

---

6 | ***1 of 1*** | ***316.7*** | ***ON*** | ***BORE***

Borehole ID:	683283	**Inclin FLG:**	No
OGF ID:	215560279	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:	Geotechnical/Geological Investigation	**Primary Name:**	
Completion Date:	JAN-1972	**Municipality:**	
Static Water Level:	2.2	**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	43.440908
Total Depth m:	5	**Longitude DD:**	-80.478258
Depth Ref:	Ground Surface	**UTM Zone:**	17
Depth Elev:		**Easting:**	542221
Drill Method:	Power auger	**Northing:**	4809911
Orig Ground Elev m:	317	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	318		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218560676	**Mat Consistency:**	Compact
Top Depth:	2.3	**Material Moisture:**	
Bottom Depth:	2.7	**Material Texture:**	
Material Color:		**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:	Gravel	**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	SATURATED, COMPACT **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218560677	**Mat Consistency:**	Loose
Top Depth:	2.7	**Material Moisture:**	
Bottom Depth:	5	**Material Texture:**	
Material Color:		**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	GREY, WITH SOME SATURATED SAND SEAMS, SATURATED, LOOSE **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218560675	**Mat Consistency:**	Loose
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	2.3	**Material Texture:**	
Material Color:		**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	organic
Gsc Material Description:			
Stratum Description:	DARK BROWN, SANDY, SOME ORGANIC SILT LAYERS, TRACE OF PEAT, SATURATED, LOOSE **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	4

Source Date:	1900 - 1977	**Scale or Res:**	Varies
Confidence:	H	**Horizontal:**	NAD27
Observatio:	1972/1	**Verticalda:**	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Details:	12871		
Confiden 1:			

Source List

Source Identifier:	4	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1900 - 1977	**Projection Name:**	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Originators:	Geological Survey of Canada		

---

7 **1 of 1** **315.9** ***321 COURTLAND AVENUE EAST Kitchener ON*** **WWIS**

Well ID:	7269229	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring and Test Hole	**Data Entry Status:**	
Use 2nd:	0	**Data Src:**	
Final Well Status:	Monitoring and Test Hole	**Date Received:**	17-Aug-2016 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z235158	**Contractor:**	7241
Tag:	A206089	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:	WKQ-009168 A0-A05		

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2016/07/08
Year Completed:	2016
Depth (m):	4.572
Latitude:	43.4403167720489
Longitude:	-80.4788442135127
Path:	

Bore Hole Information

Bore Hole ID:	1006217139	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542174.00
Code OB Desc:		**North83:**	4809845.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	08-Jul-2016 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr

Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 1006232238
Layer: 2
Color: 2
General Color: GREY
Mat1: 06
Most Common Material: SILT
Mat2: 28
Mat2 Desc: SAND
Mat3:
Mat3 Desc:
Formation Top Depth: 7.0
Formation End Depth: 15.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1006232237
Layer: 1
Color: 6
General Color: BROWN
Mat1: 05
Most Common Material: CLAY
Mat2: 06
Mat2 Desc: SILT
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 7.0
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1006232246
Layer: 1
Plug From: 0.0
Plug To: 1.0
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1006232247
Layer: 2
Plug From: 1.0
Plug To: 4.0
Plug Depth UOM: ft

Annular Space/Abandonment

Sealing Record

Plug ID:	1006232248
Layer:	3
Plug From:	4.0
Plug To:	15.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1006232245
Method Construction Code:	2
Method Construction:	Rotary (Convent.)
Other Method Construction:	DIRECT PUSH

Pipe Information

Pipe ID:	1006232236
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1006232241
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	5.0
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1006232242
Layer:	1
Slot:	10
Screen Top Depth:	5.0
Screen End Depth:	15.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.25

Water Details

Water ID:	1006232240
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1006232239
Diameter:	8.0

Depth From:	0.0
Depth To:	15.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1006217139	**Tag No:**	A206089
Depth M:	4.572	**Contractor:**	7241
Year Completed:	2016	**Path:**	726\7269229.pdf
Well Completed Dt:	2016/07/08	**Latitude:**	43.4403167720489
Audit No:	Z235158	**Longitude:**	-80.4788442135127

---

8 | ***1 of 2*** | ***317.5*** | ***85 Kent Ave Kitchener ON*** | ***SPL***

Ref No:	0670-9PWLZT	**Contaminant Qty:**	0 other - see incident description
Site No:	NA	**Nature of Damage:**	
Incident Dt:	2014/10/15	**Discharger Report:**	
Year:		**Material Group:**	
Incident Cause:	Leak/Break	**Health/Env Conseq:**	
Incident Event:		**Agency Involved:**	
Environment Impact:	Not Anticipated	**Site Lot:**	
Nature of Impact:	Air Pollution	**Site Conc:**	
MOE Response:	Referral to others	**Site Geo Ref Accu:**	
Dt MOE Arvl on Scn:		**Site Map Datum:**	
MOE Reported Dt:	2014/10/15	**Northing:**	
Dt Document Closed:	2014/12/20	**Easting:**	

Municipality No:	
System Facility Address:	
Client Type:	
Call Report Location Geodata:	
Contaminant Code:	35
Contaminant Name:	NATURAL GAS (METHANE)
Contaminant Limit 1:	
Contam Limit Freq 1:	
Contaminant UN No 1:	
Receiving Medium:	
Receiving Environment:	
Incident Reason:	Unknown / N/A
Incident Summary:	TSSA, 2 inch service, strike, safe
Site Region:	
Site Municipality:	Kitchener
Activity Preceding Spill:	
Property 2nd Watershed:	
Property Tertiary Watershed:	
Sector Type:	Pipeline/Components
SAC Action Class:	Air Spills - Gases and Vapours
Source Type:	
Site County/District:	
Site Geo Ref Meth:	
Site District Office:	
Nearest Watercourse:	
Site Name:	Industrial<UNOFFICIAL>
Site Address:	85 Kent Ave
Client Name:	

---

8 | ***2 of 2*** | ***317.5*** | ***PIPELINE HIT - 2" 85 KENT AVE,,KITCHENER,ON,N2G 3R2,CA ON*** | ***PINC***

Incident Id:		**Pipe Material:**	

Map Key	Number of Records	Elevation (m)	Site	DB

Incident No:	1499216	**Fuel Category:**	
Incident Reported Dt:	10/15/2014	**Health Impact:**	
Type:	FS-Pipeline Incident	**Environment Impact:**	
Status Code:		**Property Damage:**	
Tank Status:	Not Investigated	**Service Interrupt:**	
Task No:		**Enforce Policy:**	
Spills Action Centre:		**Public Relation:**	
Fuel Type:		**Pipeline System:**	
Fuel Occurrence Tp:		**PSIG:**	
Date of Occurrence:		**Attribute Category:**	
Occurrence Start Dt:		**Regulator Location:**	
Depth:		**Method Details:**	

Customer Acct Name: PIPELINE HIT - 2"
Incident Address: 85 KENT AVE,,KITCHENER,ON,N2G 3R2,CA
Operation Type:
Pipeline Type:
Regulator Type:
Summary:
Reported By:
Affiliation:
Occurrence Desc:
Damage Reason:
Notes:

---

9 | 1 of 1 | 316.9 | **Kitchener Pallet Services**
160 Borden Ave S
Kitchener ON N2G 3R5 | **SCT**

Established:
Plant Size (ft²):
Employment: 10

--Details--
Description: Wood Container and Pallet Manufacturing
SIC/NAICS Code: 321920

---

10 | 1 of 1 | 316.8 | **ON** | **BORE**

Borehole ID:	680068	**Inclin FLG:**	No
OGF ID:	215557064	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:	Geotechnical/Geological Investigation	**Primary Name:**	
Completion Date:	MAY-1965	**Municipality:**	
Static Water Level:	1.8	**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	43.440911
Total Depth m:	9.8	**Longitude DD:**	-80.478876
Depth Ref:	Ground Surface	**UTM Zone:**	17
Depth Elev:		**Easting:**	542171
Drill Method:	Boring	**Northing:**	4809911
Orig Ground Elev m:	318	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	318		

Concession:
Location D:
Survey D:
Comments:

Borehole Geology Stratum

Geology Stratum ID:	218549157	***Mat Consistency:***	Loose
Top Depth:	0	***Material Moisture:***	
Bottom Depth:	1.8	***Material Texture:***	Medium
Material Color:	Brown	***Non Geo Mat Type:***	
Material 1:	Sand	***Geologic Formation:***	
Material 2:		***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			
Stratum Description:	BROWN, LOOSE.		

Geology Stratum ID:	218549158	***Mat Consistency:***	Compact
Top Depth:	1.8	***Material Moisture:***	
Bottom Depth:	3.7	***Material Texture:***	
Material Color:	Brown	***Non Geo Mat Type:***	
Material 1:	Silt	***Geologic Formation:***	
Material 2:	Clay	***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			
Stratum Description:	LIGHT, BROWN, COMPACT.		

Geology Stratum ID:	218549159	***Mat Consistency:***	Compact
Top Depth:	3.7	***Material Moisture:***	
Bottom Depth:	4.6	***Material Texture:***	Medium
Material Color:	Grey	***Non Geo Mat Type:***	
Material 1:	Silt	***Geologic Formation:***	
Material 2:		***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			
Stratum Description:	GREY, COMPACT.		

Geology Stratum ID:	218549160	***Mat Consistency:***	Compact
Top Depth:	4.6	***Material Moisture:***	
Bottom Depth:	7.9	***Material Texture:***	Medium
Material Color:	Brown	***Non Geo Mat Type:***	
Material 1:	Silt	***Geologic Formation:***	
Material 2:	Sand	***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			
Stratum Description:	BROWN, COMPACT.		

Geology Stratum ID:	218549161	***Mat Consistency:***	Dense
Top Depth:	7.9	***Material Moisture:***	
Bottom Depth:	9.8	***Material Texture:***	Coarse
Material Color:	Grey	***Non Geo Mat Type:***	
Material 1:	Sand	***Geologic Formation:***	
Material 2:	Silt	***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			
Stratum Description:	GREY, DENSE.		

Source

Source Type:	Data Survey	***Source Appl:***	Spatial/Tabular
Source Orig:	Geological Survey of Canada	***Source Iden:***	4
Source Date:	1900 - 1977	***Scale or Res:***	Varies
Confidence:	H	***Horizontal:***	NAD27
Observatio:	1965/5	***Verticalda:***	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		

Source Details: 77
Confiden 1:

Source List

Source Identifier: 4
Source Type: Data Survey
Source Date: 1900 - 1977
Scale or Resolution: Varies
Source Name: Waterloo Area Geology Automated Information System (WAGAIS)
Source Originators: Geological Survey of Canada
Horizontal Datum: NAD27
Vertical Datum: Mean Average Sea Level
Projection Name: Universal Traverse Mercator

---

11 **1 of 1** **316.9** **ON** **WWIS**

Well ID: 7168748
Construction Date:
Use 1st:
Use 2nd:
Final Well Status:
Water Type:
Casing Material:
Audit No: M08182
Tag: A106995
Constructn Method:
Elevation (m):
Elevatn Reliabilty:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Clear/Cloudy:
Municipality: KITCHENER CITY (WATERLOO TWP)
Site Info:
Flowing (Y/N):
Flow Rate:
Data Entry Status: Yes
Data Src:
Date Received: 14-Sep-2011 00:00:00
Selected Flag: TRUE
Abandonment Rec:
Contractor: 7147
Form Version: 5
Owner:
County: WATERLOO
Lot:
Concession:
Concession Name:
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/716\7168748.pdf

Additional Detail(s) (Map)

Well Completed Date: 2011/08/29
Year Completed: 2011
Depth (m):
Latitude: 43.4395914894478
Longitude: -80.4777630131396
Path: 716\7168748.pdf

Bore Hole Information

Bore Hole ID: 1003567772
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 29-Aug-2011 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Elevation:
Elevrc:
Zone: 17
East83: 542262.00
North83: 4809765.00
Org CS: UTM83
UTMRC: 3
UTMRC Desc: margin of error : 10 - 30 m
Location Method: wwr

Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Links

Bore Hole ID:	1003567772	***Tag No:***	A106995
Depth M:		***Contractor:***	7147
Year Completed:	2011	***Path:***	716\7168748.pdf
Well Completed Dt:	2011/08/29	***Latitude:***	43.4395914894478
Audit No:	M08182	***Longitude:***	-80.4777630131396

---

12 | *1 of 27* | *317.9* | ***MTD PRODUCTS LTD.***
97 KENT AVE.
KITCHENER CITY ON N2G 3R2 | ***CA***

Certificate #:	8-2197-89-
Application Year:	89
Issue Date:	1/23/1990
Approval Type:	Industrial air
Status:	Approved in 1990
Application Type:	
Client Name:	
Client Address:	
Client City:	
Client Postal Code:	
Project Description:	INSTALL. OF A MASKING BOOTH/PAINT BOOTH
Contaminants:	N-Butanol(Butanol), Ethylene Glycol Butyl Ether (Butyl Cellosolve)
Emission Control:	

---

12 | *2 of 27* | *317.9* | ***MTD PRODUCTS LTD.***
97 KENT AVE.
KITCHENER CITY ON N2G 3R2 | ***CA***

Certificate #:	8-2198-89-
Application Year:	89
Issue Date:	1/23/1990
Approval Type:	Industrial air
Status:	Approved in 1990
Application Type:	
Client Name:	
Client Address:	
Client City:	
Client Postal Code:	
Project Description:	INSTALL. OF PAINT ARRESTOR FILTERS
Contaminants:	N-Butanol(Butanol), Diisobutyl Ketone, Isobutanol, Naphtha V&M, Benzotriazol Substituted(Toyota), Formaldehyde
Emission Control:	

---

12 | *3 of 27* | *317.9* | ***M.T.D. PRODUCTS LIMITED***
97 KENT AVE
KITCHENER ON N2G 4J1 | ***SCT***

Established:	1949
Plant Size (ft²):	0
Employment:	550

--Details--

Description:	HARDWARE, NOT ELSEWHERE CLASSIFIED
SIC/NAICS Code:	3429

Map Key	Number of Records	Elevation (m)	Site	DB

Description: AUTOMOTIVE STAMPINGS
SIC/NAICS Code: 3465

Description: LAWN AND GARDEN TRACTORS, AND HOME LAWN AND GARDEN EQUIPMENT
SIC/NAICS Code: 3524

---

12 | 4 of 27 | 317.9 | **MTD Products Ltd.**
97 Kent Ave
Kitchener ON N2G 3R2 | SCT

Established: 01-AUG-49
Plant Size (ft²):
Employment:

--Details--
Description: Agricultural Implement Manufacturing
SIC/NAICS Code: 333110

Description: Agricultural Implement Manufacturing
SIC/NAICS Code: 333110

---

12 | 5 of 27 | 317.9 | **MTD PARTS DISTRIBUTION**
97 Kent Ave
Kitchener ON N2G 3R2 | SCT

Established: 0000
Plant Size (ft²): 0
Employment: 215

--Details--
Description: Agricultural Implement Manufacturing
SIC/NAICS Code: 333110

---

12 | 6 of 27 | 317.9 | **M.T.D.PRODUCTS LTD.**
97 KENT AVE.
KITCHENER ON N2G 3R2 | CA

Certificate #: 8-2019-85-006
Application Year: 85
Issue Date: 3/21/85
Approval Type: Industrial air
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants: Nitrogen Oxides
Emission Control: No Controls

---

12 | 7 of 27 | 317.9 | **MTD PRODUCTS LTD.**
97 KENT AVE.
KITCHENER ON N2G 3R2 | CA

Certificate #:	8-2044-85-006
Application Year:	85
Issue Date:	6/19/85
Approval Type:	Industrial air
Status:	Approved
Application Type:	
Client Name:	
Client Address:	
Client City:	
Client Postal Code:	
Project Description:	
Contaminants:	Phosphoric Acid, Odour/Fumes
Emission Control:	Mist Eliminator

---

12 | ***8 of 27*** | ***317.9*** | ***MTD PRODUCTS LIMITED***
61-97 KENT AVENUE
KITCHENER ON N2G 3R2 | ***GEN***

Generator No:	ON0116900
SIC Code:	3049
SIC Description:	OTHER STAMPED METAL
Approval Years:	86,87,88,89,90,97,98,99,00,01
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	111
Waste Class Name:	SPENT PICKLE LIQUOR
Waste Class:	211
Waste Class Name:	AROMATIC SOLVENTS
Waste Class:	113
Waste Class Name:	ACID WASTE - OTHER METALS
Waste Class:	122
Waste Class Name:	ALKALINE WASTES - OTHER METALS
Waste Class:	145
Waste Class Name:	PAINT/PIGMENT/COATING RESIDUES
Waste Class:	221
Waste Class Name:	LIGHT FUELS
Waste Class:	253
Waste Class Name:	EMULSIFIED OILS
Waste Class:	213
Waste Class Name:	PETROLEUM DISTILLATES

---

12 | ***9 of 27*** | ***317.9*** | ***MTD PRODUCTS LIMITED 25-134***
61-97 KENT AVENUE
KITCHENER ON N2G 4J1 | ***GEN***

Generator No:	ON0116900

SIC Code:	3049
SIC Description:	OTHER STAMPED METAL
Approval Years:	92,93,94,95,96
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	111
Waste Class Name:	SPENT PICKLE LIQUOR
Waste Class:	113
Waste Class Name:	ACID WASTE - OTHER METALS
Waste Class:	122
Waste Class Name:	ALKALINE WASTES - OTHER METALS
Waste Class:	145
Waste Class Name:	PAINT/PIGMENT/COATING RESIDUES
Waste Class:	211
Waste Class Name:	AROMATIC SOLVENTS
Waste Class:	213
Waste Class Name:	PETROLEUM DISTILLATES
Waste Class:	253
Waste Class Name:	EMULSIFIED OILS

12	***10 of 27***	***317.9***	***MTD PRODUCTS LIMITED*** ***97 KENT AVENUE*** ***KITCHENER ON N2G 3R2***	***GEN***

Generator No:	ON0116900
SIC Code:	
SIC Description:	
Approval Years:	02,03,04,05,06,07,08
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	243
Waste Class Name:	PCB'S
Waste Class:	112
Waste Class Name:	ACID WASTE - HEAVY METALS
Waste Class:	251
Waste Class Name:	OIL SKIMMINGS & SLUDGES

Waste Class:	111
Waste Class Name:	SPENT PICKLE LIQUOR
Waste Class:	113
Waste Class Name:	ACID WASTE - OTHER METALS
Waste Class:	122
Waste Class Name:	ALKALINE WASTES - OTHER METALS
Waste Class:	145
Waste Class Name:	PAINT/PIGMENT/COATING RESIDUES
Waste Class:	211
Waste Class Name:	AROMATIC SOLVENTS
Waste Class:	213
Waste Class Name:	PETROLEUM DISTILLATES
Waste Class:	221
Waste Class Name:	LIGHT FUELS
Waste Class:	253
Waste Class Name:	EMULSIFIED OILS

12 | ***11 of 27*** | ***317.9*** | ***MTD PRODUCTS LIMITED***
97 KENT AVE NOT AVAILABLE
KITCHENER ON N2G3R2 | ***NPRI***

NPRI ID:	11313	***Org ID:***	58549
Other ID:	N	***Submit Date:***	6/1/2006
No Other ID:		***Last Modified:***	5/29/2015 3:28:24 PM
Track ID:	40111	***Contact ID:***	
Report ID:	98430	***Cont Type:***	
Report Type:	NPRI	***Contact Title:***	
Rpt Type ID:	1	***Cont First Name:***	
Report Year:	2005	***Cont Last Name:***	
Not-Current Rpt?:	No	***Contact Position:***	
Yr of Last Filed Rpt:	2005	***Contact Fax:***	
Fac ID:	157770	***Contact Ph.:***	
Fac Name:	97 KENT - PLANT 4	***Cont Area Code:***	
Fac Address1:	97 KENT AVE	***Contact Tel.:***	
Fac Address2:	NOT AVAILABLE	***Contact Ext.:***	
Fac Postal Zip:	N2G3R2	***Cont Fax Area Cde:***	
Facility Lat:	43.4417	***Contact Fax:***	
Facility Long:	-80.4782	***Contact Email:***	
DLS (Last Filed Rpt):		***Latitude:***	43.4417
Facility DLS:		***Longitude:***	-80.4782
Datum:	1983	***UTM Zone:***	
Facility Cmnts:	False	***UTM Northing:***	
URL:		***UTM Easting:***	
No of Empl.:	350	***Waste Streams:***	False
Parent Co.:	Y	***No Streams:***	
No Parent Co.:	1	***Waste Off Sites:***	False
Pollut Prev Cmnts:	False	***No Off Sites:***	
Stacks:	False	***Shutdown:***	
No of Stacks:		***No of Shutdown:***	
Canadian SIC Code (2 digit):			
Canadian SIC Code:			
SIC Code Description:			
American SIC Code:			
NAICS Code (2 digit):	33		
NAICS 2 Description:	Manufacturing		
NAICS Code (4 digit):	3331		
NAICS 4 Description:	Agricultural, construction and mining machinery manufacturing		
NAICS Code (6 digit):	333120		

NAICS 6 Description: Construction machinery manufacturing

Substance Release Report

Category Type ID: 1
Category Type Desc: Stack / Point
Category Type Desc (fr): Rejets de cheminée ou ponctuels
Grouping: Total Air
Trans Code: ASta
Chem: Hydrogen sulphide
Chem (fr): Sulfure d'hydrogène
Quantity: 8.641
Unit: tonnes
Basis of Estimate Cd: C
Basis of Estimate Desc: C- Mass Balance

12	12 of 27	317.9	**MTD PRODUCTS LTD** **97 KENT AV** **KITCHENER ON**	DTNK

Delisted Expired Fuel Safety Facilities

Instance No: 10270260
Status: EXPIRED
Instance ID: 15058
Instance Type: FS Facility
Instance Creation Dt:
Instance Install Dt:
Item Description:
Manufacturer:
Model:
Serial No:
ULC Standard:
Quantity:
Unit of Measure:
Overfill Prot Type:
Creation Date:
Next Periodic Str DT:
TSSA Base Sched Cycle 2:
TSSAMax Hazard Rank 1:
TSSA Risk Based Periodic Yn:
TSSA Volume of Directives:
TSSA Periodic Exempt:
TSSA Statutory Interval:
TSSA Recd Insp Interva:
TSSA Recd Tolerance:
TSSA Program Area:
TSSA Program Area 2:
Description: FS Propane Refill Cntr - Cylr Fill
Original Source: EXP
Record Date: Up to Mar 2012

Expired Date:
Max Hazard Rank:
Facility Location:
Facility Type:
Fuel Type 2:
Fuel Type 3:
Panam Related:
Panam Venue Nm:
External Identifier:
Item:
Piping Steel:
Piping Galvanized:
Tank Single Wall St:
Piping Underground:
Tank Underground:
Source:

12	13 of 27	317.9	**MTD PRODUCTS LTD** **97 KENT AV** **KITCHENER ON**	DTNK

Delisted Expired Fuel Safety Facilities

Instance No:	11589444	**Expired Date:**	
Status:	EXPIRED	**Max Hazard Rank:**	
Instance ID:	92265	**Facility Location:**	
Instance Type:	FS Propane Tank	**Facility Type:**	
Instance Creation Dt:		**Fuel Type 2:**	
Instance Install Dt:		**Fuel Type 3:**	
Item Description:		**Panam Related:**	
Manufacturer:		**Panam Venue Nm:**	
Model:		**External Identifier:**	
Serial No:		**Item:**	
ULC Standard:		**Piping Steel:**	
Quantity:		**Piping Galvanized:**	
Unit of Measure:		**Tank Single Wall St:**	
Overfill Prot Type:		**Piping Underground:**	
Creation Date:		**Tank Underground:**	
Next Periodic Str DT:		**Source:**	
TSSA Base Sched Cycle 2:			
TSSAMax Hazard Rank 1:			
TSSA Risk Based Periodic Yn:			
TSSA Volume of Directives:			
TSSA Periodic Exempt:			
TSSA Statutory Interval:			
TSSA Recd Insp Interva:			
TSSA Recd Tolerance:			
TSSA Program Area:			
TSSA Program Area 2:			
Description:	FS Propane Tank		
Original Source:	EXP		
Record Date:	Up to Mar 2012		

12	14 of 27	317.9	**MTD PRODUCTS LIMITED** **97 KENT AVENUE** **KITCHENER ON N2G 3R2**	GEN

Generator No:	ON0116900
SIC Code:	417110
SIC Description:	Farm Lawn and Garden Machinery and Equipment Wholesaler-Distributors
Approval Years:	2009
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	111
Waste Class Name:	SPENT PICKLE LIQUOR
Waste Class:	145
Waste Class Name:	PAINT/PIGMENT/COATING RESIDUES
Waste Class:	112
Waste Class Name:	ACID WASTE - HEAVY METALS
Waste Class:	113
Waste Class Name:	ACID WASTE - OTHER METALS
Waste Class:	122
Waste Class Name:	ALKALINE WASTES - OTHER METALS

Waste Class: 211
Waste Class Name: AROMATIC SOLVENTS

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

Waste Class: 221
Waste Class Name: LIGHT FUELS

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

Waste Class: 253
Waste Class Name: EMULSIFIED OILS

---

12 | 15 of 27 | 317.9 | **MTD PRODUCTS LIMITED**
97 KENT AVENUE
KITCHENER ON N2G 3R2 | GEN

Generator No: ON0116900
SIC Code: 417110
SIC Description: Farm Lawn and Garden Machinery and Equipment Wholesaler-Distributors
Approval Years: 2010
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 211
Waste Class Name: AROMATIC SOLVENTS

Waste Class: 122
Waste Class Name: ALKALINE WASTES - OTHER METALS

Waste Class: 113
Waste Class Name: ACID WASTE - OTHER METALS

Waste Class: 112
Waste Class Name: ACID WASTE - HEAVY METALS

Waste Class: 221
Waste Class Name: LIGHT FUELS

Waste Class: 111
Waste Class Name: SPENT PICKLE LIQUOR

Waste Class: 145
Waste Class Name: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

Waste Class: 253
Waste Class Name: EMULSIFIED OILS

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

12 **16 of 27** **317.9** **MTD PRODUCTS LIMITED** **GEN**
97 KENT AVENUE
KITCHENER ON N2G 3R2

Generator No: ON0116900
SIC Code: 417110
SIC Description: Farm Lawn and Garden Machinery and Equipment Wholesaler-Distributors
Approval Years: 2011
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

Waste Class: 145
Waste Class Name: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

Waste Class: 221
Waste Class Name: LIGHT FUELS

Waste Class: 122
Waste Class Name: ALKALINE WASTES - OTHER METALS

Waste Class: 111
Waste Class Name: SPENT PICKLE LIQUOR

Waste Class: 113
Waste Class Name: ACID WASTE - OTHER METALS

Waste Class: 253
Waste Class Name: EMULSIFIED OILS

Waste Class: 211
Waste Class Name: AROMATIC SOLVENTS

Waste Class: 112
Waste Class Name: ACID WASTE - HEAVY METALS

12 **17 of 27** **317.9** **MTD PRODUCTS LIMITED** **GEN**
97 KENT AVENUE
KITCHENER ON N2G 3R2

Generator No: ON0116900
SIC Code: 417110
SIC Description: Farm Lawn and Garden Machinery and Equipment Wholesaler-Distributors
Approval Years: 2012
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:

Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 112
Waste Class Name: ACID WASTE - HEAVY METALS

Waste Class: 145
Waste Class Name: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 111
Waste Class Name: SPENT PICKLE LIQUOR

Waste Class: 122
Waste Class Name: ALKALINE WASTES - OTHER METALS

Waste Class: 113
Waste Class Name: ACID WASTE - OTHER METALS

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

Waste Class: 221
Waste Class Name: LIGHT FUELS

Waste Class: 211
Waste Class Name: AROMATIC SOLVENTS

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

Waste Class: 253
Waste Class Name: EMULSIFIED OILS

---

12 | ***18 of 27*** | ***317.9*** | ***MTD PRODUCTS LIMITED***
97 KENT AVENUE
KITCHENER ON | ***GEN***

Generator No: ON0116900
SIC Code: 417110
SIC Description: FARM, LAWN AND GARDEN MACHINERY AND EQUIPMENT WHOLESALER-DISTRIBUTORS
Approval Years: 2013
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 111
Waste Class Name: SPENT PICKLE LIQUOR

Waste Class: 211
Waste Class Name: AROMATIC SOLVENTS

Waste Class: 221
Waste Class Name: LIGHT FUELS

Waste Class: 145
Waste Class Name: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

Waste Class: 112
Waste Class Name: ACID WASTE - HEAVY METALS

Waste Class: 113
Waste Class Name: ACID WASTE - OTHER METALS

Waste Class: 122
Waste Class Name: ALKALINE WASTES - OTHER METALS

Waste Class: 241
Waste Class Name: HALOGENATED SOLVENTS

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

Waste Class: 253
Waste Class Name: EMULSIFIED OILS

---

12 | 19 of 27 | 317.9 | **MTD PRODUCTS LIMITED**
97 KENT AVENUE
KITCHENER ON N2G 4J1 | GEN

Generator No: ON0116900
SIC Code: 417110
SIC Description: FARM, LAWN AND GARDEN MACHINERY AND EQUIPMENT WHOLESALER-DISTRIBUTORS
Approval Years: 2015
PO Box No:
Country: Canada
Status:
Co Admin: William F Poje
Choice of Contact: CO_ADMIN
Phone No Admin: 519-579-5500 Ext.2246
Contaminated Facility: No
MHSW Facility: No

Detail(s)

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

Waste Class: 111
Waste Class Name: SPENT PICKLE LIQUOR

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

Waste Class: 221
Waste Class Name: LIGHT FUELS

Waste Class: 211
Waste Class Name: AROMATIC SOLVENTS

Waste Class: 112
Waste Class Name: ACID WASTE - HEAVY METALS

Waste Class: 145
Waste Class Name: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 241
Waste Class Name: HALOGENATED SOLVENTS

Waste Class: 113
Waste Class Name: ACID WASTE - OTHER METALS

Waste Class: 122
Waste Class Name: ALKALINE WASTES - OTHER METALS

Waste Class: 253
Waste Class Name: EMULSIFIED OILS

---

12 | **20 of 27** | **317.9** | **MTD PRODUCTS LIMITED**
97 KENT AVENUE
KITCHENER ON N2G 4J1 | **GEN**

Generator No: ON0116900
SIC Code: 417110
SIC Description: FARM, LAWN AND GARDEN MACHINERY AND EQUIPMENT WHOLESALER-DISTRIBUTORS
Approval Years: 2016
PO Box No:
Country: Canada
Status:
Co Admin: William F Poje
Choice of Contact: CO_ADMIN
Phone No Admin: 519-579-5500 Ext.2246
Contaminated Facility: No
MHSW Facility: No

Detail(s)

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

Waste Class: 145
Waste Class Name: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 113
Waste Class Name: ACID WASTE - OTHER METALS

Waste Class: 112
Waste Class Name: ACID WASTE - HEAVY METALS

Waste Class: 122
Waste Class Name: ALKALINE WASTES - OTHER METALS

Waste Class: 111
Waste Class Name: SPENT PICKLE LIQUOR

Waste Class: 211
Waste Class Name: AROMATIC SOLVENTS

Waste Class: 253
Waste Class Name: EMULSIFIED OILS

Waste Class: 241
Waste Class Name: HALOGENATED SOLVENTS

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

Waste Class: 221
Waste Class Name: LIGHT FUELS

Map Key	Number of Records	Elevation (m)	Site	DB
12	21 of 27	317.9	MTD PRODUCTS LIMITED 97 KENT AVENUE KITCHENER ON N2G 4J1	GEN

Generator No: ON0116900
SIC Code: 417110
SIC Description: FARM, LAWN AND GARDEN MACHINERY AND EQUIPMENT WHOLESALER-DISTRIBUTORS
Approval Years: 2014
PO Box No:
Country: Canada
Status:
Co Admin: William F Poje
Choice of Contact: CO_ADMIN
Phone No Admin: 519-579-5500 Ext.2246
Contaminated Facility: No
MHSW Facility: No

Detail(s)

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

Waste Class: 111
Waste Class Name: SPENT PICKLE LIQUOR

Waste Class: 112
Waste Class Name: ACID WASTE - HEAVY METALS

Waste Class: 113
Waste Class Name: ACID WASTE - OTHER METALS

Waste Class: 253
Waste Class Name: EMULSIFIED OILS

Waste Class: 241
Waste Class Name: HALOGENATED SOLVENTS

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

Waste Class: 211
Waste Class Name: AROMATIC SOLVENTS

Waste Class: 221
Waste Class Name: LIGHT FUELS

Waste Class: 122
Waste Class Name: ALKALINE WASTES - OTHER METALS

Waste Class: 145
Waste Class Name: PAINT/PIGMENT/COATING RESIDUES

Map Key	Number of Records	Elevation (m)	Site	DB
12	22 of 27	317.9	MTD PRODUCTS LIMITED 97 KENT AVENUE KITCHENER ON N2G 4J1	GEN

Generator No: ON0116900
SIC Code:
SIC Description:
Approval Years: As of Dec 2018
PO Box No: 1386
Country: Canada

Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 145 H
Waste Class Name: Wastes from the use of pigments, coatings and paints

Waste Class: 241 L
Waste Class Name: Halogenated solvents and residues

Waste Class: 253 L
Waste Class Name: Emulsified oils

---

12 | ***23 of 27*** | ***317.9*** | ***MTD Products Canada Limited***
97 Kent Avenue
Kitchener ON N2G 4J1 | ***GEN***

Generator No: ON5209902
SIC Code:
SIC Description:
Approval Years: As of Dec 2018
PO Box No:
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 241 L
Waste Class Name: Halogenated solvents and residues

---

12 | ***24 of 27*** | ***317.9*** | ***MTD PRODUCTS LIMITED***
97 KENT AVENUE
KITCHENER ON N2G 4J1 | ***GEN***

Generator No: ON0116900
SIC Code:
SIC Description:
Approval Years: As of Jul 2020
PO Box No: 1386
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 145 H
Waste Class Name: Wastes from the use of pigments, coatings and paints

Waste Class: 253 L
Waste Class Name: Emulsified oils

Waste Class: 241 L
Waste Class Name: Halogenated solvents and residues

---

12 | 25 of 27 | 317.9 | **PIPELINE HIT - 2"**
97 KENT AVE,,KITCHENER,ON,N2G 3R2,CA
ON | PINC

Incident Id:
Incident No: 1500546
Incident Reported Dt: 10/16/2014
Type: FS-Pipeline Incident
Status Code:
Tank Status: Not Investigated
Task No:
Spills Action Centre:
Fuel Type:
Fuel Occurrence Tp:
Date of Occurrence:
Occurrence Start Dt:
Depth:
Customer Acct Name: PIPELINE HIT - 2"
Incident Address: 97 KENT AVE,,KITCHENER,ON,N2G 3R2,CA
Operation Type:
Pipeline Type:
Regulator Type:
Summary:
Reported By:
Affiliation:
Occurrence Desc:
Damage Reason:
Notes:

Pipe Material:
Fuel Category:
Health Impact:
Environment Impact:
Property Damage:
Service Interrupt:
Enforce Policy:
Public Relation:
Pipeline System:
PSIG:
Attribute Category:
Regulator Location:
Method Details:

---

12 | 26 of 27 | 317.9 | **MTD PRODUCTS LIMITED**
97 KENT AVENUE
KITCHENER ON N2G 4J1 | GEN

Generator No: ON0116900
SIC Code:
SIC Description:
Approval Years: As of Nov 2021
PO Box No: 1386
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 145 H
Waste Class Name: Wastes from the use of pigments, coatings and paints

Waste Class: 253 L
Waste Class Name: Emulsified oils

Waste Class: 241 L

Waste Class Name: Halogenated solvents and residues

---

12 | **27 of 27** | **317.9** | **MTD PRODUCTS LIMITED**
97 KENT AVENUE
KITCHENER ON N2G 4J1 | **GEN**

Generator No: ON0116900
SIC Code:
SIC Description:
Approval Years: As of Oct 2022
PO Box No: 1386
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 145 H
Waste Class Name: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 253 L
Waste Class Name: EMULSIFIED OILS

Waste Class: 241 L
Waste Class Name: HALOGENATED SOLVENTS

---

13 | **1 of 1** | **315.7** | **ON** | **BORE**

Borehole ID: 683282
OGF ID: 215560278
Status:
Type: Borehole
Use: Geotechnical/Geological Investigation
Completion Date: JAN-1972
Static Water Level: 1.8
Primary Water Use:
Sec. Water Use:
Total Depth m: 5
Depth Ref: Ground Surface
Depth Elev:
Drill Method: Power auger
Orig Ground Elev m: 318
Elev Reliabil Note:
DEM Ground Elev m: 318
Concession:
Location D:
Survey D:
Comments:

Inclin FLG: No
SP Status: Initial Entry
Surv Elev: No
Piezometer: No
Primary Name:
Municipality:
Lot:
Township:
Latitude DD: 43.440092
Longitude DD: -80.476906
UTM Zone: 17
Easting: 542331
Northing: 4809821
Location Accuracy:
Accuracy: Not Applicable

Borehole Geology Stratum

Geology Stratum ID: 218560672
Top Depth: 2.3
Bottom Depth: 3.2
Material Color: Brown
Material 1: Sand
Material 2: Gravel

Mat Consistency: Compact
Material Moisture:
Material Texture:
Non Geo Mat Type:
Geologic Formation:
Geologic Group:

Material 3: ***Geologic Period:***
Material 4: ***Depositional Gen:***
Gsc Material Description:
Stratum Description: BROWN, SILTY SAND, & GRAVEL SATURATED, COMPACT **Note: Many records provided by the department have a truncated [Stratum Description] field.

Geology Stratum ID: 218560671 ***Mat Consistency:*** Loose
Top Depth: .9 ***Material Moisture:***
Bottom Depth: 2.3 ***Material Texture:***
Material Color: Dark ***Non Geo Mat Type:***
Material 1: Silt ***Geologic Formation:***
Material 2: ***Geologic Group:***
Material 3: ***Geologic Period:***
Material 4: ***Depositional Gen:*** organic
Gsc Material Description:
Stratum Description: DARK BROWN, SOME BROWN SAND, SOME ORGANIC SILT SATURATED, LOOSE.

Geology Stratum ID: 218560670 ***Mat Consistency:*** Loose
Top Depth: 0 ***Material Moisture:***
Bottom Depth: .9 ***Material Texture:***
Material Color: Brown ***Non Geo Mat Type:***
Material 1: Fill ***Geologic Formation:***
Material 2: ***Geologic Group:***
Material 3: ***Geologic Period:***
Material 4: ***Depositional Gen:*** fill
Gsc Material Description:
Stratum Description: BROWN SAND, LOOSE, SATURATED **Note: Many records provided by the department have a truncated [Stratum Description] field.

Geology Stratum ID: 218560673 ***Mat Consistency:*** Compact
Top Depth: 3.2 ***Material Moisture:***
Bottom Depth: 4.7 ***Material Texture:***
Material Color: Brown ***Non Geo Mat Type:***
Material 1: Silt ***Geologic Formation:***
Material 2: ***Geologic Group:***
Material 3: ***Geologic Period:***
Material 4: ***Depositional Gen:***
Gsc Material Description:
Stratum Description: BROWN, SATURATED, COMPACT **Note: Many records provided by the department have a truncated [Stratum Description] field.

Geology Stratum ID: 218560674 ***Mat Consistency:***
Top Depth: 4.7 ***Material Moisture:***
Bottom Depth: 5 ***Material Texture:***
Material Color: ***Non Geo Mat Type:***
Material 1: Sand ***Geologic Formation:***
Material 2: ***Geologic Group:***
Material 3: ***Geologic Period:***
Material 4: ***Depositional Gen:***
Gsc Material Description:
Stratum Description: SATURATED.

Source

Source Type: Data Survey ***Source Appl:*** Spatial/Tabular
Source Orig: Geological Survey of Canada ***Source Iden:*** 4
Source Date: 1900 - 1977 ***Scale or Res:*** Varies
Confidence: H ***Horizontal:*** NAD27
Observatio: 1972/1 ***Verticalda:*** Mean Average Sea Level
Source Name: Waterloo Area Geology Automated Information System (WAGAIS)
Source Details: 12870
Confiden 1:

Source List

Source Identifier:	4	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1900 - 1977	**Projection Name:**	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Originators:	Geological Survey of Canada		

14 | **1 of 1** | **316.9** | **321 COURTLAND AVENUE Kitchener ON** | **WWIS**

Well ID:	7269096	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring and Test Hole	**Data Entry Status:**	
Use 2nd:	0	**Data Src:**	
Final Well Status:	Monitoring and Test Hole	**Date Received:**	17-Aug-2016 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z210048	**Contractor:**	7241
Tag:	A181685	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/726\7269096.pdf

Additional Detail(s) (Map)

Well Completed Date:	2016/07/11
Year Completed:	2016
Depth (m):	4.572
Latitude:	43.4403635935749
Longitude:	-80.4792392441689
Path:	726\7269096.pdf

Bore Hole Information

Bore Hole ID:	1006218887	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542142.00
Code OB Desc:		**North83:**	4809850.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	11-Jul-2016 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1006224530
Layer:	3
Color:	2
General Color:	GREY
Mat1:	06
Most Common Material:	SILT
Mat2:	34
Mat2 Desc:	TILL
Mat3:	85
Mat3 Desc:	SOFT
Formation Top Depth:	5.0
Formation End Depth:	15.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1006224529
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	06
Most Common Material:	SILT
Mat2:	34
Mat2 Desc:	TILL
Mat3:	85
Mat3 Desc:	SOFT
Formation Top Depth:	0.5
Formation End Depth:	5.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1006224528
Layer:	1
Color:	8
General Color:	BLACK
Mat1:	
Most Common Material:	
Mat2:	
Mat2 Desc:	
Mat3:	85
Mat3 Desc:	SOFT
Formation Top Depth:	0.0
Formation End Depth:	0.5
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1006224540
Layer:	3
Plug From:	4.0
Plug To:	15.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID: 1006224538
Layer: 1
Plug From: 0.0
Plug To: 1.0
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1006224539
Layer: 2
Plug From: 1.0
Plug To: 4.0
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 1006224537
Method Construction Code: 2
Method Construction: Rotary (Convent.)
Other Method Construction:

Pipe Information

Pipe ID: 1006224527
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1006224533
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 5.0
Casing Diameter: 2.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Screen

Screen ID: 1006224534
Layer: 1
Slot: 10
Screen Top Depth: 5.0
Screen End Depth: 15.0
Screen Material: 5
Screen Depth UOM: ft
Screen Diameter UOM: inch
Screen Diameter: 2.25

Water Details

Water ID: 1006224532
Layer:
Kind Code:

Kind:
Water Found Depth:
Water Found Depth UOM: ft

Hole Diameter

Hole ID: 1006224531
Diameter: 8.0
Depth From: 0.0
Depth To: 15.0
Hole Depth UOM: ft
Hole Diameter UOM: inch

Links

Bore Hole ID: 1006218887
Depth M: 4.572
Year Completed: 2016
Well Completed Dt: 2016/07/11
Audit No: Z210048
Tag No: A181685
Contractor: 7241
Path: 726\7269096.pdf
Latitude: 43.4403635935749
Longitude: -80.4792392441689

---

15 **1 of 1** **316.8** **ON** **WWIS**

Well ID: 7362344
Construction Date:
Use 1st:
Use 2nd:
Final Well Status:
Water Type:
Casing Material:
Audit No: Z332106
Tag: A295586
Constructn Method:
Elevation (m):
Elevatn Reliabilty:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Clear/Cloudy:
Municipality: KITCHENER CITY
Site Info:
Flowing (Y/N):
Flow Rate:
Data Entry Status: Yes
Data Src:
Date Received: 08-Jul-2020 00:00:00
Selected Flag: TRUE
Abandonment Rec:
Contractor: 7320
Form Version: 7
Owner:
County: WATERLOO
Lot:
Concession:
Concession Name:
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

Bore Hole Information

Bore Hole ID: 1008352002
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 05-Jun-2020 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Elevation:
Elevrc:
Zone: 17
East83: 542154.00
North83: 4809905.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Supplier Comment:

Links

Bore Hole ID:	1008352002	***Tag No:***	A295586
Depth M:		***Contractor:***	7320
Year Completed:	2020	***Path:***	
Well Completed Dt:	2020/06/05	***Latitude:***	43.440858139393
Audit No:	Z332106	***Longitude:***	-80.4790867140168

16 | ***1 of 1*** | ***315.7*** | ***IRON HORSETRAIL + BORDEN AVE SOUTH con -00 Kitchener ON*** | ***WWIS***

Well ID:	7353929	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Monitoring and Test Hole	***Data Entry Status:***	
Use 2nd:		***Data Src:***	
Final Well Status:	Monitoring and Test Hole	***Date Received:***	24-Feb-2020 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	Z320395	***Contractor:***	7320
Tag:	A284224	***Form Version:***	7
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	-00
Well Depth:		***Concession Name:***	GCT
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2020/01/17
Year Completed:	2020
Depth (m):	4.8768
Latitude:	43.4401993005036
Longitude:	-80.476781563827
Path:	

Bore Hole Information

Bore Hole ID:	1008171697	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542341.00
Code OB Desc:		***North83:***	4809833.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	4
Date Completed:	17-Jan-2020 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			

Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID:	1008232384
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	01
Most Common Material:	FILL
Mat2:	28
Mat2 Desc:	SAND
Mat3:	11
Mat3 Desc:	GRAVEL
Formation Top Depth:	0.0
Formation End Depth:	8.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1008232385
Layer:	2
Color:	2
General Color:	GREY
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	05
Mat3 Desc:	CLAY
Formation Top Depth:	8.0
Formation End Depth:	16.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008234627
Layer:	1
Plug From:	0.0
Plug To:	1.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008234629
Layer:	3
Plug From:	4.0
Plug To:	16.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008234628
Layer:	2
Plug From:	1.0
Plug To:	4.0

Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 1008236711
Method Construction Code: B
Method Construction: Other Method
Other Method Construction: HOLLOW STEM

Method of Construction & Well Use

Method Construction ID: 1008236710
Method Construction Code: 2
Method Construction: Rotary (Convent.)
Other Method Construction:

Pipe Information

Pipe ID: 1008229410
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1008237669
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 6.0
Casing Diameter: 2.0
Casing Diameter UOM: Inch
Casing Depth UOM: ft

Construction Record - Screen

Screen ID: 1008238517
Layer: 1
Slot: 10
Screen Top Depth: 6.0
Screen End Depth: 16.0
Screen Material: 5
Screen Depth UOM: ft
Screen Diameter UOM: inch
Screen Diameter: 2.200000047683716

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1008239860
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:

Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	
Water State After Test:	
Pumping Test Method:	0
Pumping Duration HR:	
Pumping Duration MIN:	
Flowing:	

Water Details

Water ID:	1008238732
Layer:	1
Kind Code:	8
Kind:	Untested
Water Found Depth:	
Water Found Depth UOM:	

Hole Diameter

Hole ID:	1008235722
Diameter:	8.0
Depth From:	0.0
Depth To:	16.0
Hole Depth UOM:	ft
Hole Diameter UOM:	Inch

Links

Bore Hole ID:	1008171697	**Tag No:**	A284224
Depth M:	4.8768	**Contractor:**	7320
Year Completed:	2020	**Path:**	
Well Completed Dt:	2020/01/17	**Latitude:**	43.4401993005036
Audit No:	Z320395	**Longitude:**	-80.476781563827

---

17 | ***1 of 14*** | ***316.9*** | ***ZETTEL MANUFACTURING LIMITED***
170 BORDEN AVE. SOUTH
KITCHENER CITY ON N2G 3R7 | ***CA***

Certificate #:	8-2083-86-
Application Year:	86
Issue Date:	8/6/1986
Approval Type:	Industrial air
Status:	Approved
Application Type:	
Client Name:	
Client Address:	
Client City:	
Client Postal Code:	
Project Description:	STAMPING PRESS
Contaminants:	Sound, Vibration
Emission Control:	No Controls

---

17 | ***2 of 14*** | ***316.9*** | ***ZETTEL MANUFACTURING LTD.***
KITCHENER PLANT 170 BORDEN AVENUE SOUTH
KITCHENER CITY ON N2G 3R7 | ***SPL***

Ref No:	54706	**Contaminant Qty:**	
Site No:		**Nature of Damage:**	
Incident Dt:	7/26/1991	**Discharger Report:**	

Year:		**Material Group:**	
Incident Cause:	COOLING SYSTEM LEAK	**Health/Env Conseq:**	
Incident Event:		**Agency Involved:**	
Environment Impact:	POSSIBLE	**Site Lot:**	
Nature of Impact:	Soil contamination	**Site Conc:**	
MOE Response:		**Site Geo Ref Accu:**	
Dt MOE Arvl on Scn:		**Site Map Datum:**	
MOE Reported Dt:	7/26/1991	**Northing:**	
Dt Document Closed:		**Easting:**	
Municipality No:	25102		

System Facility Address:
Client Type:
Call Report Location Geodata:
Contaminant Code:
Contaminant Name:
Contaminant Limit 1:
Contam Limit Freq 1:
Contaminant UN No 1:
Receiving Medium: LAND
Receiving Environment:
Incident Reason: DAMAGE BY MOVING EQUIPMENT
Incident Summary: ZETTEL MANUFACTURING - 1 L. OF MINERAL OIL TO GROUND(POSSIBLE PCB)
Site Region:
Site Municipality: KITCHENER CITY
Activity Preceding Spill:
Property 2nd Watershed:
Property Tertiary Watershed:
Sector Type:
SAC Action Class:
Source Type:
Site County/District:
Site Geo Ref Meth:
Site District Office:
Nearest Watercourse:
Site Name:
Site Address:
Client Name:

---

17 | 3 of 14 | 316.9 | **ZETTEL MANUFACTURING LTD.**
170 BORDEN AVE S
KITCHENER ON N2G 3R7 | SCT

Established: 1949
Plant Size (ft²): 60000
Employment: 120

--Details--
Description: AUTOMOTIVE STAMPINGS
SIC/NAICS Code: 3465

Description: METAL STAMPINGS, NOT ELSEWHERE CLASSIFIED
SIC/NAICS Code: 3469

Description: FABRICATED METAL PRODUCTS, NOT ELSEWHERE CLASSIFIED
SIC/NAICS Code: 3499

Description: SPECIAL DIES AND TOOLS, DIE SETS, JIGS AND FIXTURES, AND INDUSTRIAL MOLDS
SIC/NAICS Code: 3544

Description: SPECIAL INDUSTRY MACHINERY, NOT ELSEWHERE CLASSIFIED
SIC/NAICS Code: 3559

Description: INDUSTRIAL AND COMMERCIAL MACHINERY AND EQUIPMENT, NOT ELSEWHERE CLASSIFIED

SIC/NAICS Code:	3599
Description:	Stamping
SIC/NAICS Code:	332118
Description:	Machine Shops
SIC/NAICS Code:	332710
Description:	All Other Miscellaneous Fabricated Metal Product Manufacturing
SIC/NAICS Code:	332999
Description:	All Other Industrial Machinery Manufacturing
SIC/NAICS Code:	333299
Description:	Other Metalworking Machinery Manufacturing
SIC/NAICS Code:	333519
Description:	Motor Vehicle Metal Stamping
SIC/NAICS Code:	336370

---

17 | ***4 of 14*** | ***316.9*** | ***ZETTEL MFG.LTD.***
170 BORDEN AVE.S.
KITCHENER CITY ON N2G 3R7 | ***CA***

Certificate #:	8-2104-85-000
Application Year:	85
Issue Date:	1/26/90
Approval Type:	Industrial air
Status:	Application Cancelled
Application Type:	
Client Name:	
Client Address:	
Client City:	
Client Postal Code:	
Project Description:	
Contaminants:	
Emission Control:	

---

17 | ***5 of 14*** | ***316.9*** | ***Amteck Group of Companies, Inc. - Zettel Manufacturing (2002) Inc.***
170 Borden Ave S
Kitchener ON N2G 3R7 | ***SCT***

Established:	2002
Plant Size (ft²):	60000
Employment:	70

--Details--

Description:	Stamping
SIC/NAICS Code:	332118
Description:	Other Plate Work and Fabricated Structural Product Manufacturing
SIC/NAICS Code:	332319
Description:	Machine Shops
SIC/NAICS Code:	332710
Description:	All Other Miscellaneous Fabricated Metal Product Manufacturing
SIC/NAICS Code:	332999
Description:	All Other Industrial Machinery Manufacturing
SIC/NAICS Code:	333299

Description: Other Metalworking Machinery Manufacturing
SIC/NAICS Code: 333519

Description: Motor Vehicle Metal Stamping
SIC/NAICS Code: 336370

---

17 | 6 of 14 | 316.9 | ZETTEL MANUFACTURING LIMITED
170 BORDEN AVENUE SOUTH
KITCHENER ON N2G 3R7 | GEN

Generator No: ON0364700
SIC Code: 0000
SIC Description: *** NOT DEFINED ***
Approval Years: 86,87,88
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

---

17 | 7 of 14 | 316.9 | ZETTEL MANUFACTURING LIMITED
170 BORDEN AVENUE SOUTH
KITCHENER ON N2G 3R7 | GEN

Generator No: ON0364700
SIC Code: 3049
SIC Description: OTHER STAMPED METAL
Approval Years: 89,90,98,99,00,01
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

---

17 | 8 of 14 | 316.9 | ZETTEL MANUFACTURING LIMITED 43-163
170 BORDEN AVENUE SOUTH
KITCHENER ON N2G 3R7 | GEN

Generator No: ON0364700
SIC Code: 3049
SIC Description: OTHER STAMPED METAL
Approval Years: 92,93,94,95,96,97
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:

Map Key	Number of Records	Elevation (m)	Site	DB

MHSW Facility:

Detail(s)

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

17	*9 of 14*	*316.9*	***ZETTEL MANUFACTURING (2002) Inc.*** ***170 Borden Ave South*** ***Kitchener ON N2G 3R7***	***GEN***

Generator No: ON0364700
SIC Code:
SIC Description:
Approval Years: 02,03,04
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

17	*10 of 14*	*316.9*	***Amtek Group - Zettel Mfg Inc*** ***170 Borden Ave S*** ***Kitchener ON N2G 3R7***	***SCT***

Established: 2002
Plant Size (ft²): 60000
Employment: 70

--Details--
Description: Stamping
SIC/NAICS Code: 332118

Description: Other Plate Work and Fabricated Structural Product Manufacturing
SIC/NAICS Code: 332319

Description: Machine Shops
SIC/NAICS Code: 332710

Description: All Other Miscellaneous Fabricated Metal Product Manufacturing
SIC/NAICS Code: 332999

Description: All Other Industrial Machinery Manufacturing
SIC/NAICS Code: 333299

Description: Other Metalworking Machinery Manufacturing
SIC/NAICS Code: 333519

Description: Motor Vehicle Metal Stamping
SIC/NAICS Code: 336370

Map Key	Number of Records	Elevation (m)	Site	DB
17	11 of 14	316.9	170 BORDEN AVE KITCHENER ON	WWIS

Well ID:	7041627	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Not Used	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	13-Mar-2007 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z56140	**Contractor:**	7238
Tag:	A048731	**Form Version:**	3
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY (WATERLOO TWP)		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/704\7041627.pdf

Additional Detail(s) (Map)

Well Completed Date:	2007/02/12
Year Completed:	2007
Depth (m):	4.54
Latitude:	43.4395406797489
Longitude:	-80.4784678048231
Path:	704\7041627.pdf

Bore Hole Information

Bore Hole ID:	11764120	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542205.00
Code OB Desc:		**North83:**	4809759.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	3
Date Completed:	12-Feb-2007 00:00:00	**UTMRC Desc:**	margin of error : 10 - 30 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	933094564
Layer:	3
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY

Mat2: 84
Mat2 Desc: SILTY
Mat3:
Mat3 Desc:
Formation Top Depth: 3.0
Formation End Depth: 4.539999961853027
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 933094563
Layer: 2
Color: 6
General Color: BROWN
Mat1: 06
Most Common Material: SILT
Mat2: 28
Mat2 Desc: SAND
Mat3:
Mat3 Desc:
Formation Top Depth: 0.75
Formation End Depth: 3.0
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 933094562
Layer: 1
Color:
General Color:
Mat1: 28
Most Common Material: SAND
Mat2: 11
Mat2 Desc: GRAVEL
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 0.75
Formation End Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 933315485
Layer: 1
Plug From: 0.0
Plug To: 1.25
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 933315486
Layer: 2
Plug From: 1.25
Plug To: 4.539999961853027
Plug Depth UOM: m

Method of Construction & Well

Use

Method Construction ID:	967041627
Method Construction Code:	6
Method Construction:	Boring
Other Method Construction:	

Pipe Information

Pipe ID:	11771810
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930896848
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	1.5099999904632568
Casing Diameter:	5.0
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	933423557
Layer:	1
Slot:	10
Screen Top Depth:	1.5099999904632568
Screen End Depth:	4.539999961853027
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	5.0

Hole Diameter

Hole ID:	11850322
Diameter:	15.0
Depth From:	0.0
Depth To:	4.539999961853027
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	11764120	***Tag No:***	A048731
Depth M:	4.54	***Contractor:***	7238
Year Completed:	2007	***Path:***	704\7041627.pdf
Well Completed Dt:	2007/02/12	***Latitude:***	43.4395406797489
Audit No:	Z56140	***Longitude:***	-80.4784678048231

17 | ***12 of 14*** | ***316.9*** | ***Adamson & Associates Inc.***
170 Borden Avenue South
Kitchener ON N2G 3R7 | ***GEN***

Generator No: ON3068116

SIC Code:	332118
SIC Description:	Stamping
Approval Years:	06
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	251
Waste Class Name:	OIL SKIMMINGS & SLUDGES
Waste Class:	253
Waste Class Name:	EMULSIFIED OILS
Waste Class:	263
Waste Class Name:	ORGANIC LABORATORY CHEMICALS

---

17 | ***13 of 14*** | ***316.9*** | ***506165 ONTARIO LIMITED***
170 BORDEN AVE. SOUTH
KITCHENER ON N2G 3R7 | ***EASR***

Approval No:	R-003-1000000305	**MOE District:**	
Status:	REGISTERED	**Municipality:**	KITCHENER
Date:	2012-01-06	**Latitude:**	
Record Type:	EASR	**Longitude:**	
Link Source:	MOFA	**Geometry X:**	
Project Type:	Heating System	**Geometry Y:**	
Full Address:			
Approval Type:	EASR-Heating System		
SWP Area Name:			
PDF URL:			
PDF Site Location:			

---

17 | ***14 of 14*** | ***316.9*** | ***944846 ONTARIO LTD.***
170 BORDEN AVE S
KITCHENER ON N2G 3R7 | ***EASR***

Approval No:	R-010-2111350431	**MOE District:**	Guelph
Status:	REGISTERED	**Municipality:**	KITCHENER
Date:	2019-05-29	**Latitude:**	43.43944444
Record Type:	EASR	**Longitude:**	-80.47861111
Link Source:	MOFA	**Geometry X:**	
Project Type:	Air Emissions	**Geometry Y:**	
Full Address:			
Approval Type:	EASR-Air Emissions		
SWP Area Name:	Grand River		
PDF URL:			
PDF Site Location:			

---

18 | ***1 of 1*** | ***316.9*** | ***ON*** | ***WWIS***

Well ID:	7166283	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	

Use 1st:		**Data Entry Status:**	Yes
Use 2nd:		**Data Src:**	
Final Well Status:		**Date Received:**	29-Jul-2011 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	M07672	**Contractor:**	7320
Tag:	A114159	**Form Version:**	5
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY (WATERLOO TWP)		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/716\7166283.pdf

Additional Detail(s) (Map)

Well Completed Date:	2011/07/12
Year Completed:	2011
Depth (m):	
Latitude:	43.4395801141201
Longitude:	-80.4772441124673
Path:	716\7166283.pdf

Bore Hole Information

Bore Hole ID:	1003540634	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542304.00
Code OB Desc:		**North83:**	4809764.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	3
Date Completed:	12-Jul-2011 00:00:00	**UTMRC Desc:**	margin of error : 10 - 30 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Links

Bore Hole ID:	1003540634	**Tag No:**	A114159
Depth M:		**Contractor:**	7320
Year Completed:	2011	**Path:**	716\7166283.pdf
Well Completed Dt:	2011/07/12	**Latitude:**	43.4395801141201
Audit No:	M07672	**Longitude:**	-80.4772441124673

19 | ***1 of 1*** | ***315.9*** | ***BORDEN AVENUE Kitchener ON*** | ***WWIS***

Well ID:	7229711	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	

Use 1st:	Test Hole	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Abandoned-Other	**Date Received:**	20-Oct-2014 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	Yes
Audit No:	Z192499	**Contractor:**	7320
Tag:	A149522	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/722\7229711.pdf

Additional Detail(s) (Map)

Well Completed Date:	2014/10/08
Year Completed:	2014
Depth (m):	
Latitude:	43.4397141009151
Longitude:	-80.4770081733382
Path:	722\7229711.pdf

Bore Hole Information

Bore Hole ID:	1005167176	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542323.00
Code OB Desc:		**North83:**	4809779.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	08-Oct-2014 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Annular Space/Abandonment Sealing Record

Plug ID:	1005346883
Layer:	2
Plug From:	0.15000000596046448
Plug To:	4.559999942779541
Plug Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1005346882

Layer:	1
Plug From:	0.0
Plug To:	0.15000000596046448
Plug Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1005346884
Layer:	3
Plug From:	
Plug To:	
Plug Depth UOM:	m

Method of Construction & Well Use

Method Construction ID:	1005346881
Method Construction Code:	9
Method Construction:	Driving
Other Method Construction:	

Pipe Information

Pipe ID:	1005346874
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1005346878
Layer:	
Material:	
Open Hole or Material:	
Depth From:	
Depth To:	
Casing Diameter:	
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1005346879
Layer:	
Slot:	
Screen Top Depth:	
Screen End Depth:	
Screen Material:	
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	

Water Details

Water ID:	1005346877
Layer:	1
Kind Code:	8
Kind:	Untested
Water Found Depth:	2.4000000953674316

Water Found Depth UOM: m

Hole Diameter

Hole ID: 1005346876
Diameter: 10.0
Depth From: 0.0
Depth To: 4.559999942779541
Hole Depth UOM: m
Hole Diameter UOM: cm

Links

Bore Hole ID: 1005167176
Depth M:
Year Completed: 2014
Well Completed Dt: 2014/10/08
Audit No: Z192499
Tag No: A149522
Contractor: 7320
Path: 722\7229711.pdf
Latitude: 43.4397141009151
Longitude: -80.4770081733382

---

20 ***1 of 1*** ***317.9*** ***ON*** ***BORE***

Borehole ID: 683284
OGF ID: 215560280
Status:
Type: Borehole
Use: Geotechnical/Geological Investigation
Completion Date: JAN-1972
Static Water Level: 1.5
Primary Water Use:
Sec. Water Use:
Total Depth m: 5
Depth Ref: Ground Surface
Depth Elev:
Drill Method: Power auger
Orig Ground Elev m: 318
Elev Reliabil Note:
DEM Ground Elev m: 319
Concession:
Location D:
Survey D:
Comments:
Inclin FLG: No
SP Status: Initial Entry
Surv Elev: No
Piezometer: No
Primary Name:
Municipality:
Lot:
Township:
Latitude DD: 43.441181
Longitude DD: -80.478874
UTM Zone: 17
Easting: 542171
Northing: 4809941
Location Accuracy:
Accuracy: Not Applicable

Borehole Geology Stratum

Geology Stratum ID: 218560679
Top Depth: 2.3
Bottom Depth: 2.6
Material Color:
Material 1: Sand
Material 2: Gravel
Material 3:
Material 4:
Gsc Material Description:
Stratum Description: SATURATED, LOOSE **Note: Many records provided by the department have a truncated [Stratum Description] field.
Mat Consistency: Loose
Material Moisture:
Material Texture:
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen:

Geology Stratum ID: 218560680
Top Depth: 2.6
Bottom Depth: 4
Material Color: Brown
Material 1: Silt
Mat Consistency: Loose
Material Moisture:
Material Texture:
Non Geo Mat Type:
Geologic Formation:

Material 2:	Sand	**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	BROWN, WITH CLAYEY SILT LAYERS, SATURATED, LOOSE **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218560681	**Mat Consistency:**	Loose
Top Depth:	4	**Material Moisture:**	
Bottom Depth:	5	**Material Texture:**	
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	GREY, SAND SEAMS, SATURATED LOOSE.		

Geology Stratum ID:	218560678	**Mat Consistency:**	Loose
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	2.3	**Material Texture:**	
Material Color:	Black	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	BLACK, SATURATED, LOOSE **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	4
Source Date:	1900 - 1977	**Scale or Res:**	Varies
Confidence:	H	**Horizontal:**	NAD27
Observatio:	1972/1	**Verticalda:**	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Details:	12872		
Confiden 1:			

Source List

Source Identifier:	4	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1900 - 1977	**Projection Name:**	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Originators:	Geological Survey of Canada		

21 **1 of 1** **316.9** **ON** **WWIS**

Well ID:	7362345	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:		**Data Entry Status:**	Yes
Use 2nd:		**Data Src:**	
Final Well Status:		**Date Received:**	08-Jul-2020 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z332107	**Contractor:**	7320
Tag:	A295585	**Form Version:**	7
Constructn Method:		**Owner:**	

Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

Bore Hole Information

Bore Hole ID:	1008352005	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542124.00
Code OB Desc:		**North83:**	4809865.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	05-Jun-2020 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Links

Bore Hole ID:	1008352005	**Tag No:**	A295585
Depth M:		**Contractor:**	7320
Year Completed:	2020	**Path:**	
Well Completed Dt:	2020/06/05	**Latitude:**	43.440499666608
Audit No:	Z332107	**Longitude:**	-80.4794605083818

---

22 **1 of 1** **317.9** ***UNKNOWN***
SNIDER CREEK NEAR KENT AVE.
KITCHENER CITY ON ***SPL***

Ref No:	79505	**Contaminant Qty:**	
Site No:		**Nature of Damage:**	
Incident Dt:	12/2/1992	**Discharger Report:**	
Year:		**Material Group:**	
Incident Cause:	UNKNOWN	**Health/Env Conseq:**	
Incident Event:		**Agency Involved:**	REG OF WATERLOO, KITCHENER WORKS
Environment Impact:	POSSIBLE	**Site Lot:**	
Nature of Impact:	Water course or lake	**Site Conc:**	
MOE Response:		**Site Geo Ref Accu:**	
Dt MOE Arvl on Scn:		**Site Map Datum:**	
MOE Reported Dt:	12/2/1992	**Northing:**	
Dt Document Closed:		**Easting:**	
Municipality No:	25102		
System Facility Address:			
Client Type:			
Call Report Location Geodata:			
Contaminant Code:			
Contaminant Name:			
Contaminant Limit 1:			
Contam Limit Freq 1:			
Contaminant UN No 1:			

Receiving Medium:	WATER
Receiving Environment:	
Incident Reason:	UNKNOWN
Incident Summary:	OIL SHEEN IN SNIDER CREEK- SOURCE NOT DETERMINED
Site Region:	
Site Municipality:	KITCHENER CITY
Activity Preceding Spill:	
Property 2nd Watershed:	
Property Tertiary Watershed:	
Sector Type:	
SAC Action Class:	
Source Type:	
Site County/District:	
Site Geo Ref Meth:	
Site District Office:	
Nearest Watercourse:	
Site Name:	
Site Address:	
Client Name:	

---

23 | ***1 of 1*** | ***315.9*** | ***BORDEN AVE S DUNDAS AVE Kitchener ON*** | ***WWIS***

Well ID:	7205601	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Test Hole	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Test Hole	**Date Received:**	31-Jul-2013 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z173136	**Contractor:**	7320
Tag:	A149522	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2013/07/17
Year Completed:	2013
Depth (m):	7.6
Latitude:	43.4396775761612
Longitude:	-80.4768972737985
Path:	

Bore Hole Information

Bore Hole ID:	1004474915	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542332.00
Code OB Desc:		**North83:**	4809775.00

Open Hole:
Cluster Kind:
Date Completed: 17-Jul-2013 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Overburden and Bedrock Materials Interval

Formation ID: 1004978951
Layer: 4
Color: 2
General Color: GREY
Mat1: 06
Most Common Material: SILT
Mat2: 28
Mat2 Desc: SAND
Mat3: 91
Mat3 Desc: WATER-BEARING
Formation Top Depth: 6.400000095367432
Formation End Depth: 7.599999904632568
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1004978949
Layer: 2
Color: 6
General Color: BROWN
Mat1: 06
Most Common Material: SILT
Mat2: 28
Mat2 Desc: SAND
Mat3: 91
Mat3 Desc: WATER-BEARING
Formation Top Depth: 1.5
Formation End Depth: 3.0
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1004978948
Layer: 1
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 11
Mat2 Desc: GRAVEL
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 1.5
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID:	1004978950
Layer:	3
Color:	6
General Color:	BROWN
Mat1:	05
Most Common Material:	CLAY
Mat2:	06
Mat2 Desc:	SILT
Mat3:	
Mat3 Desc:	
Formation Top Depth:	3.0
Formation End Depth:	6.400000095367432
Formation End Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1004978961
Layer:	3
Plug From:	1.2000000476837158
Plug To:	3.0
Plug Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1004978962
Layer:	4
Plug From:	3.0
Plug To:	7.599999904632568
Plug Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1004978959
Layer:	1
Plug From:	0.0
Plug To:	0.15000000596046448
Plug Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1004978960
Layer:	2
Plug From:	1.25
Plug To:	1.2000000476837158
Plug Depth UOM:	m

Method of Construction & Well Use

Method Construction ID:	1004978958
Method Construction Code:	D
Method Construction:	Direct Push
Other Method Construction:	

Pipe Information

Pipe ID:	1004978947
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1004978955
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	1.5
Casing Diameter:	3.0999999046325684
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1004978956
Layer:	1
Slot:	.01
Screen Top Depth:	1.5
Screen End Depth:	3.0
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	4.099999904632568

Water Details

Water ID:	1004978953
Layer:	1
Kind Code:	8
Kind:	Untested
Water Found Depth:	1.5
Water Found Depth UOM:	m

Water Details

Water ID:	1004978954
Layer:	2
Kind Code:	8
Kind:	Untested
Water Found Depth:	6.400000095367432
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1004978952
Diameter:	10.0
Depth From:	0.0
Depth To:	7.599999904632568
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1004474915	**Tag No:**	A149522
Depth M:	7.6	**Contractor:**	7320
Year Completed:	2013	**Path:**	720\7205601.pdf
Well Completed Dt:	2013/07/17	**Latitude:**	43.4396775761612
Audit No:	Z173136	**Longitude:**	-80.4768972737985

24 | 1 of 1 | 317.1 | **97 BORDON STREET SOUTH lot 1 Kitchener ON** | WWIS

Well ID:	7175603	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	26-Jan-2012 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z140473	**Contractor:**	7238
Tag:	A120111	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	001
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	GCT
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/717\7175603.pdf

Additional Detail(s) (Map)

Well Completed Date:	2011/11/05
Year Completed:	2011
Depth (m):	15.24
Latitude:	43.4406484835118
Longitude:	-80.4765552611639
Path:	717\7175603.pdf

Bore Hole Information

Bore Hole ID:	1003637925	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542359.00
Code OB Desc:		**North83:**	4809883.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	05-Nov-2011 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock

Materials Interval

Formation ID:	1004147743
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	11
Mat2 Desc:	GRAVEL
Mat3:	77
Mat3 Desc:	LOOSE
Formation Top Depth:	0.0
Formation End Depth:	2.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1004147744
Layer:	2
Color:	8
General Color:	BLACK
Mat1:	06
Most Common Material:	SILT
Mat2:	11
Mat2 Desc:	GRAVEL
Mat3:	73
Mat3 Desc:	HARD
Formation Top Depth:	2.0
Formation End Depth:	5.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1004147745
Layer:	3
Color:	2
General Color:	GREY
Mat1:	06
Most Common Material:	SILT
Mat2:	05
Mat2 Desc:	CLAY
Mat3:	85
Mat3 Desc:	SOFT
Formation Top Depth:	5.0
Formation End Depth:	50.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1004147752
Layer:	1
Plug From:	0.0
Plug To:	43.58000183105469
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1004147753
Layer:	2
Plug From:	43.58000183105469
Plug To:	44.41999816894531
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1004147754
Layer:	3
Plug From:	44.41999816894531
Plug To:	50.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1004147751
Method Construction Code:	6
Method Construction:	Boring
Other Method Construction:	

Pipe Information

Pipe ID:	1004147742
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1004147748
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	43.75
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1004147749
Layer:	
Slot:	
Screen Top Depth:	
Screen End Depth:	
Screen Material:	
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	

Water Details

Water ID:	1004147747
Layer:	
Kind Code:	
Kind:	

Water Found Depth:
Water Found Depth UOM: ft

Hole Diameter

Hole ID: 1004147746
Diameter: 8.0
Depth From: 0.0
Depth To: 50.0
Hole Depth UOM: ft
Hole Diameter UOM: inch

Links

Bore Hole ID: 1003637925
Depth M: 15.24
Year Completed: 2011
Well Completed Dt: 2011/11/05
Audit No: Z140473
Tag No: A120111
Contractor: 7238
Path: 717\7175603.pdf
Latitude: 43.4406484835118
Longitude: -80.4765552611639

---

25 | ***1 of 2*** | ***315.9*** | ***SCHNEIDER CREEK, AT NYBERG STREET AND BORDEN AVE. <UNOFFICIAL> Kitchener ON*** | ***SPL***

Ref No: 2447-5VTN47
Site No:
Incident Dt: 2/3/2004
Year:
Incident Cause: Discharge Or Bypass To A Watercourse
Incident Event:
Environment Impact: Confirmed
Nature of Impact: Surface Water Pollution
MOE Response:
Dt MOE Arvl on Scn:
MOE Reported Dt: 2/3/2004
Dt Document Closed:
Municipality No:
System Facility Address:
Client Type:
Call Report Location Geodata:
Contaminant Code: 13
Contaminant Name: DIESEL FUEL
Contaminant Limit 1:
Contam Limit Freq 1:
Contaminant UN No 1:
Receiving Medium: Water
Receiving Environment:
Incident Reason: Unknown - Reason not determined
Incident Summary: Diesel to Schneider Cr, unk volume
Site Region: West Central
Site Municipality: Kitchener
Activity Preceding Spill:
Property 2nd Watershed:
Property Tertiary Watershed:
Sector Type:
SAC Action Class: Spill to Inland Watercourses
Source Type:
Site County/District:
Site Geo Ref Meth:
Site District Office: Guelph
Nearest Watercourse:
Site Name: SCHNEIDER CREEK, AT NYBERG STREET AND BORDEN AVE.<UNOFFICIAL>
Site Address:
Contaminant Qty:
Nature of Damage:
Discharger Report:
Material Group: Oil
Health/Env Conseq:
Agency Involved:
Site Lot:
Site Conc:
Site Geo Ref Accu:
Site Map Datum:
Northing:
Easting:

Client Name:

---

25 | ***2 of 2*** | ***315.9*** | ***Schneider's Creek at Borden Avenue and Nyberg Street<UNOFFICIAL>*** | ***SPL***

Kitchener ON

Ref No:	1643-79DPCY	***Contaminant Qty:***	Unknown Unknown
Site No:		***Nature of Damage:***	
Incident Dt:		***Discharger Report:***	
Year:		***Material Group:***	Oil
Incident Cause:	Other Discharges	***Health/Env Conseq:***	
Incident Event:		***Agency Involved:***	
Environment Impact:	Confirmed	***Site Lot:***	
Nature of Impact:	Surface Water Pollution	***Site Conc:***	
MOE Response:		***Site Geo Ref Accu:***	
Dt MOE Arvl on Scn:		***Site Map Datum:***	
MOE Reported Dt:	11/28/2007	***Northing:***	
Dt Document Closed:		***Easting:***	
Municipality No:			
System Facility Address:			
Client Type:			
Call Report Location Geodata:			
Contaminant Code:	15		
Contaminant Name:	OIL (PETROLEUM BASED, NOT SPECIFIED)		
Contaminant Limit 1:			
Contam Limit Freq 1:			
Contaminant UN No 1:			
Receiving Medium:	Water		
Receiving Environment:			
Incident Reason:			
Incident Summary:	Schneider's Creek: Oil sheen on creek		
Site Region:			
Site Municipality:	Kitchener		
Activity Preceding Spill:			
Property 2nd Watershed:			
Property Tertiary Watershed:			
Sector Type:	Other		
SAC Action Class:			
Source Type:			
Site County/District:			
Site Geo Ref Meth:			
Site District Office:			
Nearest Watercourse:			
Site Name:	Schneider's Creek at Borden Avenue and Nyberg Street<UNOFFICIAL>		
Site Address:			
Client Name:			

---

26 | ***1 of 1*** | ***317.9*** | ***ON*** | ***BORE***

Borehole ID:	683286	***Inclin FLG:***	No
OGF ID:	215560282	***SP Status:***	Initial Entry
Status:		***Surv Elev:***	No
Type:	Borehole	***Piezometer:***	No
Use:	Geotechnical/Geological Investigation	***Primary Name:***	
Completion Date:	JAN-1972	***Municipality:***	
Static Water Level:	2.0	***Lot:***	
Primary Water Use:		***Township:***	
Sec. Water Use:		***Latitude DD:***	43.441183
Total Depth m:	5	***Longitude DD:***	-80.479245
Depth Ref:	Ground Surface	***UTM Zone:***	17
Depth Elev:		***Easting:***	542141

Drill Method:	Power auger	**Northing:**	4809941
Orig Ground Elev m:	318	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	319		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218560689	**Mat Consistency:**	Loose
Top Depth:	1.8	**Material Moisture:**	
Bottom Depth:	2.7	**Material Texture:**	
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	GREY, CLAYEY SILT WITH OCCASIONAL SATURATED SAND AND GRAVEL SEAMS, SATURATED LOOSE.		

Geology Stratum ID:	218560687	**Mat Consistency:**	Loose
Top Depth:	0	**Material Moisture:**	Moist
Bottom Depth:	1.7	**Material Texture:**	
Material Color:	Black	**Non Geo Mat Type:**	
Material 1:	Fill	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	fill
Gsc Material Description:			
Stratum Description:	BROWN TO BLACK, SAND AND GRAVEL FILL, MOIST, LOOSE **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218560688	**Mat Consistency:**	
Top Depth:	1.7	**Material Moisture:**	
Bottom Depth:	1.8	**Material Texture:**	
Material Color:	Black	**Non Geo Mat Type:**	
Material 1:	Unknown	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	BLACK/BROWN SAND, SILT **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218560690	**Mat Consistency:**	Compact
Top Depth:	2.7	**Material Moisture:**	
Bottom Depth:	5	**Material Texture:**	
Material Color:	Brown	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:	Sand	**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	BROWN, WITH CLAYEY SILT SEAMS, SATURATED COMPACT.		

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	4
Source Date:	1900 - 1977	**Scale or Res:**	Varies
Confidence:	H	**Horizontal:**	NAD27
Observatio:	1972/1	**Verticalda:**	Mean Average Sea Level

Source Name: Waterloo Area Geology Automated Information System (WAGAIS)
Source Details: 12874
Confiden 1:

Source List

Source Identifier: 4
Source Type: Data Survey
Source Date: 1900 - 1977
Scale or Resolution: Varies
Source Name: Waterloo Area Geology Automated Information System (WAGAIS)
Source Originators: Geological Survey of Canada
Horizontal Datum: NAD27
Vertical Datum: Mean Average Sea Level
Projection Name: Universal Traverse Mercator

---

27 **1 of 1** **315.9** **405 409 NYBERG ST**
Kitchener ON
WWIS

Well ID: 7360771
Construction Date:
Use 1st:
Use 2nd:
Final Well Status: Observation Wells
Water Type:
Casing Material:
Audit No: Z331820
Tag: A277011
Constructn Method:
Elevation (m):
Elevatn Reliabilty:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Clear/Cloudy:
Municipality: KITCHENER CITY
Site Info:

PDF URL (Map):

Flowing (Y/N):
Flow Rate:
Data Entry Status:
Data Src:
Date Received: 22-Jun-2020 00:00:00
Selected Flag: TRUE
Abandonment Rec:
Contractor: 7424
Form Version: 7
Owner:
County: WATERLOO
Lot:
Concession:
Concession Name:
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

Additional Detail(s) (Map)

Well Completed Date: 2020/05/12
Year Completed: 2020
Depth (m): 6.096
Latitude: 43.4396765584897
Longitude: -80.4766748542806
Path:

Bore Hole Information

Bore Hole ID: 1008315508
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 12-May-2020 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:

Elevation:
Elevrc:
Zone: 17
East83: 542350.00
North83: 4809775.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 1008328380
Layer: 2
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 06
Mat2 Desc: SILT
Mat3:
Mat3 Desc:
Formation Top Depth: 5.0
Formation End Depth: 10.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1008328381
Layer: 3
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY
Mat2: 28
Mat2 Desc: SAND
Mat3: 91
Mat3 Desc: WATER-BEARING
Formation Top Depth: 10.0
Formation End Depth: 20.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1008328379
Layer: 1
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2:
Mat2 Desc:
Mat3: 68
Mat3 Desc: DRY
Formation Top Depth: 0.0
Formation End Depth: 5.0
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1008328387
Layer: 1
Plug From: 0.0

Plug To:	9.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008328388
Layer:	2
Plug From:	9.0
Plug To:	20.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1008328386
Method Construction Code:	
Method Construction:	
Other Method Construction:	

Pipe Information

Pipe ID:	1008328378
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1008328384
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	10.0
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1008328385
Layer:	1
Slot:	10
Screen Top Depth:	10.0
Screen End Depth:	20.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.0

Water Details

Water ID:	1008328383
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1008328382
Diameter:	
Depth From:	
Depth To:	
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1008315508	***Tag No:***	A277011
Depth M:	6.096	***Contractor:***	7424
Year Completed:	2020	***Path:***	736\7360771.pdf
Well Completed Dt:	2020/05/12	***Latitude:***	43.4396765584897
Audit No:	Z331820	***Longitude:***	-80.4766748542806

---

28 ***1 of 1*** ***315.9*** ***405 409 NYBERG ST Kitchener ON*** ***WWIS***

Well ID:	7360772	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:		***Data Entry Status:***	
Use 2nd:		***Data Src:***	
Final Well Status:	Observation Wells	***Date Received:***	22-Jun-2020 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	Z331819	***Contractor:***	7424
Tag:	A277012	***Form Version:***	7
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2020/05/12
Year Completed:	2020
Depth (m):	5.7912
Latitude:	43.4394794311931
Longitude:	-80.4768866237809
Path:	

Bore Hole Information

Bore Hole ID:	1008315511	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542333.00
Code OB Desc:		***North83:***	4809753.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	4
Date Completed:	12-May-2020 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m

Remarks: ***Location Method:*** wwr
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 1008328392
Layer: 3
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3: 91
Mat3 Desc: WATER-BEARING
Formation Top Depth: 10.0
Formation End Depth: 19.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1008328390
Layer: 1
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2:
Mat2 Desc:
Mat3: 68
Mat3 Desc: DRY
Formation Top Depth: 0.0
Formation End Depth: 5.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1008328391
Layer: 2
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 5.0
Formation End Depth: 10.0
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1008328398
Layer: 1
Plug From: 0.0
Plug To: 8.0
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1008328399
Layer: 2
Plug From: 8.0
Plug To: 19.0
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 1008328397
Method Construction Code:
Method Construction:
Other Method Construction:

Pipe Information

Pipe ID: 1008328389
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1008328395
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 9.0
Casing Diameter: 2.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Screen

Screen ID: 1008328396
Layer: 1
Slot: 10
Screen Top Depth: 9.0
Screen End Depth: 19.0
Screen Material: 5
Screen Depth UOM: ft
Screen Diameter UOM: inch
Screen Diameter: 2.0

Water Details

Water ID: 1008328394
Layer:
Kind Code:

Kind:
Water Found Depth:
Water Found Depth UOM: ft

Hole Diameter

Hole ID: 1008328393
Diameter:
Depth From:
Depth To:
Hole Depth UOM: ft
Hole Diameter UOM: inch

Links

Bore Hole ID:	1008315511	**Tag No:**	A277012
Depth M:	5.7912	**Contractor:**	7424
Year Completed:	2020	**Path:**	736\7360772.pdf
Well Completed Dt:	2020/05/12	**Latitude:**	43.4394794311931
Audit No:	Z331819	**Longitude:**	-80.4768866237809

---

29 **1 of 1** **318.9** **MTD Products Limited**
94 Borden Ave
Kitchener ON N2G 3R5 **GEN**

Generator No: ON7095205
SIC Code:
SIC Description:
Approval Years: As of Nov 2021
PO Box No:
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 251 L
Waste Class Name: Waste oils/sludges (petroleum based)

---

30 **1 of 1** **319.2** **KENT AVE ALONG ROADWAY**
ON **WWIS**

Well ID:	7139465	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Test Hole	**Date Received:**	04-Feb-2010 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	M03072	**Contractor:**	6607
Tag:	A092217	**Form Version:**	5
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	

Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/713\7139465.pdf

Additional Detail(s) (Map)

Well Completed Date:	2009/12/11
Year Completed:	2009
Depth (m):	3
Latitude:	43.4415315826069
Longitude:	-80.478673138391
Path:	713\7139465.pdf

Bore Hole Information

Bore Hole ID:	1003267173	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	
Code OB:		**East83:**	
Code OB Desc:		**North83:**	
Open Hole:		**Org CS:**	
Cluster Kind:	This is a record from cluster log sheet	**UTMRC:**	9
Date Completed:	11-Dec-2009 00:00:00	**UTMRC Desc:**	unknown UTM
Remarks:		**Location Method:**	
Loc Method Desc:			
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Annular Space/Abandonment Sealing Record

Plug ID:	1003267177
Layer:	
Plug From:	
Plug To:	
Plug Depth UOM:	

Method of Construction & Well Use

Method Construction ID:	1003267176
Method Construction Code:	
Method Construction:	
Other Method Construction:	BORING

Pipe Information

Pipe ID:	1003267178
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1003267180
Layer:	
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	
Depth To:	3.0
Casing Diameter:	
Casing Diameter UOM:	
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1003267179
Layer:	
Slot:	
Screen Top Depth:	3.0
Screen End Depth:	4.5
Screen Material:	
Screen Depth UOM:	m
Screen Diameter UOM:	
Screen Diameter:	

Results of Well Yield Testing

Pumping Test Method Desc:	
Pump Test ID:	1003267181
Pump Set At:	
Static Level:	
Final Level After Pumping:	
Recommended Pump Depth:	
Pumping Rate:	
Flowing Rate:	
Recommended Pump Rate:	
Levels UOM:	
Rate UOM:	
Water State After Test Code:	
Water State After Test:	
Pumping Test Method:	
Pumping Duration HR:	
Pumping Duration MIN:	
Flowing:	

Hole Diameter

Hole ID:	1003267175
Diameter:	15.0
Depth From:	
Depth To:	4.5
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Bore Hole Information

Bore Hole ID:	1003267200	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	
Code OB:		***East83:***	
Code OB Desc:		***North83:***	
Open Hole:		***Org CS:***	
Cluster Kind:	This is a record from cluster log sheet	***UTMRC:***	9

Date Completed: 11-Dec-2009 00:00:00
UTMRC Desc: unknown UTM
Remarks:
Location Method:
Loc Method Desc:
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Annular Space/Abandonment Sealing Record

Plug ID: 1003267204
Layer:
Plug From:
Plug To:
Plug Depth UOM:

Method of Construction & Well Use

Method Construction ID: 1003267203
Method Construction Code:
Method Construction:
Other Method Construction: BORING

Pipe Information

Pipe ID: 1003267205
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1003267207
Layer:
Material: 5
Open Hole or Material: PLASTIC
Depth From:
Depth To: 1.0
Casing Diameter:
Casing Diameter UOM:
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1003267206
Layer:
Slot:
Screen Top Depth: 1.0
Screen End Depth: 4.0
Screen Material:
Screen Depth UOM: m
Screen Diameter UOM:
Screen Diameter:

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1003267208
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM:
Rate UOM:
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Hole Diameter

Hole ID: 1003267202
Diameter: 21.0
Depth From:
Depth To: 4.0
Hole Depth UOM: m
Hole Diameter UOM: cm

Bore Hole Information

Bore Hole ID: 1002934635
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole: No
Cluster Kind:
Date Completed: 11-Dec-2009 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone: 17
East83: 542187.00
North83: 4809980.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Overburden and Bedrock Materials Interval

Formation ID: 1003267219
Layer: 1
Color: 6
General Color: BROWN
Mat1: 11
Most Common Material: GRAVEL
Mat2: 28
Mat2 Desc: SAND
Mat3: 77
Mat3 Desc: LOOSE
Formation Top Depth: 0.0
Formation End Depth: 1.100000023841858
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID:	1003267221
Layer:	3
Color:	2
General Color:	GREY
Mat1:	06
Most Common Material:	SILT
Mat2:	05
Mat2 Desc:	CLAY
Mat3:	73
Mat3 Desc:	HARD
Formation Top Depth:	2.200000047683716
Formation End Depth:	3.0
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1003267220
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	06
Most Common Material:	SILT
Mat2:	28
Mat2 Desc:	SAND
Mat3:	
Mat3 Desc:	
Formation Top Depth:	1.100000023841858
Formation End Depth:	2.200000047683716
Formation End Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1003267223
Layer:	1
Plug From:	0.0
Plug To:	0.30000001192092896
Plug Depth UOM:	m

Method of Construction & Well Use

Method Construction ID:	1003267227
Method Construction Code:	6
Method Construction:	Boring
Other Method Construction:	

Pipe Information

Pipe ID:	1003267218
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID: 1003267224
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 3.0
Casing Diameter: 5.099999904632568
Casing Diameter UOM: cm
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1003267225
Layer: 1
Slot: 20
Screen Top Depth:
Screen End Depth:
Screen Material: 5
Screen Depth UOM: m
Screen Diameter UOM: cm
Screen Diameter: 15.0

Hole Diameter

Hole ID: 1003267222
Diameter: 15.0
Depth From: 0.0
Depth To: 3.0
Hole Depth UOM: m
Hole Diameter UOM: cm

Bore Hole Information

Bore Hole ID: 1003267209
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind: This is a record from cluster log sheet
Date Completed: 11-Dec-2009 00:00:00
Remarks:
Loc Method Desc:
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:
Elevation:
Elevrc:
Zone:
East83:
North83:
Org CS:
UTMRC: 9
UTMRC Desc: unknown UTM
Location Method:

Annular Space/Abandonment Sealing Record

Plug ID: 1003267213
Layer:
Plug From:
Plug To:
Plug Depth UOM:

Method of Construction & Well Use

Method Construction ID: 1003267212
Method Construction Code:
Method Construction:
Other Method Construction: BORING

Pipe Information

Pipe ID: 1003267214
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1003267216
Layer:
Material: 5
Open Hole or Material: PLASTIC
Depth From:
Depth To: 1.399999976158142
Casing Diameter:
Casing Diameter UOM:
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1003267215
Layer:
Slot:
Screen Top Depth: 1.399999976158142
Screen End Depth: 4.400000095367432
Screen Material:
Screen Depth UOM: m
Screen Diameter UOM:
Screen Diameter:

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1003267217
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM:
Rate UOM:
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Hole Diameter

Hole ID: 1003267211
Diameter: 21.0

Depth From:
Depth To: 4.400000095367432
Hole Depth UOM: m
Hole Diameter UOM: cm

Bore Hole Information

Bore Hole ID: 1003267182
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind: This is a record from cluster log sheet
Date Completed: 11-Dec-2009 00:00:00
Remarks:
Loc Method Desc:
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone:
East83:
North83:
Org CS:
UTMRC: 9
UTMRC Desc: unknown UTM
Location Method:

Annular Space/Abandonment Sealing Record

Plug ID: 1003267186
Layer:
Plug From:
Plug To:
Plug Depth UOM:

Method of Construction & Well Use

Method Construction ID: 1003267185
Method Construction Code:
Method Construction:
Other Method Construction: BORING

Pipe Information

Pipe ID: 1003267187
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1003267189
Layer:
Material: 5
Open Hole or Material: PLASTIC
Depth From:
Depth To: 3.0
Casing Diameter:
Casing Diameter UOM:
Casing Depth UOM: m

Construction Record - Screen

Screen ID:	1003267188
Layer:	
Slot:	
Screen Top Depth:	3.0
Screen End Depth:	4.5
Screen Material:	
Screen Depth UOM:	m
Screen Diameter UOM:	
Screen Diameter:	

Results of Well Yield Testing

Pumping Test Method Desc:	
Pump Test ID:	1003267190
Pump Set At:	
Static Level:	
Final Level After Pumping:	
Recommended Pump Depth:	
Pumping Rate:	
Flowing Rate:	
Recommended Pump Rate:	
Levels UOM:	
Rate UOM:	
Water State After Test Code:	
Water State After Test:	
Pumping Test Method:	
Pumping Duration HR:	
Pumping Duration MIN:	
Flowing:	

Hole Diameter

Hole ID:	1003267184
Diameter:	15.0
Depth From:	
Depth To:	4.5
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Bore Hole Information

Bore Hole ID:	1003267191	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	
Code OB:		***East83:***	
Code OB Desc:		***North83:***	
Open Hole:		***Org CS:***	
Cluster Kind:	This is a record from cluster log sheet	***UTMRC:***	9
Date Completed:	11-Dec-2009 00:00:00	***UTMRC Desc:***	unknown UTM
Remarks:		***Location Method:***	
Loc Method Desc:			
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Annular Space/Abandonment Sealing Record

Plug ID:	1003267195
Layer:	
Plug From:	
Plug To:	
Plug Depth UOM:	

Method of Construction & Well Use

Method Construction ID:	1003267194
Method Construction Code:	
Method Construction:	
Other Method Construction:	BORING

Pipe Information

Pipe ID:	1003267196
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1003267198
Layer:	
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	
Depth To:	1.5
Casing Diameter:	
Casing Diameter UOM:	
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1003267197
Layer:	
Slot:	
Screen Top Depth:	1.5
Screen End Depth:	4.5
Screen Material:	
Screen Depth UOM:	m
Screen Diameter UOM:	
Screen Diameter:	

Results of Well Yield Testing

Pumping Test Method Desc:	
Pump Test ID:	1003267199
Pump Set At:	
Static Level:	
Final Level After Pumping:	
Recommended Pump Depth:	
Pumping Rate:	
Flowing Rate:	
Recommended Pump Rate:	
Levels UOM:	
Rate UOM:	
Water State After Test Code:	
Water State After Test:	

Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Hole Diameter

Hole ID: 1003267193
Diameter: 15.0
Depth From:
Depth To: 4.5
Hole Depth UOM: m
Hole Diameter UOM: cm

Links

Bore Hole ID: 1002934635
Depth M: 3
Year Completed: 2009
Well Completed Dt: 2009/12/11
Audit No: M03072
Tag No: A092217
Contractor: 6607
Path: 713\7139465.pdf
Latitude: 43.4415315826069
Longitude: -80.478673138391

---

31 | ***1 of 1*** | ***318.9*** | ***94 BORTEN AVENUE SOUTH Kitchener ON*** | ***WWIS***

Well ID: 7175602
Construction Date:
Use 1st: Monitoring
Use 2nd:
Final Well Status: Observation Wells
Water Type:
Casing Material:
Audit No: Z140472
Tag: A120113
Constructn Method:
Elevation (m):
Elevatn Reliabilty:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Clear/Cloudy:
Municipality: KITCHENER CITY
Site Info:
Flowing (Y/N):
Flow Rate:
Data Entry Status:
Data Src:
Date Received: 26-Jan-2012 00:00:00
Selected Flag: TRUE
Abandonment Rec:
Contractor: 7238
Form Version: 7
Owner:
County: WATERLOO
Lot:
Concession:
Concession Name:
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/717\7175602.pdf

Additional Detail(s) (Map)

Well Completed Date: 2011/11/04
Year Completed: 2011
Depth (m): 12.192
Latitude: 43.4411981244964
Longitude: -80.4766370245748
Path: 717\7175602.pdf

Bore Hole Information

Bore Hole ID: 1003637188
DP2BR:
Elevation:
Elevrc:

Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542352.00
Code OB Desc:		**North83:**	4809944.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	04-Nov-2011 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1004147732
Layer:	3
Color:	2
General Color:	GREY
Mat1:	06
Most Common Material:	SILT
Mat2:	05
Mat2 Desc:	CLAY
Mat3:	85
Mat3 Desc:	SOFT
Formation Top Depth:	5.0
Formation End Depth:	40.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1004147730
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	11
Mat2 Desc:	GRAVEL
Mat3:	77
Mat3 Desc:	LOOSE
Formation Top Depth:	0.0
Formation End Depth:	2.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1004147731
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	06
Most Common Material:	SILT
Mat2:	11
Mat2 Desc:	GRAVEL
Mat3:	73
Mat3 Desc:	HARD
Formation Top Depth:	2.0

Formation End Depth: 5.0
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1004147739
Layer: 1
Plug From: 0.0
Plug To: 36.16999816894531
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1004147741
Layer: 3
Plug From: 37.0
Plug To: 40.0
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1004147740
Layer: 2
Plug From: 36.16999816894531
Plug To: 37.0
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 1004147738
Method Construction Code: 6
Method Construction: Boring
Other Method Construction:

Pipe Information

Pipe ID: 1004147729
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1004147735
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 36.16999816894531
Casing Diameter: 2.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Screen

Screen ID: 1004147736

Layer:	1
Slot:	
Screen Top Depth:	36.16999816894531
Screen End Depth:	36.83000183105469
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.0

Water Details

Water ID:	1004147734
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1004147733
Diameter:	8.0
Depth From:	0.0
Depth To:	40.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1003637188	**Tag No:**	A120113
Depth M:	12.192	**Contractor:**	7238
Year Completed:	2011	**Path:**	717\7175602.pdf
Well Completed Dt:	2011/11/04	**Latitude:**	43.4411981244964
Audit No:	Z140472	**Longitude:**	-80.4766370245748

---

32 **1 of 1** **316.9** ***20 HURST AVENUE***
Kitchener ON ***WWIS***

Well ID:	7197513	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	19-Feb-2013 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z159170	**Contractor:**	7190
Tag:	A132163	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/719\7197513.pdf

Additional Detail(s) (Map)

Well Completed Date:	2013/01/21
Year Completed:	2013
Depth (m):	4.572
Latitude:	43.4409057474269
Longitude:	-80.4796547449209
Path:	719\7197513.pdf

Bore Hole Information

Bore Hole ID:	1004255674	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542108.00
Code OB Desc:		***North83:***	4809910.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	4
Date Completed:	21-Jan-2013 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1004827741
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	77
Mat3 Desc:	LOOSE
Formation Top Depth:	5.0
Formation End Depth:	10.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1004827740
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	01
Mat2 Desc:	FILL
Mat3:	77
Mat3 Desc:	LOOSE
Formation Top Depth:	0.0
Formation End Depth:	5.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1004827742
Layer:	3
Color:	6
General Color:	BROWN
Mat1:	06
Most Common Material:	SILT
Mat2:	28
Mat2 Desc:	SAND
Mat3:	80
Mat3 Desc:	POROUS
Formation Top Depth:	10.0
Formation End Depth:	15.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1004827751
Layer:	3
Plug From:	
Plug To:	
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1004827749
Layer:	1
Plug From:	
Plug To:	
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1004827750
Layer:	2
Plug From:	
Plug To:	
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1004827748
Method Construction Code:	2
Method Construction:	Rotary (Convent.)
Other Method Construction:	

Pipe Information

Pipe ID:	1004827739
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1004827745
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	5.0
Depth To:	0.0
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1004827746
Layer:	1
Slot:	.10
Screen Top Depth:	15.0
Screen End Depth:	5.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.0

Water Details

Water ID:	1004827744
Layer:	1
Kind Code:	8
Kind:	Untested
Water Found Depth:	10.0
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1004827743
Diameter:	8.5
Depth From:	0.0
Depth To:	15.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1004255674	**Tag No:**	A132163
Depth M:	4.572	**Contractor:**	7190
Year Completed:	2013	**Path:**	719\7197513.pdf
Well Completed Dt:	2013/01/21	**Latitude:**	43.4409057474269
Audit No:	Z159170	**Longitude:**	-80.4796547449209

33 **1 of 1** **316.5** ***BORDEN AVE. S KITCHENER ON*** ***WWIS***

Well ID:	7197916	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	04-Mar-2013 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z164689	**Contractor:**	7238
Tag:	A142998	**Form Version:**	7

Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/719\7197916.pdf

Additional Detail(s) (Map)

Well Completed Date:	2013/02/20
Year Completed:	2013
Depth (m):	4.8768
Latitude:	43.4401157753603
Longitude:	-80.4762385660732
Path:	719\7197916.pdf

Bore Hole Information

Bore Hole ID:	1004259153	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542385.00
Code OB Desc:		**North83:**	4809824.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	20-Feb-2013 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1004776792
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	11
Mat2 Desc:	GRAVEL
Mat3:	01
Mat3 Desc:	FILL
Formation Top Depth:	0.0
Formation End Depth:	4.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1004776794
Layer:	3
Color:	2
General Color:	GREY
Mat1:	08
Most Common Material:	FINE SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	08
Mat3 Desc:	FINE SAND
Formation Top Depth:	8.0
Formation End Depth:	16.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1004776793
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	06
Most Common Material:	SILT
Mat2:	28
Mat2 Desc:	SAND
Mat3:	08
Mat3 Desc:	FINE SAND
Formation Top Depth:	4.0
Formation End Depth:	8.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1004776802
Layer:	1
Plug From:	0.0
Plug To:	5.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1004776801
Method Construction Code:	9
Method Construction:	Driving
Other Method Construction:	

Pipe Information

Pipe ID:	1004776791
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1004776798
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC

Depth From:	0.0
Depth To:	6.0
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1004776799
Layer:	1
Slot:	10
Screen Top Depth:	6.0
Screen End Depth:	16.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.0

Water Details

Water ID:	1004776797
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1004776796
Diameter:	5.0
Depth From:	1.0
Depth To:	16.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Hole Diameter

Hole ID:	1004776795
Diameter:	9.0
Depth From:	0.0
Depth To:	1.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1004259153	***Tag No:***	A142998
Depth M:	4.8768	***Contractor:***	7238
Year Completed:	2013	***Path:***	719\7197916.pdf
Well Completed Dt:	2013/02/20	***Latitude:***	43.4401157753603
Audit No:	Z164689	***Longitude:***	-80.4762385660732

34 ***1 of 1*** ***317.9*** ***ON*** ***BORE***

Borehole ID:	683287	***Inclin FLG:***	No
OGF ID:	215560283	***SP Status:***	Initial Entry
Status:		***Surv Elev:***	No
Type:	Borehole	***Piezometer:***	No

Use:	Geotechnical/Geological Investigation	**Primary Name:**	
Completion Date:	JAN-1972	**Municipality:**	
Static Water Level:	2.0	**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	43.441363
Total Depth m:	5	**Longitude DD:**	-80.479243
Depth Ref:	Ground Surface	**UTM Zone:**	17
Depth Elev:		**Easting:**	542141
Drill Method:	Power auger	**Northing:**	4809961
Orig Ground Elev m:	318	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	319		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218560692	**Mat Consistency:**	
Top Depth:	1	**Material Moisture:**	
Bottom Depth:	1.2	**Material Texture:**	
Material Color:	Brown	**Non Geo Mat Type:**	
Material 1:	Unknown	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			

Stratum Description: BROWN, SANDY SILT **Note: Many records provided by the department have a truncated [Stratum Description] field.

Geology Stratum ID:	218560694	**Mat Consistency:**	Compact
Top Depth:	2.7	**Material Moisture:**	
Bottom Depth:	5	**Material Texture:**	
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			

Stratum Description: GREY, WITH SATURATED SAND SEAMS, SATURATED, COMPACT **Note: Many records provided by the department have a truncated [Stratum Description] field.

Geology Stratum ID:	218560691	**Mat Consistency:**	Loose
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	1	**Material Texture:**	
Material Color:	Dark	**Non Geo Mat Type:**	
Material 1:	Fill	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	fill
Gsc Material Description:			

Stratum Description: BROWN SAND, SOME GRAVEL AND SOME DARK BROWN ORGANIC SILT, SATURATED, LOOSE.

Geology Stratum ID:	218560693	**Mat Consistency:**	Loose
Top Depth:	1.2	**Material Moisture:**	
Bottom Depth:	2.7	**Material Texture:**	
Material Color:	Brown	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:	Sand	**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	organic
Gsc Material Description:			

Stratum Description: BROWN, WITH TRACE ORGANIC SILT, SATURATED, LOOSE **Note: Many records provided by the department have a truncated [Stratum Description] field.

Source

Source Type:	Data Survey	***Source Appl:***	Spatial/Tabular
Source Orig:	Geological Survey of Canada	***Source Iden:***	4
Source Date:	1900 - 1977	***Scale or Res:***	Varies
Confidence:	H	***Horizontal:***	NAD27
Observatio:	1972/1	***Verticalda:***	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Details:	12875		
Confiden 1:			

Source List

Source Identifier:	4	***Horizontal Datum:***	NAD27
Source Type:	Data Survey	***Vertical Datum:***	Mean Average Sea Level
Source Date:	1900 - 1977	***Projection Name:***	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Originators:	Geological Survey of Canada		

---

35 ***1 of 1*** ***315.9*** ***NYBERG ST 405-409***
KITCHENER ON
WWIS

Well ID:	7161419	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Monitoring	***Data Entry Status:***	
Use 2nd:		***Data Src:***	
Final Well Status:	Observation Wells	***Date Received:***	06-Apr-2011 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	Z120207	***Contractor:***	7190
Tag:	A066613	***Form Version:***	7
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY (WATERLOO TWP)		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/716\7161419.pdf

Additional Detail(s) (Map)

Well Completed Date:	2011/01/13
Year Completed:	2011
Depth (m):	6.096
Latitude:	43.4394515145425
Longitude:	-80.4766891509956
Path:	716\7161419.pdf

Bore Hole Information

Bore Hole ID:	1003493922	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17

Code OB:		***East83:***	542349.00
Code OB Desc:		***North83:***	4809750.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	3
Date Completed:	13-Jan-2011 00:00:00	***UTMRC Desc:***	margin of error : 10 - 30 m
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1003831880
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	05
Most Common Material:	CLAY
Mat2:	06
Mat2 Desc:	SILT
Mat3:	66
Mat3 Desc:	DENSE
Formation Top Depth:	2.5
Formation End Depth:	10.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1003831879
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	11
Mat2 Desc:	GRAVEL
Mat3:	06
Mat3 Desc:	SILT
Formation Top Depth:	0.0
Formation End Depth:	2.5
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1003831881
Layer:	3
Color:	2
General Color:	GREY
Mat1:	06
Most Common Material:	SILT
Mat2:	05
Mat2 Desc:	CLAY
Mat3:	66
Mat3 Desc:	DENSE
Formation Top Depth:	10.0
Formation End Depth:	20.0

Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1003831889
Layer: 1
Plug From: 0.0
Plug To: 1.0
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1003831890
Layer: 2
Plug From: 1.0
Plug To: 8.0
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1003831891
Layer: 3
Plug From: 8.0
Plug To: 20.0
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 1003831887
Method Construction Code: 2
Method Construction: Rotary (Convent.)
Other Method Construction:

Pipe Information

Pipe ID: 1003831878
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1003831884
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 1.0
Depth To: 10.0
Casing Diameter: 2.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Screen

Screen ID: 1003831885
Layer: 1

Slot:	010
Screen Top Depth:	10.0
Screen End Depth:	20.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.0

Water Details

Water ID:	1003831883
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1003831882
Diameter:	4.25
Depth From:	0.0
Depth To:	20.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1003493922	**Tag No:**	A066613
Depth M:	6.096	**Contractor:**	7190
Year Completed:	2011	**Path:**	716\7161419.pdf
Well Completed Dt:	2011/01/13	**Latitude:**	43.4394515145425
Audit No:	Z120207	**Longitude:**	-80.4766891509956

---

36 | ***1 of 1*** | ***317.8*** | ***94 BORDEN AVENUE SOUTH lot 1 Kitchener ON*** | ***WWIS***

Well ID:	7175605	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	26-Jan-2012 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z140474	**Contractor:**	7238
Tag:	A120112	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	001
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	GCT
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/717\7175605.pdf

Additional Detail(s) (Map)

Well Completed Date: 2011/11/04
Year Completed: 2011
Depth (m): 13.1064
Latitude: 43.4410436985054
Longitude: -80.4763417780036
Path: 717\7175605.pdf

Bore Hole Information

Bore Hole ID: 1003637928
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 04-Nov-2011 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone: 17
East83: 542376.00
North83: 4809927.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Overburden and Bedrock Materials Interval

Formation ID: 1004147769
Layer: 2
Color: 8
General Color: BLACK
Mat1: 06
Most Common Material: SILT
Mat2: 11
Mat2 Desc: GRAVEL
Mat3: 73
Mat3 Desc: HARD
Formation Top Depth: 2.0
Formation End Depth: 5.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1004147770
Layer: 3
Color: 2
General Color: GREY
Mat1: 06
Most Common Material: SILT
Mat2: 05
Mat2 Desc: CLAY
Mat3: 85
Mat3 Desc: SOFT
Formation Top Depth: 5.0
Formation End Depth: 43.0
Formation End Depth UOM: ft

Overburden and Bedrock

Materials Interval

Formation ID:	1004147768
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	11
Mat2 Desc:	GRAVEL
Mat3:	77
Mat3 Desc:	LOOSE
Formation Top Depth:	0.0
Formation End Depth:	2.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1004147778
Layer:	2
Plug From:	41.33000183105469
Plug To:	43.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1004147777
Layer:	1
Plug From:	0.0
Plug To:	41.33000183105469
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1004147776
Method Construction Code:	6
Method Construction:	Boring
Other Method Construction:	

Pipe Information

Pipe ID:	1004147767
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1004147773
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	41.75
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1004147774
Layer:	1
Slot:	
Screen Top Depth:	41.75
Screen End Depth:	42.25
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.0

Water Details

Water ID:	1004147772
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1004147771
Diameter:	8.0
Depth From:	0.0
Depth To:	43.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1003637928	***Tag No:***	A120112
Depth M:	13.1064	***Contractor:***	7238
Year Completed:	2011	***Path:***	717\7175605.pdf
Well Completed Dt:	2011/11/04	***Latitude:***	43.4410436985054
Audit No:	Z140474	***Longitude:***	-80.4763417780036

---

37 ***1 of 2*** ***317.8*** ***GrandLinq Contractors***
100 Borden Ave. S.
Kitchener ON N2G 2R1 ***GEN***

Generator No:	ON8255635
SIC Code:	237990
SIC Description:	OTHER HEAVY AND CIVIL ENGINEERING CONSTRUCTION
Approval Years:	2015
PO Box No:	
Country:	Canada
Status:	
Co Admin:	
Choice of Contact:	CO_OFFICIAL
Phone No Admin:	
Contaminated Facility:	No
MHSW Facility:	No

Detail(s)

Waste Class:	146
Waste Class Name:	OTHER SPECIFIED INORGANICS

Map Key	Number of Records	Elevation (m)	Site	DB
37	2 of 2	317.8	GrandLinq Contractors 100 Borden Ave. S. Kitchener ON N2G 2R1	GEN

Generator No: ON8255635
SIC Code: 237990
SIC Description: OTHER HEAVY AND CIVIL ENGINEERING CONSTRUCTION
Approval Years: 2014
PO Box No:
Country: Canada
Status:
Co Admin:
Choice of Contact: CO_OFFICIAL
Phone No Admin:
Contaminated Facility: No
MHSW Facility: No

Detail(s)

Waste Class: 146
Waste Class Name: OTHER SPECIFIED INORGANICS

Map Key	Number of Records	Elevation (m)	Site	DB
38	1 of 1	316.0	136 OTTAWA STREET SOUTH Kitchener ON	WWIS

Well ID: 7126921
Construction Date:
Use 1st: Monitoring
Use 2nd:
Final Well Status: Observation Wells
Water Type:
Casing Material:
Audit No: Z098740
Tag: A083370
Constructn Method:
Elevation (m):
Elevatn Reliabilty:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Clear/Cloudy:
Municipality: KITCHENER CITY
Site Info:

Flowing (Y/N):
Flow Rate:
Data Entry Status:
Data Src:
Date Received: 25-Jun-2009 00:00:00
Selected Flag: TRUE
Abandonment Rec:
Contractor: 7238
Form Version: 7
Owner:
County: WATERLOO
Lot:
Concession:
Concession Name:
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/712\7126921.pdf

Additional Detail(s) (Map)

Well Completed Date: 2009/06/15
Year Completed: 2009
Depth (m): 15
Latitude: 43.4393259105965
Longitude: -80.4767890899742
Path: 712\7126921.pdf

Bore Hole Information

Bore Hole ID: 1002613151
DP2BR:
Elevation:
Elevrc:

Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542341.00
Code OB Desc:		***North83:***	4809736.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	4
Date Completed:	15-Jun-2009 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1002714044
Layer:	3
Color:	2
General Color:	GREY
Mat1:	28
Most Common Material:	SAND
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	6.0
Formation End Depth:	14.0
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1002714042
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	01
Most Common Material:	FILL
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.0
Formation End Depth:	0.699999988079071
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1002714045
Layer:	4
Color:	2
General Color:	GREY
Mat1:	06
Most Common Material:	SILT
Mat2:	05
Mat2 Desc:	CLAY
Mat3:	
Mat3 Desc:	
Formation Top Depth:	14.0

Formation End Depth: 15.0
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1002714043
Layer: 2
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 06
Mat2 Desc: SILT
Mat3:
Mat3 Desc:
Formation Top Depth: 0.699999988079071
Formation End Depth: 6.0
Formation End Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1002714047
Layer: 1
Plug From: 0.0
Plug To: 12.0
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1002714052
Method Construction Code: E
Method Construction: Auger
Other Method Construction:

Pipe Information

Pipe ID: 1002714041
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1002714049
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 12.0
Casing Diameter: 21.0
Casing Diameter UOM: cm
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1002714050
Layer: 1

Slot:	10
Screen Top Depth:	12.0
Screen End Depth:	15.0
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	6.400000095367432

Water Details

Water ID:	1002714048
Layer:	1
Kind Code:	8
Kind:	Untested
Water Found Depth:	6.0
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1002714046
Diameter:	21.0
Depth From:	0.0
Depth To:	15.0
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1002613151	**Tag No:**	A083370
Depth M:	15	**Contractor:**	7238
Year Completed:	2009	**Path:**	712\7126921.pdf
Well Completed Dt:	2009/06/15	**Latitude:**	43.4393259105965
Audit No:	Z098740	**Longitude:**	-80.4767890899742

---

39 **1 of 1** **317.8** ***136 OTTAWA STREET***
Kitchener ON ***WWIS***

Well ID:	7175596	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Test Hole	**Date Received:**	26-Jan-2012 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z140411	**Contractor:**	7238
Tag:	A115496	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/717\7175596.pdf

Additional Detail(s) (Map)

Well Completed Date: 2011/10/12
Year Completed: 2011
Depth (m): 13.716
Latitude: 43.4408989550982
Longitude: -80.4761947378821
Path: 717\7175596.pdf

Bore Hole Information

Bore Hole ID: 1003637179
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 12-Oct-2011 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone: 17
East83: 542388.00
North83: 4809911.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Overburden and Bedrock Materials Interval

Formation ID: 1004147625
Layer: 1
Color: 6
General Color: BROWN
Mat1: 11
Most Common Material: GRAVEL
Mat2: 28
Mat2 Desc: SAND
Mat3: 66
Mat3 Desc: DENSE
Formation Top Depth: 0.0
Formation End Depth: 4.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1004147627
Layer: 3
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3: 66
Mat3 Desc: DENSE
Formation Top Depth: 40.0
Formation End Depth: 45.0
Formation End Depth UOM: ft

Overburden and Bedrock

Materials Interval

Formation ID:	1004147626
Layer:	2
Color:	2
General Color:	GREY
Mat1:	06
Most Common Material:	SILT
Mat2:	28
Mat2 Desc:	SAND
Mat3:	66
Mat3 Desc:	DENSE
Formation Top Depth:	4.0
Formation End Depth:	40.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1004147636
Layer:	3
Plug From:	40.0
Plug To:	45.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1004147635
Layer:	2
Plug From:	34.0
Plug To:	40.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1004147634
Layer:	1
Plug From:	0.0
Plug To:	34.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1004147633
Method Construction Code:	6
Method Construction:	Boring
Other Method Construction:	

Pipe Information

Pipe ID:	1004147624
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1004147630
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	35.0
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1004147631
Layer:	1
Slot:	10
Screen Top Depth:	35.0
Screen End Depth:	40.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.0

Water Details

Water ID:	1004147629
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1004147628
Diameter:	8.0
Depth From:	0.0
Depth To:	45.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1003637179	**Tag No:**	A115496
Depth M:	13.716	**Contractor:**	7238
Year Completed:	2011	**Path:**	717\7175596.pdf
Well Completed Dt:	2011/10/12	**Latitude:**	43.4408989550982
Audit No:	Z140411	**Longitude:**	-80.4761947378821

---

40 | ***1 of 11*** | ***317.9*** | ***TUGHAN EXPRESS INC***
20 HURST AV
KITCHENER ON N2G 2Z7 | ***PRT***

Location ID:	7294
Type:	private
Expiry Date:	
Capacity (L):	13638.00
Licence #:	0001031784

---

40 | ***2 of 11*** | ***317.9*** | ***TUGHAN EXPRESS INC*** | ***PRT***

Map Key	Number of Records	Elevation (m)	Site	DB
			20 HURST AV KITCHENER ON N2G 2Z7	

Location ID: 7294
Type: retail
Expiry Date:
Capacity (L): 22700
Licence #: 0001041061

Map Key	Number of Records	Elevation (m)	Site	DB
40	3 of 11	317.9	TUGHAN EXPRESS INC 20 HURST AV KITCHENER ON N2G 2Z7	FSTH

License Issue Date: 9/14/1990
Tank Status: Licensed
Tank Status As Of: August 2007
Operation Type: Private Fuel Outlet
Facility Type: Gasoline Station - Self Serve

--Details--
Status: Active
Year of Installation: 1986
Corrosion Protection:
Capacity: 13638
Tank Fuel Type: Liquid Fuel Single Wall UST - Diesel

Map Key	Number of Records	Elevation (m)	Site	DB
40	4 of 11	317.9	TUGHAN EXPRESS INC 20 HURST AV KITCHENER ON N2G 2Z7	FSTH

License Issue Date: 9/14/1990
Tank Status: Licensed
Tank Status As Of: December 2008
Operation Type: Private Fuel Outlet
Facility Type: Gasoline Station - Self Serve

--Details--
Status: Active
Year of Installation: 1986
Corrosion Protection:
Capacity: 13638
Tank Fuel Type: Liquid Fuel Single Wall UST - Diesel

Map Key	Number of Records	Elevation (m)	Site	DB
40	5 of 11	317.9	TUGHAN EXPRESS INC 20 HURST AV KITCHENER ON	DTNK

Delisted Expired Fuel Safety Facilities

Instance No: 9352641
Status: EXPIRED
Instance ID: 381313
Instance Type: FS Facility
Instance Creation Dt:
Instance Install Dt:
Item Description:
Expired Date:
Max Hazard Rank:
Facility Location:
Facility Type:
Fuel Type 2:
Fuel Type 3:
Panam Related:

Manufacturer:		**Panam Venue Nm:**	
Model:		**External Identifier:**	
Serial No:		**Item:**	
ULC Standard:		**Piping Steel:**	
Quantity:		**Piping Galvanized:**	
Unit of Measure:		**Tank Single Wall St:**	
Overfill Prot Type:		**Piping Underground:**	
Creation Date:		**Tank Underground:**	
Next Periodic Str DT:		**Source:**	
TSSA Base Sched Cycle 2:			
TSSAMax Hazard Rank 1:			
TSSA Risk Based Periodic Yn:			
TSSA Volume of Directives:			
TSSA Periodic Exempt:			
TSSA Statutory Interval:			
TSSA Recd Insp Interva:			
TSSA Recd Tolerance:			
TSSA Program Area:			
TSSA Program Area 2:			
Description:	Fuels Safety Private Fuel Outlet - Self Serve		
Original Source:	EXP		
Record Date:	Up to Mar 2012		

---

40 | ***6 of 11*** | ***317.9*** | ***TUGHAN EXPRESS INC***
20 HURST AV
KITCHENER ON | ***DTNK***

Delisted Expired Fuel Safety Facilities

Instance No:	10812153	**Expired Date:**	
Status:	EXPIRED	**Max Hazard Rank:**	
Instance ID:	42410	**Facility Location:**	
Instance Type:	FS Piping	**Facility Type:**	
Instance Creation Dt:		**Fuel Type 2:**	
Instance Install Dt:		**Fuel Type 3:**	
Item Description:		**Panam Related:**	
Manufacturer:		**Panam Venue Nm:**	
Model:		**External Identifier:**	
Serial No:		**Item:**	
ULC Standard:		**Piping Steel:**	
Quantity:		**Piping Galvanized:**	
Unit of Measure:		**Tank Single Wall St:**	
Overfill Prot Type:		**Piping Underground:**	
Creation Date:		**Tank Underground:**	
Next Periodic Str DT:		**Source:**	
TSSA Base Sched Cycle 2:			
TSSAMax Hazard Rank 1:			
TSSA Risk Based Periodic Yn:			
TSSA Volume of Directives:			
TSSA Periodic Exempt:			
TSSA Statutory Interval:			
TSSA Recd Insp Interva:			
TSSA Recd Tolerance:			
TSSA Program Area:			
TSSA Program Area 2:			
Description:	FS Piping		
Original Source:	EXP		
Record Date:	Up to Mar 2012		

---

40 | ***7 of 11*** | ***317.9*** | ***20 Hurst Ave***
Kitchener ON N2G 2Z7 | ***EHS***

Order No:	20121114020	**Nearest Intersection:**	
Status:	C	**Municipality:**	Kitchener
Report Type:	Standard Select Report	**Client Prov/State:**	ON
Report Date:	23-NOV-12	**Search Radius (km):**	.25
Date Received:	14-NOV-12	**X:**	-80.479857
Previous Site Name:		**Y:**	43.440854
Lot/Building Size:			
Additional Info Ordered:			

40 **8 of 11** **317.9** **TUGHAN EXPRESS INC** **FST**
20 HURST AV KITCHENER N2G 2Z7 ON CA
ON

Instance No:	10812126	**Manufacturer:**	
Status:		**Serial No:**	
Cont Name:		**Ulc Standard:**	
Instance Type:	FS Liquid Fuel Tank	**Quantity:**	
Item:		**Unit of Measure:**	
Item Description:	FS Liquid Fuel Tank	**Fuel Type:**	Diesel
Tank Type:	Single Wall UST	**Fuel Type2:**	NULL
Install Date:	9/7/1990	**Fuel Type3:**	NULL
Install Year:	1986	**Piping Steel:**	
Years in Service:		**Piping Galvanized:**	
Model:	NULL	**Tanks Single Wall St:**	
Description:		**Piping Underground:**	
Capacity:	13638	**No Underground:**	
Tank Material:	Steel	**Panam Related:**	
Corrosion Protect:	Impressed Current	**Panam Venue:**	
Overfill Protect:			
Facility Type:	FS Liquid Fuel Tank		
Parent Facility Type:	Fuels Safety Private Fuel Outlet - Self Serve		
Facility Location:			
Device Installed Location:	20 HURST AV KITCHENER N2G 2Z7 ON CA		

Liquid Fuel Tank Details

Overfill Protection:	
Owner Account Name:	TUGHAN EXPRESS INC
Item:	FS LIQUID FUEL TANK

40 **9 of 11** **317.9** **TUGHAN EXPRESS INC** **DTNK**
20 HURST AV KITCHENER N2G 2Z7 ON CA
ON

Delisted Expired Fuel Safety Facilities

Instance No:	10812144	**Expired Date:**	
Status:	EXPIRED	**Max Hazard Rank:**	NULL
Instance ID:		**Facility Location:**	20 HURST AV KITCHENER N2G 2Z7 ON CA
Instance Type:		**Facility Type:**	FS LIQUID FUEL TANK
Instance Creation Dt:	11/8/1990	**Fuel Type 2:**	NULL
Instance Install Dt:	11/8/1990	**Fuel Type 3:**	NULL
Item Description:	FS Liquid Fuel Tank	**Panam Related:**	NULL
Manufacturer:	NULL	**Panam Venue Nm:**	NULL
Model:	NULL	**External Identifier:**	NULL
Serial No:	NULL	**Item:**	
ULC Standard:	NULL	**Piping Steel:**	
Quantity:	1	**Piping Galvanized:**	

Unit of Measure:	EA	**Tank Single Wall St:**	
Overfill Prot Type:	NULL	**Piping Underground:**	
Creation Date:	7/5/2009 1:21:05 AM	**Tank Underground:**	
Next Periodic Str DT:	NULL	**Source:**	FS Liquid Fuel Tank

TSSA Base Sched Cycle 2:	NULL
TSSAMax Hazard Rank 1:	NULL
TSSA Risk Based Periodic Yn:	NULL
TSSA Volume of Directives:	NULL
TSSA Periodic Exempt:	NULL
TSSA Statutory Interval:	NULL
TSSA Recd Insp Interva:	NULL
TSSA Recd Tolerance:	NULL
TSSA Program Area:	NULL
TSSA Program Area 2:	NULL
Description:	UNDERGROUND TANK LTR RECD FR GEORGE TAUGHAN - TANK HAN BEEN REMOVED
Original Source:	EXP
Record Date:	31-JUL-2020

---

40 | ***10 of 11*** | ***317.9*** | ***Hanover Storage Inc***
20 Hurst Ave
Kitchener ON N2G2Z7 | ***GEN***

Generator No:	ON9102365
SIC Code:	493110
SIC Description:	GENERAL WAREHOUSING AND STORAGE
Approval Years:	2016
PO Box No:	
Country:	Canada
Status:	
Co Admin:	
Choice of Contact:	CO_OFFICIAL
Phone No Admin:	
Contaminated Facility:	No
MHSW Facility:	No

Detail(s)

Waste Class:	252
Waste Class Name:	WASTE OILS & LUBRICANTS

---

40 | ***11 of 11*** | ***317.9*** | ***TUGHAN EXPRESS INC***
20 HURST AV KITCHENER N2G 2Z7 ON CA
ON | ***FST***

Instance No:	10812144	**Manufacturer:**	
Status:		**Serial No:**	
Cont Name:		**Ulc Standard:**	
Instance Type:		**Quantity:**	
Item:		**Unit of Measure:**	
Item Description:	FS Liquid Fuel Tank	**Fuel Type:**	Diesel
Tank Type:	Liquid Fuel Single Wall UST	**Fuel Type2:**	NULL
Install Date:	11/8/1990	**Fuel Type3:**	NULL
Install Year:	1983	**Piping Steel:**	
Years in Service:		**Piping Galvanized:**	
Model:	NULL	**Tanks Single Wall St:**	
Description:		**Piping Underground:**	
Capacity:	22700	**No Underground:**	
Tank Material:	Steel	**Panam Related:**	
Corrosion Protect:	Impressed Current	**Panam Venue:**	
Overfill Protect:			
Facility Type:	FS Liquid Fuel Tank		
Parent Facility Type:			

Facility Location:
Device Installed Location: 20 HURST AV KITCHENER N2G 2Z7 ON CA

Liquid Fuel Tank Details

Overfill Protection:
Owner Account Name: TUGHAN EXPRESS INC
Item: FS LIQUID FUEL TANK

---

41 | ***1 of 3*** | ***318.4*** | ***445-449 Charles St, 61-97 Kent Ave, 94 Borden Ave & 60 Ottawa Street, Kitchener, ON Kitchener ON N2G 3R5*** | ***EHS***

Order No:	21060800458	***Nearest Intersection:***	
Status:	C	***Municipality:***	
Report Type:	Custom Report	***Client Prov/State:***	ON
Report Date:	11-JUN-21	***Search Radius (km):***	.1
Date Received:	08-JUN-21	***X:***	-80.47608187
Previous Site Name:		***Y:***	43.44082583
Lot/Building Size:			
Additional Info Ordered:	Fire Insur. Maps and/or Site Plans; Aerial Photos		

---

41 | ***2 of 3*** | ***318.4*** | ***445-449 Charles St, 61-97 Kent Ave, 94 Borden Ave & 60 Ottawa Street, Kitchener, ON Kitchener ON N2G 3R5*** | ***EHS***

Order No:	21060800458	***Nearest Intersection:***	
Status:	C	***Municipality:***	
Report Type:	Custom Report	***Client Prov/State:***	ON
Report Date:	11-JUN-21	***Search Radius (km):***	.1
Date Received:	08-JUN-21	***X:***	-80.47608187
Previous Site Name:		***Y:***	43.44082583
Lot/Building Size:			
Additional Info Ordered:	Fire Insur. Maps and/or Site Plans; Aerial Photos		

---

41 | ***3 of 3*** | ***318.4*** | ***445-449 Charles St, 61-97 Kent Ave, 94 Borden Ave & 60 Ottawa Street, Kitchener, ON Kitchener ON N2G 3R5*** | ***EHS***

Order No:	21060800458	***Nearest Intersection:***	
Status:	C	***Municipality:***	
Report Type:	Custom Report	***Client Prov/State:***	ON
Report Date:	11-JUN-21	***Search Radius (km):***	.1
Date Received:	08-JUN-21	***X:***	-80.47608187
Previous Site Name:		***Y:***	43.44082583
Lot/Building Size:			
Additional Info Ordered:	Fire Insur. Maps and/or Site Plans; Aerial Photos		

---

42 | ***1 of 1*** | ***318.5*** | ***BORDEN AVENUE Kitchener ON*** | ***WWIS***

Well ID:	7229712	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Test Hole	***Data Entry Status:***	
Use 2nd:		***Data Src:***	
Final Well Status:	Abandoned-Other	***Date Received:***	20-Oct-2014 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	Yes

Audit No:	Z192498	**Contractor:**	7320
Tag:	A149490	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/722\7229712.pdf

Additional Detail(s) (Map)

Well Completed Date:	2014/10/08
Year Completed:	2014
Depth (m):	
Latitude:	43.4389170341121
Longitude:	-80.4779541686253
Path:	722\7229712.pdf

Bore Hole Information

Bore Hole ID:	1005167179	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542247.00
Code OB Desc:		**North83:**	4809690.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	08-Oct-2014 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Annular Space/Abandonment Sealing Record

Plug ID:	1005346893
Layer:	1
Plug From:	0.0
Plug To:	0.15000000596046448
Plug Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1005346894
Layer:	2
Plug From:	0.15000000596046448
Plug To:	3.0399999618530273
Plug Depth UOM:	m

Method of Construction & Well Use

Method Construction ID:	1005346892
Method Construction Code:	6
Method Construction:	Boring
Other Method Construction:	DRIVING

Pipe Information

Pipe ID:	1005346885
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1005346889
Layer:	
Material:	
Open Hole or Material:	
Depth From:	
Depth To:	
Casing Diameter:	
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1005346890
Layer:	
Slot:	
Screen Top Depth:	
Screen End Depth:	
Screen Material:	
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	

Water Details

Water ID:	1005346888
Layer:	1
Kind Code:	8
Kind:	Untested
Water Found Depth:	2.4000000953674316
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1005346887
Diameter:	10.0
Depth From:	0.0
Depth To:	3.0399999618530273
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1005167179	***Tag No:***	A149490

Depth M:		**Contractor:**	7320
Year Completed:	2014	**Path:**	722\7229712.pdf
Well Completed Dt:	2014/10/08	**Latitude:**	43.4389170341121
Audit No:	Z192498	**Longitude:**	-80.4779541686253

43 | **1 of 1** | **318.6** | **20 Queen St North Kitchener ON** | **WWIS**

Well ID:	7355639	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Test Hole	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Test Hole	**Date Received:**	19-Mar-2020 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z326413	**Contractor:**	7320
Tag:	A284177	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2020/01/28
Year Completed:	2020
Depth (m):	10.668
Latitude:	43.4389925048463
Longitude:	-80.4787072960152
Path:	

Bore Hole Information

Bore Hole ID:	1008224100	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542186.00
Code OB Desc:		**North83:**	4809698.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	28-Jan-2020 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1008361088
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.0
Formation End Depth:	25.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1008361089
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	
Mat2 Desc:	
Mat3:	91
Mat3 Desc:	WATER-BEARING
Formation Top Depth:	25.0
Formation End Depth:	35.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008361782
Layer:	3
Plug From:	23.0
Plug To:	35.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008361780
Layer:	1
Plug From:	0.0
Plug To:	0.5
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008361781
Layer:	2
Plug From:	0.5
Plug To:	23.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1008362629
Method Construction Code:	2
Method Construction:	Rotary (Convent.)
Other Method Construction:	

Pipe Information

Pipe ID:	1008360355
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1008362911
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	25.0
Casing Diameter:	1.375
Casing Diameter UOM:	Inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1008363205
Layer:	1
Slot:	.01
Screen Top Depth:	25.0
Screen End Depth:	35.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.375

Results of Well Yield Testing

Pumping Test Method Desc:	
Pump Test ID:	1008363649
Pump Set At:	
Static Level:	
Final Level After Pumping:	
Recommended Pump Depth:	
Pumping Rate:	
Flowing Rate:	
Recommended Pump Rate:	
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	
Water State After Test:	
Pumping Test Method:	0
Pumping Duration HR:	
Pumping Duration MIN:	
Flowing:	

Hole Diameter

Hole ID:	1008362341
Diameter:	8.0
Depth From:	0.0

Depth To:	35.0
Hole Depth UOM:	ft
Hole Diameter UOM:	Inch

Links

Bore Hole ID:	1008224100	**Tag No:**	A284177
Depth M:	10.668	**Contractor:**	7320
Year Completed:	2020	**Path:**	735\7355639.pdf
Well Completed Dt:	2020/01/28	**Latitude:**	43.4389925048463
Audit No:	Z326413	**Longitude:**	-80.4787072960152

---

44 **1 of 1** **316.8** **ON** **BORE**

Borehole ID:	682387	**Inclin FLG:**	No
OGF ID:	215559383	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:	Geotechnical/Geological Investigation	**Primary Name:**	
Completion Date:	NOV-1972	**Municipality:**	
Static Water Level:	1.5	**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	43.439202
Total Depth m:	8.1	**Longitude DD:**	-80.479262
Depth Ref:	Ground Surface	**UTM Zone:**	17
Depth Elev:		**Easting:**	542141
Drill Method:	Power auger	**Northing:**	4809721
Orig Ground Elev m:	318	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	318		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218557388	**Mat Consistency:**	Loose
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	1.5	**Material Texture:**	
Material Color:	Brown	**Non Geo Mat Type:**	
Material 1:	Fill	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	fill
Gsc Material Description:			
Stratum Description:	LOOSE BROWN SILTY, SOME SAND AND CLAY **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218557390	**Mat Consistency:**	Compact
Top Depth:	1.9	**Material Moisture:**	
Bottom Depth:	8.1	**Material Texture:**	Fine
Material Color:	Grey-Brown	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	COMPACT TO DENSE, GREY-BROWN, SOME FINE SAND, LAYERS AND SEAMS OF CLAYEY SILT BELOW 15 **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218557389	**Mat Consistency:**	

Top Depth:	1.5	**Material Moisture:**	
Bottom Depth:	1.9	**Material Texture:**	
Material Color:	Black	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:	organic material	**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	organic
Gsc Material Description:			
Stratum Description:	BLACK **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	4
Source Date:	1900 - 1977	**Scale or Res:**	Varies
Confidence:	H	**Horizontal:**	NAD27
Observatio:	1972/11	**Verticalda:**	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Details:	11859		
Confiden 1:			

Source List

Source Identifier:	4	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1900 - 1977	**Projection Name:**	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Originators:	Geological Survey of Canada		

---

45 | ***1 of 1*** | ***317.3*** | ***Hurst St Dump*** | ***ANDR***

Kitchener ON N2G 2Z

Legal Description:	Waterloo
Location Description:	Hurst St, 100m to creek, 10m to workshop, on site parking & commercial
Municipality:	Kitchener City
Current Municipality:	Kitchener City
RM:	Waterloo Region
Facility:	Dump
Date Active:	1954
Date Begun:	
Date Complete:	pre 1969
Area (Ha):	
Landfill Type:	
Group Name:	
Operated By:	Kitchener C
Serial:	MOEE 8087
NTS:	40P08
Diameter (m):	

Historical Summary:

Hurst St Dump MOE 1979 Hurst St cited as a closed waste disposal site. Described as 100m to creek, 10m to workshop, on site parking & commercial. MOE files extant in 1979 (MOE 1979 Site Identification Study). MOEE 1994 Hurst St cited as a closed waste disposal site (Ontario Ministry of the Environment [1994] Waste disposal site inventory, [Toronto]: Ontario Environment, 1994., i, 196 pp., maps, ISBN 0772984093 101).

Waste Type:	
UTM X Nad 27:	542075
UTM Y Nad 27:	4809700
UTM Zone:	17

Map Key	Number of Records	Elevation (m)	Site	DB
46	1 of 1	315.8	405 409 NYBERG ST Kitchener ON	WWIS

Well ID:	7360774	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:		**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	22-Jun-2020 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z331817	**Contractor:**	7424
Tag:	A277004	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2020/05/12
Year Completed:	2020
Depth (m):	5.7912
Latitude:	43.4393963592063
Longitude:	-80.4764424849616
Path:	

Bore Hole Information

Bore Hole ID:	1008315528	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542369.00
Code OB Desc:		**North83:**	4809744.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	12-May-2020 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1008328413
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	28

Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	
Mat3 Desc:	
Formation Top Depth:	5.0
Formation End Depth:	10.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1008328412
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	
Mat2 Desc:	
Mat3:	68
Mat3 Desc:	DRY
Formation Top Depth:	0.0
Formation End Depth:	5.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1008328414
Layer:	3
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	84
Mat2 Desc:	SILTY
Mat3:	91
Mat3 Desc:	WATER-BEARING
Formation Top Depth:	10.0
Formation End Depth:	19.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008328421
Layer:	2
Plug From:	8.0
Plug To:	19.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008328420
Layer:	1
Plug From:	0.0
Plug To:	8.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID: 1008328419
Method Construction Code:
Method Construction:
Other Method Construction:

Pipe Information

Pipe ID: 1008328411
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1008328417
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 9.0
Casing Diameter: 2.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Screen

Screen ID: 1008328418
Layer: 1
Slot: 10
Screen Top Depth: 9.0
Screen End Depth: 19.0
Screen Material: 5
Screen Depth UOM: ft
Screen Diameter UOM: inch
Screen Diameter: 2.0

Water Details

Water ID: 1008328416
Layer:
Kind Code:
Kind:
Water Found Depth:
Water Found Depth UOM: ft

Hole Diameter

Hole ID: 1008328415
Diameter:
Depth From:
Depth To:
Hole Depth UOM: ft
Hole Diameter UOM: inch

Links

Bore Hole ID: 1008315528 ***Tag No:*** A277004

Depth M:	5.7912	**Contractor:**	7424
Year Completed:	2020	**Path:**	
Well Completed Dt:	2020/05/12	**Latitude:**	43.4393963592063
Audit No:	Z331817	**Longitude:**	-80.4764424849616

47 | **1 of 1** | **319.9** | **BORDEN AVE.\BEDFORD RD. KITCHENER ON** | **WWIS**

Well ID:	7209441	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Test Hole	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Test Hole	**Date Received:**	15-Oct-2013 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z176124	**Contractor:**	7320
Tag:	A149490	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/720\7209441.pdf

Additional Detail(s) (Map)

Well Completed Date:	2013/10/07
Year Completed:	2013
Depth (m):	4.6
Latitude:	43.4388720139985
Longitude:	-80.4779545556926
Path:	720\7209441.pdf

Bore Hole Information

Bore Hole ID:	1004602739	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542247.00
Code OB Desc:		**North83:**	4809685.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	07-Oct-2013 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1004624224
Layer:	3
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	
Mat3 Desc:	
Formation Top Depth:	1.7999999523162842
Formation End Depth:	3.5999999046325684
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1004624225
Layer:	4
Color:	2
General Color:	GREY
Mat1:	28
Most Common Material:	SAND
Mat2:	28
Mat2 Desc:	SAND
Mat3:	91
Mat3 Desc:	WATER-BEARING
Formation Top Depth:	3.5999999046325684
Formation End Depth:	4.599999904632568
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1004624223
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.6000000238418579
Formation End Depth:	1.7999999523162842
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1004624222
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	11
Mat2 Desc:	GRAVEL
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.0
Formation End Depth:	0.6000000238418579

Formation End Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1004624232
Layer: 1
Plug From: 0.0
Plug To: 0.15000000596046448
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1004624234
Layer: 3
Plug From: 1.2000000476837158
Plug To: 4.599999904632568
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1004624233
Layer: 2
Plug From: 0.15000000596046448
Plug To: 1.2000000476837158
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1004624231
Method Construction Code: D
Method Construction: Direct Push
Other Method Construction:

Pipe Information

Pipe ID: 1004624221
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1004624228
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 1.5
Casing Diameter: 3.0999999046325684
Casing Diameter UOM: cm
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1004624229
Layer: 1

Slot:	10
Screen Top Depth:	1.5
Screen End Depth:	4.599999904632568
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	4.099999904632568

Water Details

Water ID:	1004624227
Layer:	1
Kind Code:	8
Kind:	Untested
Water Found Depth:	3.5999999046325684
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1004624226
Diameter:	10.0
Depth From:	0.0
Depth To:	4.599999904632568
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1004602739	**Tag No:**	A149490
Depth M:	4.6	**Contractor:**	7320
Year Completed:	2013	**Path:**	720\7209441.pdf
Well Completed Dt:	2013/10/07	**Latitude:**	43.4388720139985
Audit No:	Z176124	**Longitude:**	-80.4779545556926

---

48 **1 of 1** **315.8** ***405 409 NYBERG ST Kitchener ON*** ***WWIS***

Well ID:	7360773	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:		**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	22-Jun-2020 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z331818	**Contractor:**	7424
Tag:	A277013	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY (WATERLOO TWP)		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date: 2020/05/12
Year Completed: 2020
Depth (m): 4.8768
Latitude: 43.4392709251605
Longitude: -80.4765794940268
Path:

Bore Hole Information

Bore Hole ID: 1008315514
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 12-May-2020 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone: 17
East83: 542358.00
North83: 4809730.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Overburden and Bedrock Materials Interval

Formation ID: 1008328402
Layer: 2
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 06
Mat2 Desc: SILT
Mat3:
Mat3 Desc:
Formation Top Depth: 5.0
Formation End Depth: 10.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1008328403
Layer: 3
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY
Mat2: 06
Mat2 Desc: SILT
Mat3: 91
Mat3 Desc: WATER-BEARING
Formation Top Depth: 10.0
Formation End Depth: 16.0
Formation End Depth UOM: ft

Overburden and Bedrock

Materials Interval

Formation ID:	1008328401
Layer:	1
Color:	2
General Color:	GREY
Mat1:	
Most Common Material:	
Mat2:	
Mat2 Desc:	
Mat3:	68
Mat3 Desc:	DRY
Formation Top Depth:	0.0
Formation End Depth:	5.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008328409
Layer:	1
Plug From:	0.0
Plug To:	5.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008328410
Layer:	2
Plug From:	5.0
Plug To:	16.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1008328408
Method Construction Code:	
Method Construction:	
Other Method Construction:	

Pipe Information

Pipe ID:	1008328400
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1008328406
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	6.0
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1008328407
Layer:	1
Slot:	10
Screen Top Depth:	6.0
Screen End Depth:	10.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.0

Water Details

Water ID:	1008328405
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1008328404
Diameter:	
Depth From:	
Depth To:	
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1008315514	***Tag No:***	A277013
Depth M:	4.8768	***Contractor:***	7424
Year Completed:	2020	***Path:***	
Well Completed Dt:	2020/05/12	***Latitude:***	43.4392709251605
Audit No:	Z331818	***Longitude:***	-80.4765794940268

---

49 | ***1 of 1*** | ***318.4*** | ***97 BORDEN AVENUE SOUTH Kitchener ON*** | ***WWIS***

Well ID:	7175604	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Monitoring	***Data Entry Status:***	
Use 2nd:		***Data Src:***	
Final Well Status:	Observation Wells	***Date Received:***	26-Jan-2012 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	Z140424	***Contractor:***	7238
Tag:	A120110	***Form Version:***	7
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/717\7175604.pdf

Additional Detail(s) (Map)

Well Completed Date: 2011/11/04
Year Completed: 2011
Depth (m): 11.8872
Latitude: 43.4408259605292
Longitude: -80.4759852924883
Path: 717\7175604.pdf

Bore Hole Information

Bore Hole ID: 1003637191
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 04-Nov-2011 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone: 17
East83: 542405.00
North83: 4809903.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Overburden and Bedrock Materials Interval

Formation ID: 1004147758
Layer: 3
Color: 2
General Color: GREY
Mat1: 06
Most Common Material: SILT
Mat2: 05
Mat2 Desc: CLAY
Mat3: 85
Mat3 Desc: SOFT
Formation Top Depth: 5.0
Formation End Depth: 39.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1004147757
Layer: 2
Color: 8
General Color: BLACK
Mat1: 06
Most Common Material: SILT
Mat2: 11
Mat2 Desc: GRAVEL
Mat3: 73
Mat3 Desc: HARD
Formation Top Depth: 2.0

Formation End Depth: 5.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1004147756
Layer: 1
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 11
Mat2 Desc: GRAVEL
Mat3: 77
Mat3 Desc: LOOSE
Formation Top Depth: 0.0
Formation End Depth: 2.0
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1004147765
Layer: 1
Plug From: 0.0
Plug To: 37.66999816894531
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1004147766
Layer: 2
Plug From: 37.66999816894531
Plug To: 39.0
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 1004147764
Method Construction Code: 6
Method Construction: Boring
Other Method Construction:

Pipe Information

Pipe ID: 1004147755
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1004147761
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0

Depth To:	34.83000183105469
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1004147762
Layer:	1
Slot:	
Screen Top Depth:	34.83000183105469
Screen End Depth:	38.16999816894531
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.0

Water Details

Water ID:	1004147760
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1004147759
Diameter:	8.0
Depth From:	0.0
Depth To:	39.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1003637191	**Tag No:**	A120110
Depth M:	11.8872	**Contractor:**	7238
Year Completed:	2011	**Path:**	717\7175604.pdf
Well Completed Dt:	2011/11/04	**Latitude:**	43.4408259605292
Audit No:	Z140424	**Longitude:**	-80.4759852924883

50 | ***1 of 1*** | ***317.3*** | ***20 HURST AVE. KITCHENER ON*** | ***WWIS***

Well ID:	7218061	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	21-Mar-2014 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z180403	**Contractor:**	7190
Tag:	A138924	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	

Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/721\7218061.pdf

Additional Detail(s) (Map)

Well Completed Date:	2014/01/07
Year Completed:	2014
Depth (m):	8.2296
Latitude:	43.4410153695726
Longitude:	-80.4799998126234
Path:	721\7218061.pdf

Bore Hole Information

Bore Hole ID:	1004723772	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542080.00
Code OB Desc:		**North83:**	4809922.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	07-Jan-2014 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1005096932
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	77
Mat3 Desc:	LOOSE
Formation Top Depth:	0.0
Formation End Depth:	5.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1005096934
Layer:	3
Color:	2
General Color:	GREY
Mat1:	06
Most Common Material:	SILT

Mat2:	06
Mat2 Desc:	SILT
Mat3:	66
Mat3 Desc:	DENSE
Formation Top Depth:	12.0
Formation End Depth:	19.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1005096933
Layer:	2
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	06
Mat2 Desc:	SILT
Mat3:	77
Mat3 Desc:	LOOSE
Formation Top Depth:	5.0
Formation End Depth:	12.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1005096935
Layer:	4
Color:	2
General Color:	GREY
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	66
Mat3 Desc:	DENSE
Formation Top Depth:	19.0
Formation End Depth:	26.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1005096936
Layer:	5
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	06
Mat2 Desc:	SILT
Mat3:	66
Mat3 Desc:	DENSE
Formation Top Depth:	26.0
Formation End Depth:	27.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID: 1005096944
Layer: 2
Plug From: 12.0
Plug To: 25.0
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1005096943
Layer: 1
Plug From: 0.0
Plug To: 12.0
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 1005096942
Method Construction Code: 3
Method Construction: Rotary (Reverse)
Other Method Construction:

Pipe Information

Pipe ID: 1005096931
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1005096939
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 15.0
Casing Diameter: 2.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Screen

Screen ID: 1005096940
Layer: 1
Slot: 10
Screen Top Depth: 15.0
Screen End Depth: 25.0
Screen Material: 5
Screen Depth UOM: ft
Screen Diameter UOM: inch
Screen Diameter: 2.0

Water Details

Water ID: 1005096938
Layer: 1
Kind Code:
Kind:

Water Found Depth:	5.0
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1005096937
Diameter:	4.25
Depth From:	0.0
Depth To:	25.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1004723772	**Tag No:**	A138924
Depth M:	8.2296	**Contractor:**	7190
Year Completed:	2014	**Path:**	721\7218061.pdf
Well Completed Dt:	2014/01/07	**Latitude:**	43.4410153695726
Audit No:	Z180403	**Longitude:**	-80.4799998126234

---

51 **1 of 1** **317.9** **ON** **BORE**

Borehole ID:	683285	**Inclin FLG:**	No
OGF ID:	215560281	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:	Geotechnical/Geological Investigation	**Primary Name:**	
Completion Date:	JAN-1972	**Municipality:**	
Static Water Level:	1.0	**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	43.441365
Total Depth m:	5	**Longitude DD:**	-80.479737
Depth Ref:	Ground Surface	**UTM Zone:**	17
Depth Elev:		**Easting:**	542101
Drill Method:	Power auger	**Northing:**	4809961
Orig Ground Elev m:	318	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	319		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218560686	**Mat Consistency:**	Compact
Top Depth:	4	**Material Moisture:**	
Bottom Depth:	5	**Material Texture:**	
Material Color:		**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:	Sand	**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	SATURATED, COMPACT **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218560684	**Mat Consistency:**	Loose
Top Depth:	2.3	**Material Moisture:**	
Bottom Depth:	2.6	**Material Texture:**	
Material Color:		**Non Geo Mat Type:**	

Material 1:	Sand	**Geologic Formation:**	
Material 2:	Gravel	**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	SATURATED LOOSE.		

Geology Stratum ID:	218560685	**Mat Consistency:**	Compact
Top Depth:	2.6	**Material Moisture:**	
Bottom Depth:	4	**Material Texture:**	
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	GREY, SATURATED, LOOSE TO COMPACT.		

Geology Stratum ID:	218560682	**Mat Consistency:**	Loose
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	1.4	**Material Texture:**	
Material Color:	Black	**Non Geo Mat Type:**	
Material 1:	Fill	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	fill
Gsc Material Description:			
Stratum Description:	BROWN TO BLACK, SAND AND GRAVEL, SATURATED, LOOSE **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218560683	**Mat Consistency:**	Loose
Top Depth:	1.4	**Material Moisture:**	
Bottom Depth:	2.3	**Material Texture:**	
Material Color:	Dark	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	DARK BROWN, TRACE CLAY, BROWN SAND SEAMS, SATURATED, LOOSE.		

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	4
Source Date:	1900 - 1977	**Scale or Res:**	Varies
Confidence:	H	**Horizontal:**	NAD27
Observatio:	1972/1	**Verticalda:**	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Details:	12873		
Confiden 1:			

Source List

Source Identifier:	4	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1900 - 1977	**Projection Name:**	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Originators:	Geological Survey of Canada		

52	1 of 1	319.8	97 KENT AVE Kitchener ON	WWIS

Well ID:	7169512	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Test Hole	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Test Hole	**Date Received:**	05-Oct-2011 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z135890	**Contractor:**	7238
Tag:	A115461	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	

Municipality: KITCHENER CITY (WATERLOO TWP)
Site Info:

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/716\7169512.pdf

Additional Detail(s) (Map)

Well Completed Date: 2011/09/23
Year Completed: 2011
Depth (m): 14.6304
Latitude: 43.4416938543691
Longitude: -80.4767439691448
Path: 716\7169512.pdf

Bore Hole Information

Bore Hole ID:	1003576356	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542343.00
Code OB Desc:		**North83:**	4809999.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	3
Date Completed:	23-Sep-2011 00:00:00	**UTMRC Desc:**	margin of error : 10 - 30 m
Remarks:		**Location Method:**	wwr

Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 1003979218
Layer: 3
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:

Mat3:
Mat3 Desc:
Formation Top Depth: 45.0
Formation End Depth: 48.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1003979217
Layer: 2
Color: 2
General Color: GREY
Mat1: 06
Most Common Material: SILT
Mat2: 28
Mat2 Desc: SAND
Mat3:
Mat3 Desc:
Formation Top Depth: 15.0
Formation End Depth: 45.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1003979216
Layer: 1
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 06
Mat2 Desc: SILT
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 15.0
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1003979228
Layer: 3
Plug From: 35.0
Plug To: 47.0
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1003979226
Layer: 1
Plug From: 0.0
Plug To: 1.0
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID:	1003979227
Layer:	2
Plug From:	1.0
Plug To:	35.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1003979225
Method Construction Code:	E
Method Construction:	Auger
Other Method Construction:	

Pipe Information

Pipe ID:	1003979215
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1003979222
Layer:	2
Material:	
Open Hole or Material:	
Depth From:	
Depth To:	
Casing Diameter:	
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Casing

Casing ID:	1003979221
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	38.0
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1003979223
Layer:	1
Slot:	10
Screen Top Depth:	38.0
Screen End Depth:	48.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.0

Water Details

Water ID:	1003979220

Layer:
Kind Code:
Kind:
Water Found Depth:
Water Found Depth UOM: ft

Hole Diameter

Hole ID: 1003979219
Diameter: 8.0
Depth From: 0.0
Depth To: 48.0
Hole Depth UOM: ft
Hole Diameter UOM: inch

Links

Bore Hole ID: 1003576356
Depth M: 14.6304
Year Completed: 2011
Well Completed Dt: 2011/09/23
Audit No: Z135890
Tag No: A115461
Contractor: 7238
Path: 716\7169512.pdf
Latitude: 43.4416938543691
Longitude: -80.4767439691448

53	1 of 1	318.5	BORDEN AVE S/ CHARLES ST. E FITCHENER ON	WWIS

Well ID: 7205598
Construction Date:
Use 1st: Test Hole
Use 2nd:
Final Well Status: Test Hole
Water Type:
Casing Material:
Audit No: Z173152
Tag: A149525
Constructn Method:
Elevation (m):
Elevatn Reliabilty:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Clear/Cloudy:
Municipality: KITCHENER CITY (WATERLOO TWP)
Site Info:

Flowing (Y/N):
Flow Rate:
Data Entry Status:
Data Src:
Date Received: 31-Jul-2013 00:00:00
Selected Flag: TRUE
Abandonment Rec:
Contractor: 7320
Form Version: 7
Owner:
County: WATERLOO
Lot:
Concession:
Concession Name:
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date: 2013/07/17
Year Completed: 2013
Depth (m): 4.6
Latitude: 43.4405010230418
Longitude: -80.4758150947664
Path:

Bore Hole Information

Bore Hole ID: 1004474898
Elevation:

DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542419.00
Code OB Desc:		**North83:**	4809867.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	17-Jul-2013 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1004978637
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.0
Formation End Depth:	0.30000001192092896
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1004978638
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	06
Most Common Material:	SILT
Mat2:	28
Mat2 Desc:	SAND
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.30000001192092896
Formation End Depth:	1.7999999523162842
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1004978639
Layer:	3
Color:	6
General Color:	BROWN
Mat1:	06
Most Common Material:	SILT
Mat2:	28
Mat2 Desc:	SAND
Mat3:	91
Mat3 Desc:	WATER-BEARING

Formation Top Depth: 1.7999999523162842
Formation End Depth: 4.0
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1004978640
Layer: 4
Color: 2
General Color: GREY
Mat1: 06
Most Common Material: SILT
Mat2: 28
Mat2 Desc: SAND
Mat3:
Mat3 Desc:
Formation Top Depth: 4.0
Formation End Depth: 4.599999904632568
Formation End Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1004978649
Layer: 3
Plug From: 1.2000000476837158
Plug To: 4.599999904632568
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1004978648
Layer: 2
Plug From: 0.15000000596046448
Plug To: 1.2000000476837158
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1004978647
Layer: 1
Plug From: 0.0
Plug To: 0.15000000596046448
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1004978646
Method Construction Code: D
Method Construction: Direct Push
Other Method Construction:

Pipe Information

Pipe ID: 1004978636
Casing No: 0

Comment:
Alt Name:

Construction Record - Casing

Casing ID:	1004978643
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	1.5
Casing Diameter:	3.0999999046325684
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1004978644
Layer:	1
Slot:	.01
Screen Top Depth:	1.5
Screen End Depth:	4.599999904632568
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	4.099999904632568

Water Details

Water ID:	1004978642
Layer:	1
Kind Code:	8
Kind:	Untested
Water Found Depth:	1.7999999523162842
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1004978641
Diameter:	10.0
Depth From:	0.0
Depth To:	4.599999904632568
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1004474898	***Tag No:***	A149525
Depth M:	4.6	***Contractor:***	7320
Year Completed:	2013	***Path:***	720\7205598.pdf
Well Completed Dt:	2013/07/17	***Latitude:***	43.4405010230418
Audit No:	Z173152	***Longitude:***	-80.4758150947664

54 ***1 of 1*** ***318.0*** ***Hurst Ave.***
KITCHENER ON ***WDSH***

Site No.:	X8087
Region:	WESTCENTRAL
County:	WATERLOO
Concession:	

Lot:	Hurst Ave.
Easting:	542075
Northing:	4809700
Zone:	17
Date Closed:	
Status:	CLOSED
Classification:	A7 - POTENTIAL HUMAN IMPACT-RURAL MUNICIPAL/DOMESTIC WASTE - CLOSED >20 YRS
%CommericialWste:	n/a
%DomesticWste Rec:	n/a
%LiquidWste Rec:	n/a
%HazardousWste Rec:	n/a
%Non-haz.Wste Rec:	n/a
%Sewage/Sludge Rec:	n/a
%Other Wste Rec:	n/a

55 **1 of 1** **316.9** **ON** **WWIS**

Well ID:	7253114	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:		**Data Entry Status:**	Yes
Use 2nd:		**Data Src:**	
Final Well Status:		**Date Received:**	27-Nov-2015 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	C30525	**Contractor:**	7215
Tag:	A189605	**Form Version:**	8
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2015/08/28
Year Completed:	2015
Depth (m):	
Latitude:	43.4392667902788
Longitude:	-80.4796193624249
Path:	

Bore Hole Information

Bore Hole ID:	1005820982	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542112.00
Code OB Desc:		**North83:**	4809728.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	5
Date Completed:	28-Aug-2015 00:00:00	**UTMRC Desc:**	margin of error : 100 m - 300 m
Remarks:		**Location Method:**	digit
Loc Method Desc:			

Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Links

Bore Hole ID:	1005820982	***Tag No:***	A189605
Depth M:		***Contractor:***	7215
Year Completed:	2015	***Path:***	
Well Completed Dt:	2015/08/28	***Latitude:***	43.4392667902788
Audit No:	C30525	***Longitude:***	-80.4796193624249

---

56 **1 of 1** **318.9** ***136 OTTAWA STREET SOUTH lot 1 Kitchener ON*** ***WWIS***

Well ID:	7175595	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Monitoring	***Data Entry Status:***	
Use 2nd:		***Data Src:***	
Final Well Status:	Test Hole	***Date Received:***	26-Jan-2012 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	Z140412	***Contractor:***	7238
Tag:	A115497	***Form Version:***	7
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	001
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	GCT
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/717\7175595.pdf

Additional Detail(s) (Map)

Well Completed Date:	2011/10/13
Year Completed:	2011
Depth (m):	13.716
Latitude:	43.4408704142953
Longitude:	-80.4758613351236
Path:	717\7175595.pdf

Bore Hole Information

Bore Hole ID:	1003637456	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542415.00
Code OB Desc:		***North83:***	4809908.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	4
Date Completed:	13-Oct-2011 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		

Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 1004147607
Layer: 2
Color: 2
General Color: GREY
Mat1: 06
Most Common Material: SILT
Mat2: 28
Mat2 Desc: SAND
Mat3: 66
Mat3 Desc: DENSE
Formation Top Depth: 5.0
Formation End Depth: 40.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1004147606
Layer: 1
Color: 6
General Color: BROWN
Mat1: 11
Most Common Material: GRAVEL
Mat2: 28
Mat2 Desc: SAND
Mat3: 66
Mat3 Desc: DENSE
Formation Top Depth: 0.0
Formation End Depth: 5.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1004147608
Layer: 3
Color: 2
General Color: GREY
Mat1: 06
Most Common Material: SILT
Mat2: 28
Mat2 Desc: SAND
Mat3: 05
Mat3 Desc: CLAY
Formation Top Depth: 40.0
Formation End Depth: 45.0
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1004147615

Layer: 1
Plug From: 0.0
Plug To: 29.0
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1004147616
Layer: 2
Plug From: 29.0
Plug To: 36.0
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1004147617
Layer: 3
Plug From: 36.0
Plug To: 45.0
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 1004147614
Method Construction Code: 6
Method Construction: Boring
Other Method Construction:

Pipe Information

Pipe ID: 1004147605
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1004147611
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 31.0
Casing Diameter:
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Screen

Screen ID: 1004147612
Layer: 1
Slot: 10
Screen Top Depth: 31.0
Screen End Depth: 36.0
Screen Material: 5
Screen Depth UOM: ft
Screen Diameter UOM: inch

Screen Diameter:	2.0

Water Details

Water ID:	1004147610
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1004147609
Diameter:	8.0
Depth From:	0.0
Depth To:	45.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1003637456	**Tag No:**	A115497
Depth M:	13.716	**Contractor:**	7238
Year Completed:	2011	**Path:**	717\7175595.pdf
Well Completed Dt:	2011/10/13	**Latitude:**	43.4408704142953
Audit No:	Z140412	**Longitude:**	-80.4758613351236

---

57 **1 of 1** **318.9** ***175 Borden Avenue Kitchener ON*** **SPL**

Ref No:	7233-7TC3MZ	**Contaminant Qty:**	
Site No:		**Nature of Damage:**	
Incident Dt:		**Discharger Report:**	
Year:		**Material Group:**	
Incident Cause:	Discharge Or Bypass To A Watercourse	**Health/Env Conseq:**	
Incident Event:		**Agency Involved:**	
Environment Impact:	Confirmed	**Site Lot:**	
Nature of Impact:	Surface Water Pollution	**Site Conc:**	
MOE Response:	Referral to others	**Site Geo Ref Accu:**	
Dt MOE Arvl on Scn:		**Site Map Datum:**	
MOE Reported Dt:	6/24/2009	**Northing:**	
Dt Document Closed:		**Easting:**	
Municipality No:			
System Facility Address:			
Client Type:			
Call Report Location Geodata:			
Contaminant Code:			
Contaminant Name:	PAINT (WATER-BASED)		
Contaminant Limit 1:			
Contam Limit Freq 1:			
Contaminant UN No 1:			
Receiving Medium:			
Receiving Environment:			
Incident Reason:	Negligence (Apparent) - Caused by lack of diligence		
Incident Summary:	Region of Waterloo: paint to Schneider's Creek		
Site Region:			
Site Municipality:	Kitchener		
Activity Preceding Spill:			
Property 2nd Watershed:			
Property Tertiary Watershed:			
Sector Type:	Other		

SAC Action Class:	Watercourse Spills
Source Type:	
Site County/District:	
Site Geo Ref Meth:	
Site District Office:	
Nearest Watercourse:	
Site Name:	Schneider's Creek<UNOFFICIAL>
Site Address:	
Client Name:	

58 **1 of 1** **318.5** **BORDEN AVE**
Kitchener ON
WWIS

Well ID:	7229715	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Test Hole	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Abandoned-Other	**Date Received:**	20-Oct-2014 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	Yes
Audit No:	Z192496	**Contractor:**	7320
Tag:	A149525	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/722\7229715.pdf

Additional Detail(s) (Map)

Well Completed Date:	2014/10/08
Year Completed:	2014
Depth (m):	
Latitude:	43.4405005698545
Longitude:	-80.4757162403224
Path:	722\7229715.pdf

Bore Hole Information

Bore Hole ID:	1005167188	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542427.00
Code OB Desc:		**North83:**	4809867.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	08-Oct-2014 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			

Supplier Comment:

Annular Space/Abandonment Sealing Record

Plug ID:	1005346925
Layer:	2
Plug From:	0.0
Plug To:	4.559999942779541
Plug Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1005346924
Layer:	1
Plug From:	0.0
Plug To:	0.0
Plug Depth UOM:	m

Method of Construction & Well Use

Method Construction ID:	1005346923
Method Construction Code:	6
Method Construction:	Boring
Other Method Construction:	DRIVING

Pipe Information

Pipe ID:	1005346916
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1005346920
Layer:	
Material:	
Open Hole or Material:	
Depth From:	
Depth To:	
Casing Diameter:	
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1005346921
Layer:	
Slot:	
Screen Top Depth:	
Screen End Depth:	
Screen Material:	
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	

Water Details

Water ID:	1005346919
Layer:	1
Kind Code:	8
Kind:	Untested
Water Found Depth:	2.4000000953674316
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1005346918
Diameter:	10.0
Depth From:	0.0
Depth To:	4.559999942779541
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1005167188	**Tag No:**	A149525
Depth M:		**Contractor:**	7320
Year Completed:	2014	**Path:**	722\7229715.pdf
Well Completed Dt:	2014/10/08	**Latitude:**	43.4405005698545
Audit No:	Z192496	**Longitude:**	-80.4757162403224

---

59 **1 of 1** **316.4** ***IRON HORSETRAIL + BORDEN AVE SOUTH con -00***
Kitchener ON **WWIS**

Well ID:	7353928	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring and Test Hole	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Monitoring and Test Hole	**Date Received:**	24-Feb-2020 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z320396	**Contractor:**	7320
Tag:	A284225	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	-00
Well Depth:		**Concession Name:**	GCT
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2020/01/12
Year Completed:	2020
Depth (m):	4.8768
Latitude:	43.439753916129
Longitude:	-80.4758709732642
Path:	

Bore Hole Information

Bore Hole ID:	1008171694	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542415.00
Code OB Desc:		**North83:**	4809784.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	12-Jan-2020 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1008232383
Layer:	2
Color:	2
General Color:	GREY
Mat1:	06
Most Common Material:	SILT
Mat2:	28
Mat2 Desc:	SAND
Mat3:	05
Mat3 Desc:	CLAY
Formation Top Depth:	7.0
Formation End Depth:	16.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1008232382
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	01
Most Common Material:	FILL
Mat2:	28
Mat2 Desc:	SAND
Mat3:	11
Mat3 Desc:	GRAVEL
Formation Top Depth:	0.0
Formation End Depth:	7.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008234625
Layer:	2
Plug From:	1.0
Plug To:	4.0
Plug Depth UOM:	ft

Annular Space/Abandonment

Sealing Record

Plug ID:	1008234624
Layer:	1
Plug From:	0.0
Plug To:	1.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008234626
Layer:	3
Plug From:	4.0
Plug To:	16.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1008236709
Method Construction Code:	B
Method Construction:	Other Method
Other Method Construction:	HOLLOW STEM

Method of Construction & Well Use

Method Construction ID:	1008236708
Method Construction Code:	2
Method Construction:	Rotary (Convent.)
Other Method Construction:	

Pipe Information

Pipe ID:	1008229409
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1008237668
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	6.0
Casing Diameter:	2.0
Casing Diameter UOM:	Inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1008238516
Layer:	1
Slot:	10
Screen Top Depth:	6.0
Screen End Depth:	16.0
Screen Material:	5

Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.200000047683716

Results of Well Yield Testing

Pumping Test Method Desc:	
Pump Test ID:	1008239859
Pump Set At:	
Static Level:	
Final Level After Pumping:	
Recommended Pump Depth:	
Pumping Rate:	
Flowing Rate:	
Recommended Pump Rate:	
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	
Water State After Test:	
Pumping Test Method:	0
Pumping Duration HR:	
Pumping Duration MIN:	
Flowing:	

Water Details

Water ID:	1008238731
Layer:	1
Kind Code:	8
Kind:	Untested
Water Found Depth:	
Water Found Depth UOM:	

Hole Diameter

Hole ID:	1008235721
Diameter:	8.0
Depth From:	
Depth To:	16.0
Hole Depth UOM:	ft
Hole Diameter UOM:	Inch

Links

Bore Hole ID:	1008171694	***Tag No:***	A284225
Depth M:	4.8768	***Contractor:***	7320
Year Completed:	2020	***Path:***	735\7353928.pdf
Well Completed Dt:	2020/01/12	***Latitude:***	43.439753916129
Audit No:	Z320396	***Longitude:***	-80.4758709732642

---

60 ***1 of 1*** ***317.0*** ***ON*** ***BORE***

Borehole ID:	680069	***Inclin FLG:***	No
OGF ID:	215557065	***SP Status:***	Initial Entry
Status:		***Surv Elev:***	No
Type:	Borehole	***Piezometer:***	No
Use:	Geotechnical/Geological Investigation	***Primary Name:***	
Completion Date:	MAY-1965	***Municipality:***	
Static Water Level:	2.1	***Lot:***	
Primary Water Use:		***Township:***	

Sec. Water Use:		**Latitude DD:**	43.439907
Total Depth m:	9.8	**Longitude DD:**	-80.475796
Depth Ref:	Ground Surface	**UTM Zone:**	17
Depth Elev:		**Easting:**	542421
Drill Method:	Boring	**Northing:**	4809801
Orig Ground Elev m:	318	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	318		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218549163	**Mat Consistency:**	Loose
Top Depth:	2.1	**Material Moisture:**	
Bottom Depth:	2.4	**Material Texture:**	Medium
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:	Silt	**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	GREY, LOOSE.		

Geology Stratum ID:	218549162	**Mat Consistency:**	Loose
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	2.1	**Material Texture:**	
Material Color:	Brown	**Non Geo Mat Type:**	
Material 1:	Fill	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	fill
Gsc Material Description:			
Stratum Description:	BROWN, LOOSE.		

Geology Stratum ID:	218549164	**Mat Consistency:**	Compact
Top Depth:	2.4	**Material Moisture:**	
Bottom Depth:	3.7	**Material Texture:**	
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Gravel	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	GREY, COMPACT.		

Geology Stratum ID:	218549165	**Mat Consistency:**	Dense
Top Depth:	3.7	**Material Moisture:**	
Bottom Depth:	9.8	**Material Texture:**	
Material Color:	Brown	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:	Sand	**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	GREEN, BROWN, DENSE. CROSS-BEDDED.		

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	4
Source Date:	1900 - 1977	**Scale or Res:**	Varies

Confidence:	H	**Horizontal:**	NAD27
Observatio:	1965/5	**Verticalda:**	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Details:	78		
Confiden 1:			

Source List

Source Identifier:	4	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1900 - 1977	**Projection Name:**	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Originators:	Geological Survey of Canada		

---

61 | ***1 of 1*** | ***316.6*** | ***136 OTTAWA ST. S. Kitchener ON*** | ***WWIS***

Well ID:	7127224	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	0	**Date Received:**	10-Aug-2009 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	M04729	**Contractor:**	7366
Tag:	A083527	**Form Version:**	5
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/712\7127224.pdf

Additional Detail(s) (Map)

Well Completed Date:	2009/07/21
Year Completed:	2009
Depth (m):	4.5
Latitude:	43.4389838143479
Longitude:	-80.4768043947686
Path:	712\7127224.pdf

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/712\7127224.pdf

Additional Detail(s) (Map)

Well Completed Date:	
Year Completed:	
Depth (m):	
Latitude:	43.4389387942431
Longitude:	-80.4768047826892
Path:	712\7127224.pdf

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/712\7127224.pdf

Additional Detail(s) (Map)

Well Completed Date:
Year Completed:
Depth (m):
Latitude: 43.4388844874281
Longitude: -80.4767434657997
Path: 712\7127224.pdf

Bore Hole Information

Bore Hole ID: 1002810575
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind: This is a record from cluster log sheet
Date Completed:
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone: 17
East83: 542345.00
North83: 4809687.00
Org CS: UTM83
UTMRC: 3
UTMRC Desc: margin of error : 10 - 30 m
Location Method: wwr

Annular Space/Abandonment Sealing Record

Plug ID: 1002810579
Layer:
Plug From:
Plug To:
Plug Depth UOM:

Method of Construction & Well Use

Method Construction ID: 1002810578
Method Construction Code:
Method Construction:
Other Method Construction: DIRECT PUSH

Pipe Information

Pipe ID: 1002810580
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1002810582
Layer:
Material: 5
Open Hole or Material: PLASTIC
Depth From:

Depth To: 0.8999999761581421
Casing Diameter:
Casing Diameter UOM:
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1002810581
Layer:
Slot:
Screen Top Depth: 0.30000001192092896
Screen End Depth: 1.7999999523162842
Screen Material:
Screen Depth UOM: m
Screen Diameter UOM:
Screen Diameter:

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1002810583
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM:
Rate UOM:
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Hole Diameter

Hole ID: 1002810577
Diameter: 10.0
Depth From:
Depth To: 1.7999999523162842
Hole Depth UOM: m
Hole Diameter UOM: cm

Bore Hole Information

Bore Hole ID: 1002810584
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind: This is a record from cluster log sheet
Date Completed:
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:

Elevation:
Elevrc:
Zone: 17
East83: 542340.00
North83: 4809693.00
Org CS: UTM83
UTMRC: 3
UTMRC Desc: margin of error : 10 - 30 m
Location Method: wwr

Source Revision Comment:
Supplier Comment:

Annular Space/Abandonment Sealing Record

Plug ID: 1002810588
Layer:
Plug From:
Plug To:
Plug Depth UOM:

Method of Construction & Well Use

Method Construction ID: 1002810587
Method Construction Code:
Method Construction:
Other Method Construction: DIRECT PUSH

Pipe Information

Pipe ID: 1002810589
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1002810591
Layer:
Material: 5
Open Hole or Material: PLASTIC
Depth From:
Depth To: 1.5
Casing Diameter:
Casing Diameter UOM:
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1002810590
Layer:
Slot:
Screen Top Depth: 1.5
Screen End Depth: 4.5
Screen Material:
Screen Depth UOM: m
Screen Diameter UOM:
Screen Diameter:

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1002810592
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:

Flowing Rate:
Recommended Pump Rate:
Levels UOM:
Rate UOM:
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Hole Diameter

Hole ID: 1002810586
Diameter: 10.0
Depth From:
Depth To: 4.5
Hole Depth UOM: m
Hole Diameter UOM: cm

Bore Hole Information

Bore Hole ID: 1002636916
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 21-Jul-2009 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone: 17
East83: 542340.00
North83: 4809698.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Overburden and Bedrock Materials Interval

Formation ID: 1002810594
Layer: 1
Color: 6
General Color: BROWN
Mat1: 01
Most Common Material: FILL
Mat2:
Mat2 Desc:
Mat3: 77
Mat3 Desc: LOOSE
Formation Top Depth: 0.0
Formation End Depth: 1.0
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1002810595
Layer: 2
Color: 6

General Color:	BROWN
Mat1:	06
Most Common Material:	SILT
Mat2:	28
Mat2 Desc:	SAND
Mat3:	77
Mat3 Desc:	LOOSE
Formation Top Depth:	1.0
Formation End Depth:	4.5
Formation End Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1002810598
Layer:	2
Plug From:	0.20000000298023224
Plug To:	0.8999999761581421
Plug Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1002810597
Layer:	1
Plug From:	0.0
Plug To:	0.20000000298023224
Plug Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1002810599
Layer:	3
Plug From:	0.8999999761581421
Plug To:	4.5
Plug Depth UOM:	m

Method of Construction & Well Use

Method Construction ID:	1002810603
Method Construction Code:	9
Method Construction:	Driving
Other Method Construction:	

Pipe Information

Pipe ID:	1002810593
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1002810600
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0

Depth To:	4.5
Casing Diameter:	3.799999952316284
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1002810601
Layer:	1
Slot:	10
Screen Top Depth:	
Screen End Depth:	
Screen Material:	
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	4.0

Hole Diameter

Hole ID:	1002810596
Diameter:	10.0
Depth From:	0.0
Depth To:	4.5
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1002810575	**Tag No:**	A083527
Depth M:		**Contractor:**	7366
Year Completed:		**Path:**	712\7127224.pdf
Well Completed Dt:		**Latitude:**	43.4388844874281
Audit No:	M04729	**Longitude:**	-80.4767434657997

Links

Bore Hole ID:	1002636916	**Tag No:**	A083527
Depth M:	4.5	**Contractor:**	7366
Year Completed:	2009	**Path:**	712\7127224.pdf
Well Completed Dt:	2009/07/21	**Latitude:**	43.4389838143479
Audit No:	M04729	**Longitude:**	-80.4768043947686

Links

Bore Hole ID:	1002810584	**Tag No:**	A083527
Depth M:		**Contractor:**	7366
Year Completed:		**Path:**	712\7127224.pdf
Well Completed Dt:		**Latitude:**	43.4389387942431
Audit No:	M04729	**Longitude:**	-80.4768047826892

---

62 | ***1 of 1*** | ***319.9*** | ***KITCHENER CITY***
BEDFORD RD./BORDEN AVE.
KITCHENER CITY ON | ***CA***

Certificate #:	3-0562-93-
Application Year:	93
Issue Date:	6/3/1993
Approval Type:	Municipal sewage
Status:	Approved
Application Type:	

Map Key	Number of Records	Elevation (m)	Site	DB

Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

---

63 | ***1 of 5*** | ***315.9*** | ***FOUR SEASONS SUNROOMS***
405 NYBERG ST
KITCHENER ON N2G 2Z1 | ***SCT***

Established: 1992
Plant Size (ft²): 0
Employment: 1

--Details--
Description: MILLWORK
SIC/NAICS Code: 2431

Description: PREFABRICATED WOOD BUILDINGS AND COMPONENTS
SIC/NAICS Code: 2452

Description: PLASTICS PRODUCTS, NOT ELSEWHERE CLASSIFIED
SIC/NAICS Code: 3089

---

63 | ***2 of 5*** | ***315.9*** | ***Alpine Glass & Mirror Inc.***
405 Nyberg St
Kitchener ON N2G 2Z1 | ***SCT***

Established: 1991
Plant Size (ft²):
Employment: 3

--Details--
Description: Glass Product Manufacturing from Purchased Glass
SIC/NAICS Code: 327215

Description: Metal Window and Door Manufacturing
SIC/NAICS Code: 332321

---

63 | ***3 of 5*** | ***315.9*** | ***Artals Laser Engraving***
405 Nyberg St
Kitchener ON N2G 2Z1 | ***SCT***

Established: 1995
Plant Size (ft²):
Employment: 1

--Details--
Description: Coating, Engraving, Heat Treating and Allied Activities
SIC/NAICS Code: 332810

---

63 | ***4 of 5*** | ***315.9*** | ***Braun¿s Property Management Inc.***
405 Nyberg Street | ***GEN***

Kitchener ON N2G 2Z1

Generator No: ON8633278
SIC Code:
SIC Description:
Approval Years: As of Jul 2020
PO Box No:
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 241 L
Waste Class Name: Halogenated solvents and residues

---

63 ***5 of 5*** ***315.9*** ***Braun¿s Property Management Inc.*** ***GEN***
405 Nyberg Street
Kitchener ON N2G 2Z1

Generator No: ON8633278
SIC Code:
SIC Description:
Approval Years: As of Jan 2021
PO Box No:
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 241 L
Waste Class Name: Halogenated solvents and residues

---

64 ***1 of 1*** ***318.0*** ***LION HORSE TRAIL con -00*** ***WWIS***
Kitchener ON

Well ID:	7353962	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Monitoring and Test Hole	***Data Entry Status:***	
Use 2nd:		***Data Src:***	
Final Well Status:	Monitoring and Test Hole	***Date Received:***	24-Feb-2020 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	Z326426	***Contractor:***	7320
Tag:	A284155	***Form Version:***	7
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	-00
Well Depth:		***Concession Name:***	GCT
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	

Clear/Cloudy: ***UTM Reliability:***
Municipality: KITCHENER CITY
Site Info:

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date: 2020/01/27
Year Completed: 2020
Depth (m): 4.572
Latitude: 43.4410524530589
Longitude: -80.4802342857581
Path:

Bore Hole Information

Bore Hole ID: 1008171796 ***Elevation:***
DP2BR: ***Elevrc:***
Spatial Status: ***Zone:*** 17
Code OB: ***East83:*** 542061.00
Code OB Desc: ***North83:*** 4809926.00
Open Hole: ***Org CS:*** UTM83
Cluster Kind: ***UTMRC:*** 4
Date Completed: 27-Jan-2020 00:00:00 ***UTMRC Desc:*** margin of error : 30 m - 100 m
Remarks: ***Location Method:*** wwr
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 1008232428
Layer: 2
Color: 6
General Color: BROWN
Mat1: 05
Most Common Material: CLAY
Mat2: 06
Mat2 Desc: SILT
Mat3:
Mat3 Desc:
Formation Top Depth: 10.0
Formation End Depth: 15.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1008232427
Layer: 1
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 21
Mat2 Desc: GRANITE

Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 10.0
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1008234682
Layer: 1
Plug From: 0.0
Plug To: 1.0
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1008234683
Layer: 2
Plug From: 1.0
Plug To: 4.0
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1008234684
Layer: 3
Plug From: 4.0
Plug To: 15.0
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 1008236743
Method Construction Code: 6
Method Construction: Boring
Other Method Construction:

Method of Construction & Well Use

Method Construction ID: 1008236742
Method Construction Code: 2
Method Construction: Rotary (Convent.)
Other Method Construction:

Pipe Information

Pipe ID: 1008229428
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1008237687
Layer: 1

Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	5.0
Casing Diameter:	2.0
Casing Diameter UOM:	Inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1008238535
Layer:	1
Slot:	.01
Screen Top Depth:	5.0
Screen End Depth:	15.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.0

Results of Well Yield Testing

Pumping Test Method Desc:	
Pump Test ID:	1008239878
Pump Set At:	
Static Level:	
Final Level After Pumping:	
Recommended Pump Depth:	
Pumping Rate:	
Flowing Rate:	
Recommended Pump Rate:	
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	
Water State After Test:	
Pumping Test Method:	0
Pumping Duration HR:	
Pumping Duration MIN:	
Flowing:	

Hole Diameter

Hole ID:	1008235741
Diameter:	8.0
Depth From:	0.0
Depth To:	15.0
Hole Depth UOM:	ft
Hole Diameter UOM:	Inch

Links

Bore Hole ID:	1008171796	**Tag No:**	A284155
Depth M:	4.572	**Contractor:**	7320
Year Completed:	2020	**Path:**	735\7353962.pdf
Well Completed Dt:	2020/01/27	**Latitude:**	43.4410524530589
Audit No:	Z326426	**Longitude:**	-80.4802342857581

65	***1 of 1***	***317.8***	***136 OTTAWA ST. S. Kitchener ON***	***WWIS***

Well ID:	7125486	**Flowing (Y/N):**	

Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	09-Jul-2009 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z098736	**Contractor:**	7238
Tag:	A086124	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	

Municipality: KITCHENER CITY
Site Info:

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/712\7125486.pdf

Additional Detail(s) (Map)

Well Completed Date: 2009/07/02
Year Completed: 2009
Depth (m): 12
Latitude: 43.4388035643179
Longitude: -80.4767688770592
Path: 712\7125486.pdf

Bore Hole Information

Bore Hole ID:	1002519456	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542343.00
Code OB Desc:		**North83:**	4809678.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	02-Jul-2009 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr

Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 1002600421
Layer: 4
Color: 2
General Color: GREY
Mat1: 06
Most Common Material: SILT
Mat2: 05
Mat2 Desc: CLAY
Mat3:
Mat3 Desc:

Formation Top Depth:	10.5
Formation End Depth:	12.0
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1002600420
Layer:	3
Color:	2
General Color:	GREY
Mat1:	28
Most Common Material:	SAND
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	7.5
Formation End Depth:	10.5
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1002600418
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	06
Most Common Material:	SILT
Mat2:	28
Mat2 Desc:	SAND
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.0
Formation End Depth:	3.0
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1002600419
Layer:	2
Color:	2
General Color:	GREY
Mat1:	06
Most Common Material:	SILT
Mat2:	28
Mat2 Desc:	SAND
Mat3:	
Mat3 Desc:	
Formation Top Depth:	3.0
Formation End Depth:	7.5
Formation End Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1002600423
Layer:	1
Plug From:	0.0
Plug To:	9.0

Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1002600428
Method Construction Code: B
Method Construction: Other Method
Other Method Construction: AUGERS

Pipe Information

Pipe ID: 1002600417
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1002600425
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 9.0
Casing Diameter: 5.099999904632568
Casing Diameter UOM: cm
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1002600426
Layer: 1
Slot: 10
Screen Top Depth: 9.0
Screen End Depth: 12.0
Screen Material: 5
Screen Depth UOM: m
Screen Diameter UOM: cm
Screen Diameter: 6.400000095367432

Water Details

Water ID: 1002600424
Layer: 1
Kind Code: 8
Kind: Untested
Water Found Depth: 4.5
Water Found Depth UOM: m

Hole Diameter

Hole ID: 1002600422
Diameter: 21.0
Depth From: 0.0
Depth To: 12.0
Hole Depth UOM: m
Hole Diameter UOM: cm

Links

Bore Hole ID:	1002519456	**Tag No:**	A086124
Depth M:	12	**Contractor:**	7238
Year Completed:	2009	**Path:**	712\7125486.pdf
Well Completed Dt:	2009/07/02	**Latitude:**	43.4388035643179
Audit No:	Z098736	**Longitude:**	-80.4767688770592

66 **1 of 6** **318.9** **ADVANCE METAL INDUSTRIES LTD.** **SCT**
133 DUNDAS ST
KITCHENER ON N2G 2Z3

Established:	1950
Plant Size (ft²):	19500
Employment:	21

--Details--

Description:	Other Metalworking Machinery Manufacturing
SIC/NAICS Code:	333519
Description:	SPECIAL DIES AND TOOLS, DIE SETS, JIGS AND FIXTURES, AND INDUSTRIAL MOLDS
SIC/NAICS Code:	3544
Description:	INDUSTRIAL AND COMMERCIAL MACHINERY AND EQUIPMENT, NOT ELSEWHERE CLASSIFIED
SIC/NAICS Code:	3599
Description:	Machine Shops
SIC/NAICS Code:	332710

66 **2 of 6** **318.9** **Advance Metal Industries Ltd.** **SCT**
133 Dundas Ave
Kitchener ON N2G 2Z3

Established:	1950
Plant Size (ft²):	19500
Employment:	30

66 **3 of 6** **318.9** **ADVANCE METAL INDUSTRIES LIMITED** **GEN**
133 DUNDAS STREET
KITCHENER ON N2G 2Z3

Generator No:	ON0437400
SIC Code:	3062
SIC Description:	METAL DIES, ETC. IND.
Approval Years:	86,87,88,89,90
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	253
Waste Class Name:	EMULSIFIED OILS

Map Key	Number of Records	Elevation (m)	Site	DB
66	4 of 6	318.9	ADVANCE METAL INDUSTRIES LIMITED 133 DUNDAS STREET KITCHENER ON N2G 2Z3	GEN

Generator No: ON0437400
SIC Code: 3062
SIC Description: METAL DIES, ETC. IND
Approval Years: 92,93,97,98,99,00,01
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 252
Waste Class Name: WASTE OILS & LUBRICANTS

Waste Class: 253
Waste Class Name: EMULSIFIED OILS

Map Key	Number of Records	Elevation (m)	Site	DB
66	5 of 6	318.9	ADVANCE METAL INDUSTRIES LIMITED 01-052 133 DUNDAS STREET KITCHENER ON N2G 2Z3	GEN

Generator No: ON0437400
SIC Code: 3062
SIC Description: METAL DIES, ETC. IND
Approval Years: 94,95,96
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 252
Waste Class Name: WASTE OILS & LUBRICANTS

Waste Class: 253
Waste Class Name: EMULSIFIED OILS

Map Key	Number of Records	Elevation (m)	Site	DB
66	6 of 6	318.9	ADVANCE METAL INDUSTRIES LIMITED 133 DUNDAS Avenue KITCHENER ON N2G 2Z3	GEN

Generator No: ON0437400
SIC Code:
SIC Description:
Approval Years: 02,03,04
PO Box No:
Country:
Status:
Co Admin:

Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 148
Waste Class Name: INORGANIC LABORATORY CHEMICALS

Waste Class: 252
Waste Class Name: WASTE OILS & LUBRICANTS

Waste Class: 253
Waste Class Name: EMULSIFIED OILS

---

67 | ***1 of 1*** | ***319.9*** | ***BORDEN AVE S.\CHARLES ST. E KITCHENER ON*** | ***WWIS***

Well ID:	7209435	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Test Hole	***Data Entry Status:***	
Use 2nd:		***Data Src:***	
Final Well Status:	Test Hole	***Date Received:***	15-Oct-2013 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	Z176123	***Contractor:***	7320
Tag:	A149497	***Form Version:***	7
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/720\7209435.pdf

Additional Detail(s) (Map)

Well Completed Date: 2013/10/07
Year Completed: 2013
Depth (m): 4.6
Latitude: 43.4408149738194
Longitude: -80.4755528797612
Path: 720\7209435.pdf

Bore Hole Information

Bore Hole ID:	1004602721	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542440.00
Code OB Desc:		***North83:***	4809902.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	4
Date Completed:	07-Oct-2013 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	wwr

Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 1004624155
Layer: 2
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0.6000000238418579
Formation End Depth: 1.7999999523162842
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1004624154
Layer: 1
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 11
Mat2 Desc: GRAVEL
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 0.6000000238418579
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1004624157
Layer: 4
Color:
General Color:
Mat1: 06
Most Common Material: SILT
Mat2: 28
Mat2 Desc: SAND
Mat3: 91
Mat3 Desc: WATER-BEARING
Formation Top Depth: 3.5999999046325684
Formation End Depth: 4.599999904632568
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1004624156
Layer: 3
Color: 2
General Color: GREY
Mat1: 28
Most Common Material: SAND
Mat2: 06
Mat2 Desc: SILT
Mat3: 91
Mat3 Desc: WATER-BEARING
Formation Top Depth: 1.7999999523162842
Formation End Depth: 3.5999999046325684
Formation End Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1004624166
Layer: 3
Plug From: 1.2000000476837158
Plug To: 4.599999904632568
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1004624165
Layer: 2
Plug From: 0.15000000596046448
Plug To: 1.2000000476837158
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1004624164
Layer: 1
Plug From: 0.0
Plug To: 0.15000000596046448
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1004624163
Method Construction Code: D
Method Construction: Direct Push
Other Method Construction:

Pipe Information

Pipe ID: 1004624153
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1004624160
Layer: 1

Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	1.5
Casing Diameter:	5.099999904632568
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1004624161
Layer:	1
Slot:	10
Screen Top Depth:	1.5
Screen End Depth:	4.599999904632568
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	6.099999904632568

Water Details

Water ID:	1004624159
Layer:	1
Kind Code:	8
Kind:	Untested
Water Found Depth:	3.0
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1004624158
Diameter:	10.0
Depth From:	0.0
Depth To:	4.599999904632568
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1004602721	**Tag No:**	A149497
Depth M:	4.6	**Contractor:**	7320
Year Completed:	2013	**Path:**	720\7209435.pdf
Well Completed Dt:	2013/10/07	**Latitude:**	43.4408149738194
Audit No:	Z176123	**Longitude:**	-80.4755528797612

---

68 | ***1 of 1*** | ***315.8*** | ***405 409 NYBERG ST Kitchener ON*** | ***WWIS***

Well ID:	7360775	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:		**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	22-Jun-2020 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z331816	**Contractor:**	7424
Tag:	A277010	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	

Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2020/03/12
Year Completed:	2020
Depth (m):	4.572
Latitude:	43.4392502573644
Longitude:	-80.4759988913046
Path:	

Bore Hole Information

Bore Hole ID:	1008315531	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542405.00
Code OB Desc:		**North83:**	4809728.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	12-Mar-2020 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1008328423
Layer:	1
Color:	2
General Color:	GREY
Mat1:	
Most Common Material:	
Mat2:	
Mat2 Desc:	
Mat3:	68
Mat3 Desc:	DRY
Formation Top Depth:	0.0
Formation End Depth:	5.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1008328424
Layer:	2
Color:	2

General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	28
Mat2 Desc:	SAND
Mat3:	91
Mat3 Desc:	WATER-BEARING
Formation Top Depth:	5.0
Formation End Depth:	15.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008328431
Layer:	2
Plug From:	4.0
Plug To:	15.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008328430
Layer:	1
Plug From:	0.0
Plug To:	4.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1008328429
Method Construction Code:	
Method Construction:	
Other Method Construction:	

Pipe Information

Pipe ID:	1008328422
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1008328427
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	5.0
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1008328428
Layer:	1

Slot:	10
Screen Top Depth:	5.0
Screen End Depth:	15.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.0

Water Details

Water ID:	1008328426
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1008328425
Diameter:	
Depth From:	
Depth To:	
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1008315531	**Tag No:**	A277010
Depth M:	4.572	**Contractor:**	7424
Year Completed:	2020	**Path:**	
Well Completed Dt:	2020/03/12	**Latitude:**	43.4392502573644
Audit No:	Z331816	**Longitude:**	-80.4759988913046

---

69 | ***1 of 3*** | ***315.8*** | ***PAUL DAVIS SYSTEMS***
409 NYBERG ST
KITCHER ON N2G 2Z1 | ***GEN***

Generator No:	ON3837617
SIC Code:	232990
SIC Description:	All Other Special Trade Contracting
Approval Years:	02,03,04,05
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	145
Waste Class Name:	PAINT/PIGMENT/COATING RESIDUES
Waste Class:	213
Waste Class Name:	PETROLEUM DISTILLATES
Waste Class:	148
Waste Class Name:	INORGANIC LABORATORY CHEMICALS

Waste Class: 211
Waste Class Name: AROMATIC SOLVENTS

Waste Class: 212
Waste Class Name: ALIPHATIC SOLVENTS

Waste Class: 252
Waste Class Name: WASTE OILS & LUBRICANTS

Waste Class: 263
Waste Class Name: ORGANIC LABORATORY CHEMICALS

---

69 **2 of 3** **315.8** **PAUL DAVIS SYSTEMS**
409 NYBERG ST
KITCHENER ON
GEN

Generator No: ON3837617
SIC Code: 232990
SIC Description:
Approval Years: 2009
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 145
Waste Class Name: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 148
Waste Class Name: INORGANIC LABORATORY CHEMICALS

Waste Class: 211
Waste Class Name: AROMATIC SOLVENTS

Waste Class: 212
Waste Class Name: ALIPHATIC SOLVENTS

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

Waste Class: 252
Waste Class Name: WASTE OILS & LUBRICANTS

Waste Class: 262
Waste Class Name: DETERGENTS/SOAPS

Waste Class: 263
Waste Class Name: ORGANIC LABORATORY CHEMICALS

---

69 **3 of 3** **315.8** **PAUL DAVIS SYSTEMS**
409 NYBERG ST
KITCHENER ON
GEN

Generator No: ON3837617
SIC Code: 232990
SIC Description:

Approval Years:	2010
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	211
Waste Class Name:	AROMATIC SOLVENTS
Waste Class:	263
Waste Class Name:	ORGANIC LABORATORY CHEMICALS
Waste Class:	212
Waste Class Name:	ALIPHATIC SOLVENTS
Waste Class:	148
Waste Class Name:	INORGANIC LABORATORY CHEMICALS
Waste Class:	262
Waste Class Name:	DETERGENTS/SOAPS
Waste Class:	145
Waste Class Name:	PAINT/PIGMENT/COATING RESIDUES
Waste Class:	213
Waste Class Name:	PETROLEUM DISTILLATES
Waste Class:	252
Waste Class Name:	WASTE OILS & LUBRICANTS

---

70 | ***1 of 8*** | ***319.5*** | ***TUFFEE MFG. INC.***
70 BORDEN AVE S
KITCHENER ON N2G 3R5 | ***SCT***

Established:	1985
Plant Size (ft²):	0
Employment:	8

--Details--

Description:	CUTTING TOOLS & MACHINISTS' PRECISION MEASURING DEVICES
SIC/NAICS Code:	3545
Description:	CARBURETORS, PISTONS, PISTON RINGS, & VALVES
SIC/NAICS Code:	3592
Description:	FLUID POWER CYLINDERS & ACTUATORS
SIC/NAICS Code:	3593
Description:	MARKING DEVICES
SIC/NAICS Code:	3953
Description:	INDUSTRIAL MACHINERY & EQUIPMENT
SIC/NAICS Code:	5084

Map Key	Number of Records	Elevation (m)	Site	DB
70	2 of 8	319.5	JOHNSON FLUID SYSTEMS INC. 70 BORDEN AVE. S. KITCHENERS ON N2G 3R5	GEN

Generator No: ON0947300
SIC Code: 0000
SIC Description: *** NOT DEFINED ***
Approval Years: 86,87,88,89
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

Map Key	Number of Records	Elevation (m)	Site	DB
70	3 of 8	319.5	JOHNSON FLUID SYSTEMS INC. 70 BORDEN AVE. S. KITCHENERS ON N2G 3R5	GEN

Generator No: ON0947300
SIC Code: 3199
SIC Description: OTHER MACHINERY
Approval Years: 90
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

Waste Class: 252
Waste Class Name: WASTE OILS & LUBRICANTS

Map Key	Number of Records	Elevation (m)	Site	DB
70	4 of 8	319.5	JOHNSON FLUID SYSTEMS (1994) LTD. 70 BORDEN AVENUE SOUTH KITCHENER ON N2G 3R5	GEN

Generator No: ON0947300
SIC Code: 3199
SIC Description: OTHER MACHINERY
Approval Years: 92,93,94,95,96,97,98
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:

MHSW Facility:

Detail(s)

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

Waste Class: 252
Waste Class Name: WASTE OILS & LUBRICANTS

---

70 ***5 of 8*** ***319.5*** ***JOHNSON FLUID SYSTEMS (1994) LIMITED*** ***GEN***
70 BORDEN AVENUE SOUTH
KITCHENER ON N2G 3R5

Generator No: ON0947300
SIC Code: 3199
SIC Description: OTHER MACHINERY
Approval Years: 99,00,01
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

Waste Class: 252
Waste Class Name: WASTE OILS & LUBRICANTS

---

70 ***6 of 8*** ***319.5*** ***70 Borden Ave*** ***EHS***
Kitchener ON

Order No: 20293000154
Status: C
Report Type: Standard Report
Report Date: 05-OCT-20
Date Received: 30-SEP-20
Previous Site Name:
Lot/Building Size:
Additional Info Ordered: Aerial Photos

Nearest Intersection:
Municipality:
Client Prov/State: NY
Search Radius (km): .25
X: -80.4765
Y: 43.4419

---

70 ***7 of 8*** ***319.5*** ***70 Borden Ave*** ***EHS***
Kitchener ON

Order No: 20293000154
Status: C
Report Type: Standard Report
Report Date: 05-OCT-20
Date Received: 30-SEP-20
Previous Site Name:
Lot/Building Size:
Additional Info Ordered: Aerial Photos

Nearest Intersection:
Municipality:
Client Prov/State: NY
Search Radius (km): .25
X: -80.4765
Y: 43.4419

Map Key	Number of Records	Elevation (m)	Site	DB
70	8 of 8	319.5	70 Borden Ave Kitchener ON	EHS

Order No:	20293000154	**Nearest Intersection:**	
Status:	C	**Municipality:**	
Report Type:	Standard Report	**Client Prov/State:**	NY
Report Date:	05-OCT-20	**Search Radius (km):**	.25
Date Received:	30-SEP-20	**X:**	-80.4765
Previous Site Name:		**Y:**	43.4419
Lot/Building Size:			
Additional Info Ordered:	Aerial Photos		

Map Key	Number of Records	Elevation (m)	Site	DB
71	1 of 1	320.9	ON	BORE

Borehole ID:	681104	**Inclin FLG:**	No
OGF ID:	215558100	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:	Geotechnical/Geological Investigation	**Primary Name:**	
Completion Date:	APR-1966	**Municipality:**	
Static Water Level:	1.5	**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	43.441994
Total Depth m:	15.7	**Longitude DD:**	-80.479361
Depth Ref:	Ground Surface	**UTM Zone:**	17
Depth Elev:		**Easting:**	542131
Drill Method:	Power auger	**Northing:**	4810031
Orig Ground Elev m:	320	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	320		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218552158	**Mat Consistency:**	
Top Depth:	3	**Material Moisture:**	
Bottom Depth:	3.7	**Material Texture:**	
Material Color:	Brown	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:	Sand	**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	LIGHT, BROWN.		

Geology Stratum ID:	218552157	**Mat Consistency:**	
Top Depth:	2.1	**Material Moisture:**	
Bottom Depth:	3	**Material Texture:**	
Material Color:	Grey-Brown	**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	GREY, BROWN.		

Geology Stratum ID:	218552159	**Mat Consistency:**	Compact
Top Depth:	3.7	**Material Moisture:**	

Bottom Depth:	15.7	**Material Texture:**	
Material Color:	Grey-Brown	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:	Clay	**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	GREY, BROWN, COMPACT, SEAMS.		

Geology Stratum ID:	218552156	**Mat Consistency:**	
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	2.1	**Material Texture:**	
Material Color:		**Non Geo Mat Type:**	
Material 1:	Fill	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	fill
Gsc Material Description:			
Stratum Description:	(No description) **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	4
Source Date:	1900 - 1977	**Scale or Res:**	Varies
Confidence:	H	**Horizontal:**	NAD27
Observatio:	1966/4	**Verticalda:**	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Details:	1011		
Confiden 1:			

Source List

Source Identifier:	4	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1900 - 1977	**Projection Name:**	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Originators:	Geological Survey of Canada		

---

72 **1 of 1** **320.6** **Kent Ave Dump (official)** **ANDR**

Kitchener ON N2G 3R1

Legal Description:	Waterloo
Location Description:	Kent Ave, 25m to creek, 20m to residences, near industrial, under parking lot
Municipality:	Kitchener City
Current Municipality:	Kitchener City
RM:	Waterloo Region
Facility:	Dump
Date Active:	1954
Date Begun:	
Date Complete:	pre 1969
Area (Ha):	2.25
Landfill Type:	
Group Name:	
Operated By:	Kitchener C
Serial:	MOEE 8086
NTS:	40P08
Diameter (m):	225

Historical Summary:

Kent Ave Dump (official) MOE 1979 Kent Ave cited as a closed waste disposal site. Described as 25m to creek, 20m to residences, near industrial, under parking lot. MOE files extant in 1979 (MOE 1979 Site Identification Study). MOEE 1994 Kent Ave cited as a closed waste disposal site (Ontario Ministry of the Environment [1994] Waste disposal site inventory, [Toronto]: Ontario Environment, 1994., i, 196 pp., maps, ISBN 0772984093 101).

Waste Type:
UTM X Nad 27: 542100
UTM Y Nad 27: 4809800
UTM Zone: 17

---

73 ***1 of 1*** ***315.4*** ***136 OTTAWA ST S Kitchener ON*** ***WWIS***

Well ID:	7139457	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Not Used	***Data Entry Status:***	
Use 2nd:		***Data Src:***	
Final Well Status:	Test Hole	***Date Received:***	04-Feb-2010 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	M02744	***Contractor:***	7082
Tag:	A073493	***Form Version:***	5
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/713\7139457.pdf

Additional Detail(s) (Map)

Well Completed Date: 2009/01/16
Year Completed: 2009
Depth (m):
Latitude: 43.4386015715576
Longitude: -80.4759179909905
Path: 713\7139457.pdf

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/713\7139457.pdf

Additional Detail(s) (Map)

Well Completed Date: 2009/01/29
Year Completed: 2009
Depth (m):
Latitude: 43.4393572295339
Longitude: -80.4757631839603
Path: 713\7139457.pdf

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/713\7139457.pdf

Additional Detail(s) (Map)

Well Completed Date: 2009/01/16
Year Completed: 2009

Depth (m):
Latitude: 43.4385092084097
Longitude: -80.4754121557246
Path: 713\7139457.pdf

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/713\7139457.pdf

Additional Detail(s) (Map)

Well Completed Date: 2009/01/29
Year Completed: 2009
Depth (m):
Latitude: 43.4382761806504
Longitude: -80.4756489489283
Path: 713\7139457.pdf

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/713\7139457.pdf

Additional Detail(s) (Map)

Well Completed Date: 2009/01/16
Year Completed: 2009
Depth (m):
Latitude: 43.437980690495
Longitude: -80.4760098472645
Path: 713\7139457.pdf

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/713\7139457.pdf

Additional Detail(s) (Map)

Well Completed Date: 2009/01/16
Year Completed: 2009
Depth (m): 5.18
Latitude: 43.4386015715576
Longitude: -80.4759179909905
Path: 713\7139457.pdf

Bore Hole Information

Bore Hole ID: 1003266905
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind: This is a record from cluster log sheet
Date Completed: 30-Jan-2009 00:00:00
Remarks:
Loc Method Desc: Not Applicable i.e. no UTM
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone:
East83:
North83:
Org CS:
UTMRC: 9
UTMRC Desc: unknown UTM
Location Method: na

Annular Space/Abandonment Sealing Record

Plug ID: 1003266909

Layer:
Plug From:
Plug To:
Plug Depth UOM:

Method of Construction & Well Use

Method Construction ID: 1003266908
Method Construction Code:
Method Construction:
Other Method Construction: DIRECT PUSH

Pipe Information

Pipe ID: 1003266910
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1003266912
Layer:
Material: 5
Open Hole or Material: PLASTIC
Depth From:
Depth To: 1.7999999523162842
Casing Diameter:
Casing Diameter UOM:
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1003266911
Layer:
Slot:
Screen Top Depth: 1.7999999523162842
Screen End Depth: 4.880000114440918
Screen Material:
Screen Depth UOM: m
Screen Diameter UOM:
Screen Diameter:

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1003266913
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM:
Rate UOM:
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:

Pumping Duration MIN:
Flowing:

Hole Diameter

Hole ID: 1003266907
Diameter: 9.5
Depth From:
Depth To: 4.880000114440918
Hole Depth UOM: m
Hole Diameter UOM: cm

Bore Hole Information

Bore Hole ID: 1003266914
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind: This is a record from cluster log sheet
Date Completed: 29-Jan-2009 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone: 17
East83: 542424.00
North83: 4809740.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Annular Space/Abandonment Sealing Record

Plug ID: 1003266918
Layer:
Plug From:
Plug To:
Plug Depth UOM:

Method of Construction & Well Use

Method Construction ID: 1003266917
Method Construction Code:
Method Construction:
Other Method Construction: DIRECT PUSH

Pipe Information

Pipe ID: 1003266919
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1003266921
Layer:
Material: 5

Open Hole or Material: PLASTIC
Depth From:
Depth To: 1.7999999523162842
Casing Diameter:
Casing Diameter UOM:
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1003266920
Layer:
Slot:
Screen Top Depth: 1.7999999523162842
Screen End Depth: 4.880000114440918
Screen Material:
Screen Depth UOM: m
Screen Diameter UOM:
Screen Diameter:

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1003266922
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM:
Rate UOM:
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Hole Diameter

Hole ID: 1003266916
Diameter: 9.5
Depth From:
Depth To: 4.880000114440918
Hole Depth UOM: m
Hole Diameter UOM: cm

Bore Hole Information

Bore Hole ID: 1003266896
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind: This is a record from cluster log sheet
Date Completed: 29-Jan-2009 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:

Elevation:
Elevrc:
Zone: 17
East83: 542434.00
North83: 4809620.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Annular Space/Abandonment Sealing Record

Plug ID: 1003266900
Layer:
Plug From:
Plug To:
Plug Depth UOM:

Method of Construction & Well Use

Method Construction ID: 1003266899
Method Construction Code:
Method Construction:
Other Method Construction: DIRECT PUSH

Pipe Information

Pipe ID: 1003266901
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1003266903
Layer:
Material: 5
Open Hole or Material: PLASTIC
Depth From:
Depth To: 3.6600000858306885
Casing Diameter:
Casing Diameter UOM:
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1003266902
Layer:
Slot:
Screen Top Depth: 3.6600000858306885
Screen End Depth: 5.179999828338623
Screen Material:
Screen Depth UOM: m
Screen Diameter UOM:
Screen Diameter:

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1003266904
Pump Set At:
Static Level:
Final Level After Pumping:

Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM:
Rate UOM:
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Hole Diameter

Hole ID: 1003266898
Diameter: 9.5
Depth From:
Depth To: 5.179999828338623
Hole Depth UOM: m
Hole Diameter UOM: cm

Bore Hole Information

Bore Hole ID: 1003266923
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind: This is a record from cluster log sheet
Date Completed: 30-Jan-2009 00:00:00
Remarks:
Loc Method Desc: Not Applicable i.e. no UTM
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:
Elevation:
Elevrc:
Zone:
East83:
North83:
Org CS:
UTMRC: 9
UTMRC Desc: unknown UTM
Location Method: na

Annular Space/Abandonment Sealing Record

Plug ID: 1003266927
Layer:
Plug From:
Plug To:
Plug Depth UOM:

Method of Construction & Well Use

Method Construction ID: 1003266926
Method Construction Code:
Method Construction:
Other Method Construction: DIRECT PUSH

Pipe Information

Pipe ID: 1003266928

Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1003266930
Layer:
Material: 5
Open Hole or Material: PLASTIC
Depth From:
Depth To: 3.3499999046325684
Casing Diameter:
Casing Diameter UOM:
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1003266929
Layer:
Slot:
Screen Top Depth: 3.3499999046325684
Screen End Depth: 6.400000095367432
Screen Material:
Screen Depth UOM: m
Screen Diameter UOM:
Screen Diameter:

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1003266931
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM:
Rate UOM:
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Hole Diameter

Hole ID: 1003266925
Diameter: 9.5
Depth From:
Depth To: 6.400000095367432
Hole Depth UOM: m
Hole Diameter UOM: cm

Bore Hole Information

Bore Hole ID: 1003266878 ***Elevation:***
DP2BR: ***Elevrc:***

Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542453.00
Code OB Desc:		***North83:***	4809646.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:	This is a record from cluster log sheet	***UTMRC:***	4
Date Completed:	16-Jan-2009 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Annular Space/Abandonment Sealing Record

Plug ID:	1003266882
Layer:	
Plug From:	
Plug To:	
Plug Depth UOM:	

Method of Construction & Well Use

Method Construction ID:	1003266881
Method Construction Code:	
Method Construction:	
Other Method Construction:	DIRECT PUSH

Pipe Information

Pipe ID:	1003266883
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1003266885
Layer:	
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	
Depth To:	1.5199999809265137
Casing Diameter:	
Casing Diameter UOM:	
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1003266884
Layer:	
Slot:	
Screen Top Depth:	1.5199999809265137
Screen End Depth:	4.570000171661377
Screen Material:	
Screen Depth UOM:	m
Screen Diameter UOM:	

Screen Diameter:

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1003266886
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM:
Rate UOM:
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Hole Diameter

Hole ID: 1003266880
Diameter: 9.5
Depth From:
Depth To: 4.570000171661377
Hole Depth UOM: m
Hole Diameter UOM: cm

Bore Hole Information

Bore Hole ID: 1002934593
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 16-Jan-2009 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone: 17
East83: 542412.00
North83: 4809656.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Overburden and Bedrock Materials Interval

Formation ID: 1003266935
Layer: 3
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 06
Mat2 Desc: SILT
Mat3: 84

Mat3 Desc:	SILTY
Formation Top Depth:	1.8300000429153442
Formation End Depth:	3.6600000858306885
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1003266933
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	12
Mat2 Desc:	STONES
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.0
Formation End Depth:	1.2200000286102295
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1003266936
Layer:	4
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	84
Mat3 Desc:	SILTY
Formation Top Depth:	3.6600000858306885
Formation End Depth:	5.179999828338623
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1003266934
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	78
Mat2 Desc:	MEDIUM-GRAINED
Mat3:	69
Mat3 Desc:	FINE-GRAINED
Formation Top Depth:	1.2200000286102295
Formation End Depth:	1.8300000429153442
Formation End Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1003266938
Layer:	1
Plug From:	0.0

Plug To: 1.8300000429153442
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1003266943
Method Construction Code: 9
Method Construction: Driving
Other Method Construction:

Pipe Information

Pipe ID: 1003266932
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1003266939
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 2.130000114440918
Casing Diameter: 3.4000000953674316
Casing Diameter UOM: cm
Casing Depth UOM: m

Construction Record - Casing

Casing ID: 1003266940
Layer: 2
Material: 5
Open Hole or Material: PLASTIC
Depth From: 2.130000114440918
Depth To: 5.179999828338623
Casing Diameter: 3.4000000953674316
Casing Diameter UOM: cm
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1003266941
Layer: 1
Slot: 10
Screen Top Depth:
Screen End Depth:
Screen Material: 5
Screen Depth UOM: m
Screen Diameter UOM: cm
Screen Diameter: 4.199999809265137

Hole Diameter

Hole ID: 1003266937
Diameter: 9.5
Depth From: 0.0
Depth To: 5.179999828338623

Hole Depth UOM: m
Hole Diameter UOM: cm

Bore Hole Information

Bore Hole ID: 1003266869
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind: This is a record from cluster log sheet
Date Completed: 16-Jan-2009 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone: 17
East83: 542412.00
North83: 4809656.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Annular Space/Abandonment Sealing Record

Plug ID: 1003266873
Layer:
Plug From:
Plug To:
Plug Depth UOM:

Method of Construction & Well Use

Method Construction ID: 1003266872
Method Construction Code:
Method Construction:
Other Method Construction: DIRECT PUSH

Pipe Information

Pipe ID: 1003266874
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1003266876
Layer:
Material: 5
Open Hole or Material: PLASTIC
Depth From:
Depth To: 2.130000114440918
Casing Diameter:
Casing Diameter UOM:
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1003266875
Layer:
Slot:
Screen Top Depth: 2.130000114440918
Screen End Depth: 5.179999828338623
Screen Material:
Screen Depth UOM: m
Screen Diameter UOM:
Screen Diameter:

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1003266877
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM:
Rate UOM:
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Hole Diameter

Hole ID: 1003266871
Diameter: 9.5
Depth From:
Depth To: 5.179999828338623
Hole Depth UOM: m
Hole Diameter UOM: cm

Bore Hole Information

Bore Hole ID: 1003266887
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind: This is a record from cluster log sheet
Date Completed: 16-Jan-2009 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone: 17
East83: 542405.00
North83: 4809587.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Annular Space/Abandonment Sealing Record

Plug ID: 1003266891

Layer:
Plug From:
Plug To:
Plug Depth UOM:

Method of Construction & Well Use

Method Construction ID: 1003266890
Method Construction Code:
Method Construction:
Other Method Construction: DIRECT PUSH

Pipe Information

Pipe ID: 1003266892
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1003266894
Layer:
Material: 5
Open Hole or Material: PLASTIC
Depth From:
Depth To: 1.2200000286102295
Casing Diameter:
Casing Diameter UOM:
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1003266893
Layer:
Slot:
Screen Top Depth: 1.2200000286102295
Screen End Depth: 4.269999980926514
Screen Material:
Screen Depth UOM: m
Screen Diameter UOM:
Screen Diameter:

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1003266895
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM:
Rate UOM:
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:

Pumping Duration MIN:
Flowing:

Hole Diameter

Hole ID: 1003266889
Diameter: 9.5
Depth From:
Depth To: 4.269999980926514
Hole Depth UOM: m
Hole Diameter UOM: cm

Links

Bore Hole ID: 1003266887
Depth M:
Year Completed: 2009
Well Completed Dt: 2009/01/16
Audit No: M02744
Tag No: A073493
Contractor: 7082
Path: 713\7139457.pdf
Latitude: 43.437980690495
Longitude: -80.4760098472645

Links

Bore Hole ID: 1002934593
Depth M: 5.18
Year Completed: 2009
Well Completed Dt: 2009/01/16
Audit No: M02744
Tag No: A073493
Contractor: 7082
Path: 713\7139457.pdf
Latitude: 43.4386015715576
Longitude: -80.4759179909905

Links

Bore Hole ID: 1003266896
Depth M:
Year Completed: 2009
Well Completed Dt: 2009/01/29
Audit No: M02744
Tag No: A073493
Contractor: 7082
Path: 713\7139457.pdf
Latitude: 43.4382761806504
Longitude: -80.4756489489283

Links

Bore Hole ID: 1003266914
Depth M:
Year Completed: 2009
Well Completed Dt: 2009/01/29
Audit No: M02744
Tag No: A073493
Contractor: 7082
Path: 713\7139457.pdf
Latitude: 43.4393572295339
Longitude: -80.4757631839603

Links

Bore Hole ID: 1003266869
Depth M:
Year Completed: 2009
Well Completed Dt: 2009/01/16
Audit No: M02744
Tag No: A073493
Contractor: 7082
Path: 713\7139457.pdf
Latitude: 43.4386015715576
Longitude: -80.4759179909905

Links

Bore Hole ID: 1003266878
Depth M:
Year Completed: 2009
Well Completed Dt: 2009/01/16
Audit No: M02744
Tag No: A073493
Contractor: 7082
Path: 713\7139457.pdf
Latitude: 43.4385092084097
Longitude: -80.4754121557246

Map Key	Number of Records	Elevation (m)	Site	DB
74	1 of 1	320.6	Kent Ave. KITCHENER ON	WDSH

Site No.:	X8086
Region:	WESTCENTRAL
County:	WATERLOO
Concession:	
Lot:	Kent Ave.
Easting:	542100
Northing:	4809800
Zone:	17
Date Closed:	
Status:	CLOSED
Classification:	A7 - POTENTIAL HUMAN IMPACT-RURAL MUNICIPAL/DOMESTIC WASTE - CLOSED >20 YRS
%CommericialWste:	n/a
%DomesticWste Rec:	n/a
%LiquidWste Rec:	n/a
%HazardousWste Rec:	n/a
%Non-haz.Wste Rec:	n/a
%Sewage/Sludge Rec:	n/a
%Other Wste Rec:	n/a

Map Key	Number of Records	Elevation (m)	Site	DB
75	1 of 3	315.8	405-409 Nyberg Street Kitchener ON N2G	EHS

Order No:	20200421060	**Nearest Intersection:**	
Status:	C	**Municipality:**	
Report Type:	Standard Express Report	**Client Prov/State:**	ON
Report Date:	21-APR-20	**Search Radius (km):**	.25
Date Received:	21-APR-20	**X:**	-80.4759068
Previous Site Name:		**Y:**	43.4391713
Lot/Building Size:			
Additional Info Ordered:	Fire Insur. Maps and/or Site Plans; Aerial Photos		

Map Key	Number of Records	Elevation (m)	Site	DB
75	2 of 3	315.8	405-409 Nyberg Street Kitchener ON N2G	EHS

Order No:	20200421060	**Nearest Intersection:**	
Status:	C	**Municipality:**	
Report Type:	Standard Express Report	**Client Prov/State:**	ON
Report Date:	21-APR-20	**Search Radius (km):**	.25
Date Received:	21-APR-20	**X:**	-80.4759068
Previous Site Name:		**Y:**	43.4391713
Lot/Building Size:			
Additional Info Ordered:	Fire Insur. Maps and/or Site Plans; Aerial Photos		

Map Key	Number of Records	Elevation (m)	Site	DB
75	3 of 3	315.8	405-409 Nyberg Street Kitchener ON N2G	EHS

Order No:	20200421060	**Nearest Intersection:**	
Status:	C	**Municipality:**	
Report Type:	Standard Express Report	**Client Prov/State:**	ON
Report Date:	21-APR-20	**Search Radius (km):**	.25
Date Received:	21-APR-20	**X:**	-80.4759068
Previous Site Name:		**Y:**	43.4391713
Lot/Building Size:			
Additional Info Ordered:	Fire Insur. Maps and/or Site Plans; Aerial Photos		

Map Key	Number of Records	Elevation (m)	Site	DB
76	1 of 1	319.9	Section 21<UNOFFICIAL>; The Regional Municipality of Waterloo Borden Ave, approx 70 Borden Ave; 50 Ottawa St Kitchener; Kitchener ON	SPL

Ref No:	3760-9RUP6M	**Contaminant Qty:**	0 n/a
Site No:	NA; 6284-5VWJ4R	**Nature of Damage:**	
Incident Dt:	2014/12/16	**Discharger Report:**	
Year:		**Material Group:**	
Incident Cause:	Overflow/Surcharge	**Health/Env Conseq:**	
Incident Event:		**Agency Involved:**	
Environment Impact:		**Site Lot:**	
Nature of Impact:	Land	**Site Conc:**	
MOE Response:	N	**Site Geo Ref Accu:**	NA
Dt MOE Arvl on Scn:		**Site Map Datum:**	NA
MOE Reported Dt:	2014/12/16	**Northing:**	NA
Dt Document Closed:		**Easting:**	NA
Municipality No:			
System Facility Address:			
Client Type:			
Call Report Location Geodata:			
Contaminant Code:	44		
Contaminant Name:	SEWAGE,RAW UNCHLORINATED		
Contaminant Limit 1:			
Contam Limit Freq 1:			
Contaminant UN No 1:			
Receiving Medium:			
Receiving Environment:			
Incident Reason:	Intentional Discharge		
Incident Summary:	Sewage in excavation pit		
Site Region:			
Site Municipality:	Kitchener; Kitchener		
Activity Preceding Spill:			
Property 2nd Watershed:			
Property Tertiary Watershed:			
Sector Type:	Pipeline/Components		
SAC Action Class:	Land Spills		
Source Type:			
Site County/District:			
Site Geo Ref Meth:	NA		
Site District Office:			
Nearest Watercourse:			
Site Name:	sanitary line work<UNOFFICIAL>; 50 Ottawa Street		
Site Address:	Borden Ave, approx 70 Borden Ave; 50 Ottawa St		
Client Name:	Section 21<UNOFFICIAL>; The Regional Municipality of Waterloo		

Map Key	Number of Records	Elevation (m)	Site	DB
77	1 of 1	317.2	136 OTTAWA ST. S. Kitchener ON	WWIS

Well ID:	7129311	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	08-Sep-2009 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z096246	**Contractor:**	7366
Tag:	A083520	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	

Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/712\7129311.pdf

Additional Detail(s) (Map)

Well Completed Date:	2009/08/11
Year Completed:	2009
Depth (m):	4.5
Latitude:	43.4386767163572
Longitude:	-80.4765969731948
Path:	712\7129311.pdf

Bore Hole Information

Bore Hole ID:	1002716676	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542357.00
Code OB Desc:		**North83:**	4809664.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	11-Aug-2009 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1002841782
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	06
Most Common Material:	SILT
Mat2:	28
Mat2 Desc:	SAND
Mat3:	77
Mat3 Desc:	LOOSE
Formation Top Depth:	1.0
Formation End Depth:	4.5
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1002841781
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	01
Most Common Material:	FILL

Mat2:
Mat2 Desc:
Mat3: 77
Mat3 Desc: LOOSE
Formation Top Depth: 0.0
Formation End Depth: 1.0
Formation End Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1002841789
Method Construction Code: 9
Method Construction: Driving
Other Method Construction:

Pipe Information

Pipe ID: 1002841780
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1002841786
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 1.5
Casing Diameter: 3.799999952316284
Casing Diameter UOM: cm
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1002841787
Layer: 1
Slot: 10
Screen Top Depth: 1.5
Screen End Depth: 4.5
Screen Material: 5
Screen Depth UOM: m
Screen Diameter UOM: cm
Screen Diameter: 4.0

Water Details

Water ID: 1002841785
Layer:
Kind Code:
Kind:
Water Found Depth:
Water Found Depth UOM: m

Hole Diameter

Hole ID: 1002841783
Diameter: 10.0

Depth From:	0.0
Depth To:	4.5
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1002716676	**Tag No:**	A083520
Depth M:	4.5	**Contractor:**	7366
Year Completed:	2009	**Path:**	712\7129311.pdf
Well Completed Dt:	2009/08/11	**Latitude:**	43.4386767163572
Audit No:	Z096246	**Longitude:**	-80.4765969731948

78 **1 of 1** **317.1** **ON** **WWIS**

Well ID:	7365650	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:		**Data Entry Status:**	Yes
Use 2nd:		**Data Src:**	
Final Well Status:		**Date Received:**	14-Aug-2020 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z339576	**Contractor:**	7241
Tag:	A257263	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

Bore Hole Information

Bore Hole ID:	1008446384	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542084.00
Code OB Desc:		**North83:**	4809694.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	13-Jul-2020 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Links

Bore Hole ID:	1008446384	**Tag No:**	A257263
Depth M:		**Contractor:**	7241
Year Completed:	2020	**Path:**	
Well Completed Dt:	2020/07/13	**Latitude:**	43.4389622273577

Audit No:	Z339576	**Longitude:**	-80.479967968106

79 **1 of 1** **316.9** **ON** **BORE**

Borehole ID:	682386	**Inclin FLG:**	No
OGF ID:	215559382	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:	Geotechnical/Geological Investigation	**Primary Name:**	
Completion Date:	NOV-1972	**Municipality:**	
Static Water Level:	1.8	**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	43.438754
Total Depth m:	8.1	**Longitude DD:**	-80.479636
Depth Ref:	Ground Surface	**UTM Zone:**	17
Depth Elev:		**Easting:**	542111
Drill Method:	Power auger	**Northing:**	4809671
Orig Ground Elev m:	319	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	318		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218557387	**Mat Consistency:**	Compact
Top Depth:	2.7	**Material Moisture:**	
Bottom Depth:	8.1	**Material Texture:**	Fine
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	COMPACT TO DENSE, GREY, SO-ME FINE SAND, BELOW 15 **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218557386	**Mat Consistency:**	Compact
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	2.7	**Material Texture:**	
Material Color:	Black	**Non Geo Mat Type:**	
Material 1:	Fill	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	fill
Gsc Material Description:			
Stratum Description:	SILTY SAND, BROWN, COMPACT SEAMS OF BLACK ORGANIC MAT-TER **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	4
Source Date:	1900 - 1977	**Scale or Res:**	Varies
Confidence:	H	**Horizontal:**	NAD27
Observatio:	1972/11	**Verticalda:**	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Details:	11858		
Confiden 1:			

Source List

Source Identifier:	4	***Horizontal Datum:***	NAD27
Source Type:	Data Survey	***Vertical Datum:***	Mean Average Sea Level
Source Date:	1900 - 1977	***Projection Name:***	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Originators:	Geological Survey of Canada		

80 | ***1 of 1*** | ***319.9*** | ***BEDFORD RD Kitchener ON*** | ***WWIS***

Well ID:	7353930	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Test Hole	***Data Entry Status:***	
Use 2nd:		***Data Src:***	
Final Well Status:	Monitoring and Test Hole	***Date Received:***	24-Feb-2020 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	Z326411	***Contractor:***	7320
Tag:	A265988	***Form Version:***	7
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2020/01/20
Year Completed:	2020
Depth (m):	4.8768
Latitude:	43.4383844425423
Longitude:	-80.4776621828657
Path:	

Bore Hole Information

Bore Hole ID:	1008171700	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542271.00
Code OB Desc:		***North83:***	4809631.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	4
Date Completed:	20-Jan-2020 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	gis
Loc Method Desc:	from gis		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1008232387
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	
Mat3 Desc:	
Formation Top Depth:	6.0
Formation End Depth:	16.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1008232386
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.0
Formation End Depth:	6.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008234630
Layer:	1
Plug From:	0.0
Plug To:	0.5
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008234632
Layer:	3
Plug From:	5.0
Plug To:	16.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008234631
Layer:	2
Plug From:	0.5
Plug To:	5.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID: 1008236713
Method Construction Code: B
Method Construction: Other Method
Other Method Construction: HSA

Method of Construction & Well Use

Method Construction ID: 1008236712
Method Construction Code: 2
Method Construction: Rotary (Convent.)
Other Method Construction:

Pipe Information

Pipe ID: 1008229411
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1008237670
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 6.0
Casing Diameter: 1.875
Casing Diameter UOM: Inch
Casing Depth UOM: ft

Construction Record - Screen

Screen ID: 1008238518
Layer: 1
Slot: .01
Screen Top Depth: 6.0
Screen End Depth: 16.0
Screen Material: 5
Screen Depth UOM: ft
Screen Diameter UOM: inch
Screen Diameter: 0.375

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1008239861
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM: ft

Rate UOM:	GPM
Water State After Test Code:	
Water State After Test:	
Pumping Test Method:	0
Pumping Duration HR:	
Pumping Duration MIN:	
Flowing:	

Water Details

Water ID:	1008238733
Layer:	1
Kind Code:	8
Kind:	Untested
Water Found Depth:	
Water Found Depth UOM:	

Hole Diameter

Hole ID:	1008235723
Diameter:	8.0
Depth From:	0.0
Depth To:	16.0
Hole Depth UOM:	ft
Hole Diameter UOM:	Inch

Links

Bore Hole ID:	1008171700	**Tag No:**	A265988
Depth M:	4.8768	**Contractor:**	7320
Year Completed:	2020	**Path:**	735\7353930.pdf
Well Completed Dt:	2020/01/20	**Latitude:**	43.4383844425423
Audit No:	Z326411	**Longitude:**	-80.4776621828657

---

81 **1 of 1** **315.4** ***405 409 NYBERG ST Kitchener ON*** ***WWIS***

Well ID:	7360776	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:		**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	22-Jun-2020 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z331815	**Contractor:**	7424
Tag:	A277009	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date: 2020/03/12
Year Completed: 2020
Depth (m): 4.572
Latitude: 43.4391682017817
Longitude: -80.4757771730187
Path:

Bore Hole Information

Bore Hole ID: 1008315534
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 12-Mar-2020 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone: 17
East83: 542423.00
North83: 4809719.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Overburden and Bedrock Materials Interval

Formation ID: 1008328433
Layer: 1
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2:
Mat2 Desc:
Mat3: 68
Mat3 Desc: DRY
Formation Top Depth: 0.0
Formation End Depth: 5.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1008328434
Layer: 2
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY
Mat2: 28
Mat2 Desc: SAND
Mat3: 91
Mat3 Desc: WATER-BEARING
Formation Top Depth: 5.0
Formation End Depth: 15.0
Formation End Depth UOM: ft

Annular Space/Abandonment

Sealing Record

Plug ID:	1008328440
Layer:	1
Plug From:	0.0
Plug To:	4.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008328441
Layer:	2
Plug From:	4.0
Plug To:	15.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1008328439
Method Construction Code:	
Method Construction:	
Other Method Construction:	

Pipe Information

Pipe ID:	1008328432
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1008328437
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	5.0
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1008328438
Layer:	1
Slot:	10
Screen Top Depth:	5.0
Screen End Depth:	15.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.0

Water Details

Water ID:	1008328436
Layer:	

Kind Code:
Kind:
Water Found Depth:
Water Found Depth UOM: ft

Hole Diameter

Hole ID: 1008328435
Diameter:
Depth From:
Depth To:
Hole Depth UOM: ft
Hole Diameter UOM: inch

Links

Bore Hole ID: 1008315534
Depth M: 4.572
Year Completed: 2020
Well Completed Dt: 2020/03/12
Audit No: Z331815
Tag No: A277009
Contractor: 7424
Path:
Latitude: 43.4391682017817
Longitude: -80.4757771730187

---

82 | *1 of 4* | *320.2* | ***COURTLAND CARS***
380 COURTLAND AV E
KITCHENER ON N2G 2W2 | ***PRT***

Location ID: 17656
Type: retail
Expiry Date: 1993-06-30
Capacity (L): 20498
Licence #: 0060001001

---

82 | *2 of 4* | *320.2* | ***COURTLAND CARS***
380 COURTLAND AV E
KITCHENER ON N2G 2W2 | ***DTNK***

Delisted Expired Fuel Safety Facilities

Instance No: 9857650
Status: EXPIRED
Instance ID:
Instance Type: FS Facility
Instance Creation Dt:
Instance Install Dt:
Item Description:
Manufacturer:
Model:
Serial No:
ULC Standard:
Quantity:
Unit of Measure:
Overfill Prot Type:
Creation Date:
Next Periodic Str DT:
TSSA Base Sched Cycle 2:
TSSAMax Hazard Rank 1:
TSSA Risk Based Periodic Yn:
TSSA Volume of Directives:
Expired Date: 6/4/1992
Max Hazard Rank:
Facility Location:
Facility Type:
Fuel Type 2:
Fuel Type 3:
Panam Related:
Panam Venue Nm:
External Identifier:
Item:
Piping Steel:
Piping Galvanized:
Tank Single Wall St:
Piping Underground:
Tank Underground:
Source:

TSSA Periodic Exempt:	
TSSA Statutory Interval:	
TSSA Recd Insp Interva:	
TSSA Recd Tolerance:	
TSSA Program Area:	
TSSA Program Area 2:	
Description:	
Original Source:	EXP
Record Date:	Up to May 2013

---

82 | 3 of 4 | 320.2 | **COURTLAND CARS**
380 COURTLAND AV E KITCHENER N2G 2W2 ON CA
ON | **DTNK**

Delisted Expired Fuel Safety Facilities

Instance No:	11066034	**Expired Date:**	
Status:	EXPIRED	**Max Hazard Rank:**	NULL
Instance ID:		**Facility Location:**	380 COURTLAND AV E KITCHENER N2G 2W2 ON CA
Instance Type:		**Facility Type:**	FS LIQUID FUEL TANK
Instance Creation Dt:	10/2/1989	**Fuel Type 2:**	NULL
Instance Install Dt:	10/2/1989	**Fuel Type 3:**	NULL
Item Description:	FS Liquid Fuel Tank	**Panam Related:**	NULL
Manufacturer:	NULL	**Panam Venue Nm:**	NULL
Model:	NULL	**External Identifier:**	NULL
Serial No:	NULL	**Item:**	
ULC Standard:	NULL	**Piping Steel:**	
Quantity:	1	**Piping Galvanized:**	
Unit of Measure:	EA	**Tank Single Wall St:**	
Overfill Prot Type:	NULL	**Piping Underground:**	
Creation Date:	7/5/2009 1:23:36 AM	**Tank Underground:**	
Next Periodic Str DT:	NULL	**Source:**	FS Liquid Fuel Tank

TSSA Base Sched Cycle 2:	NULL
TSSAMax Hazard Rank 1:	NULL
TSSA Risk Based Periodic Yn:	NULL
TSSA Volume of Directives:	NULL
TSSA Periodic Exempt:	NULL
TSSA Statutory Interval:	NULL
TSSA Recd Insp Interva:	NULL
TSSA Recd Tolerance:	NULL
TSSA Program Area:	NULL
TSSA Program Area 2:	NULL
Description:	CONVERSION RECORDS FOR LICENCED ACCOUNTS
Original Source:	EXP
Record Date:	31-JUL-2020

---

82 | 4 of 4 | 320.2 | **COURTLAND CARS**
380 COURTLAND AV E KITCHENER N2G 2W2 ON CA
ON | **FST**

Instance No:	11066034	**Manufacturer:**	
Status:		**Serial No:**	
Cont Name:		**Ulc Standard:**	
Instance Type:		**Quantity:**	
Item:		**Unit of Measure:**	
Item Description:	FS Liquid Fuel Tank	**Fuel Type:**	Gasoline
Tank Type:	Liquid Fuel Single Wall UST	**Fuel Type2:**	NULL
Install Date:	10/2/1989	**Fuel Type3:**	NULL
Install Year:	NULL	**Piping Steel:**	
Years in Service:		**Piping Galvanized:**	

Model:	NULL	**Tanks Single Wall St:**	
Description:		**Piping Underground:**	
Capacity:	0	**No Underground:**	
Tank Material:	Steel	**Panam Related:**	
Corrosion Protect:	Coating	**Panam Venue:**	
Overfill Protect:			

Facility Type: FS Liquid Fuel Tank
Parent Facility Type:
Facility Location:
Device Installed Location: 380 COURTLAND AV E KITCHENER N2G 2W2 ON CA

Liquid Fuel Tank Details

Overfill Protection:
Owner Account Name: COURTLAND CARS
Item: FS LIQUID FUEL TANK

---

83 | *1 of 3* | *319.2* | ***SPREITZER MEATS LTD.*** ***128 BEDFORD RD*** ***KITCHENER ON N2G 3A4*** | ***SCT***

Established: 1953
Plant Size (ft²): 2500
Employment: 3

--Details--
Description: SAUSAGES & OTHER PREPARED MEAT PRODUCTS
SIC/NAICS Code: 2013

---

83 | *2 of 3* | *319.2* | ***Spreitzer Meats Ltd.*** ***128 Bedford Rd*** ***Kitchener ON N2G 3A4*** | ***SCT***

Established: 1963
Plant Size (ft²): 4000
Employment: 3

--Details--
Description: Rendering and Meat Processing from Carcasses
SIC/NAICS Code: 311614

---

83 | *3 of 3* | *319.2* | ***Spreitzer's Meats Ltd.*** ***128 Bedford Rd*** ***Kitchener ON N2G 3A4*** | ***SCT***

Established: 01-OCT-53
Plant Size (ft²):
Employment:

--Details--
Description: Rendering and Meat Processing from Carcasses
SIC/NAICS Code: 311614

Description: Other Paper and Disposable Plastic Product Wholesaler-Distributors
SIC/NAICS Code: 418220

Map Key	Number of Records	Elevation (m)	Site	DB
84	1 of 1	318.2	BORDEN AVE, S KITCHENER ON	WWIS

Well ID:	7197917	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	04-Mar-2013 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z164690	**Contractor:**	7238
Tag:	A142999	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/719\7197917.pdf

Additional Detail(s) (Map)

Well Completed Date:	2013/02/20
Year Completed:	2013
Depth (m):	4.8768
Latitude:	43.4396791072088
Longitude:	-80.4752661197901
Path:	719\7197917.pdf

Bore Hole Information

Bore Hole ID:	1004259156	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542464.00
Code OB Desc:		**North83:**	4809776.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	20-Feb-2013 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1004776806
Layer:	3
Color:	2
General Color:	GREY
Mat1:	08
Most Common Material:	FINE SAND

Mat2:	06
Mat2 Desc:	SILT
Mat3:	08
Mat3 Desc:	FINE SAND
Formation Top Depth:	8.0
Formation End Depth:	16.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1004776804
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	11
Mat2 Desc:	GRAVEL
Mat3:	28
Mat3 Desc:	SAND
Formation Top Depth:	0.0
Formation End Depth:	4.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1004776805
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	08
Most Common Material:	FINE SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	08
Mat3 Desc:	FINE SAND
Formation Top Depth:	4.0
Formation End Depth:	8.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1004776814
Layer:	1
Plug From:	0.0
Plug To:	6.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1004776813
Method Construction Code:	9
Method Construction:	Driving
Other Method Construction:	

Pipe Information

Pipe ID:	1004776803
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1004776810
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	6.0
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1004776811
Layer:	1
Slot:	10
Screen Top Depth:	6.0
Screen End Depth:	16.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.0

Water Details

Water ID:	1004776809
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1004776807
Diameter:	9.0
Depth From:	0.0
Depth To:	1.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Hole Diameter

Hole ID:	1004776808
Diameter:	5.0
Depth From:	1.0
Depth To:	16.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1004259156	***Tag No:***	A142999
Depth M:	4.8768	***Contractor:***	7238

Year Completed:	2013	**Path:**	719\7197917.pdf
Well Completed Dt:	2013/02/20	**Latitude:**	43.4396791072088
Audit No:	Z164690	**Longitude:**	-80.4752661197901

85 **1 of 1** **319.9** **50 BORDEN ST S**
Kitchener ON
WWIS

Well ID:	7342794	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Test Hole	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Test Hole	**Date Received:**	16-Sep-2019 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z312170	**Contractor:**	7320
Tag:	A275311	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2019/08/08
Year Completed:	2019
Depth (m):	13.7
Latitude:	43.4416619179483
Longitude:	-80.4756691391891
Path:	

Bore Hole Information

Bore Hole ID:	1007669086	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542430.00
Code OB Desc:		**North83:**	4809996.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	08-Aug-2019 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1007872373

Layer: 4
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 11
Mat2 Desc: GRAVEL
Mat3: 91
Mat3 Desc: WATER-BEARING
Formation Top Depth: 12.800000190734863
Formation End Depth: 13.699999809265137
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1007872371
Layer: 2
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 06
Mat2 Desc: SILT
Mat3: 04
Mat3 Desc: PEAT
Formation Top Depth: 1.7999999523162842
Formation End Depth: 4.599999904632568
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1007872372
Layer: 3
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 06
Mat2 Desc: SILT
Mat3: 79
Mat3 Desc: PACKED
Formation Top Depth: 4.599999904632568
Formation End Depth: 12.800000190734863
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1007872370
Layer: 1
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 06
Mat2 Desc: SILT
Mat3: 01
Mat3 Desc: FILL
Formation Top Depth: 0.0
Formation End Depth: 1.7999999523162842
Formation End Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1007873482
Layer: 3
Plug From: 2.4000000953674316
Plug To: 11.5
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1007873483
Layer: 4
Plug From: 11.5
Plug To: 11.800000190734863
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1007873481
Layer: 2
Plug From: 0.30000001192092896
Plug To: 2.4000000953674316
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1007873480
Layer: 1
Plug From: 0.0
Plug To: 0.30000001192092896
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1007875111
Method Construction Code: 6
Method Construction: Boring
Other Method Construction:

Pipe Information

Pipe ID: 1007871467
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1007875779
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 12.199999809265137

Casing Diameter:	5.099999904632568
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1007876248
Layer:	1
Slot:	.01
Screen Top Depth:	12.199999809265137
Screen End Depth:	13.699999809265137
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	6.099999904632568

Results of Well Yield Testing

Pumping Test Method Desc:	
Pump Test ID:	1007876856
Pump Set At:	
Static Level:	
Final Level After Pumping:	
Recommended Pump Depth:	
Pumping Rate:	
Flowing Rate:	
Recommended Pump Rate:	
Levels UOM:	m
Rate UOM:	LPM
Water State After Test Code:	
Water State After Test:	
Pumping Test Method:	0
Pumping Duration HR:	
Pumping Duration MIN:	
Flowing:	

Water Details

Water ID:	1007876704
Layer:	2
Kind Code:	8
Kind:	Untested
Water Found Depth:	13.100000381469727
Water Found Depth UOM:	m

Water Details

Water ID:	1007876703
Layer:	1
Kind Code:	8
Kind:	Untested
Water Found Depth:	4.599999904632568
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1007874597
Diameter:	21.0
Depth From:	0.0
Depth To:	13.699999809265137
Hole Depth UOM:	m

Hole Diameter UOM: cm

Links

Bore Hole ID:	1007669086	**Tag No:**	A275311
Depth M:	13.7	**Contractor:**	7320
Year Completed:	2019	**Path:**	
Well Completed Dt:	2019/08/08	**Latitude:**	43.4416619179483
Audit No:	Z312170	**Longitude:**	-80.4756691391891

---

86 **1 of 1** **319.7** **BORDEN AVE. S.**
KITCHENER ON

WWIS

Well ID:	7197918	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	04-Mar-2013 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z164691	**Contractor:**	7238
Tag:	A143000	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/719\7197918.pdf

Additional Detail(s) (Map)

Well Completed Date:	2013/02/20
Year Completed:	2013
Depth (m):	6.096
Latitude:	43.4401643600031
Longitude:	-80.47505185326
Path:	719\7197918.pdf

Bore Hole Information

Bore Hole ID:	1004259159	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542481.00
Code OB Desc:		**North83:**	4809830.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	20-Feb-2013 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			

Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 1004776817
Layer: 2
Color: 6
General Color: BROWN
Mat1: 08
Most Common Material: FINE SAND
Mat2: 06
Mat2 Desc: SILT
Mat3: 08
Mat3 Desc: FINE SAND
Formation Top Depth: 2.0
Formation End Depth: 8.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1004776816
Layer: 1
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 11
Mat2 Desc: GRAVEL
Mat3: 28
Mat3 Desc: SAND
Formation Top Depth: 0.0
Formation End Depth: 2.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1004776818
Layer: 3
Color: 2
General Color: GREY
Mat1: 06
Most Common Material: SILT
Mat2: 08
Mat2 Desc: FINE SAND
Mat3: 06
Mat3 Desc: SILT
Formation Top Depth: 8.0
Formation End Depth: 20.0
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1004776826
Layer: 1
Plug From: 0.0
Plug To: 14.0
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 1004776825
Method Construction Code: 9
Method Construction: Driving
Other Method Construction:

Pipe Information

Pipe ID: 1004776815
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1004776822
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 15.0
Casing Diameter: 2.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Screen

Screen ID: 1004776823
Layer: 1
Slot: 10
Screen Top Depth: 15.0
Screen End Depth: 20.0
Screen Material: 5
Screen Depth UOM: ft
Screen Diameter UOM: inch
Screen Diameter: 2.0

Water Details

Water ID: 1004776821
Layer:
Kind Code:
Kind:
Water Found Depth:
Water Found Depth UOM: ft

Hole Diameter

Hole ID: 1004776820
Diameter: 5.0
Depth From: 1.0
Depth To: 20.0
Hole Depth UOM: ft
Hole Diameter UOM: inch

Hole Diameter

Hole ID: 1004776819

Diameter:	9.0
Depth From:	0.0
Depth To:	1.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1004259159	**Tag No:**	A143000
Depth M:	6.096	**Contractor:**	7238
Year Completed:	2013	**Path:**	719\7197918.pdf
Well Completed Dt:	2013/02/20	**Latitude:**	43.4401643600031
Audit No:	Z164691	**Longitude:**	-80.47505185326

---

87 *1 of 4* *320.2* ***TILDEN RENT-A-CAR SERVICE*** ***GEN***
RIORDAN CAR AND TRUCK RENTALS 449 CHARLES STREET EAST
KITCHENER ON N2G 2R1

Generator No:	ON0340404
SIC Code:	6312
SIC Description:	USED AUTO DEALERS
Approval Years:	88,89,90,92,93,97
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	252
Waste Class Name:	WASTE OILS & LUBRICANTS

---

87 *2 of 4* *320.2* ***TILDEN RENT-A-CAR SERVICE 37-393*** ***GEN***
RIORDAN CAR AND TRUCK RENTALS 449 CHARLES STREET EAST
KITCHENER ON N2G 2R1

Generator No:	ON0340404
SIC Code:	6312
SIC Description:	USED AUTO DEALERS
Approval Years:	94,95,96
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	252
Waste Class Name:	WASTE OILS & LUBRICANTS

---

87 *3 of 4* *320.2* ***NATIONAL TILDEN CAR & TRUCK RENTAL*** ***GEN***
RIORDAN CAR AND TRUCK RENTALS, OP. AS 449 CHARLES

Map Key	Number of Records	Elevation (m)	Site	DB
			STREET EAST **KITCHENER ON N2G 4G1**	

Generator No: ON0340404
SIC Code: 6312
SIC Description: USED AUTO DEALERS
Approval Years: 98,99,00,01,03,04
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 252
Waste Class Name: WASTE OILS & LUBRICANTS

87	4 of 4	320.2	**MTD Products Limited** **449 Charles Street East** **Kitchener ON N2G 2R1**	GEN

Generator No: ON6306748
SIC Code:
SIC Description:
Approval Years: 02,03,04
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 221
Waste Class Name: LIGHT FUELS

88	1 of 6	320.0	**Ideal Auto Tech** **43 Kent Avenue** **Kitchener ON N2G 3R2**	GEN

Generator No: ON3828353
SIC Code: 811111
SIC Description:
Approval Years: 2011
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

88	2 of 6	320.0	**PIPELINE HIT - 3/4"**	PINC

Map Key	Number of Records	Elevation (m)	Site	DB

43 KENT AVENUE,,KITCHENER,ON,N2G 3R2,CA
ON

Incident Id:		**Pipe Material:**	
Incident No:	1507124	**Fuel Category:**	
Incident Reported Dt:	10/27/2014	**Health Impact:**	
Type:	FS-Pipeline Incident	**Environment Impact:**	
Status Code:		**Property Damage:**	
Tank Status:	Pipeline Damage Reason Est	**Service Interrupt:**	
Task No:		**Enforce Policy:**	
Spills Action Centre:		**Public Relation:**	
Fuel Type:		**Pipeline System:**	
Fuel Occurrence Tp:		**PSIG:**	
Date of Occurrence:		**Attribute Category:**	
Occurrence Start Dt:		**Regulator Location:**	
Depth:		**Method Details:**	

Customer Acct Name: PIPELINE HIT - 3/4"
Incident Address: 43 KENT AVENUE,,KITCHENER,ON,N2G 3R2,CA
Operation Type:
Pipeline Type:
Regulator Type:
Summary:
Reported By:
Affiliation:
Occurrence Desc:
Damage Reason:
Notes:

---

88 | **3 of 6** | **320.0** | **The Corporation of the City of Kitchener**
43 Kent Avenue
Kitchener ON | **SPL**

Ref No:	2441-9Q8W5L	**Contaminant Qty:**	0 other - see incident description
Site No:	NA	**Nature of Damage:**	
Incident Dt:	2014/10/25	**Discharger Report:**	
Year:		**Material Group:**	
Incident Cause:	Leak/Break	**Health/Env Conseq:**	
Incident Event:		**Agency Involved:**	
Environment Impact:	Confirmed	**Site Lot:**	
Nature of Impact:	Air Pollution	**Site Conc:**	
MOE Response:	Referral to others	**Site Geo Ref Accu:**	
Dt MOE Arvl on Scn:		**Site Map Datum:**	
MOE Reported Dt:	2014/10/25	**Northing:**	
Dt Document Closed:	2014/12/20	**Easting:**	

Municipality No:
System Facility Address:
Client Type:
Call Report Location Geodata:
Contaminant Code: 35
Contaminant Name: NATURAL GAS, COMPRESSED (METHANE)
Contaminant Limit 1:
Contam Limit Freq 1:
Contaminant UN No 1:
Receiving Medium:
Receiving Environment:
Incident Reason: Operator/Human Error
Incident Summary: TSSA 3/4" steel ln damage, made safe
Site Region:
Site Municipality: Kitchener
Activity Preceding Spill:
Property 2nd Watershed:
Property Tertiary Watershed:
Sector Type: Pipeline/Components
SAC Action Class: TSSA - Fuel Safety Branch - Hydrocarbon Fuel Release/Spill

Source Type:
Site County/District:
Site Geo Ref Meth:
Site District Office:
Nearest Watercourse:
Site Name: Work Site<UNOFFICIAL>
Site Address: 43 Kent Avenue
Client Name: The Corporation of the City of Kitchener

---

88 | 4 of 6 | 320.0 | **43 Kent Avenue**
Kitchener ON N2G 3R2 | **EHS**

Order No: 21113000864
Status: C
Report Type: Standard Report
Report Date: 03-DEC-21
Date Received: 30-NOV-21
Previous Site Name:
Lot/Building Size: approx. 800 sq. meters
Additional Info Ordered:

Nearest Intersection:
Municipality: kitchner Waterloo
Client Prov/State: ON
Search Radius (km): .25
X: -80.4777292
Y: 43.4425942

---

88 | 5 of 6 | 320.0 | **43 Kent Avenue**
Kitchener ON N2G 3R2 | **EHS**

Order No: 21113000864
Status: C
Report Type: Standard Report
Report Date: 03-DEC-21
Date Received: 30-NOV-21
Previous Site Name:
Lot/Building Size: approx. 800 sq. meters
Additional Info Ordered:

Nearest Intersection:
Municipality: kitchner Waterloo
Client Prov/State: ON
Search Radius (km): .25
X: -80.4777292
Y: 43.4425942

---

88 | 6 of 6 | 320.0 | **43 Kent Avenue**
Kitchener ON N2G 3R2 | **EHS**

Order No: 21113000864
Status: C
Report Type: Standard Report
Report Date: 03-DEC-21
Date Received: 30-NOV-21
Previous Site Name:
Lot/Building Size: approx. 800 sq. meters
Additional Info Ordered:

Nearest Intersection:
Municipality: kitchner Waterloo
Client Prov/State: ON
Search Radius (km): .25
X: -80.4777292
Y: 43.4425942

---

89 | 1 of 24 | 316.8 | **MTD PRODUCTS LTD**
136 OTTAWA STREET SOUTH
KITCHENER ON N2G 3S9 | **NPCB**

Company Code: F0415
Industry:
Site Status:
Transaction Date: 1/29/1996
Inspection Date:

--Details--
Label:

Serial No.:
PCB Type/Code: Askarel
Location:
Item/State:
No. of Items:
Manufacturer:
Status: Stored for Disposal
Contents: 0.00 KG

Label:
Serial No.:
PCB Type/Code: Askarel
Location:
Item/State:
No. of Items:
Manufacturer:
Status: Stored for Disposal
Contents: 1301.00 KG

---

89 | ***2 of 24*** | ***316.8*** | ***MTD PRODUCTS***
136 OTTAWA ST.
KITCHENER ON N2G 3S9 | ***NPCB***

Company Code: F0390
Industry:
Site Status:
Transaction Date:
Inspection Date:

---

89 | ***3 of 24*** | ***316.8*** | ***MTD PRODUCTS LTD***
136 OTTAWA STREET SOUTH
KITCHENER ON N2G 3S9 | ***OPCB***

Year: 1998
Site Number: 20288A267
Name Owner:
Additional Site Information:

--Details--
Quantity: 1.00
Address Site:
Description: Number of Capacitors with High Level PCBs (>1000 ppm)

---

89 | ***4 of 24*** | ***316.8*** | ***MTD PRODUCTS LTD***
136 OTTAWA STREET SOUTH
KITCHENER ON N2G 3S9 | ***OPCB***

Year: 1999
Site Number: 20288A267
Name Owner:
Additional Site Information:

--Details--
Quantity: 1.00
Address Site:
Description: Number of Capacitors with High Level PCBs (>1000 ppm)

Map Key	Number of Records	Elevation (m)	Site	DB
89	5 of 24	316.8	MTD PRODUCTS LTD 136 OTTAWA STREET SOUTH KITCHENER ON N2G 3S9	OPCB

Year: 2000
Site Number: 20288A267
Name Owner:
Additional Site Information:

--Details--
Quantity: 1.00
Address Site:
Description: Number of Capacitors with High Level PCBs (>1000 ppm)

Map Key	Number of Records	Elevation (m)	Site	DB
89	6 of 24	316.8	MTD PRODUCTS 136 OTTAWA ST. KITCHENER ON N2G 3S9	OPCB

Year: 1995
Site Number: 20288A267
Name Owner:
Additional Site Information:

--Details--
Quantity: 1.00
Address Site:
Description: Number of Capacitors with High Level PCBs (>1000 ppm)

Quantity: 1440.00
Address Site:
Description: Weight of Bulk Liquid with Low Level PCBs (< 1000 ppm) kg

---

Map Key	Number of Records	Elevation (m)	Site	DB
89	7 of 24	316.8	MTD PRODUCTS LIMITED 136 OTTAWA STREET SOUTH KITCHENER ON N2G 3S9	GEN

Generator No: ON0116902
SIC Code: 3049
SIC Description: OTHER STAMPED METAL
Approval Years: 86,87,88,89
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 253
Waste Class Name: EMULSIFIED OILS

Map Key	Number of Records	Elevation (m)	Site	DB
89	8 of 24	316.8	MTD PRODUCTS LIMITED 136 OTTAWA ST. SOUTH/129 DUNDAS ST. C/O 97 KENT AVE. KITCHENER ON N2G 4J1	GEN

Generator No: ON0116902
SIC Code: 3049
SIC Description: OTHER STAMPED METAL
Approval Years: 90
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 122
Waste Class Name: ALKALINE WASTES - OTHER METALS

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

Waste Class: 253
Waste Class Name: EMULSIFIED OILS

---

89 | ***9 of 24*** | ***316.8*** | ***MTD PRODUCTS LIMITED 25-136***
136 OTTAWA STREET SOUTH
KITCHENER ON N2G 3S9 | ***GEN***

Generator No: ON0116902
SIC Code: 3049
SIC Description: OTHER STAMPED METAL
Approval Years: 92,93,95,96
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 122
Waste Class Name: ALKALINE WASTES - OTHER METALS

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

Waste Class: 243
Waste Class Name: PCB'S

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

Waste Class: 253
Waste Class Name: EMULSIFIED OILS

---

89 | ***10 of 24*** | ***316.8*** | ***MTD PRODUCTS LIMITED 25-136***
136 OTTAWA ST. SOUTH/129 DUNDAS ST. C/O 97 KENT AVE.
KITCHENER ON N2G 4J1 | ***GEN***

Generator No: ON0116902
SIC Code: 3049
SIC Description: OTHER STAMPED METAL
Approval Years: 94
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 122
Waste Class Name: ALKALINE WASTES - OTHER METALS

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

Waste Class: 243
Waste Class Name: PCB'S

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

Waste Class: 253
Waste Class Name: EMULSIFIED OILS

---

89 | *11 of 24* | *316.8* | ***MTD PRODUCTS LIMITED***
136 OTTAWA STREET SOUTH
KITCHENER ON N2G 3S9 | ***GEN***

Generator No: ON0116902
SIC Code: 3049
SIC Description: OTHER STAMPED METAL
Approval Years: 97,98,99,00,01,02,03,04,05,06,07,08
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 241
Waste Class Name: HALOGENATED SOLVENTS

Waste Class: 145
Waste Class Name: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 122
Waste Class Name: ALKALINE WASTES - OTHER METALS

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

Waste Class: 243

Waste Class Name: PCB'S

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

Waste Class: 253
Waste Class Name: EMULSIFIED OILS

---

89 | 12 of 24 | 316.8 | MTD (SEE & USE ON0116902) MTD
129 DUNDAS STREET
KITCHENER ON N2G 2Z3 | GEN

Generator No: ON0116903
SIC Code: 0007
SIC Description: LETTER ACKNOWLEDG.
Approval Years: 86,87,88,89,90
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

---

89 | 13 of 24 | 316.8 | MTD (SEE & USE ON0116902) MTD 25-137
129 DUNDAS STREET
KITCHENER ON N2G 2Z3 | GEN

Generator No: ON0116903
SIC Code: 0007
SIC Description: LETTER ACKNOWLEDG.
Approval Years: 92,93,94
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

---

89 | 14 of 24 | 316.8 | MTD Products Limited
136 Ottawa St S Kitchener Ontario Kitchener
ON | EBR

EBR Registry No: IA06E1426
Ministry Ref No: 2380-6V5MVM
Notice Type: Instrument Decision
Notice Stage:
Notice Date: January 07, 2015
Proposal Date: November 16, 2006
Year: 2006
Decision Posted:
Exception Posted:
Section:
Act 1:
Act 2:
Site Location Map:
Instrument Type: (EPA Part II.1-air) - Environmental Compliance Approval (project type: air)
Off Instrument Name:
Posted By:
Company Name: MTD Products Limited
Site Address:
Location Other:
Proponent Name:
Proponent Address: 136 Ottawa St S, Kitchener Ontario, N2G 3S9
Comment Period:
URL:

Site Location Details:

136 Ottawa St S Kitchener Ontario Kitchener

---

89 ***15 of 24*** ***316.8*** ***136 Ottawa St South Kitchener ON*** ***EHS***

Order No:	20081212001	***Nearest Intersection:***	Borden Ave and Dundas Ave
Status:	C	***Municipality:***	Region of Waterloo
Report Type:	Standard Report	***Client Prov/State:***	ON
Report Date:	12/22/2008	***Search Radius (km):***	0.25
Date Received:	12/12/2008	***X:***	-80.475654
Previous Site Name:		***Y:***	43.438328
Lot/Building Size:	2.85 acres		
Additional Info Ordered:			

---

89 ***16 of 24*** ***316.8*** ***MTD PRODUCTS LTD 136 OTTAWA STREET SOUTH KITCHENER ON N2B 3R2*** ***NPCB***

Company Code:	F0403
Industry:	UNDEFINED
Site Status:	
Transaction Date:	
Inspection Date:	

---

89 ***17 of 24*** ***316.8*** ***136 OTTAWA ST S Kitchener ON*** ***WWIS***

Well ID:	7139458	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Not Used	***Data Entry Status:***	
Use 2nd:		***Data Src:***	
Final Well Status:	Test Hole	***Date Received:***	04-Feb-2010 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	M02743	***Contractor:***	7082
Tag:	A073494	***Form Version:***	5
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:			

Bore Hole Information

Bore Hole ID:	1003266963	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	
Code OB:		***East83:***	
Code OB Desc:		***North83:***	

Open Hole:
Cluster Kind: This is a record from cluster log sheet
Date Completed: 03-Dec-2008 00:00:00
Remarks:
Loc Method Desc: Not Applicable i.e. no UTM
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:
Org CS:
UTMRC: 9
UTMRC Desc: unknown UTM
Location Method: na

Annular Space/Abandonment Sealing Record

Plug ID: 1003266967
Layer:
Plug From:
Plug To:
Plug Depth UOM:

Method of Construction & Well Use

Method Construction ID: 1003266966
Method Construction Code:
Method Construction:
Other Method Construction: DIRECT PUSH

Pipe Information

Pipe ID: 1003266968
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1003266970
Layer:
Material: 5
Open Hole or Material: PLASTIC
Depth From:
Depth To: 1.5199999809265137
Casing Diameter:
Casing Diameter UOM:
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1003266969
Layer:
Slot:
Screen Top Depth: 1.5199999809265137
Screen End Depth: 4.570000171661377
Screen Material:
Screen Depth UOM: m
Screen Diameter UOM:
Screen Diameter:

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1003266971
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM:
Rate UOM:
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Hole Diameter

Hole ID: 1003266965
Diameter: 9.5
Depth From:
Depth To: 4.570000171661377
Hole Depth UOM: m
Hole Diameter UOM: cm

Bore Hole Information

Bore Hole ID: 1003266954
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind: This is a record from cluster log sheet
Date Completed: 03-Dec-2008 00:00:00
Remarks:
Loc Method Desc: Not Applicable i.e. no UTM
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:
Elevation:
Elevrc:
Zone:
East83:
North83:
Org CS:
UTMRC: 9
UTMRC Desc: unknown UTM
Location Method: na

Annular Space/Abandonment Sealing Record

Plug ID: 1003266958
Layer:
Plug From:
Plug To:
Plug Depth UOM:

Method of Construction & Well Use

Method Construction ID: 1003266957
Method Construction Code:

Method Construction:
Other Method Construction: DIRECT PUSH

Pipe Information

Pipe ID: 1003266959
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1003266961
Layer:
Material: 5
Open Hole or Material: PLASTIC
Depth From:
Depth To: 1.2200000286102295
Casing Diameter:
Casing Diameter UOM:
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1003266960
Layer:
Slot:
Screen Top Depth: 1.2200000286102295
Screen End Depth: 4.570000171661377
Screen Material:
Screen Depth UOM: m
Screen Diameter UOM:
Screen Diameter:

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1003266962
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM:
Rate UOM:
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Hole Diameter

Hole ID: 1003266956
Diameter: 9.5
Depth From:
Depth To: 4.570000171661377
Hole Depth UOM: m

Hole Diameter UOM: cm

Bore Hole Information

Bore Hole ID: 1003266972
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind: This is a record from cluster log sheet
Date Completed: 03-Dec-2008 00:00:00
Remarks:
Loc Method Desc: Not Applicable i.e. no UTM
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone:
East83:
North83:
Org CS:
UTMRC: 9
UTMRC Desc: unknown UTM
Location Method: na

Annular Space/Abandonment Sealing Record

Plug ID: 1003266976
Layer:
Plug From:
Plug To:
Plug Depth UOM:

Method of Construction & Well Use

Method Construction ID: 1003266975
Method Construction Code:
Method Construction:
Other Method Construction: DIRECT PUSH

Pipe Information

Pipe ID: 1003266977
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1003266979
Layer:
Material: 5
Open Hole or Material: PLASTIC
Depth From:
Depth To: 2.130000114440918
Casing Diameter:
Casing Diameter UOM:
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1003266978

Layer:
Slot:
Screen Top Depth: 2.130000114440918
Screen End Depth: 3.6600000858306885
Screen Material:
Screen Depth UOM: m
Screen Diameter UOM:
Screen Diameter:

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1003266980
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM:
Rate UOM:
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Hole Diameter

Hole ID: 1003266974
Diameter: 9.5
Depth From:
Depth To: 3.6600000858306885
Hole Depth UOM: m
Hole Diameter UOM: cm

Bore Hole Information

Bore Hole ID: 1002934596
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 02-Dec-2008 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone:
East83:
North83:
Org CS: UTM83
UTMRC: 9
UTMRC Desc: unknown UTM
Location Method: wwr

Overburden and Bedrock Materials Interval

Formation ID: 1003266982
Layer: 1

Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 0.8999999761581421
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1003266983
Layer: 2
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 06
Mat2 Desc: SILT
Mat3: 84
Mat3 Desc: SILTY
Formation Top Depth: 0.8999999761581421
Formation End Depth: 2.9000000953674316
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1003266984
Layer: 3
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 91
Mat2 Desc: WATER-BEARING
Mat3:
Mat3 Desc:
Formation Top Depth: 2.9000000953674316
Formation End Depth: 4.570000171661377
Formation End Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1003266986
Layer: 1
Plug From: 0.0
Plug To: 1.2200000286102295
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1003266991
Method Construction Code: 9
Method Construction: Driving
Other Method Construction:

Pipe Information

Pipe ID: 1003266981
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1003266988
Layer: 2
Material: 5
Open Hole or Material: PLASTIC
Depth From: 1.5199999809265137
Depth To: 4.570000171661377
Casing Diameter: 3.4000000953674316
Casing Diameter UOM: cm
Casing Depth UOM: m

Construction Record - Casing

Casing ID: 1003266987
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 1.5199999809265137
Casing Diameter: 3.4000000953674316
Casing Diameter UOM: cm
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1003266989
Layer: 1
Slot: 10
Screen Top Depth:
Screen End Depth:
Screen Material: 5
Screen Depth UOM: m
Screen Diameter UOM: cm
Screen Diameter: 4.199999809265137

Hole Diameter

Hole ID: 1003266985
Diameter: 9.5
Depth From: 0.0
Depth To: 4.570000171661377
Hole Depth UOM: m
Hole Diameter UOM: cm

Bore Hole Information

Bore Hole ID: 1003266945
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Elevation:
Elevrc:
Zone:
East83:
North83:

Open Hole:
Cluster Kind: This is a record from cluster log sheet
Date Completed: 03-Dec-2008 00:00:00
Remarks:
Loc Method Desc: Not Applicable i.e. no UTM
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:
Org CS:
UTMRC: 9
UTMRC Desc: unknown UTM
Location Method: na

Annular Space/Abandonment Sealing Record

Plug ID: 1003266949
Layer:
Plug From:
Plug To:
Plug Depth UOM:

Method of Construction & Well Use

Method Construction ID: 1003266948
Method Construction Code:
Method Construction:
Other Method Construction: DIRECT PUSH

Pipe Information

Pipe ID: 1003266950
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1003266952
Layer:
Material: 5
Open Hole or Material: PLASTIC
Depth From:
Depth To: 1.5199999809265137
Casing Diameter:
Casing Diameter UOM:
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1003266951
Layer:
Slot:
Screen Top Depth: 1.5199999809265137
Screen End Depth: 4.570000171661377
Screen Material:
Screen Depth UOM: m
Screen Diameter UOM:
Screen Diameter:

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1003266953
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM:
Rate UOM:
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Hole Diameter

Hole ID: 1003266947
Diameter: 9.5
Depth From:
Depth To: 4.570000171661377
Hole Depth UOM: m
Hole Diameter UOM: cm

---

89 | ***18 of 24*** | ***316.8*** | ***MTD PRODUCTS LTD***
136 OTTAWA ST S
KITCHENER ON | ***DTNK***

Delisted Expired Fuel Safety Facilities

Instance No: 10269456
Status: EXPIRED
Instance ID: 14573
Instance Type: FS Facility
Instance Creation Dt:
Instance Install Dt:
Item Description:
Manufacturer:
Model:
Serial No:
ULC Standard:
Quantity:
Unit of Measure:
Overfill Prot Type:
Creation Date:
Next Periodic Str DT:
TSSA Base Sched Cycle 2:
TSSAMax Hazard Rank 1:
TSSA Risk Based Periodic Yn:
TSSA Volume of Directives:
TSSA Periodic Exempt:
TSSA Statutory Interval:
TSSA Recd Insp Interva:
TSSA Recd Tolerance:
TSSA Program Area:
TSSA Program Area 2:

Expired Date:
Max Hazard Rank:
Facility Location:
Facility Type:
Fuel Type 2:
Fuel Type 3:
Panam Related:
Panam Venue Nm:
External Identifier:
Item:
Piping Steel:
Piping Galvanized:
Tank Single Wall St:
Piping Underground:
Tank Underground:
Source:

Description: FS Propane Refill Cntr - Cylr Fill
Original Source: EXP
Record Date: Up to Mar 2012

---

89 | 19 of 24 | 316.8 | MTD PRODUCTS LTD
136 OTTAWA ST S
KITCHENER ON | DTNK

Delisted Expired Fuel Safety Facilities

Instance No: 11588600
Status: EXPIRED
Instance ID: 92704
Instance Type: FS Propane Tank
Instance Creation Dt:
Instance Install Dt:
Item Description:
Manufacturer:
Model:
Serial No:
ULC Standard:
Quantity:
Unit of Measure:
Overfill Prot Type:
Creation Date:
Next Periodic Str DT:
TSSA Base Sched Cycle 2:
TSSAMax Hazard Rank 1:
TSSA Risk Based Periodic Yn:
TSSA Volume of Directives:
TSSA Periodic Exempt:
TSSA Statutory Interval:
TSSA Recd Insp Interva:
TSSA Recd Tolerance:
TSSA Program Area:
TSSA Program Area 2:
Description: FS Propane Tank
Original Source: EXP
Record Date: Up to Mar 2012

Expired Date:
Max Hazard Rank:
Facility Location:
Facility Type:
Fuel Type 2:
Fuel Type 3:
Panam Related:
Panam Venue Nm:
External Identifier:
Item:
Piping Steel:
Piping Galvanized:
Tank Single Wall St:
Piping Underground:
Tank Underground:
Source:

---

89 | 20 of 24 | 316.8 | MTD PRODUCTS LIMITED
136 OTTAWA STREET SOUTH
KITCHENER ON N2G 3S9 | GEN

Generator No: ON0116902
SIC Code: 493190
SIC Description: Other Warehousing and Storage
Approval Years: 2009
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 122

Waste Class Name:	ALKALINE WASTES - OTHER METALS
Waste Class:	145
Waste Class Name:	PAINT/PIGMENT/COATING RESIDUES
Waste Class:	213
Waste Class Name:	PETROLEUM DISTILLATES
Waste Class:	241
Waste Class Name:	HALOGENATED SOLVENTS
Waste Class:	243
Waste Class Name:	PCBS
Waste Class:	251
Waste Class Name:	OIL SKIMMINGS & SLUDGES
Waste Class:	253
Waste Class Name:	EMULSIFIED OILS

---

89 | ***21 of 24*** | ***316.8*** | ***JAZ INTERGRATED GRAPHICS INC***
136 OTTAWA ST S
KITCHENER ON N2G 3SM | ***GEN***

Generator No:	ON3835213
SIC Code:	323115
SIC Description:	DIGITAL PRINTING
Approval Years:	2015
PO Box No:	
Country:	Canada
Status:	
Co Admin:	
Choice of Contact:	CO_OFFICIAL
Phone No Admin:	
Contaminated Facility:	No
MHSW Facility:	No

Detail(s)

Waste Class:	213
Waste Class Name:	PETROLEUM DISTILLATES

---

89 | ***22 of 24*** | ***316.8*** | ***JAZ INTERGRATED GRAPHICS INC***
136 OTTAWA ST S
KITCHENER ON N2G 3SM | ***GEN***

Generator No:	ON3835213
SIC Code:	323115
SIC Description:	DIGITAL PRINTING
Approval Years:	2016
PO Box No:	
Country:	Canada
Status:	
Co Admin:	
Choice of Contact:	CO_OFFICIAL
Phone No Admin:	
Contaminated Facility:	No
MHSW Facility:	No

Detail(s)

Waste Class:	213

Waste Class Name: PETROLEUM DISTILLATES

---

89 | 23 of 24 | 316.8 | **JAZ INTERGRATED GRAPHICS INC**
136 OTTAWA ST S
KITCHENER ON N2G 3SM | GEN

Generator No: ON3835213
SIC Code: 323115
SIC Description: DIGITAL PRINTING
Approval Years: 2014
PO Box No:
Country: Canada
Status:
Co Admin:
Choice of Contact: CO_OFFICIAL
Phone No Admin:
Contaminated Facility: No
MHSW Facility: No

Detail(s)

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

---

89 | 24 of 24 | 316.8 | **D5D Enterprises Ltd. & Ratford Enterprises Inc**
136 Ottawa Street South
Kitchener ON N2G 3S9 | GEN

Generator No: ON4182619
SIC Code:
SIC Description:
Approval Years: As of Oct 2022
PO Box No:
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 241 L
Waste Class Name: HALOGENATED SOLVENTS

---

90 | 1 of 1 | 321.9 | **Kent Ave Dump (alt)**

Kitchener ON N2G 3R1 | ANDR

Legal Description: Waterloo
Location Description: Kent Ave S of Charles St; N side of Kent Ave*, S side of Grand River RR ROW, SW of Charles St S*
Municipality: Kitchener City
Current Municipality: Kitchener City
RM: Waterloo Region
Facility: Dump
Date Active: 1954
Date Begun:
Date Complete: pre 1969
Area (Ha): 2.25
Landfill Type:

Group Name:
Operated By: Kitchener C
Serial: MOEE 8086 (alt)
NTS: 40P08
Diameter (m): 225

Historical Summary:

Kent & Charles Dump (alt) Kent Ave S of Charles St During the period Sep. 18-Oct. 22, 1969 Heath Survey Consultants Ltd [Sarnia] performed methane testing at suspected former landfill sites for the City of Kitchener at Kent Ave S of Charles St. No methane was found (Consultants Report, Wayne Henniger, Divisional Manager of Heath Survey Consultants Ltd [Sarnia] to W L Bradley, City engineer, Kitchener October 30 1969). Hurst Ave S of Charles St During the period Sep. 18-Oct. 22, 1969 Heath Survey Consultants Ltd [Sarnia] performed methane testing at suspected former landfill sites for the City of Kitchener at Hurst Ave S of Charles St. No methane was found (Consultants Report, Wayne Henniger, Divisional Manager of Heath Survey Consultants Ltd [Sarnia] to W L Bradley, City engineer, Kitchener October 30 1969). 1954 Air Photographs Ground disturbance marked, 225m x 100m, N side of Kent Ave*, S side of Grand River RR ROW, SW of Charles St S* [YUML: 1954 Air Photographs] 1976 1:25,000 NTS Map 40P08E Not marked [1976 1:25,000 NTS Map 40P08E edition 2 (air photos 1972, culture check 1974, printed 1976)]. 1979 NTS Map 40P07 Not marked [1979 NTS 1:50,000 Map Stratford ON Sheet 40P07 Edition 6 (air photos 1976, culture check 1976, published 1979)]. *[1996] MapArt Publishing Ltd Western Ontario [Street Atlas] 1996 edition ISBN 1-55198-386-9.

Waste Type:
UTM X Nad 27: 542110
UTM Y Nad 27: 4809850
UTM Zone: 17

91	*1 of 5*	*319.9*	***WATERLOO, REGIONAL MUNICIPALITY OF KITCHENER WATERLOO REGIONAL AMBULANCE LTD., 485 CHARLES ST. E. KITCHENER ON N2G 2R1***	***GEN***

Generator No: ON0282008
SIC Code: 8261
SIC Description: HEALTH ADMIN.
Approval Years: 86,87,88,89,90,92,93,97
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

91	*2 of 5*	*319.9*	***WATERLOO, REGIONAL MUNICIPALITY OF41-165 KITCHENER WATERLOO REGIONAL AMBULANCE LTD., 485 CHARLES ST. E. KITCHENER ON N2G 2R1***	***GEN***

Generator No: ON0282008
SIC Code: 8261
SIC Description: HEALTH ADMIN.
Approval Years: 94,95,96
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:

Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

---

91 | ***3 of 5*** | ***319.9*** | ***WATERLOO, REGIONAL MUNICIPALITY OF***
485 CHARLES STREET EAST
KITCHENER ON N2C 1W4 | ***GEN***

Generator No: ON0282008
SIC Code: 8261
SIC Description: HEALTH ADMIN.
Approval Years: 98,99,00,01
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

---

91 | ***4 of 5*** | ***319.9*** | ***Region of Waterloo EMS***
485 CHARLES STREET EAST
KITCHENER ON | ***GEN***

Generator No: ON0282008
SIC Code: 621911
SIC Description: Ambulance (exc. Air Ambulance) Services
Approval Years: 03,04
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

---

91 | ***5 of 5*** | ***319.9*** | ***485 Charles Street***
Kitchener ON | ***EHS***

Order No: 20100923016
Status: C
Report Type: Custom Report
Report Date: 9/29/2010
Date Received: 9/23/2010
Previous Site Name:
Lot/Building Size:
Additional Info Ordered:
Nearest Intersection:
Municipality:
Client Prov/State: ON
Search Radius (km): 0.25
X: -80.475892
Y: 43.442247

Map Key	Number of Records	Elevation (m)	Site	DB
92	1 of 1	320.0	FARRTRONICS LTD. 39 KENT AVE KITCHENER ON N2G 3R2	SCT

Established: 1969
Plant Size (ft²): 3000
Employment: 10

--Details--
Description: HOUSEHOLD AUDIO AND VIDEO EQUIPMENT
SIC/NAICS Code: 3651

Description: RADIO AND TELEVISION BROADCASTING AND COMMUNICATIONS EQUIPMENT
SIC/NAICS Code: 3663

Description: Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing
SIC/NAICS Code: 334220

Description: Audio and Video Equipment Manufacturing
SIC/NAICS Code: 334310

Map Key	Number of Records	Elevation (m)	Site	DB
93	1 of 1	321.2	50 BORDEN ST S Kitchener ON	WWIS

Well ID: 7342795
Construction Date:
Use 1st: Test Hole
Use 2nd:
Final Well Status: Test Hole
Water Type:
Casing Material:
Audit No: Z312171
Tag: A275310
Constructn Method:
Elevation (m):
Elevatn Reliabilty:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Clear/Cloudy:
Municipality: KITCHENER CITY
Site Info:

Flowing (Y/N):
Flow Rate:
Data Entry Status:
Data Src:
Date Received: 16-Sep-2019 00:00:00
Selected Flag: TRUE
Abandonment Rec:
Contractor: 7320
Form Version: 7
Owner:
County: WATERLOO
Lot:
Concession:
Concession Name:
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date: 2018/08/08
Year Completed: 2018
Depth (m): 12.2
Latitude: 43.4414348903691
Longitude: -80.4752509453366
Path:

Bore Hole Information

Bore Hole ID: 1007669089
DP2BR:
Spatial Status:

Elevation:
Elevrc:
Zone: 17

Code OB:		***East83:***	542464.00
Code OB Desc:		***North83:***	4809971.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	4
Date Completed:	08-Aug-2018 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1007872376
Layer:	3
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	79
Mat3 Desc:	PACKED
Formation Top Depth:	4.599999904632568
Formation End Depth:	10.0
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1007872375
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	04
Mat3 Desc:	PEAT
Formation Top Depth:	1.7999999523162842
Formation End Depth:	4.599999904632568
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1007872377
Layer:	4
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	11
Mat3 Desc:	GRAVEL
Formation Top Depth:	10.0
Formation End Depth:	12.199999809265137

Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1007872374
Layer: 1
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 11
Mat2 Desc: GRAVEL
Mat3: 01
Mat3 Desc: FILL
Formation Top Depth: 0.0
Formation End Depth: 1.7999999523162842
Formation End Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1007873484
Layer: 1
Plug From: 0.0
Plug To: 0.30000001192092896
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1007873486
Layer: 3
Plug From: 1.5
Plug To: 10.0
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1007873485
Layer: 2
Plug From: 0.30000001192092896
Plug To: 1.5
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1007873487
Layer: 4
Plug From: 10.0
Plug To: 10.300000190734863
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1007875112
Method Construction Code: 6

Method Construction: Boring
Other Method Construction:

Pipe Information

Pipe ID: 1007871468
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1007875780
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 10.600000381469727
Casing Diameter: 5.099999904632568
Casing Diameter UOM: cm
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1007876249
Layer: 1
Slot: .01
Screen Top Depth: 10.600000381469727
Screen End Depth: 12.199999809265137
Screen Material: 5
Screen Depth UOM: m
Screen Diameter UOM: cm
Screen Diameter: 6.099999904632568

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1007876857
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM: m
Rate UOM: LPM
Water State After Test Code:
Water State After Test:
Pumping Test Method: 0
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Water Details

Water ID: 1007876705
Layer: 1
Kind Code: 8
Kind: Untested
Water Found Depth: 4.199999809265137

Water Found Depth UOM: m

Water Details

Water ID: 1007876706
Layer: 2
Kind Code: 8
Kind: Untested
Water Found Depth: 10.0
Water Found Depth UOM: m

Hole Diameter

Hole ID: 1007874598
Diameter: 21.0
Depth From: 0.0
Depth To: 12.199999809265137
Hole Depth UOM: m
Hole Diameter UOM: cm

Links

Bore Hole ID: 1007669089
Depth M: 12.2
Year Completed: 2018
Well Completed Dt: 2018/08/08
Audit No: Z312171
Tag No: A275310
Contractor: 7320
Path:
Latitude: 43.4414348903691
Longitude: -80.4752509453366

---

94 **1 of 1** **320.0** **39 Kent Avenue Kitchener**
Kitchener ON N2G 3R2 **EHS**

Order No: 22100404958
Status: C
Report Type: Standard Report
Report Date: 07-OCT-22
Date Received: 04-OCT-22
Previous Site Name:
Lot/Building Size:
Additional Info Ordered: Fire Insur. Maps and/or Site Plans; City Directory
Nearest Intersection:
Municipality:
Client Prov/State: ON
Search Radius (km): .25
X: -80.4775598
Y: 43.4426469

---

95 **1 of 1** **319.2** **PALMER AVENUE**
Kitchener ON **WWIS**

Well ID: 7246640
Construction Date:
Use 1st:
Use 2nd:
Final Well Status: 0
Water Type:
Casing Material:
Audit No: Z200118
Tag:
Constructn Method:
Elevation (m):
Elevatn Reliabilty:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Flowing (Y/N):
Flow Rate:
Data Entry Status:
Data Src:
Date Received: 17-Aug-2015 00:00:00
Selected Flag: TRUE
Abandonment Rec: Yes
Contractor: 6875
Form Version: 7
Owner:
County: WATERLOO
Lot:
Concession:
Concession Name:
Easting NAD83:
Northing NAD83:
Zone:

Clear/Cloudy:
Municipality: KITCHENER CITY
Site Info:

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date: 2015/08/10
Year Completed: 2015
Depth (m):
Latitude: 43.4414154206221
Longitude: -80.4808490525204
Path:

Bore Hole Information

Bore Hole ID: 1005587871
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 10-Aug-2015 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone: 17
East83: 542011.00
North83: 4809966.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Annular Space/Abandonment Sealing Record

Plug ID: 1005704991
Layer: 1
Plug From: 0.0
Plug To: 4.639999866485596
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1005704990
Method Construction Code:
Method Construction:
Other Method Construction:

Pipe Information

Pipe ID: 1005704984
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID:	1005704988
Layer:	
Material:	
Open Hole or Material:	
Depth From:	
Depth To:	
Casing Diameter:	
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1005704989
Layer:	
Slot:	
Screen Top Depth:	
Screen End Depth:	
Screen Material:	
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	

Water Details

Water ID:	1005704987
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1005704986
Diameter:	
Depth From:	
Depth To:	
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1005587871	**Tag No:**	
Depth M:		**Contractor:**	6875
Year Completed:	2015	**Path:**	724\7246640.pdf
Well Completed Dt:	2015/08/10	**Latitude:**	43.4414154206221
Audit No:	Z200118	**Longitude:**	-80.4808490525204

---

96 | ***1 of 1*** | ***319.2*** | ***PALMER AVE. BETWEEN HOURT AVE. & DEAD END KITCHENER ON*** | ***WWIS***

Well ID:	7153318	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	22-Oct-2010 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z106404	**Contractor:**	6607
Tag:	A094919	**Form Version:**	7
Constructn Method:		**Owner:**	

Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY (WATERLOO TWP)		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/715\7153318.pdf

Additional Detail(s) (Map)

Well Completed Date:	2010/09/14
Year Completed:	2010
Depth (m):	6
Latitude:	43.4414244807444
Longitude:	-80.4808613325329
Path:	715\7153318.pdf

Bore Hole Information

Bore Hole ID:	1003352864	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542010.00
Code OB Desc:		**North83:**	4809967.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	3
Date Completed:	14-Sep-2010 00:00:00	**UTMRC Desc:**	margin of error : 10 - 30 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1003452695
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	77
Mat3 Desc:	LOOSE
Formation Top Depth:	1.0
Formation End Depth:	2.4000000953674316
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1003452694

Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	11
Mat2 Desc:	GRAVEL
Mat3:	77
Mat3 Desc:	LOOSE
Formation Top Depth:	0.0
Formation End Depth:	1.0
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1003452697
Layer:	4
Color:	2
General Color:	GREY
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	73
Mat3 Desc:	HARD
Formation Top Depth:	3.0
Formation End Depth:	6.0
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1003452696
Layer:	3
Color:	6
General Color:	BROWN
Mat1:	04
Most Common Material:	PEAT
Mat2:	35
Mat2 Desc:	WOOD FRAGMENTS
Mat3:	77
Mat3 Desc:	LOOSE
Formation Top Depth:	2.4000000953674316
Formation End Depth:	3.0
Formation End Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1003452699
Layer:	1
Plug From:	0.0
Plug To:	0.30000001192092896
Plug Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1003452700
Layer:	2
Plug From:	0.30000001192092896

Plug To:	3.0
Plug Depth UOM:	m

Method of Construction & Well Use

Method Construction ID:	1003452705
Method Construction Code:	6
Method Construction:	Boring
Other Method Construction:	

Pipe Information

Pipe ID:	1003452693
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1003452702
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	3.0
Casing Diameter:	5.099999904632568
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1003452703
Layer:	1
Slot:	20
Screen Top Depth:	3.0
Screen End Depth:	6.0
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	5.099999904632568

Water Details

Water ID:	1003452701
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	3.0
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1003452698
Diameter:	15.0
Depth From:	0.0
Depth To:	6.0
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Map Key	Number of Records	Elevation (m)	Site	DB

Links

Bore Hole ID:	1003352864	***Tag No:***	A094919
Depth M:	6	***Contractor:***	6607
Year Completed:	2010	***Path:***	715\7153318.pdf
Well Completed Dt:	2010/09/14	***Latitude:***	43.4414244807444
Audit No:	Z106404	***Longitude:***	-80.4808613325329

97 ***1 of 1*** ***321.8*** ***ON*** ***WWIS***

Well ID:	7180441	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:		***Data Entry Status:***	Yes
Use 2nd:		***Data Src:***	
Final Well Status:		***Date Received:***	07-May-2012 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	M02995	***Contractor:***	7282
Tag:	A108534	***Form Version:***	5
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/718\7180441.pdf

Additional Detail(s) (Map)

Well Completed Date:	2010/11/03
Year Completed:	2010
Depth (m):	
Latitude:	43.442552245784
Longitude:	-80.4793687637419
Path:	718\7180441.pdf

Bore Hole Information

Bore Hole ID:	1003724071	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542130.00
Code OB Desc:		***North83:***	4810093.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	4
Date Completed:	03-Nov-2010 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Map Key	Number of Records	Elevation (m)	Site	DB

Links

Bore Hole ID:	1003724071	***Tag No:***	A108534
Depth M:		***Contractor:***	7282
Year Completed:	2010	***Path:***	718\7180441.pdf
Well Completed Dt:	2010/11/03	***Latitude:***	43.442552245784
Audit No:	M02995	***Longitude:***	-80.4793687637419

98 ***1 of 1*** ***321.2*** ***50 BORDAN AVE Kitchener ON*** ***WWIS***

Well ID:	7314919	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:		***Data Entry Status:***	
Use 2nd:	Monitoring	***Data Src:***	
Final Well Status:	Observation Wells	***Date Received:***	19-Jul-2018 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	Z285374	***Contractor:***	7190
Tag:	A247451	***Form Version:***	7
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2018/06/18
Year Completed:	2018
Depth (m):	3.3528
Latitude:	43.4415243633979
Longitude:	-80.4751265969953
Path:	

Bore Hole Information

Bore Hole ID:	1007190027	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542474.00
Code OB Desc:		***North83:***	4809981.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	4
Date Completed:	18-Jun-2018 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1007265545
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	11
Mat2 Desc:	GRAVEL
Mat3:	73
Mat3 Desc:	HARD
Formation Top Depth:	0.6669999957084656
Formation End Depth:	1.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1007265546
Layer:	3
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	73
Mat3 Desc:	HARD
Formation Top Depth:	1.0
Formation End Depth:	11.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1007265544
Layer:	1
Color:	2
General Color:	GREY
Mat1:	27
Most Common Material:	OTHER
Mat2:	
Mat2 Desc:	
Mat3:	73
Mat3 Desc:	HARD
Formation Top Depth:	0.0
Formation End Depth:	0.6669999957084656
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1007265554
Layer:	2
Plug From:	5.0
Plug To:	11.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID: 1007265553
Layer: 1
Plug From: 0.0
Plug To: 5.0
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 1007265552
Method Construction Code: 6
Method Construction: Boring
Other Method Construction: AUGER

Pipe Information

Pipe ID: 1007265542
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1007265549
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 6.0
Casing Diameter: 2.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Screen

Screen ID: 1007265550
Layer: 1
Slot: 10
Screen Top Depth: 6.0
Screen End Depth: 11.0
Screen Material: 5
Screen Depth UOM: ft
Screen Diameter UOM: inch
Screen Diameter: 2.0

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1007265543
Pump Set At:
Static Level: 6.0
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 0
Water State After Test:

Pumping Test Method:	0
Pumping Duration HR:	
Pumping Duration MIN:	
Flowing:	

Water Details

Water ID:	1007265548
Layer:	1
Kind Code:	
Kind:	
Water Found Depth:	6.0
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1007265547
Diameter:	8.5
Depth From:	0.0
Depth To:	11.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1007190027	***Tag No:***	A247451
Depth M:	3.3528	***Contractor:***	7190
Year Completed:	2018	***Path:***	731\7314919.pdf
Well Completed Dt:	2018/06/18	***Latitude:***	43.4415243633979
Audit No:	Z285374	***Longitude:***	-80.4751265969953

---

99 ***1 of 3*** ***320.2*** ***THRUWAY MUFFLER & BRAKE CENTRE***
475 CHARLES ST. E.
KITCHENER ON N2G 2R1 ***GEN***

Generator No:	ON0683500
SIC Code:	0007
SIC Description:	LETTER ACKNOWLEDG.
Approval Years:	86,87,88,89,90
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

---

99 ***2 of 3*** ***320.2*** ***THRUWAY MUFFLER & BRAKE CENTRE 37-217***
475 CHARLES ST. E.
KITCHENER ON N2G 2R1 ***GEN***

Generator No:	ON0683500
SIC Code:	0007
SIC Description:	LETTER ACKNOWLEDG.
Approval Years:	92,93,94
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	

Phone No Admin:
Contaminated Facility:
MHSW Facility:

---

99 | ***3 of 3*** | ***320.2*** | ***GrandLinq Contractors*** | ***SPL***
475 Charles Street East
Kitchener ON

Ref No:	6286-9Y8TDP	***Contaminant Qty:***	0 other - see incident description
Site No:	NA	***Nature of Damage:***	
Incident Dt:	7/7/2015	***Discharger Report:***	
Year:		***Material Group:***	
Incident Cause:		***Health/Env Conseq:***	
Incident Event:		***Agency Involved:***	
Environment Impact:		***Site Lot:***	
Nature of Impact:		***Site Conc:***	
MOE Response:	No	***Site Geo Ref Accu:***	
Dt MOE Arvl on Scn:		***Site Map Datum:***	
MOE Reported Dt:	7/8/2015	***Northing:***	4810042
Dt Document Closed:	8/19/2015	***Easting:***	542368
Municipality No:			
System Facility Address:			
Client Type:			
Call Report Location Geodata:			
Contaminant Code:	44		
Contaminant Name:	SEWAGE,RAW UNCHLORINATED		
Contaminant Limit 1:			
Contam Limit Freq 1:			
Contaminant UN No 1:			
Receiving Medium:			
Receiving Environment:			
Incident Reason:	Weather Conditions		
Incident Summary:	Mister Transmission: sewage and oil to soil, cntd		
Site Region:			
Site Municipality:	Kitchener		
Activity Preceding Spill:			
Property 2nd Watershed:			
Property Tertiary Watershed:			
Sector Type:	Miscellaneous Industrial		
SAC Action Class:	Land Spills		
Source Type:			
Site County/District:			
Site Geo Ref Meth:			
Site District Office:			
Nearest Watercourse:			
Site Name:	Mister Transmission<UNOFFICIAL>		
Site Address:	475 Charles Street East		
Client Name:	GrandLinq Contractors		

---

100 | ***1 of 1*** | ***321.8*** | ***ON*** | ***BORE***

Borehole ID:	681102	***Inclin FLG:***	No
OGF ID:	215558098	***SP Status:***	Initial Entry
Status:		***Surv Elev:***	No
Type:	Borehole	***Piezometer:***	No
Use:	Geotechnical/Geological Investigation	***Primary Name:***	
Completion Date:	APR-1966	***Municipality:***	
Static Water Level:	0.9	***Lot:***	
Primary Water Use:		***Township:***	
Sec. Water Use:		***Latitude DD:***	43.442535
Total Depth m:	8.1	***Longitude DD:***	-80.47948
Depth Ref:	Ground Surface	***UTM Zone:***	17

Depth Elev:		**Easting:**	542121
Drill Method:	Power auger	**Northing:**	4810091
Orig Ground Elev m:	320	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	321		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218552146	**Mat Consistency:**	Compact
Top Depth:	3.1	**Material Moisture:**	
Bottom Depth:	4.6	**Material Texture:**	Coarse
Material Color:	Brown	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:	Clay	**Geologic Group:**	
Material 3:	Sand	**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	LIGHT, BROWN, COMPACT.		

Geology Stratum ID:	218552145	**Mat Consistency:**	Loose
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	3.1	**Material Texture:**	Medium
Material Color:	Brown	**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:	Silt	**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	BROWN, LOOSE.		

Geology Stratum ID:	218552149	**Mat Consistency:**	
Top Depth:	6.7	**Material Moisture:**	Dry
Bottom Depth:	8.1	**Material Texture:**	
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Clay	**Geologic Formation:**	
Material 2:	Sand	**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	GREY, DRY, SEAMS.		

Geology Stratum ID:	218552147	**Mat Consistency:**	Stiff
Top Depth:	4.6	**Material Moisture:**	
Bottom Depth:	5.8	**Material Texture:**	
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Clay	**Geologic Formation:**	
Material 2:	Silt	**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	GREY, STIFF, SEAMS.		

Geology Stratum ID:	218552148	**Mat Consistency:**	
Top Depth:	5.8	**Material Moisture:**	Dry
Bottom Depth:	6.7	**Material Texture:**	
Material Color:	Dark	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			

Stratum Description: DARK, BROWN, DRY.

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	4
Source Date:	1900 - 1977	**Scale or Res:**	Varies
Confidence:	H	**Horizontal:**	NAD27
Observatio:	1966/4	**Verticalda:**	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Details:	1009		
Confiden 1:			

Source List

Source Identifier:	4	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1900 - 1977	**Projection Name:**	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Originators:	Geological Survey of Canada		

---

101 **1 of 1** **320.9** **ON** **BORE**

Borehole ID:	681103	**Inclin FLG:**	No
OGF ID:	215558099	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:	Geotechnical/Geological Investigation	**Primary Name:**	
Completion Date:	APR-1966	**Municipality:**	
Static Water Level:	1.8	**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	43.442712
Total Depth m:	6.6	**Longitude DD:**	-80.478861
Depth Ref:	Ground Surface	**UTM Zone:**	17
Depth Elev:		**Easting:**	542171
Drill Method:	Power auger	**Northing:**	4810111
Orig Ground Elev m:	320	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	321		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218552152	**Mat Consistency:**	Compact
Top Depth:	1.5	**Material Moisture:**	
Bottom Depth:	3.3	**Material Texture:**	
Material Color:	Brown	**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:	Gravel	**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	LIGHT, BROWN, COMPACT. STRATIFIED.		

Geology Stratum ID:	218552151	**Mat Consistency:**	Loose
Top Depth:	.1	**Material Moisture:**	
Bottom Depth:	1.5	**Material Texture:**	

Material Color:	Brown	**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	LIGHT, BROWN, LOOSE.		

Geology Stratum ID:	218552150	**Mat Consistency:**	
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	.1	**Material Texture:**	Medium
Material Color:		**Non Geo Mat Type:**	
Material 1:	Unknown	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	(No description) **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218552154	**Mat Consistency:**	
Top Depth:	4.3	**Material Moisture:**	Wet
Bottom Depth:	5.5	**Material Texture:**	
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:	Clay	**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	GREY, WET.		

Geology Stratum ID:	218552153	**Mat Consistency:**	Compact
Top Depth:	3.3	**Material Moisture:**	
Bottom Depth:	4.3	**Material Texture:**	Medium
Material Color:	Brown	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:	Clay	**Geologic Group:**	
Material 3:	Sand	**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	LIGHT, BROWN, COMPACT, SEAMS.		

Geology Stratum ID:	218552155	**Mat Consistency:**	
Top Depth:	5.5	**Material Moisture:**	Dry
Bottom Depth:	6.6	**Material Texture:**	
Material Color:	Dark	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:	Clay	**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	DARK, BROWN, DRY.		

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	4
Source Date:	1900 - 1977	**Scale or Res:**	Varies
Confidence:	H	**Horizontal:**	NAD27
Observatio:	1966/4	**Verticalda:**	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Details:	1010		
Confiden 1:			

Source List

Map Key	Number of Records	Elevation (m)	Site	DB

Source Identifier:	4	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1900 - 1977	**Projection Name:**	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Originators:	Geological Survey of Canada		

102 | ***1 of 1*** | ***314.9*** | ***SCHATTEN DESIGN***
124 OTTAWA ST S
KITCHENER ON N2G 3S9 | ***SCT***

Established:	1992
Plant Size (ft²):	0
Employment:	3

--Details--

Description:	Cutlery and Hand Tool Manufacturing
SIC/NAICS Code:	332210
Description:	All Other Miscellaneous Manufacturing
SIC/NAICS Code:	339990
Description:	Book, Periodical and Newspaper Wholesaler-Distributors
SIC/NAICS Code:	414420

103 | ***1 of 1*** | ***320.9*** | ***ON*** | ***BORE***

Borehole ID:	681105	**Inclin FLG:**	No
OGF ID:	215558101	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:	Geotechnical/Geological Investigation	**Primary Name:**	
Completion Date:	APR-1966	**Municipality:**	
Static Water Level:	3.4	**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	43.442178
Total Depth m:	6.6	**Longitude DD:**	-80.480225
Depth Ref:	Ground Surface	**UTM Zone:**	17
Depth Elev:		**Easting:**	542061
Drill Method:	Power auger	**Northing:**	4810051
Orig Ground Elev m:	320	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	320		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218552162	**Mat Consistency:**	
Top Depth:	2.5	**Material Moisture:**	
Bottom Depth:	4.6	**Material Texture:**	
Material Color:	Grey-Brown	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			

Stratum Description: GREY, BROWN.

Geology Stratum ID: 218552160
Top Depth: 0
Bottom Depth: 1.9
Material Color:
Material 1: Fill
Material 2:
Material 3:
Material 4:
Gsc Material Description:
Stratum Description: (No description) **Note: Many records provided by the department have a truncated [Stratum Description] field.

Mat Consistency:
Material Moisture:
Material Texture:
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen: fill

Geology Stratum ID: 218552161
Top Depth: 1.9
Bottom Depth: 2.5
Material Color: Brown
Material 1: Sand
Material 2:
Material 3:
Material 4:
Gsc Material Description:
Stratum Description: LIGHT, BROWN.

Mat Consistency:
Material Moisture:
Material Texture: Coarse
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen:

Geology Stratum ID: 218552163
Top Depth: 4.6
Bottom Depth: 6.6
Material Color: Grey
Material 1: Silt
Material 2: Clay
Material 3:
Material 4:
Gsc Material Description:
Stratum Description: GREY, DENSE.

Mat Consistency: Dense
Material Moisture:
Material Texture: Coarse
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen:

Source

Source Type: Data Survey
Source Orig: Geological Survey of Canada
Source Date: 1900 - 1977
Confidence: H
Observatio: 1966/4
Source Name: Waterloo Area Geology Automated Information System (WAGAIS)
Source Details: 1012
Confiden 1:

Source Appl: Spatial/Tabular
Source Iden: 4
Scale or Res: Varies
Horizontal: NAD27
Verticalda: Mean Average Sea Level

Source List

Source Identifier: 4
Source Type: Data Survey
Source Date: 1900 - 1977
Scale or Resolution: Varies
Source Name: Waterloo Area Geology Automated Information System (WAGAIS)
Source Originators: Geological Survey of Canada

Horizontal Datum: NAD27
Vertical Datum: Mean Average Sea Level
Projection Name: Universal Traverse Mercator

---

104 | ***1 of 1*** | ***315.4*** | ***NYBERG ST + OTTAWA ST con -00 Kitchener ON*** | ***WWIS***

Well ID: 7353927
Construction Date:
Use 1st: Monitoring and Test Hole
Use 2nd:
Final Well Status: Monitoring and Test Hole

Flowing (Y/N):
Flow Rate:
Data Entry Status:
Data Src:
Date Received: 24-Feb-2020 00:00:00

Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	Z320397	***Contractor:***	7320
Tag:	A284226	***Form Version:***	7
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	-00
Well Depth:		***Concession Name:***	GCT
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2020/01/17
Year Completed:	2020
Depth (m):	4.572
Latitude:	43.4390487692403
Longitude:	-80.475259210187
Path:	

Bore Hole Information

Bore Hole ID:	1008171691	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542465.00
Code OB Desc:		***North83:***	4809706.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	4
Date Completed:	17-Jan-2020 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1008232380
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	01
Most Common Material:	FILL
Mat2:	28
Mat2 Desc:	SAND
Mat3:	11
Mat3 Desc:	GRAVEL
Formation Top Depth:	0.0
Formation End Depth:	6.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1008232381
Layer:	2
Color:	2
General Color:	GREY
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	73
Mat3 Desc:	HARD
Formation Top Depth:	6.0
Formation End Depth:	15.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008234621
Layer:	1
Plug From:	0.0
Plug To:	1.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008234622
Layer:	2
Plug From:	1.0
Plug To:	3.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008234623
Layer:	3
Plug From:	3.0
Plug To:	15.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1008236707
Method Construction Code:	B
Method Construction:	Other Method
Other Method Construction:	HOLLOW STEM

Method of Construction & Well Use

Method Construction ID:	1008236706
Method Construction Code:	2
Method Construction:	Rotary (Convent.)
Other Method Construction:	

Pipe Information

Pipe ID:	1008229408
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1008237667
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	5.0
Casing Diameter:	2.0
Casing Diameter UOM:	Inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1008238515
Layer:	1
Slot:	10
Screen Top Depth:	5.0
Screen End Depth:	15.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.200000047683716

Results of Well Yield Testing

Pumping Test Method Desc:	
Pump Test ID:	1008239858
Pump Set At:	
Static Level:	
Final Level After Pumping:	
Recommended Pump Depth:	
Pumping Rate:	
Flowing Rate:	
Recommended Pump Rate:	
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	
Water State After Test:	
Pumping Test Method:	0
Pumping Duration HR:	
Pumping Duration MIN:	
Flowing:	

Water Details

Water ID:	1008238730
Layer:	1
Kind Code:	8
Kind:	Untested
Water Found Depth:	
Water Found Depth UOM:	

Hole Diameter

Hole ID: 1008235720
Diameter: 8.0
Depth From:
Depth To: 15.0
Hole Depth UOM: ft
Hole Diameter UOM: Inch

Links

Bore Hole ID: 1008171691
Depth M: 4.572
Year Completed: 2020
Well Completed Dt: 2020/01/17
Audit No: Z320397
Tag No: A284226
Contractor: 7320
Path: 735\7353927.pdf
Latitude: 43.4390487692403
Longitude: -80.475259210187

---

105 *1 of 3* *321.5* ***Pandora Press***
33 Kent Ave
Kitchener ON N2G 3R2 ***SCT***

Established: 1994
Plant Size (ft²):
Employment: 6

--Details--
Description: Book Publishers
SIC/NAICS Code: 511130

---

105 *2 of 3* *321.5* ***Pandora Press Inc.***
33 Kent Ave
Kitchener ON N2G 3R2 ***SCT***

Established: 01-AUG-94
Plant Size (ft²): 3200
Employment:

--Details--
Description: Support Activities for Printing
SIC/NAICS Code: 323120

Description: Digital Printing
SIC/NAICS Code: 323115

Description: Book Publishers
SIC/NAICS Code: 511130

---

105 *3 of 3* *321.5* ***33 Kent Avenue***
Kitchener ON N2G 3R2 ***EHS***

Order No: 20060714003
Status: C
Report Type: Complete Report
Report Date: 7/24/2006
Date Received: 7/14/2006
Previous Site Name:
Lot/Building Size:
Additional Info Ordered: Fire Insur. Maps And /or Site Plans
Nearest Intersection:
Municipality: Regional Municipality of Waterloo
Client Prov/State: ON
Search Radius (km): 0.25
X: -80.477339
Y: 43.442818

106 | 1 of 1 | 321.9 | ON | WWIS

Well ID:	7180442	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:		**Data Entry Status:**	Yes
Use 2nd:		**Data Src:**	
Final Well Status:		**Date Received:**	07-May-2012 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	M08843	**Contractor:**	7282
Tag:	A108537	**Form Version:**	5
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/718\7180442.pdf

Additional Detail(s) (Map)

Well Completed Date:	2011/04/07
Year Completed:	2011
Depth (m):	
Latitude:	43.4424641739112
Longitude:	-80.4798020383104
Path:	718\7180442.pdf

Bore Hole Information

Bore Hole ID:	1003724074	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542095.00
Code OB Desc:		**North83:**	4810083.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	07-Apr-2011 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Links

Bore Hole ID:	1003724074	**Tag No:**	A108537
Depth M:		**Contractor:**	7282
Year Completed:	2011	**Path:**	718\7180442.pdf
Well Completed Dt:	2011/04/07	**Latitude:**	43.4424641739112
Audit No:	M08843	**Longitude:**	-80.4798020383104

Map Key	Number of Records	Elevation (m)	Site	DB
107	1 of 1	320.9	50 BORDEN ST S Kitchener ON	WWIS

Well ID:	7342797	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Test Hole	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Test Hole	**Date Received:**	16-Sep-2019 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z312169	**Contractor:**	7320
Tag:	A275312	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2018/08/08
Year Completed:	2018
Depth (m):	13.7
Latitude:	43.4419938196368
Longitude:	-80.4753944056527
Path:	

Bore Hole Information

Bore Hole ID:	1007669095	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542452.00
Code OB Desc:		**North83:**	4810033.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	08-Aug-2018 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1007872382
Layer:	1
Color:	6
General Color:	BROWN

Mat1: 28
Most Common Material: SAND
Mat2: 06
Mat2 Desc: SILT
Mat3: 11
Mat3 Desc: GRAVEL
Formation Top Depth: 0.0
Formation End Depth: 1.7999999523162842
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1007872385
Layer: 4
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 11
Mat2 Desc: GRAVEL
Mat3: 91
Mat3 Desc: WATER-BEARING
Formation Top Depth: 12.800000190734863
Formation End Depth: 13.699999809265137
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1007872384
Layer: 3
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 06
Mat2 Desc: SILT
Mat3: 79
Mat3 Desc: PACKED
Formation Top Depth: 4.599999904632568
Formation End Depth: 12.800000190734863
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1007872383
Layer: 2
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 06
Mat2 Desc: SILT
Mat3: 04
Mat3 Desc: PEAT
Formation Top Depth: 1.7999999523162842
Formation End Depth: 4.599999904632568
Formation End Depth UOM: m

Annular Space/Abandonment

Sealing Record

Plug ID: 1007873495
Layer: 4
Plug From: 11.5
Plug To: 11.800000190734863
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1007873494
Layer: 3
Plug From: 2.4000000953674316
Plug To: 11.5
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1007873493
Layer: 2
Plug From: 0.30000001192092896
Plug To: 2.4000000953674316
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1007873492
Layer: 1
Plug From: 0.0
Plug To: 0.30000001192092896
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1007875116
Method Construction Code: B
Method Construction: Other Method
Other Method Construction: HSA

Method of Construction & Well Use

Method Construction ID: 1007875115
Method Construction Code: 6
Method Construction: Boring
Other Method Construction:

Pipe Information

Pipe ID: 1007871470
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID:	1007875782
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	12.199999809265137
Casing Diameter:	5.099999904632568
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1007876251
Layer:	1
Slot:	.01
Screen Top Depth:	12.199999809265137
Screen End Depth:	13.699999809265137
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	6.099999904632568

Results of Well Yield Testing

Pumping Test Method Desc:	
Pump Test ID:	1007876859
Pump Set At:	
Static Level:	
Final Level After Pumping:	
Recommended Pump Depth:	
Pumping Rate:	
Flowing Rate:	
Recommended Pump Rate:	
Levels UOM:	m
Rate UOM:	LPM
Water State After Test Code:	
Water State After Test:	
Pumping Test Method:	0
Pumping Duration HR:	
Pumping Duration MIN:	
Flowing:	

Water Details

Water ID:	1007876710
Layer:	2
Kind Code:	8
Kind:	Untested
Water Found Depth:	13.100000381469727
Water Found Depth UOM:	m

Water Details

Water ID:	1007876709
Layer:	1
Kind Code:	8
Kind:	Untested
Water Found Depth:	4.199999809265137
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1007874600
Diameter:	21.0
Depth From:	0.0
Depth To:	13.699999809265137
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1007669095	**Tag No:**	A275312
Depth M:	13.7	**Contractor:**	7320
Year Completed:	2018	**Path:**	
Well Completed Dt:	2018/08/08	**Latitude:**	43.4419938196368
Audit No:	Z312169	**Longitude:**	-80.4753944056527

---

108 | ***1 of 1*** | ***321.5*** | ***CHARLES ST AND KENT ST Kitchener ON*** | ***WWIS***

Well ID:	7231759	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring and Test Hole	**Data Entry Status:**	
Use 2nd:	0	**Data Src:**	
Final Well Status:	Test Hole	**Date Received:**	14-Nov-2014 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z198850	**Contractor:**	7320
Tag:	A149472	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY (WATERLOO TWP)		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2014/10/29
Year Completed:	2014
Depth (m):	4.6
Latitude:	43.442858028582
Longitude:	-80.4773147508916
Path:	

Bore Hole Information

Bore Hole ID:	1005219969	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542296.00
Code OB Desc:		**North83:**	4810128.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	29-Oct-2014 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr

Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 1005339775
Layer: 1
Color:
General Color:
Mat1:
Most Common Material:
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 4.599999904632568
Formation End Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1005339783
Layer: 1
Plug From: 0.0
Plug To: 4.599999904632568
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1005339782
Method Construction Code: 6
Method Construction: Boring
Other Method Construction: DRIVING

Pipe Information

Pipe ID: 1005339774
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1005339778
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From:
Depth To:
Casing Diameter: 3.0999999046325684
Casing Diameter UOM: cm
Casing Depth UOM: m

Construction Record - Screen

Screen ID:	1005339779
Layer:	
Slot:	
Screen Top Depth:	
Screen End Depth:	
Screen Material:	
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	

Water Details

Water ID:	1005339777
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1005339776
Diameter:	10.0
Depth From:	0.0
Depth To:	4.599999904632568
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1005219969	***Tag No:***	A149472
Depth M:	4.6	***Contractor:***	7320
Year Completed:	2014	***Path:***	723\7231759.pdf
Well Completed Dt:	2014/10/29	***Latitude:***	43.442858028582
Audit No:	Z198850	***Longitude:***	-80.4773147508916

---

109 | ***1 of 1*** | ***320.9*** | ***AECON Construction and Materials Limited and Peter Kiewit Infrastructure Co.***
operating as GrandLinq Contractors 495 Charles St E
Kitchener ON N2H 4B1 | ***ECA***

Approval No:	5230-AQCQC4	***MOE District:***	
Approval Date:	2017-08-22	***City:***	
Status:	Approved	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-AIR		
Project Type:	AIR		
Business Name:	AECON Construction and Materials Limited and Peter Kiewit Infrastructure Co. operating as GrandLinq Contractors		
Address:	495 Charles St E		
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/0140-APGKBY-14.pdf		
PDF Site Location:			

---

110 | ***1 of 1*** | ***321.7*** | ***50 BORDEN AVE***
Kitchener ON | ***WWIS***

Well ID:	7314921	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Monitoring	***Data Entry Status:***	
Use 2nd:		***Data Src:***	
Final Well Status:	Observation Wells	***Date Received:***	19-Jul-2018 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	Z285375	***Contractor:***	7190
Tag:	A247452	***Form Version:***	7
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2018/06/18
Year Completed:	2018
Depth (m):	3.3528
Latitude:	43.4417128237103
Longitude:	-80.4749890347902
Path:	

Bore Hole Information

Bore Hole ID:	1007190103	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542485.00
Code OB Desc:		***North83:***	4810002.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	4
Date Completed:	18-Jun-2018 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1007265569
Layer:	1
Color:	2
General Color:	GREY
Mat1:	27
Most Common Material:	OTHER
Mat2:	
Mat2 Desc:	

Mat3: 73
Mat3 Desc: HARD
Formation Top Depth: 0.0
Formation End Depth: 0.6669999957084656
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1007265570
Layer: 2
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 11
Mat2 Desc: GRAVEL
Mat3: 73
Mat3 Desc: HARD
Formation Top Depth: 0.6669999957084656
Formation End Depth: 2.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1007265571
Layer: 3
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 06
Mat2 Desc: SILT
Mat3: 73
Mat3 Desc: HARD
Formation Top Depth: 2.0
Formation End Depth: 11.0
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1007265578
Layer: 1
Plug From: 0.0
Plug To: 5.0
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1007265579
Layer: 2
Plug From: 5.0
Plug To: 11.0
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID:	1007265577
Method Construction Code:	B
Method Construction:	Other Method
Other Method Construction:	AUGER

Pipe Information

Pipe ID:	1007265567
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1007265574
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	6.0
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1007265575
Layer:	1
Slot:	.01
Screen Top Depth:	6.0
Screen End Depth:	11.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.0

Results of Well Yield Testing

Pumping Test Method Desc:	
Pump Test ID:	1007265568
Pump Set At:	
Static Level:	6.0
Final Level After Pumping:	
Recommended Pump Depth:	
Pumping Rate:	
Flowing Rate:	
Recommended Pump Rate:	
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	0
Water State After Test:	
Pumping Test Method:	0
Pumping Duration HR:	
Pumping Duration MIN:	
Flowing:	

Water Details

Water ID:	1007265573
Layer:	1
Kind Code:	

Kind:
Water Found Depth: 6.0
Water Found Depth UOM: ft

Hole Diameter

Hole ID: 1007265572
Diameter: 8.5
Depth From: 0.0
Depth To: 11.0
Hole Depth UOM: ft
Hole Diameter UOM: inch

Links

Bore Hole ID: 1007190103
Depth M: 3.3528
Year Completed: 2018
Well Completed Dt: 2018/06/18
Audit No: Z285375
Tag No: A247452
Contractor: 7190
Path: 731\7314921.pdf
Latitude: 43.4417128237103
Longitude: -80.4749890347902

---

111 ***1 of 1*** ***320.9*** ***50 KENT ST Waterloo ON*** ***WWIS***

Well ID: 7143071
Construction Date:
Use 1st: Monitoring
Use 2nd:
Final Well Status: Test Hole
Water Type:
Casing Material:
Audit No: M05483
Tag: A036979
Constructn Method:
Elevation (m):
Elevatn Reliabilty:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Clear/Cloudy:
Municipality: KITCHENER CITY
Site Info:

Flowing (Y/N):
Flow Rate:
Data Entry Status:
Data Src:
Date Received: 01-Apr-2010 00:00:00
Selected Flag: TRUE
Abandonment Rec:
Contractor: 7282
Form Version: 5
Owner:
County: WATERLOO
Lot:
Concession:
Concession Name:
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/714\7143071.pdf

Additional Detail(s) (Map)

Well Completed Date: 2009/11/02
Year Completed: 2009
Depth (m):
Latitude: 43.4433379572353
Longitude: -80.4798810564188
Path: 714\7143071.pdf

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/714\7143071.pdf

Additional Detail(s) (Map)

Well Completed Date: 2009/11/02

Year Completed:	2009
Depth (m):	4.6
Latitude:	43.4433379572353
Longitude:	-80.4798810564188
Path:	714\7143071.pdf
PDF URL (Map):	https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/714\7143071.pdf

Additional Detail(s) (Map)

Well Completed Date:	2009/11/03
Year Completed:	2009
Depth (m):	
Latitude:	43.4429268110696
Longitude:	-80.4785746531605
Path:	714\7143071.pdf
PDF URL (Map):	https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/714\7143071.pdf

Additional Detail(s) (Map)

Well Completed Date:	2009/11/02
Year Completed:	2009
Depth (m):	
Latitude:	43.4433000293664
Longitude:	-80.4794612139516
Path:	714\7143071.pdf
PDF URL (Map):	https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/714\7143071.pdf

Additional Detail(s) (Map)

Well Completed Date:	2009/11/02
Year Completed:	2009
Depth (m):	
Latitude:	43.4427090800287
Longitude:	-80.4782181485779
Path:	714\7143071.pdf
PDF URL (Map):	https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/714\7143071.pdf

Additional Detail(s) (Map)

Well Completed Date:	2009/11/02
Year Completed:	2009
Depth (m):	
Latitude:	43.4428555676619
Longitude:	-80.4787482738835
Path:	714\7143071.pdf

Bore Hole Information

Bore Hole ID:	1003291676	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542088.00
Code OB Desc:		***North83:***	4810180.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:	This is a record from cluster log sheet	***UTMRC:***	4
Date Completed:	02-Nov-2009 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	wwr

Loc Method Desc:	on Water Well Record
Elevrc Desc:	
Location Source Date:	
Improvement Location Source:	
Improvement Location Method:	
Source Revision Comment:	
Supplier Comment:	

Annular Space/Abandonment Sealing Record

Plug ID:	1003291680
Layer:	
Plug From:	
Plug To:	
Plug Depth UOM:	

Method of Construction & Well Use

Method Construction ID:	1003291679
Method Construction Code:	
Method Construction:	
Other Method Construction:	DRIVING

Pipe Information

Pipe ID:	1003291681
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1003291683
Layer:	
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	
Depth To:	1.5
Casing Diameter:	
Casing Diameter UOM:	
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1003291682
Layer:	
Slot:	
Screen Top Depth:	1.5
Screen End Depth:	4.599999904632568
Screen Material:	
Screen Depth UOM:	m
Screen Diameter UOM:	
Screen Diameter:	

Results of Well Yield Testing

Pumping Test Method Desc:	
Pump Test ID:	1003291684

Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM:
Rate UOM:
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Hole Diameter

Hole ID: 1003291678
Diameter: 11.430000305175781
Depth From:
Depth To: 4.599999904632568
Hole Depth UOM: m
Hole Diameter UOM: cm

Bore Hole Information

Bore Hole ID: 1003291694
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind: This is a record from cluster log sheet
Date Completed: 02-Nov-2009 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone: 17
East83: 542223.00
North83: 4810111.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Annular Space/Abandonment Sealing Record

Plug ID: 1003291698
Layer:
Plug From:
Plug To:
Plug Depth UOM:

Method of Construction & Well Use

Method Construction ID: 1003291697
Method Construction Code:
Method Construction:
Other Method Construction: DRIVING

Pipe Information

Pipe ID:	1003291699
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1003291701
Layer:	
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	
Depth To:	1.5
Casing Diameter:	
Casing Diameter UOM:	
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1003291700
Layer:	
Slot:	
Screen Top Depth:	1.5
Screen End Depth:	4.599999904632568
Screen Material:	
Screen Depth UOM:	m
Screen Diameter UOM:	
Screen Diameter:	

Results of Well Yield Testing

Pumping Test Method Desc:	
Pump Test ID:	1003291702
Pump Set At:	
Static Level:	
Final Level After Pumping:	
Recommended Pump Depth:	
Pumping Rate:	
Flowing Rate:	
Recommended Pump Rate:	
Levels UOM:	
Rate UOM:	
Water State After Test Code:	
Water State After Test:	
Pumping Test Method:	
Pumping Duration HR:	
Pumping Duration MIN:	
Flowing:	

Hole Diameter

Hole ID:	1003291696
Diameter:	11.430000305175781
Depth From:	
Depth To:	4.599999904632568
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Bore Hole Information

Bore Hole ID:	1003291703	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542180.00
Code OB Desc:		**North83:**	4810127.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:	This is a record from cluster log sheet	**UTMRC:**	4
Date Completed:	02-Nov-2009 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Annular Space/Abandonment Sealing Record

Plug ID:	1003291707
Layer:	
Plug From:	
Plug To:	
Plug Depth UOM:	

Method of Construction & Well Use

Method Construction ID:	1003291706
Method Construction Code:	
Method Construction:	
Other Method Construction:	DRIVING

Pipe Information

Pipe ID:	1003291708
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1003291710
Layer:	
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	
Depth To:	1.5
Casing Diameter:	
Casing Diameter UOM:	
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1003291709
Layer:	
Slot:	
Screen Top Depth:	1.5
Screen End Depth:	4.599999904632568

Screen Material:
Screen Depth UOM: m
Screen Diameter UOM:
Screen Diameter:

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1003291711
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM:
Rate UOM:
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Hole Diameter

Hole ID: 1003291705
Diameter: 11.430000305175781
Depth From:
Depth To: 4.599999904632568
Hole Depth UOM: m
Hole Diameter UOM: cm

Bore Hole Information

Bore Hole ID: 1003291712
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind: This is a record from cluster log sheet
Date Completed: 03-Nov-2009 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone: 17
East83: 542194.00
North83: 4810135.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Annular Space/Abandonment Sealing Record

Plug ID: 1003291716
Layer:
Plug From:
Plug To:
Plug Depth UOM:

Method of Construction & Well Use

Method Construction ID: 1003291715
Method Construction Code:
Method Construction:
Other Method Construction: DRIVING

Pipe Information

Pipe ID: 1003291717
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1003291719
Layer:
Material: 5
Open Hole or Material: PLASTIC
Depth From:
Depth To: 1.5
Casing Diameter:
Casing Diameter UOM:
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1003291718
Layer:
Slot:
Screen Top Depth: 1.5
Screen End Depth: 4.599999904632568
Screen Material:
Screen Depth UOM: m
Screen Diameter UOM:
Screen Diameter:

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1003291720
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM:
Rate UOM:
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Hole Diameter

Hole ID:	1003291714
Diameter:	11.430000305175781
Depth From:	
Depth To:	4.599999904632568
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Bore Hole Information

Bore Hole ID:	1002956647	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542088.00
Code OB Desc:		***North83:***	4810180.00
Open Hole:	No	***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	4
Date Completed:	02-Nov-2009 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1003291724
Layer:	3
Color:	6
General Color:	BROWN
Mat1:	06
Most Common Material:	SILT
Mat2:	85
Mat2 Desc:	SOFT
Mat3:	
Mat3 Desc:	
Formation Top Depth:	1.7999999523162842
Formation End Depth:	4.599999904632568
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1003291722
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	11
Most Common Material:	GRAVEL
Mat2:	28
Mat2 Desc:	SAND
Mat3:	79
Mat3 Desc:	PACKED
Formation Top Depth:	0.0
Formation End Depth:	0.8999999761581421
Formation End Depth UOM:	m

Overburden and Bedrock

Materials Interval

Formation ID:	1003291723
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	85
Mat2 Desc:	SOFT
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.8999999761581421
Formation End Depth:	1.7999999523162842
Formation End Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1003291726
Layer:	1
Plug From:	0.0
Plug To:	1.2000000476837158
Plug Depth UOM:	m

Method of Construction & Well Use

Method Construction ID:	1003291730
Method Construction Code:	9
Method Construction:	Driving
Other Method Construction:	

Pipe Information

Pipe ID:	1003291721
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1003291727
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	4.599999904632568
Casing Diameter:	2.5399999618530273
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1003291728
Layer:	1
Slot:	.01
Screen Top Depth:	
Screen End Depth:	
Screen Material:	5
Screen Depth UOM:	m

Screen Diameter UOM: cm
Screen Diameter: 3.1700000762939453

Hole Diameter

Hole ID: 1003291725
Diameter: 11.430000305175781
Depth From: 0.0
Depth To: 4.599999904632568
Hole Depth UOM: m
Hole Diameter UOM: cm

Bore Hole Information

Bore Hole ID: 1003291685
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind: This is a record from cluster log sheet
Date Completed: 02-Nov-2009 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone: 17
East83: 542122.00
North83: 4810176.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Annular Space/Abandonment Sealing Record

Plug ID: 1003291689
Layer:
Plug From:
Plug To:
Plug Depth UOM:

Method of Construction & Well Use

Method Construction ID: 1003291688
Method Construction Code:
Method Construction:
Other Method Construction: DRIVING

Pipe Information

Pipe ID: 1003291690
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1003291692
Layer:
Material: 5

Open Hole or Material: PLASTIC
Depth From:
Depth To: 1.5
Casing Diameter:
Casing Diameter UOM:
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1003291691
Layer:
Slot:
Screen Top Depth: 1.5
Screen End Depth: 4.599999904632568
Screen Material:
Screen Depth UOM: m
Screen Diameter UOM:
Screen Diameter:

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1003291693
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM:
Rate UOM:
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Hole Diameter

Hole ID: 1003291687
Diameter: 11.430000305175781
Depth From:
Depth To: 4.599999904632568
Hole Depth UOM: m
Hole Diameter UOM: cm

Links

Bore Hole ID: 1002956647
Depth M: 4.6
Year Completed: 2009
Well Completed Dt: 2009/11/02
Audit No: M05483
Tag No: A036979
Contractor: 7282
Path: 714\7143071.pdf
Latitude: 43.4433379572353
Longitude: -80.4798810564188

Links

Bore Hole ID: 1003291712
Depth M:
Year Completed: 2009
Tag No: A036979
Contractor: 7282
Path: 714\7143071.pdf

Well Completed Dt:	2009/11/03	**Latitude:**	43.4429268110696
Audit No:	M05483	**Longitude:**	-80.4785746531605

Links

Bore Hole ID:	1003291694	**Tag No:**	A036979
Depth M:		**Contractor:**	7282
Year Completed:	2009	**Path:**	714\7143071.pdf
Well Completed Dt:	2009/11/02	**Latitude:**	43.4427090800287
Audit No:	M05483	**Longitude:**	-80.4782181485779

Links

Bore Hole ID:	1003291676	**Tag No:**	A036979
Depth M:		**Contractor:**	7282
Year Completed:	2009	**Path:**	714\7143071.pdf
Well Completed Dt:	2009/11/02	**Latitude:**	43.4433379572353
Audit No:	M05483	**Longitude:**	-80.4798810564188

Links

Bore Hole ID:	1003291703	**Tag No:**	A036979
Depth M:		**Contractor:**	7282
Year Completed:	2009	**Path:**	714\7143071.pdf
Well Completed Dt:	2009/11/02	**Latitude:**	43.4428555676619
Audit No:	M05483	**Longitude:**	-80.4787482738835

Links

Bore Hole ID:	1003291685	**Tag No:**	A036979
Depth M:		**Contractor:**	7282
Year Completed:	2009	**Path:**	714\7143071.pdf
Well Completed Dt:	2009/11/02	**Latitude:**	43.4433000293664
Audit No:	M05483	**Longitude:**	-80.4794612139516

---

112 ***1 of 8*** ***321.9*** ***TITAN SYSTEMS*** ***SCT***
60 OTTAWA ST S UNIT 2007
KITCHENER ON N2G 3S7

Established:	1989
Plant Size (ft²):	0
Employment:	5

--Details--

Description:	GENERAL INDUSTRIAL MACHINERY AND EQUIPMENT, NOT ELSEWHERE CLASSIFIED
SIC/NAICS Code:	3569
Description:	AIR-CONDITIONING AND WARM AIR HEATING EQUIPMENT, AND COMMERCIAL AND INDUSTRIAL REFRIGERATION
SIC/NAICS Code:	3585

---

112 ***2 of 8*** ***321.9*** ***BUDD CANADA INC.*** ***GEN***
60 OTTAWA ST. C/O 1011 HOMER WATSON BLVD.
KITCHENER ON K2G 4G5

Generator No:	ON0040102
SIC Code:	0000
SIC Description:	*** NOT DEFINED ***
Approval Years:	89,90

Map Key	Number of Records	Elevation (m)	Site	DB

PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

---

112 **3 of 8** **321.9** **BUDD CANADA INC. 00-000**
60 OTTAWA ST. C/O 1011 HOMER WATSON BLVD.
KITCHENER ON K2G 4G5 **GEN**

Generator No: ON0040102
SIC Code: 0000
SIC Description: *** NOT DEFINED ***
Approval Years: 92,93,94
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

---

112 **4 of 8** **321.9** **BUDD CANADA INC.**
(SITE - 60 OTTAWA ST. S., KITCHENER) C/O 1011 HOMER WATSON BLVD.
KITCHENER ON N2G 3S7 **GEN**

Generator No: RRPCB0460
SIC Code: 030
SIC Description:
Approval Years: 86
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

---

112 **5 of 8** **321.9** **MTD**
60 Ottawa St S
Kitchener ON N2G 3S7 **SCT**

Established:
Plant Size (ft²):
Employment:

--Details--
Description: All Other Miscellaneous Manufacturing
SIC/NAICS Code: 339990

---

112 **6 of 8** **321.9** **60 Ottawa Street South**
Kitchener ON N2G 3S7 **EHS**

Order No: 20111121005 **Nearest Intersection:**

Status:	C	**Municipality:**	
Report Type:	Custom Report	**Client Prov/State:**	ON
Report Date:	11/29/2011	**Search Radius (km):**	0.25
Date Received:	11/21/2011 9:15:17 AM	**X:**	-80.474744
Previous Site Name:		**Y:**	43.439812
Lot/Building Size:			
Additional Info Ordered:			

112 | 7 of 8 | 321.9 | **BUDD CANADA INC.**
60 OTTAWA ST. S.
KITCHENER ON | REC

ID:		**Province In:**	ON
Company ID:		**Province Out:**	
Receiver No:	RRPCB0460	**County Out:**	
Co Admin:		**Mail Addr:**	
Choice of Contact:		**Site PO Box:**	
Phone Number:			
Rec Div:			
Rec Op Div:			
Rec Op Name:			
Site Bldg:			
Facility Type:			
Approval Yrs:	1987; 1988; 1989; 1990; 1992; 1994; 1995; 1996; 1997; 1998; 1999; 2000; 2001; 2002; 2006; 2007; 2008		

112 | 8 of 8 | 321.9 | **MTD Products Limited**
60 Ottawa St S
Kitchener ON N2G 3R5 | GEN

Generator No:	ON9685216
SIC Code:	
SIC Description:	
Approval Years:	As of Nov 2021
PO Box No:	
Country:	Canada
Status:	Registered
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	251 L
Waste Class Name:	Waste oils/sludges (petroleum based)

113 | 1 of 4 | 318.9 | **JOHN HAUSER IRON WORKS LTD.**
P.O. BOX 51 148 BEDFORD RD.
KITCHENER ON N2G 3A4 | GEN

Generator No:	ON0359100
SIC Code:	3031
SIC Description:	METAL DOOR & WINDOW
Approval Years:	86,87,88
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	

Map Key	Number of Records	Elevation (m)	Site	DB

Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 211
Waste Class Name: AROMATIC SOLVENTS

113	*2 of 4*	*318.9*	***JOHN HAUSER IRON(OUT OF BUSINESS)*** ***P.O. BOX 51 148 BEDFORD RD.*** ***KITCHENER ON N2G 3A4***	***GEN***

Generator No: ON0359100
SIC Code: 3031
SIC Description: METAL DOOR & WINDOW
Approval Years: 89,90
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 211
Waste Class Name: AROMATIC SOLVENTS

113	*3 of 4*	*318.9*	***JOHN HAUSER IRON(OUT OF BUSINESS) 22-083*** ***P.O. BOX 51 148 BEDFORD RD.*** ***KITCHENER ON N2G 3A4***	***GEN***

Generator No: ON0359100
SIC Code: 3031
SIC Description: METAL DOOR & WINDOW
Approval Years: 92,93,94,95,96,97
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

113	*4 of 4*	*318.9*	***JOHN HAUSER IRONWORKS(OUT OF BUSINESS)*** ***148 BEDFORD ROAD*** ***KITCHENER ON N2G 3A4***	***GEN***

Generator No: ON0359100
SIC Code: 3031
SIC Description: METAL DOOR & WINDOW
Approval Years: 98
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:

Contaminated Facility:
MHSW Facility:

---

114 | ***1 of 1*** | ***320.9*** | ***50 BORDEN ST S Kitchener ON*** | ***WWIS***

Well ID:	7342796	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Test Hole	***Data Entry Status:***	
Use 2nd:		***Data Src:***	
Final Well Status:	Test Hole	***Date Received:***	16-Sep-2019 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	Z312168	***Contractor:***	7320
Tag:	A275313	***Form Version:***	7
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2019/08/08
Year Completed:	2019
Depth (m):	13.7
Latitude:	43.4421014142403
Longitude:	-80.4752946149887
Path:	

Bore Hole Information

Bore Hole ID:	1007669092	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542460.00
Code OB Desc:		***North83:***	4810045.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	4
Date Completed:	08-Aug-2019 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1007872381
Layer:	4

Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	11
Mat3 Desc:	GRAVEL
Formation Top Depth:	12.800000190734863
Formation End Depth:	13.699999809265137
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1007872380
Layer:	3
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	
Mat3 Desc:	
Formation Top Depth:	4.599999904632568
Formation End Depth:	12.800000190734863
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1007872378
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	11
Mat2 Desc:	GRAVEL
Mat3:	01
Mat3 Desc:	FILL
Formation Top Depth:	0.0
Formation End Depth:	1.7999999523162842
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1007872379
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	04
Mat3 Desc:	PEAT
Formation Top Depth:	1.7999999523162842
Formation End Depth:	4.599999904632568
Formation End Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID: 1007873489
Layer: 2
Plug From: 0.30000001192092896
Plug To: 2.4000000953674316
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1007873491
Layer: 4
Plug From: 11.5
Plug To: 11.800000190734863
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1007873488
Layer: 1
Plug From: 0.0
Plug To: 0.30000001192092896
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1007873490
Layer: 3
Plug From: 2.4000000953674316
Plug To: 11.5
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1007875113
Method Construction Code: 6
Method Construction: Boring
Other Method Construction:

Method of Construction & Well Use

Method Construction ID: 1007875114
Method Construction Code: B
Method Construction: Other Method
Other Method Construction: HSA

Pipe Information

Pipe ID: 1007871469
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID:	1007875781
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	12.199999809265137
Casing Diameter:	5.099999904632568
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1007876250
Layer:	1
Slot:	.01
Screen Top Depth:	12.199999809265137
Screen End Depth:	13.699999809265137
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	0.10000000149011612

Results of Well Yield Testing

Pumping Test Method Desc:	
Pump Test ID:	1007876858
Pump Set At:	
Static Level:	
Final Level After Pumping:	
Recommended Pump Depth:	
Pumping Rate:	
Flowing Rate:	
Recommended Pump Rate:	
Levels UOM:	m
Rate UOM:	LPM
Water State After Test Code:	
Water State After Test:	
Pumping Test Method:	0
Pumping Duration HR:	
Pumping Duration MIN:	
Flowing:	

Water Details

Water ID:	1007876707
Layer:	1
Kind Code:	8
Kind:	Untested
Water Found Depth:	4.199999809265137
Water Found Depth UOM:	m

Water Details

Water ID:	1007876708
Layer:	2
Kind Code:	8
Kind:	Untested
Water Found Depth:	13.100000381469727
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1007874599
Diameter:	21.0
Depth From:	0.0
Depth To:	13.699999809265137
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1007669092	***Tag No:***	A275313
Depth M:	13.7	***Contractor:***	7320
Year Completed:	2019	***Path:***	
Well Completed Dt:	2019/08/08	***Latitude:***	43.4421014142403
Audit No:	Z312168	***Longitude:***	-80.4752946149887

115 **1 of 1** **321.8** ***BORDEN AVE Kitchener ON*** ***WWIS***

Well ID:	7229716	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Test Hole	***Data Entry Status:***	
Use 2nd:		***Data Src:***	
Final Well Status:	Abandoned-Other	***Date Received:***	20-Oct-2014 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	Yes
Audit No:	Z192485	***Contractor:***	7320
Tag:	A149489	***Form Version:***	7
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/722\7229716.pdf

Additional Detail(s) (Map)

Well Completed Date:	2014/10/08
Year Completed:	2014
Depth (m):	
Latitude:	43.4416129851571
Longitude:	-80.4748168928338
Path:	722\7229716.pdf

Bore Hole Information

Bore Hole ID:	1005167205	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542499.00
Code OB Desc:		***North83:***	4809991.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	4

Date Completed:	08-Oct-2014 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Annular Space/Abandonment Sealing Record

Plug ID:	1005346935
Layer:	2
Plug From:	0.15000000596046448
Plug To:	4.559999942779541
Plug Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1005346934
Layer:	1
Plug From:	0.0
Plug To:	0.15000000596046448
Plug Depth UOM:	m

Method of Construction & Well Use

Method Construction ID:	1005346933
Method Construction Code:	6
Method Construction:	Boring
Other Method Construction:	DRIVING

Pipe Information

Pipe ID:	1005346926
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1005346930
Layer:	
Material:	
Open Hole or Material:	
Depth From:	
Depth To:	
Casing Diameter:	
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1005346931
Layer:	
Slot:	

Screen Top Depth:
Screen End Depth:
Screen Material:
Screen Depth UOM: m
Screen Diameter UOM: cm
Screen Diameter:

Water Details

Water ID: 1005346929
Layer: 1
Kind Code: 8
Kind: Untested
Water Found Depth: 2.4000000953674316
Water Found Depth UOM: m

Hole Diameter

Hole ID: 1005346928
Diameter: 10.0
Depth From: 0.0
Depth To: 4.559999942779541
Hole Depth UOM: m
Hole Diameter UOM: cm

Links

Bore Hole ID: 1005167205
Depth M:
Year Completed: 2014
Well Completed Dt: 2014/10/08
Audit No: Z192485
Tag No: A149489
Contractor: 7320
Path: 722\7229716.pdf
Latitude: 43.4416129851571
Longitude: -80.4748168928338

---

116 ***1 of 1*** ***320.9*** ***ON*** ***WWIS***

Well ID: 7203015
Construction Date:
Use 1st:
Use 2nd:
Final Well Status:
Water Type:
Casing Material:
Audit No: C17013
Tag: A132035
Constructn Method:
Elevation (m):
Elevatn Reliabilty:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Clear/Cloudy:
Municipality: KITCHENER CITY
Site Info:
Flowing (Y/N):
Flow Rate:
Data Entry Status: Yes
Data Src:
Date Received: 11-Jun-2013 00:00:00
Selected Flag: TRUE
Abandonment Rec:
Contractor: 7282
Form Version: 8
Owner:
County: WATERLOO
Lot:
Concession:
Concession Name:
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2012/10/19
Year Completed:	2012
Depth (m):	
Latitude:	43.4430328862916
Longitude:	-80.4781412187541
Path:	

Bore Hole Information

Bore Hole ID:	1004339691	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542229.00
Code OB Desc:		**North83:**	4810147.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	19-Oct-2012 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Links

Bore Hole ID:	1004339691	**Tag No:**	A132035
Depth M:		**Contractor:**	7282
Year Completed:	2012	**Path:**	
Well Completed Dt:	2012/10/19	**Latitude:**	43.4430328862916
Audit No:	C17013	**Longitude:**	-80.4781412187541

---

117 **1 of 1** **321.1** **50 BORDEN AUES KITCHENR ON** **WWIS**

Well ID:	6509545	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Not Used	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	17-Dec-2003 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z06466	**Contractor:**	7238
Tag:	A006385	**Form Version:**	3
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/650\6509545.pdf

Additional Detail(s) (Map)

Well Completed Date:	2003/11/26
Year Completed:	2003
Depth (m):	4.5
Latitude:	43.4422732275044
Longitude:	-80.4754537796177
Path:	650\6509545.pdf

Bore Hole Information

Bore Hole ID:	11107956	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542447.00
Code OB Desc:		**North83:**	4810064.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	5
Date Completed:	26-Nov-2003 00:00:00	**UTMRC Desc:**	margin of error : 100 m - 300 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	932964730
Layer:	3
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	84
Mat2 Desc:	SILTY
Mat3:	
Mat3 Desc:	
Formation Top Depth:	1.5
Formation End Depth:	3.799999952316284
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	932964728
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	11
Mat2 Desc:	GRAVEL
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.0
Formation End Depth:	0.800000011920929
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID: 932964731
Layer: 4
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY
Mat2: 34
Mat2 Desc: TILL
Mat3:
Mat3 Desc:
Formation Top Depth: 3.799999952316284
Formation End Depth: 4.5
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 932964729
Layer: 2
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0.800000011920929
Formation End Depth: 1.5
Formation End Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 933251790
Layer: 2
Plug From: 1.2999999523162842
Plug To: 4.5
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 933251789
Layer: 1
Plug From: 0.0
Plug To: 1.2999999523162842
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 966509545
Method Construction Code: 0
Method Construction: Not Known
Other Method Construction:

Pipe Information

Pipe ID: 11115732

Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930841303
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	1.5
Casing Diameter:	
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	933408641
Layer:	1
Slot:	020
Screen Top Depth:	1.5
Screen End Depth:	4.5
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	

Water Details

Water ID:	934049244
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	2.1700000762939453
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	11115731
Diameter:	25.0
Depth From:	0.0
Depth To:	4.5
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	11107956	***Tag No:***	A006385
Depth M:	4.5	***Contractor:***	7238
Year Completed:	2003	***Path:***	650\6509545.pdf
Well Completed Dt:	2003/11/26	***Latitude:***	43.4422732275044
Audit No:	Z06466	***Longitude:***	-80.4754537796177

118 ***1 of 1*** ***318.1*** ***OTTAWA ST. KITCHENER ON*** ***WWIS***

Well ID:	7197912	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Monitoring	***Data Entry Status:***	

Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	04-Mar-2013 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z164692	**Contractor:**	7238
Tag:	A143001	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/719\7197912.pdf

Additional Detail(s) (Map)

Well Completed Date:	2013/02/20
Year Completed:	2013
Depth (m):	4.8768
Latitude:	43.4391816171278
Longitude:	-80.4747761380846
Path:	719\7197912.pdf

Bore Hole Information

Bore Hole ID:	1004259141	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542504.00
Code OB Desc:		**North83:**	4809721.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	20-Feb-2013 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1004776743
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	11
Mat2 Desc:	GRAVEL
Mat3:	28
Mat3 Desc:	SAND
Formation Top Depth:	0.0
Formation End Depth:	2.0

Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1004776745
Layer: 3
Color: 2
General Color: GREY
Mat1: 08
Most Common Material: FINE SAND
Mat2: 06
Mat2 Desc: SILT
Mat3: 08
Mat3 Desc: FINE SAND
Formation Top Depth: 8.0
Formation End Depth: 16.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1004776744
Layer: 2
Color: 6
General Color: BROWN
Mat1: 06
Most Common Material: SILT
Mat2: 28
Mat2 Desc: SAND
Mat3: 06
Mat3 Desc: SILT
Formation Top Depth: 2.0
Formation End Depth: 8.0
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1004776753
Layer: 1
Plug From: 0.0
Plug To: 5.0
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 1004776752
Method Construction Code: 9
Method Construction: Driving
Other Method Construction:

Pipe Information

Pipe ID: 1004776742
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID:	1004776749
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	6.0
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1004776750
Layer:	1
Slot:	10
Screen Top Depth:	6.0
Screen End Depth:	16.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.0

Water Details

Water ID:	1004776748
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1004776746
Diameter:	9.0
Depth From:	0.0
Depth To:	1.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Hole Diameter

Hole ID:	1004776747
Diameter:	5.0
Depth From:	1.0
Depth To:	16.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1004259141	***Tag No:***	A143001
Depth M:	4.8768	***Contractor:***	7238
Year Completed:	2013	***Path:***	719\7197912.pdf
Well Completed Dt:	2013/02/20	***Latitude:***	43.4391816171278
Audit No:	Z164692	***Longitude:***	-80.4747761380846

119	***1 of 1***	***321.8***	***BORDEN AVE. S\CHARLES ST. E.***	***WWIS***

KITCHENER ON

Well ID:	7209436	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Test Hole	***Data Entry Status:***	
Use 2nd:		***Data Src:***	
Final Well Status:	Test Hole	***Date Received:***	15-Oct-2013 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	Z176122	***Contractor:***	7320
Tag:	A149489	***Form Version:***	7
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/720\7209436.pdf

Additional Detail(s) (Map)

Well Completed Date:	2013/09/07
Year Completed:	2013
Depth (m):	4.6
Latitude:	43.4416489444598
Longitude:	-80.4748042242519
Path:	720\7209436.pdf

Bore Hole Information

Bore Hole ID:	1004602724	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542500.00
Code OB Desc:		***North83:***	4809995.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	4
Date Completed:	07-Sep-2013 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1004624168
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	11

Mat2 Desc: GRAVEL
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 0.6000000238418579
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1004624169
Layer: 2
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0.6000000238418579
Formation End Depth: 1.7999999523162842
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1004624171
Layer: 4
Color: 2
General Color: GREY
Mat1: 06
Most Common Material: SILT
Mat2: 28
Mat2 Desc: SAND
Mat3: 91
Mat3 Desc: WATER-BEARING
Formation Top Depth: 3.5999999046325684
Formation End Depth: 4.599999904632568
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1004624170
Layer: 3
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 06
Mat2 Desc: SILT
Mat3:
Mat3 Desc:
Formation Top Depth: 1.7999999523162842
Formation End Depth: 3.5999999046325684
Formation End Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1004624179

Layer:	2
Plug From:	0.15000000596046448
Plug To:	1.2000000476837158
Plug Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1004624180
Layer:	3
Plug From:	1.2000000476837158
Plug To:	4.599999904632568
Plug Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1004624178
Layer:	1
Plug From:	0.0
Plug To:	0.15000000596046448
Plug Depth UOM:	m

Method of Construction & Well Use

Method Construction ID:	1004624177
Method Construction Code:	D
Method Construction:	Direct Push
Other Method Construction:	

Pipe Information

Pipe ID:	1004624167
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1004624174
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	1.5
Casing Diameter:	3.0999999046325684
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1004624175
Layer:	1
Slot:	10
Screen Top Depth:	1.5
Screen End Depth:	4.599999904632568
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm

Screen Diameter: 4.099999904632568

Water Details

Water ID: 1004624173
Layer: 1
Kind Code: 8
Kind: Untested
Water Found Depth: 3.5999999046325684
Water Found Depth UOM: m

Hole Diameter

Hole ID: 1004624172
Diameter: 10.0
Depth From: 0.0
Depth To: 4.599999904632568
Hole Depth UOM: m
Hole Diameter UOM: cm

Links

Bore Hole ID: 1004602724
Depth M: 4.6
Year Completed: 2013
Well Completed Dt: 2013/09/07
Audit No: Z176122
Tag No: A149489
Contractor: 7320
Path: 720\7209436.pdf
Latitude: 43.4416489444598
Longitude: -80.4748042242519

---

120 | **1 of 8** | **321.9** | **50 Borden Avenue South**
Kitchener ON | **EHS**

Order No: 20030709007
Status: C
Report Type: Site Report
Report Date: 7/11/03
Date Received: 7/9/03
Previous Site Name:
Lot/Building Size:
Additional Info Ordered:
Nearest Intersection: Borden Avenue and Charles Street
Municipality:
Client Prov/State: ON
Search Radius (km): 0.25
X: -80.474769
Y: 43.441808

---

120 | **2 of 8** | **321.9** | **Sign Depot Inc.**
50 Borden Ave S Unit 1
Kitchener ON N2G 3R5 | **SCT**

Established: 01-AUG-90
Plant Size (ft²): 60000
Employment:

--Details--
Description: Sign Manufacturing
SIC/NAICS Code: 339950

Description: Sign Manufacturing
SIC/NAICS Code: 339950

Description: All Other Wholesaler-Distributors
SIC/NAICS Code: 418990

Description: All Other Miscellaneous Wood Product Manufacturing

Map Key	Number of Records	Elevation (m)	Site	DB
SIC/NAICS Code:		321999		

120	3 of 8	321.9	**Jahm Custom Woodworking Inc.** **50 Borden Ave S Unit 2** **Kitchener ON N2G 3R5**	SCT

Established: 01-JAN-02
Plant Size (ft²):
Employment:

--Details--
Description: Other Millwork
SIC/NAICS Code: 321919

Description: Wood Kitchen Cabinet and Counter Top Manufacturing
SIC/NAICS Code: 337110

Description: Other Millwork
SIC/NAICS Code: 321919

120	4 of 8	321.9	**Sign Depot** **50 Borden Avenue South** **Kitchener ON N2G 3R5**	GEN

Generator No: ON8296330
SIC Code: 339990
SIC Description: All Other Miscellaneous Manufacturing
Approval Years: 07,08
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 211
Waste Class Name: AROMATIC SOLVENTS

120	5 of 8	321.9	**Grandlinq Contractors** **50 Borden Avenue** **Kitchener ON N2G3R5**	GEN

Generator No: ON9389761
SIC Code:
SIC Description:
Approval Years: As of Dec 2017
PO Box No:
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 146 L
Waste Class Name: Other specified inorganic sludges, slurries or solids

---

120 ***6 of 8*** ***321.9*** ***50 Borden Ave S*** ***EHS***
Kitchener ON N2G3R5

Order No:	20180206196	***Nearest Intersection:***	
Status:	C	***Municipality:***	
Report Type:	Standard Report	***Client Prov/State:***	ON
Report Date:	13-FEB-18	***Search Radius (km):***	.25
Date Received:	06-FEB-18	***X:***	-80.475089
Previous Site Name:		***Y:***	43.441739
Lot/Building Size:			
Additional Info Ordered:			

---

120 ***7 of 8*** ***321.9*** ***Grandlinq Contractors*** ***GEN***
50 Borden Avenue
Kitchener ON N2G 3R5

Generator No: ON3413942
SIC Code:
SIC Description:
Approval Years: As of Dec 2018
PO Box No:
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 146 L
Waste Class Name: Other specified inorganic sludges, slurries or solids

---

120 ***8 of 8*** ***321.9*** ***Woodhouse Investments Inc.*** ***CPU***
50 Bordon Avenue South City of Kitchener, ON Canada
ON

EBR Registry No:	019-5513	***Decision Posted:***	July 13, 2022
Ministry Ref No:	3061-C7NLFZ	***Exception Posted:***	
Notice Type:	Instrument	***Section:***	Section 168.6
Notice Stage:	Decision	***Act 1:***	Environmental Protection Act, R.S.O. 1990
Notice Date:		***Act 2:***	Environmental Protection Act
Proposal Date:	May 18, 2022	***Site Location Map:***	43.441887,-80.475056
Year:	2022		

Instrument Type: Certificate of property use
Off Instrument Name: Certificate of Property Use (EPA s. 168.6)
Posted By: Ministry of the Environment, Conservation and Parks
Company Name:
Site Address: 50 Bordon Avenue South
City of Kitchener,
ON
Canada
Location Other:
Proponent Name: Woodhouse Investments Inc.

Proponent Address:	Woodhouse Investments Inc. 207 Madison Avenue, South Unit 2 Kitchener, ON N2G 3M7 Canada
Comment Period:	May 18, 2022 - July 2, 2022 (45 days) Closed
URL:	https://ero.ontario.ca/notice/019-5513

Site Location Details:

50 Borden Avenue South, City of Kitchener
With a Legal Description of:
PT PARKLT 25 PL 404 KITCHENER; PT LT 171 STREETS & LANES KITCHENER PT 1, 58R-2633, SAVE & EXCEPT PTS 2 & 3 ON WR769305 & PT 7 & 8 ON WR838571; PTS 1 & 2 ON WR859435 & PT 1 ON 58R-18475; S/T 250238, 338603E; SUBJECT TO AN EASEMENT IN GROSS OVER PT PARK LOT 25 PL 404 BEING PT 3 ON 58R-18049 AS IN WR902342; CITY OF KITCHENER.
Being All of PIN: 22506-0267 (LT)

---

121 | ***1 of 1*** | ***315.9*** | ***136 OTTAWA ST. S Kitchener ON*** | ***WWIS***

Well ID:	7125515	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Monitoring	***Data Entry Status:***	
Use 2nd:		***Data Src:***	
Final Well Status:	Observation Wells	***Date Received:***	14-Jul-2009 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	Z098742	***Contractor:***	7238
Tag:	A086125	***Form Version:***	7
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/712\7125515.pdf

Additional Detail(s) (Map)

Well Completed Date:	2009/07/02
Year Completed:	2009
Depth (m):	12.7
Latitude:	43.4385627790074
Longitude:	-80.4753128377049
Path:	712\7125515.pdf

Bore Hole Information

Bore Hole ID:	1002519849	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542461.00
Code OB Desc:		***North83:***	4809652.00

Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	02-Jul-2009 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1002602710
Layer:	3
Color:	2
General Color:	GREY
Mat1:	28
Most Common Material:	SAND
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	7.5
Formation End Depth:	10.5
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1002602709
Layer:	2
Color:	2
General Color:	GREY
Mat1:	06
Most Common Material:	SILT
Mat2:	28
Mat2 Desc:	SAND
Mat3:	
Mat3 Desc:	
Formation Top Depth:	3.0
Formation End Depth:	7.5
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1002602708
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	06
Most Common Material:	SILT
Mat2:	28
Mat2 Desc:	SAND
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.0
Formation End Depth:	3.0
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1002602711
Layer:	4
Color:	2
General Color:	GREY
Mat1:	06
Most Common Material:	SILT
Mat2:	05
Mat2 Desc:	CLAY
Mat3:	
Mat3 Desc:	
Formation Top Depth:	10.5
Formation End Depth:	12.699999809265137
Formation End Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1002602713
Layer:	1
Plug From:	0.0
Plug To:	8.800000190734863
Plug Depth UOM:	m

Method of Construction & Well Use

Method Construction ID:	1002602718
Method Construction Code:	B
Method Construction:	Other Method
Other Method Construction:	AUGERS

Pipe Information

Pipe ID:	1002602707
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1002602715
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	9.699999809265137
Casing Diameter:	5.099999904632568
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1002602716
Layer:	1
Slot:	10
Screen Top Depth:	9.699999809265137
Screen End Depth:	12.699999809265137

Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	6.400000095367432

Water Details

Water ID:	1002602714
Layer:	1
Kind Code:	8
Kind:	Untested
Water Found Depth:	4.5
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1002602712
Diameter:	21.0
Depth From:	0.0
Depth To:	12.699999809265137
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1002519849	**Tag No:**	A086125
Depth M:	12.7	**Contractor:**	7238
Year Completed:	2009	**Path:**	712\7125515.pdf
Well Completed Dt:	2009/07/02	**Latitude:**	43.4385627790074
Audit No:	Z098742	**Longitude:**	-80.4753128377049

---

122 **1 of 1** **319.4** **ON** **BORE**

Borehole ID:	683546	**Inclin FLG:**	No
OGF ID:	215560542	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:	Geotechnical/Geological Investigation	**Primary Name:**	
Completion Date:	JAN-1975	**Municipality:**	
Static Water Level:	2.2	**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	43.441553
Total Depth m:	12.6	**Longitude DD:**	-80.481342
Depth Ref:	Ground Surface	**UTM Zone:**	17
Depth Elev:		**Easting:**	541971
Drill Method:	Power auger	**Northing:**	4809981
Orig Ground Elev m:	318	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	319		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218561601	**Mat Consistency:**	
Top Depth:	1.4	**Material Moisture:**	
Bottom Depth:	2.3	**Material Texture:**	
Material Color:	Black	**Non Geo Mat Type:**	

Material 1:	Clay	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	LAYERED WITH CLAY AND GRAVEL, SATURATED SAND & GRAVEL **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218561604	**Mat Consistency:**	Hard
Top Depth:	4.9	**Material Moisture:**	
Bottom Depth:	12.6	**Material Texture:**	
Material Color:		**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	BECOMING VERY HARD GREY SILTY CLAY **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218561602	**Mat Consistency:**	Stiff
Top Depth:	2.3	**Material Moisture:**	
Bottom Depth:	4	**Material Texture:**	
Material Color:	Red	**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	VERY STIFF, GREY **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218561600	**Mat Consistency:**	
Top Depth:	1	**Material Moisture:**	
Bottom Depth:	1.4	**Material Texture:**	
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Clay	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	organic
Gsc Material Description:			
Stratum Description:	BLACK, ORGANICS **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218561603	**Mat Consistency:**	Dense
Top Depth:	4	**Material Moisture:**	Wet
Bottom Depth:	4.9	**Material Texture:**	Fine
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Clay	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	FINE, DENSE, THIN CLAY LAYERS WET **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218561599	**Mat Consistency:**	
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	1	**Material Texture:**	
Material Color:		**Non Geo Mat Type:**	
Material 1:	Fill	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	fill
Gsc Material Description:			
Stratum Description:	(No description) **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Source

Source Type:	Data Survey	***Source Appl:***	Spatial/Tabular
Source Orig:	Geological Survey of Canada	***Source Iden:***	4
Source Date:	1900 - 1977	***Scale or Res:***	Varies
Confidence:	H	***Horizontal:***	NAD27
Observatio:	1975/1	***Verticalda:***	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Details:	13167		
Confiden 1:			

Source List

Source Identifier:	4	***Horizontal Datum:***	NAD27
Source Type:	Data Survey	***Vertical Datum:***	Mean Average Sea Level
Source Date:	1900 - 1977	***Projection Name:***	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Originators:	Geological Survey of Canada		

---

123 ***1 of 1*** ***316.8*** ***ON*** ***WWIS***

Well ID:	7231760	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Monitoring and Test Hole	***Data Entry Status:***	
Use 2nd:	0	***Data Src:***	
Final Well Status:	Test Hole	***Date Received:***	14-Nov-2014 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	Z198843	***Contractor:***	7320
Tag:	A147601	***Form Version:***	7
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2014/10/30
Year Completed:	2014
Depth (m):	1.6764
Latitude:	43.4388941694993
Longitude:	-80.4749269081225
Path:	

Bore Hole Information

Bore Hole ID:	1005219972	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17

Code OB:		**East83:**	542492.00
Code OB Desc:		**North83:**	4809689.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	30-Oct-2014 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1005339871
Layer:	1
Color:	
General Color:	
Mat1:	
Most Common Material:	
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.0
Formation End Depth:	5.5
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1005339879
Layer:	1
Plug From:	0.0
Plug To:	5.5
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1005339878
Method Construction Code:	9
Method Construction:	Driving
Other Method Construction:	

Pipe Information

Pipe ID:	1005339870
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1005339874
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC

Depth From:	
Depth To:	
Casing Diameter:	3.0999999046325684
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1005339875
Layer:	
Slot:	
Screen Top Depth:	
Screen End Depth:	
Screen Material:	
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	

Water Details

Water ID:	1005339873
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1005339872
Diameter:	10.0
Depth From:	0.0
Depth To:	5.5
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1005219972	**Tag No:**	A147601
Depth M:	1.6764	**Contractor:**	7320
Year Completed:	2014	**Path:**	723\7231760.pdf
Well Completed Dt:	2014/10/30	**Latitude:**	43.4388941694993
Audit No:	Z198843	**Longitude:**	-80.4749269081225

---

124 | ***1 of 1*** | ***315.5*** | ***OTTAWA ST. & NYBERG STREET KITCHENER ON*** | ***WWIS***

Well ID:	7206271	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Test Hole	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Test Hole	**Date Received:**	15-Aug-2013 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z173134	**Contractor:**	7320
Tag:	A147601	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	

Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/720\7206271.pdf

Additional Detail(s) (Map)

Well Completed Date:	2013/07/19
Year Completed:	2013
Depth (m):	5.9
Latitude:	43.4388762181993
Longitude:	-80.4749394203204
Path:	720\7206271.pdf

Bore Hole Information

Bore Hole ID:	1004513210	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542491.00
Code OB Desc:		***North83:***	4809687.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	4
Date Completed:	19-Jul-2013 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1004988151
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	11
Mat2 Desc:	GRAVEL
Mat3:	01
Mat3 Desc:	FILL
Formation Top Depth:	0.0
Formation End Depth:	3.0999999046325684
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1004988152
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	05

Most Common Material:	CLAY
Mat2:	06
Mat2 Desc:	SILT
Mat3:	85
Mat3 Desc:	SOFT
Formation Top Depth:	3.0999999046325684
Formation End Depth:	5.900000095367432
Formation End Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1004988159
Layer:	1
Plug From:	0.0
Plug To:	0.30000001192092896
Plug Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1004988161
Layer:	3
Plug From:	2.5
Plug To:	5.900000095367432
Plug Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1004988160
Layer:	2
Plug From:	0.30000001192092896
Plug To:	2.5
Plug Depth UOM:	m

Method of Construction & Well Use

Method Construction ID:	1004988158
Method Construction Code:	9
Method Construction:	Driving
Other Method Construction:	

Pipe Information

Pipe ID:	1004988150
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1004988155
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	2.799999952316284
Casing Diameter:	3.0999999046325684

Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1004988156
Layer:	1
Slot:	10
Screen Top Depth:	2.799999952316284
Screen End Depth:	5.900000095367432
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	4.099999904632568

Water Details

Water ID:	1004988154
Layer:	1
Kind Code:	8
Kind:	Untested
Water Found Depth:	
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1004988153
Diameter:	10.0
Depth From:	0.0
Depth To:	5.900000095367432
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1004513210	***Tag No:***	A147601
Depth M:	5.9	***Contractor:***	7320
Year Completed:	2013	***Path:***	720\7206271.pdf
Well Completed Dt:	2013/07/19	***Latitude:***	43.4388762181993
Audit No:	Z173134	***Longitude:***	-80.4749394203204

---

125 ***1 of 1*** ***319.5*** ***ON*** ***BORE***

Borehole ID:	680070	***Inclin FLG:***	No
OGF ID:	215557066	***SP Status:***	Initial Entry
Status:		***Surv Elev:***	No
Type:	Borehole	***Piezometer:***	No
Use:	Geotechnical/Geological Investigation	***Primary Name:***	
Completion Date:	MAY-1965	***Municipality:***	
Static Water Level:	2.7	***Lot:***	
Primary Water Use:		***Township:***	
Sec. Water Use:		***Latitude DD:***	43.439181
Total Depth m:	9.8	***Longitude DD:***	-80.47469
Depth Ref:	Ground Surface	***UTM Zone:***	17
Depth Elev:		***Easting:***	542511
Drill Method:	Boring	***Northing:***	4809721
Orig Ground Elev m:	318	***Location Accuracy:***	
Elev Reliabil Note:		***Accuracy:***	Not Applicable
DEM Ground Elev m:	318		
Concession:			

Location D:
Survey D:
Comments:

Borehole Geology Stratum

Geology Stratum ID:	218549166	***Mat Consistency:***	Loose
Top Depth:	0	***Material Moisture:***	
Bottom Depth:	1.5	***Material Texture:***	Medium
Material Color:	Brown	***Non Geo Mat Type:***	
Material 1:	Fill	***Geologic Formation:***	
Material 2:		***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	fill
Gsc Material Description:			
Stratum Description:	BROWN, LOOSE.		

Geology Stratum ID:	218549167	***Mat Consistency:***	Loose
Top Depth:	1.5	***Material Moisture:***	
Bottom Depth:	2.7	***Material Texture:***	
Material Color:	Brown	***Non Geo Mat Type:***	
Material 1:	Silt	***Geologic Formation:***	
Material 2:	Sand	***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			
Stratum Description:	BROWN, LOOSE, SEAMS.		

Geology Stratum ID:	218549168	***Mat Consistency:***	Compact
Top Depth:	2.7	***Material Moisture:***	
Bottom Depth:	9.8	***Material Texture:***	Coarse
Material Color:	Brown	***Non Geo Mat Type:***	
Material 1:	Silt	***Geologic Formation:***	
Material 2:	Sand	***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			
Stratum Description:	BROWN, GREEN, COMPACT.		

Source

Source Type:	Data Survey	***Source Appl:***	Spatial/Tabular
Source Orig:	Geological Survey of Canada	***Source Iden:***	4
Source Date:	1900 - 1977	***Scale or Res:***	Varies
Confidence:	H	***Horizontal:***	NAD27
Observatio:	1965/5	***Verticalda:***	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Details:	79		
Confiden 1:			

Source List

Source Identifier:	4	***Horizontal Datum:***	NAD27
Source Type:	Data Survey	***Vertical Datum:***	Mean Average Sea Level
Source Date:	1900 - 1977	***Projection Name:***	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Originators:	Geological Survey of Canada		

126	***1 of 5***	***315.9***	***PETRO CANADA*** ***130 OTTAWA ST S*** ***KITCHENER ON N2G 3S9***	***DTNK***

Delisted Expired Fuel Safety Facilities

Instance No:	9690400	***Expired Date:***	4/2/2009
Status:	EXPIRED	***Max Hazard Rank:***	
Instance ID:		***Facility Location:***	
Instance Type:	FS Facility	***Facility Type:***	
Instance Creation Dt:		***Fuel Type 2:***	
Instance Install Dt:		***Fuel Type 3:***	
Item Description:		***Panam Related:***	
Manufacturer:		***Panam Venue Nm:***	
Model:		***External Identifier:***	
Serial No:		***Item:***	
ULC Standard:		***Piping Steel:***	
Quantity:		***Piping Galvanized:***	
Unit of Measure:		***Tank Single Wall St:***	
Overfill Prot Type:		***Piping Underground:***	
Creation Date:		***Tank Underground:***	
Next Periodic Str DT:		***Source:***	
TSSA Base Sched Cycle 2:			
TSSAMax Hazard Rank 1:			
TSSA Risk Based Periodic Yn:			
TSSA Volume of Directives:			
TSSA Periodic Exempt:			
TSSA Statutory Interval:			
TSSA Recd Insp Interva:			
TSSA Recd Tolerance:			
TSSA Program Area:			
TSSA Program Area 2:			
Description:			
Original Source:	EXP		
Record Date:	Up to May 2013		

Map Key	Number of Records	Elevation (m)	Site	DB
126	2 of 5	315.9	***PETRO CANADA*** ***130 OTTAWA ST S KITCHENER N2G 3S9 ON CA*** ***ON***	***DTNK***

Delisted Expired Fuel Safety Facilities

Instance No:	10813474	***Expired Date:***	
Status:	EXPIRED	***Max Hazard Rank:***	NULL
Instance ID:		***Facility Location:***	130 OTTAWA ST S KITCHENER N2G 3S9 ON CA
Instance Type:		***Facility Type:***	FS LIQUID FUEL TANK
Instance Creation Dt:	7/19/2000 8:15:15 PM	***Fuel Type 2:***	NULL
Instance Install Dt:	4/1/2009	***Fuel Type 3:***	NULL
Item Description:	FS Liquid Fuel Tank	***Panam Related:***	NULL
Manufacturer:	NULL	***Panam Venue Nm:***	NULL
Model:	NULL	***External Identifier:***	NULL
Serial No:	NULL	***Item:***	
ULC Standard:	NULL	***Piping Steel:***	
Quantity:	1	***Piping Galvanized:***	
Unit of Measure:	EA	***Tank Single Wall St:***	
Overfill Prot Type:	NULL	***Piping Underground:***	
Creation Date:	7/5/2009 1:21:13 AM	***Tank Underground:***	
Next Periodic Str DT:	NULL	***Source:***	FS Liquid Fuel Tank
TSSA Base Sched Cycle 2:	NULL		
TSSAMax Hazard Rank 1:	NULL		
TSSA Risk Based Periodic Yn:	NULL		

TSSA Volume of Directives:	NULL
TSSA Periodic Exempt:	NULL
TSSA Statutory Interval:	NULL
TSSA Recd Insp Interva:	NULL
TSSA Recd Tolerance:	NULL
TSSA Program Area:	NULL
TSSA Program Area 2:	NULL
Description:	NULL
Original Source:	EXP
Record Date:	31-JUL-2020

---

126 | ***3 of 5*** | ***315.9*** | ***PETRO CANADA*** | ***DTNK***
130 OTTAWA ST S KITCHENER N2G 3S9 ON CA
ON

Delisted Expired Fuel Safety Facilities

Instance No:	11176513	***Expired Date:***	
Status:	EXPIRED	***Max Hazard Rank:***	NULL
Instance ID:		***Facility Location:***	130 OTTAWA ST S KITCHENER N2G 3S9 ON CA
Instance Type:		***Facility Type:***	FS LIQUID FUEL TANK
Instance Creation Dt:	7/19/2000 8:15:15 PM	***Fuel Type 2:***	NULL
Instance Install Dt:	4/1/2009	***Fuel Type 3:***	NULL
Item Description:	FS Liquid Fuel Tank	***Panam Related:***	NULL
Manufacturer:	NULL	***Panam Venue Nm:***	NULL
Model:	NULL	***External Identifier:***	NULL
Serial No:	NULL	***Item:***	
ULC Standard:	NULL	***Piping Steel:***	
Quantity:	1	***Piping Galvanized:***	
Unit of Measure:	EA	***Tank Single Wall St:***	
Overfill Prot Type:	NULL	***Piping Underground:***	
Creation Date:	7/5/2009 1:24:06 AM	***Tank Underground:***	
Next Periodic Str DT:	NULL	***Source:***	FS Liquid Fuel Tank

TSSA Base Sched Cycle 2:	NULL
TSSAMax Hazard Rank 1:	NULL
TSSA Risk Based Periodic Yn:	NULL
TSSA Volume of Directives:	NULL
TSSA Periodic Exempt:	NULL
TSSA Statutory Interval:	NULL
TSSA Recd Insp Interva:	NULL
TSSA Recd Tolerance:	NULL
TSSA Program Area:	NULL
TSSA Program Area 2:	NULL
Description:	NULL
Original Source:	EXP
Record Date:	31-JUL-2020

---

126 | ***4 of 5*** | ***315.9*** | ***PETRO CANADA*** | ***DTNK***
130 OTTAWA ST S KITCHENER N2G 3S9 ON CA
ON

Delisted Expired Fuel Safety Facilities

Instance No:	11176490	***Expired Date:***	
Status:	EXPIRED	***Max Hazard Rank:***	NULL
Instance ID:		***Facility Location:***	130 OTTAWA ST S KITCHENER N2G 3S9 ON CA

Instance Type:			***Facility Type:***	FS LIQUID FUEL TANK
Instance Creation Dt:	7/19/2000 8:15:15 PM		***Fuel Type 2:***	NULL
Instance Install Dt:	4/1/2009		***Fuel Type 3:***	NULL
Item Description:	FS Liquid Fuel Tank		***Panam Related:***	NULL
Manufacturer:	NULL		***Panam Venue Nm:***	NULL
Model:	NULL		***External Identifier:***	NULL
Serial No:	NULL		***Item:***	
ULC Standard:	NULL		***Piping Steel:***	
Quantity:	1		***Piping Galvanized:***	
Unit of Measure:	EA		***Tank Single Wall St:***	
Overfill Prot Type:	NULL		***Piping Underground:***	
Creation Date:	7/5/2009 1:24:09 AM		***Tank Underground:***	
Next Periodic Str DT:	NULL		***Source:***	FS Liquid Fuel Tank
TSSA Base Sched Cycle 2:	NULL			
TSSAMax Hazard Rank 1:	NULL			
TSSA Risk Based Periodic Yn:	NULL			
TSSA Volume of Directives:	NULL			
TSSA Periodic Exempt:	NULL			
TSSA Statutory Interval:	NULL			
TSSA Recd Insp Interva:	NULL			
TSSA Recd Tolerance:	NULL			
TSSA Program Area:	NULL			
TSSA Program Area 2:	NULL			
Description:	NULL			
Original Source:	EXP			
Record Date:	31-JUL-2020			

126	***5 of 5***	***315.9***	***PETRO CANADA*** ***130 OTTAWA ST S KITCHENER N2G 3S9 ON CA*** ***ON***	***DTNK***

Delisted Expired Fuel Safety Facilities

Instance No:	11176506		***Expired Date:***	
Status:	EXPIRED		***Max Hazard Rank:***	NULL
Instance ID:			***Facility Location:***	130 OTTAWA ST S KITCHENER N2G 3S9 ON CA
Instance Type:			***Facility Type:***	FS LIQUID FUEL TANK
Instance Creation Dt:	7/19/2000 8:15:15 PM		***Fuel Type 2:***	NULL
Instance Install Dt:	4/1/2009		***Fuel Type 3:***	NULL
Item Description:	FS Liquid Fuel Tank		***Panam Related:***	NULL
Manufacturer:	NULL		***Panam Venue Nm:***	NULL
Model:	NULL		***External Identifier:***	NULL
Serial No:	NULL		***Item:***	
ULC Standard:	NULL		***Piping Steel:***	
Quantity:	1		***Piping Galvanized:***	
Unit of Measure:	EA		***Tank Single Wall St:***	
Overfill Prot Type:	NULL		***Piping Underground:***	
Creation Date:	7/5/2009 1:24:14 AM		***Tank Underground:***	
Next Periodic Str DT:	NULL		***Source:***	FS Liquid Fuel Tank
TSSA Base Sched Cycle 2:	NULL			
TSSAMax Hazard Rank 1:	NULL			
TSSA Risk Based Periodic Yn:	NULL			
TSSA Volume of Directives:	NULL			
TSSA Periodic Exempt:	NULL			
TSSA Statutory Interval:	NULL			
TSSA Recd Insp Interva:	NULL			
TSSA Recd Tolerance:	NULL			
TSSA Program Area:	NULL			
TSSA Program Area 2:	NULL			
Description:	NULL			
Original Source:	EXP			

Record Date: 31-JUL-2020

---

127 | **1 of 1** | **321.1** | **60 OTTAWA ST. S KITCHENER ON** | **WWIS**

Well ID:	7197933	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	04-Mar-2013 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z164682	**Contractor:**	7238
Tag:	A143005	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/719\7197933.pdf

Additional Detail(s) (Map)

Well Completed Date:	2013/02/26
Year Completed:	2013
Depth (m):	5.4864
Latitude:	43.4396570700011
Longitude:	-80.4743889545215
Path:	719\7197933.pdf

Bore Hole Information

Bore Hole ID:	1004259204	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542535.00
Code OB Desc:		**North83:**	4809774.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	26-Feb-2013 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1004777089
Layer:	1
Color:	2

General Color:	GREY
Mat1:	
Most Common Material:	
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.0
Formation End Depth:	8.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1004777091
Layer:	3
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	
Mat3:	66
Mat3 Desc:	DENSE
Formation Top Depth:	10.0
Formation End Depth:	12.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1004777090
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	11
Mat2 Desc:	GRAVEL
Mat3:	79
Mat3 Desc:	PACKED
Formation Top Depth:	8.0
Formation End Depth:	10.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1004777092
Layer:	4
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	85
Mat3 Desc:	SOFT
Formation Top Depth:	12.0
Formation End Depth:	18.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1004777099
Layer:	1
Plug From:	0.0
Plug To:	8.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1004777098
Method Construction Code:	6
Method Construction:	Boring
Other Method Construction:	

Pipe Information

Pipe ID:	1004777088
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1004777095
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	8.0
Casing Diameter:	
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1004777096
Layer:	1
Slot:	10
Screen Top Depth:	8.0
Screen End Depth:	18.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	1.25

Water Details

Water ID:	1004777094
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1004777093

Diameter:	6.0
Depth From:	0.0
Depth To:	18.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1004259204	**Tag No:**	A143005
Depth M:	5.4864	**Contractor:**	7238
Year Completed:	2013	**Path:**	719\7197933.pdf
Well Completed Dt:	2013/02/26	**Latitude:**	43.4396570700011
Audit No:	Z164682	**Longitude:**	-80.4743889545215

---

128 | ***1 of 9*** | ***317.9*** | ***The New Place
156 Bedford Road
Kitchener ON N2G 3A4*** | ***GEN***

Generator No:	ON3451902
SIC Code:	
SIC Description:	
Approval Years:	05,07,08
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	145
Waste Class Name:	PAINT/PIGMENT/COATING RESIDUES
Waste Class:	122
Waste Class Name:	ALKALINE WASTES - OTHER METALS
Waste Class:	212
Waste Class Name:	ALIPHATIC SOLVENTS
Waste Class:	241
Waste Class Name:	HALOGENATED SOLVENTS

---

128 | ***2 of 9*** | ***317.9*** | ***Larry Allen Reichert, Steven Reichert, and Mark Larry Reichert
156A Bedford Road Kitchener Ontario N2G 3A4 Kitchener ON*** | ***EBR***

EBR Registry No:	IA05E0060	**Decision Posted:**	
Ministry Ref No:	3491-686SM5	**Exception Posted:**	
Notice Type:	Instrument Decision	**Section:**	
Notice Stage:		**Act 1:**	
Notice Date:	January 10, 2006	**Act 2:**	
Proposal Date:	January 17, 2005	**Site Location Map:**	
Year:	2005		
Instrument Type:	(EPA s. 9) - Approval for discharge into the natural environment other than water (i.e. Air)		
Off Instrument Name:			
Posted By:			
Company Name:	Larry Allen Reichert, Steven Reichert, and Mark Larry Reichert		
Site Address:			
Location Other:			

Proponent Name:
Proponent Address: 156A Bedford Road, Kitchener Ontario, N2G 3A4
Comment Period:
URL:

Site Location Details:

156A Bedford Road Kitchener Ontario N2G 3A4 Kitchener

---

128 | ***3 of 9*** | ***317.9*** | ***Larry Allen Reichert, Steven Reichert, and Mark Larry Reichert***
156A Bedford Road
Kitchener ON N2G 3A4 | ***CA***

Certificate #: 6068-6JEQDG
Application Year: 2005
Issue Date: 12/28/2005
Approval Type: Air
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

---

128 | ***4 of 9*** | ***317.9*** | ***The New Place***
156 Bedford Road
Kitchener ON N2G 3A4 | ***GEN***

Generator No: ON3451902
SIC Code: 081142
SIC Description:
Approval Years: 2009
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 122
Waste Class Name: ALKALINE WASTES - OTHER METALS

Waste Class: 212
Waste Class Name: ALIPHATIC SOLVENTS

Waste Class: 241
Waste Class Name: HALOGENATED SOLVENTS

---

128 | ***5 of 9*** | ***317.9*** | ***The New Place***
156 Bedford Road
Kitchener ON N2G 3A4 | ***GEN***

Generator No:	ON3451902
SIC Code:	081142
SIC Description:	
Approval Years:	2010
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	212
Waste Class Name:	ALIPHATIC SOLVENTS
Waste Class:	122
Waste Class Name:	ALKALINE WASTES - OTHER METALS
Waste Class:	241
Waste Class Name:	HALOGENATED SOLVENTS

128	***6 of 9***	***317.9***	***The New Place*** ***156 Bedford Road*** ***Kitchener ON N2G 3A4***	***GEN***

Generator No:	ON3451902
SIC Code:	081142
SIC Description:	
Approval Years:	2011
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	212
Waste Class Name:	ALIPHATIC SOLVENTS
Waste Class:	241
Waste Class Name:	HALOGENATED SOLVENTS
Waste Class:	122
Waste Class Name:	ALKALINE WASTES - OTHER METALS

128	***7 of 9***	***317.9***	***The New Place*** ***156 Bedford Road*** ***Kitchener ON***	***GEN***

Generator No:	ON3451902
SIC Code:	081142
SIC Description:	
Approval Years:	2013
PO Box No:	
Country:	

Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 122
Waste Class Name: ALKALINE WASTES - OTHER METALS

Waste Class: 145
Waste Class Name: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 241
Waste Class Name: HALOGENATED SOLVENTS

Waste Class: 212
Waste Class Name: ALIPHATIC SOLVENTS

---

128 ***8 of 9*** ***317.9*** ***The New Place*** ***GEN***
156 Bedford Road
Kitchener ON N2G 3A4

Generator No: ON3451902
SIC Code: 081142
SIC Description:
Approval Years: 2012
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 241
Waste Class Name: HALOGENATED SOLVENTS

Waste Class: 122
Waste Class Name: ALKALINE WASTES - OTHER METALS

Waste Class: 212
Waste Class Name: ALIPHATIC SOLVENTS

---

128 ***9 of 9*** ***317.9*** ***Larry Allen Reichert, Steven Reichert, and Mark Larry Reichert*** ***ECA***
156A Bedford Road
Kitchener ON N2G 3A4

Approval No: 6068-6JEQDG
Approval Date: 2005-12-28
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name: Grand River
Approval Type: ECA-AIR
Project Type: AIR
Business Name: Larry Allen Reichert, Steven Reichert, and Mark Larry Reichert
MOE District: Guelph
City:
Longitude: -80.47712
Latitude: 43.438175
Geometry X:
Geometry Y:

Address:	156A Bedford Road
Full Address:	
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/3491-686SM5-14.pdf
PDF Site Location:	

129 | **1 of 1** | **315.5** | **UNKNOWN**
SCHNEIDER CREEK OTTAWA ST AND NYBERG ST
KITCHENER CITY ON | **SPL**

Ref No:	24186	**Contaminant Qty:**	
Site No:		**Nature of Damage:**	
Incident Dt:	8/24/1989	**Discharger Report:**	
Year:		**Material Group:**	
Incident Cause:	WASTEWATER DISCHARGE TO WATERCOURSE	**Health/Env Conseq:**	
Incident Event:		**Agency Involved:**	
Environment Impact:	NOT ANTICIPATED	**Site Lot:**	
Nature of Impact:		**Site Conc:**	
MOE Response:		**Site Geo Ref Accu:**	
Dt MOE Arvl on Scn:		**Site Map Datum:**	
MOE Reported Dt:	8/24/1989	**Northing:**	
Dt Document Closed:		**Easting:**	
Municipality No:	25102		
System Facility Address:			
Client Type:			
Call Report Location Geodata:			
Contaminant Code:			
Contaminant Name:			
Contaminant Limit 1:			
Contam Limit Freq 1:			
Contaminant UN No 1:			
Receiving Medium:	WATER		
Receiving Environment:			
Incident Reason:	UNKNOWN		
Incident Summary:	OIL SHEEN ON SCHNEIDER CREEK.		
Site Region:			
Site Municipality:	KITCHENER CITY		
Activity Preceding Spill:			
Property 2nd Watershed:			
Property Tertiary Watershed:			
Sector Type:			
SAC Action Class:			
Source Type:			
Site County/District:			
Site Geo Ref Meth:			
Site District Office:			
Nearest Watercourse:			
Site Name:			
Site Address:			
Client Name:			

130 | **1 of 1** | **321.7** | **50 BORDEN AVE**
Kitchener ON | **WWIS**

Well ID:	7314920	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	19-Jul-2018 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z285373	**Contractor:**	7190

Tag:	A247469	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2018/06/18
Year Completed:	2018
Depth (m):	3.6576
Latitude:	43.4418558665062
Longitude:	-80.4747653615792
Path:	

Bore Hole Information

Bore Hole ID:	1007190030	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542503.00
Code OB Desc:		**North83:**	4810018.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	18-Jun-2018 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1007265556
Layer:	1
Color:	8
General Color:	BLACK
Mat1:	27
Most Common Material:	OTHER
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.0
Formation End Depth:	2.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1007265557
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	11
Mat2 Desc:	GRAVEL
Mat3:	73
Mat3 Desc:	HARD
Formation Top Depth:	2.0
Formation End Depth:	6.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1007265558
Layer:	3
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	
Mat3 Desc:	
Formation Top Depth:	6.0
Formation End Depth:	12.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1007265565
Layer:	1
Plug From:	0.0
Plug To:	5.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1007265566
Layer:	2
Plug From:	5.0
Plug To:	12.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1007265564
Method Construction Code:	B
Method Construction:	Other Method
Other Method Construction:	AUGER

Pipe Information

Pipe ID:	1007265555

Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1007265561
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 7.0
Casing Diameter: 2.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Screen

Screen ID: 1007265562
Layer: 1
Slot: 10
Screen Top Depth: 7.0
Screen End Depth: 12.0
Screen Material: 5
Screen Depth UOM: ft
Screen Diameter UOM: inch
Screen Diameter: 2.0

Water Details

Water ID: 1007265560
Layer:
Kind Code:
Kind:
Water Found Depth:
Water Found Depth UOM: ft

Hole Diameter

Hole ID: 1007265559
Diameter: 8.5
Depth From: 0.0
Depth To: 12.0
Hole Depth UOM: ft
Hole Diameter UOM: inch

Links

Bore Hole ID: 1007190030
Depth M: 3.6576
Year Completed: 2018
Well Completed Dt: 2018/06/18
Audit No: Z285373
Tag No: A247469
Contractor: 7190
Path: 731\7314920.pdf
Latitude: 43.4418558665062
Longitude: -80.4747653615792

---

131 ***1 of 1*** ***321.1*** ***OTTAWA ST.***
KITCHENER ON ***WWIS***

Well ID: 7197913
Construction Date:
Use 1st: Monitoring
Flowing (Y/N):
Flow Rate:
Data Entry Status:

Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	04-Mar-2013 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z164693	**Contractor:**	7238
Tag:	A143002	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/719\7197913.pdf

Additional Detail(s) (Map)

Well Completed Date:	2013/02/22
Year Completed:	2013
Depth (m):	4.8768
Latitude:	43.439503944924
Longitude:	-80.4743779229681
Path:	719\7197913.pdf

Bore Hole Information

Bore Hole ID:	1004259144	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542536.00
Code OB Desc:		**North83:**	4809757.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	22-Feb-2013 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1004776757
Layer:	3
Color:	2
General Color:	GREY
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	08
Mat3 Desc:	FINE SAND
Formation Top Depth:	8.0
Formation End Depth:	16.0

Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1004776756
Layer: 2
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 06
Mat2 Desc: SILT
Mat3: 08
Mat3 Desc: FINE SAND
Formation Top Depth: 2.0
Formation End Depth: 8.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1004776755
Layer: 1
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 11
Mat2 Desc: GRAVEL
Mat3: 28
Mat3 Desc: SAND
Formation Top Depth: 0.0
Formation End Depth: 2.0
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1004776765
Layer: 1
Plug From: 0.0
Plug To: 5.0
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 1004776764
Method Construction Code: 9
Method Construction: Driving
Other Method Construction:

Pipe Information

Pipe ID: 1004776754
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID:	1004776761
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	6.0
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1004776762
Layer:	1
Slot:	10
Screen Top Depth:	6.0
Screen End Depth:	16.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.0

Water Details

Water ID:	1004776760
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1004776758
Diameter:	9.0
Depth From:	0.0
Depth To:	1.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Hole Diameter

Hole ID:	1004776759
Diameter:	5.0
Depth From:	1.0
Depth To:	16.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1004259144	***Tag No:***	A143002
Depth M:	4.8768	***Contractor:***	7238
Year Completed:	2013	***Path:***	719\7197913.pdf
Well Completed Dt:	2013/02/22	***Latitude:***	43.439503944924
Audit No:	Z164693	***Longitude:***	-80.4743779229681

132	***1 of 1***	***315.9***	***135 OTTAWA ST S***	***WWIS***

Kitchener ON

Well ID:	7179934	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Monitoring	***Data Entry Status:***	
Use 2nd:		***Data Src:***	
Final Well Status:	Observation Wells	***Date Received:***	24-Apr-2012 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	Z146068	***Contractor:***	7366
Tag:	A127628	***Form Version:***	7
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/717\7179934.pdf

Additional Detail(s) (Map)

Well Completed Date:	2012/03/06
Year Completed:	2012
Depth (m):	4.5
Latitude:	43.4383556865566
Longitude:	-80.475314627193
Path:	717\7179934.pdf

Bore Hole Information

Bore Hole ID:	1003713423	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542461.00
Code OB Desc:		***North83:***	4809629.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	4
Date Completed:	06-Mar-2012 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1004289062
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	06
Most Common Material:	SILT
Mat2:	28

Mat2 Desc:	SAND
Mat3:	74
Mat3 Desc:	LAYERED
Formation Top Depth:	0.30000001192092896
Formation End Depth:	4.5
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1004289061
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	01
Mat2 Desc:	FILL
Mat3:	77
Mat3 Desc:	LOOSE
Formation Top Depth:	0.0
Formation End Depth:	0.30000001192092896
Formation End Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1004289071
Layer:	3
Plug From:	1.2000000476837158
Plug To:	4.5
Plug Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1004289070
Layer:	2
Plug From:	0.30000001192092896
Plug To:	1.2000000476837158
Plug Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1004289069
Layer:	1
Plug From:	0.0
Plug To:	0.30000001192092896
Plug Depth UOM:	m

Method of Construction & Well Use

Method Construction ID:	1004289068
Method Construction Code:	7
Method Construction:	Diamond
Other Method Construction:	

Pipe Information

Pipe ID:	1004289060
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1004289065
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	4.5
Casing Diameter:	3.799999952316284
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1004289066
Layer:	1
Slot:	10
Screen Top Depth:	1.5
Screen End Depth:	4.5
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	4.0

Water Details

Water ID:	1004289064
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1004289063
Diameter:	10.0
Depth From:	0.0
Depth To:	4.5
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1003713423	***Tag No:***	A127628
Depth M:	4.5	***Contractor:***	7366
Year Completed:	2012	***Path:***	717\7179934.pdf
Well Completed Dt:	2012/03/06	***Latitude:***	43.4383556865566
Audit No:	Z146068	***Longitude:***	-80.475314627193

133	***1 of 1***	***315.0***	***GrandLinq Contractors*** ***129 Ottawa Street South*** ***KITCHENER ON N2G2Z2***	***GEN***

Generator No:	ON9262499
SIC Code:	
SIC Description:	
Approval Years:	As of Dec 2017
PO Box No:	
Country:	Canada
Status:	Registered
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	146 L
Waste Class Name:	Other specified inorganic sludges, slurries or solids

134 **1 of 1** **315.5** **ON** **BORE**

Borehole ID:	680057	**Inclin FLG:**	No
OGF ID:	215557053	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:	Geotechnical/Geological Investigation	**Primary Name:**	
Completion Date:	SEP-1968	**Municipality:**	
Static Water Level:		**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	43.438732
Total Depth m:	12.8	**Longitude DD:**	-80.474817
Depth Ref:	Ground Surface	**UTM Zone:**	17
Depth Elev:		**Easting:**	542501
Drill Method:	Power auger	**Northing:**	4809671
Orig Ground Elev m:	318	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	317		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218549123	**Mat Consistency:**	Compact
Top Depth:	3.4	**Material Moisture:**	
Bottom Depth:	5.5	**Material Texture:**	
Material Color:	Brown	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:	Clay	**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	BROWN, COMPACT.		

Geology Stratum ID:	218549122	**Mat Consistency:**	Loose
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	3.4	**Material Texture:**	
Material Color:	Brown	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	fill

Gsc Material Description:
Stratum Description: LIGHT, BROWN, LOOSE.

Geology Stratum ID: 218549124
Top Depth: 5.5
Bottom Depth: 7.6
Material Color: Red-Brown
Material 1: Clay
Material 2: Silt
Material 3:
Material 4:
Mat Consistency: Soft
Material Moisture:
Material Texture:
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen:

Gsc Material Description:
Stratum Description: BROWN, SOFT, LAYERED.

Geology Stratum ID: 218549125
Top Depth: 7.6
Bottom Depth: 12.8
Material Color: Dark
Material 1: Silt
Material 2: Clay
Material 3: Sand
Material 4:
Mat Consistency: Dense
Material Moisture:
Material Texture:
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen:

Gsc Material Description:
Stratum Description: DARK, BROWN, DENSE, LAYERED.

Source

Source Type: Data Survey
Source Orig: Geological Survey of Canada
Source Date: 1900 - 1977
Confidence: H
Observatio: 1968/9
Source Name: Waterloo Area Geology Automated Information System (WAGAIS)
Source Details: 66
Confiden 1:
Source Appl: Spatial/Tabular
Source Iden: 4
Scale or Res: Varies
Horizontal: NAD27
Verticalda: Mean Average Sea Level

Source List

Source Identifier: 4
Source Type: Data Survey
Source Date: 1900 - 1977
Scale or Resolution: Varies
Source Name: Waterloo Area Geology Automated Information System (WAGAIS)
Source Originators: Geological Survey of Canada
Horizontal Datum: NAD27
Vertical Datum: Mean Average Sea Level
Projection Name: Universal Traverse Mercator

---

135 *1 of 1* *319.4* *ON* ***BORE***

Borehole ID: 683545
OGF ID: 215560541
Status:
Type: Borehole
Use: Geotechnical/Geological Investigation
Completion Date: JAN-1975
Static Water Level: 0.8
Primary Water Use:
Sec. Water Use:
Total Depth m: 9.6
Depth Ref: Ground Surface
Depth Elev:
Drill Method: Power auger
Orig Ground Elev m: 319
Elev Reliabil Note:
Inclin FLG: No
SP Status: Initial Entry
Surv Elev: No
Piezometer: No
Primary Name:
Municipality:
Lot:
Township:
Latitude DD: 43.441913
Longitude DD: -80.481339
UTM Zone: 17
Easting: 541971
Northing: 4810021
Location Accuracy:
Accuracy: Not Applicable

DEM Ground Elev m: 319
Concession:
Location D:
Survey D:
Comments:

Borehole Geology Stratum

Geology Stratum ID: 218561595
Top Depth: .9
Bottom Depth: 1.4
Material Color: Black
Material 1: Clay
Material 2:
Material 3:
Material 4:
Gsc Material Description:
Mat Consistency:
Material Moisture: Wet
Material Texture:
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen: organic
Stratum Description: BLACK, SOME ORGANIC MATTER, ROOTS WET **Note: Many records provided by the department have a truncated [Stratum Description] field.

Geology Stratum ID: 218561597
Top Depth: 1.9
Bottom Depth: 4.6
Material Color: Grey
Material 1: Sand
Material 2:
Material 3:
Material 4:
Gsc Material Description:
Mat Consistency: Compact
Material Moisture: Wet
Material Texture:
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen:
Stratum Description: COMPACT GREY WET **Note: Many records provided by the department have a truncated [Stratum Description] field.

Geology Stratum ID: 218561594
Top Depth: 0
Bottom Depth: .9
Material Color: Brown
Material 1: Sand
Material 2:
Material 3:
Material 4:
Gsc Material Description:
Mat Consistency: Loose
Material Moisture: Moist
Material Texture: Fine
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen:
Stratum Description: FINE, LOOSE BROWN VERY MOIST **Note: Many records provided by the department have a truncated [Stratum Description] field.

Geology Stratum ID: 218561598
Top Depth: 4.6
Bottom Depth: 9.6
Material Color:
Material 1: Silt
Material 2:
Material 3:
Material 4:
Gsc Material Description:
Mat Consistency:
Material Moisture:
Material Texture:
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen:
Stratum Description: WITH CLAY LAYERS MORE SAND WITH DEPTH **Note: Many records provided by the department have a truncated [Stratum Description] field.

Geology Stratum ID: 218561596
Top Depth: 1.4
Bottom Depth: 1.9
Material Color: Grey
Material 1: Sand
Material 2: Gravel
Material 3:
Material 4:
Gsc Material Description:
Mat Consistency: Compact
Material Moisture: Wet
Material Texture:
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen:

Stratum Description: COMPACT GREY WET **Note: Many records provided by the department have a truncated [Stratum Description] field.

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	4
Source Date:	1900 - 1977	**Scale or Res:**	Varies
Confidence:	H	**Horizontal:**	NAD27
Observatio:	1975/1	**Verticalda:**	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Details:	13166		
Confiden 1:			

Source List

Source Identifier:	4	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1900 - 1977	**Projection Name:**	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Originators:	Geological Survey of Canada		

---

136 | ***1 of 1*** | ***315.8*** | ***OTTAWA ST S AND DUNDAS AVE Kitchener ON*** | ***WWIS***

Well ID:	7231764	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring and Test Hole	**Data Entry Status:**	
Use 2nd:	0	**Data Src:**	
Final Well Status:	Test Hole	**Date Received:**	14-Nov-2014 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z198838	**Contractor:**	7320
Tag:	A149535	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2014/10/30
Year Completed:	2014
Depth (m):	4.6
Latitude:	43.4382122457989
Longitude:	-80.4754517917716
Path:	

Bore Hole Information

Bore Hole ID:	1005219986	**Elevation:**	

DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542450.00
Code OB Desc:		**North83:**	4809613.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	30-Oct-2014 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1005340033
Layer:	1
Color:	
General Color:	
Mat1:	
Most Common Material:	
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.0
Formation End Depth:	4.599999904632568
Formation End Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1005340041
Layer:	1
Plug From:	0.0
Plug To:	4.599999904632568
Plug Depth UOM:	m

Method of Construction & Well Use

Method Construction ID:	1005340040
Method Construction Code:	9
Method Construction:	Driving
Other Method Construction:	

Pipe Information

Pipe ID:	1005340032
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1005340036
Layer:	1

Material:	5
Open Hole or Material:	PLASTIC
Depth From:	
Depth To:	
Casing Diameter:	3.0999999046325684
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1005340037
Layer:	
Slot:	
Screen Top Depth:	
Screen End Depth:	
Screen Material:	
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	

Water Details

Water ID:	1005340035
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1005340034
Diameter:	10.0
Depth From:	0.0
Depth To:	4.599999904632568
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1005219986	**Tag No:**	A149535
Depth M:	4.6	**Contractor:**	7320
Year Completed:	2014	**Path:**	723\7231764.pdf
Well Completed Dt:	2014/10/30	**Latitude:**	43.4382122457989
Audit No:	Z198838	**Longitude:**	-80.4754517917716

137 ***1 of 1*** ***315.8*** ***135 OTTAWA ST SOUTH***
Kitchener ON ***WWIS***

Well ID:	7179935	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	24-Apr-2012 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z146067	**Contractor:**	7366
Tag:	A127615	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	

Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/717\7179935.pdf

Additional Detail(s) (Map)

Well Completed Date:	2012/03/06
Year Completed:	2012
Depth (m):	4.5
Latitude:	43.4383104396675
Longitude:	-80.4752655907742
Path:	717\7179935.pdf

Bore Hole Information

Bore Hole ID:	1003713426	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542465.00
Code OB Desc:		**North83:**	4809624.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	06-Mar-2012 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1004289075
Layer:	3
Color:	6
General Color:	BROWN
Mat1:	06
Most Common Material:	SILT
Mat2:	28
Mat2 Desc:	SAND
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.30000001192092896
Formation End Depth:	4.5
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1004289073
Layer:	1
Color:	

General Color:
Mat1:
Most Common Material:
Mat2:
Mat2 Desc:
Mat3: 60
Mat3 Desc: CEMENTED
Formation Top Depth: 0.0
Formation End Depth: 0.20000000298023224
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1004289074
Layer: 2
Color: 6
General Color: BROWN
Mat1: 01
Most Common Material: FILL
Mat2:
Mat2 Desc:
Mat3: 77
Mat3 Desc: LOOSE
Formation Top Depth: 0.20000000298023224
Formation End Depth: 0.30000001192092896
Formation End Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1004289083
Layer: 1
Plug From: 0.0
Plug To: 0.8999999761581421
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1004289084
Layer: 2
Plug From: 0.8999999761581421
Plug To: 4.5
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1004289082
Layer: 1
Plug From:
Plug To:
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1004289081
Method Construction Code: 9
Method Construction: Driving

Other Method Construction:

Pipe Information

Pipe ID: 1004289072
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1004289078
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 1.5
Casing Diameter: 3.799999952316284
Casing Diameter UOM: cm
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1004289079
Layer: 1
Slot: 10
Screen Top Depth: 1.5
Screen End Depth: 4.5
Screen Material: 5
Screen Depth UOM: m
Screen Diameter UOM: cm
Screen Diameter: 4.0

Water Details

Water ID: 1004289077
Layer:
Kind Code:
Kind:
Water Found Depth:
Water Found Depth UOM: m

Hole Diameter

Hole ID: 1004289076
Diameter: 10.0
Depth From: 0.0
Depth To: 4.5
Hole Depth UOM: m
Hole Diameter UOM: cm

Links

Bore Hole ID: 1003713426
Depth M: 4.5
Year Completed: 2012
Well Completed Dt: 2012/03/06
Audit No: Z146067
Tag No: A127615
Contractor: 7366
Path: 717\7179935.pdf
Latitude: 43.4383104396675
Longitude: -80.4752655907742

Map Key	Number of Records	Elevation (m)	Site	DB
138	1 of 1	317.9	MOUNT ROYAL LAUNDROMAT 160 BEDFORD RD,,KITCHENER,ON,N2G 3A4,CA ON	PINC

Incident Id:		**Pipe Material:**	
Incident No:	1845550	**Fuel Category:**	
Incident Reported Dt:	4/14/2016	**Health Impact:**	
Type:	FS-Pipeline Incident	**Environment Impact:**	
Status Code:		**Property Damage:**	
Tank Status:	Pipeline Damage Reason Est	**Service Interrupt:**	
Task No:		**Enforce Policy:**	
Spills Action Centre:		**Public Relation:**	
Fuel Type:		**Pipeline System:**	
Fuel Occurrence Tp:		**PSIG:**	
Date of Occurrence:		**Attribute Category:**	
Occurrence Start Dt:		**Regulator Location:**	
Depth:		**Method Details:**	
Customer Acct Name:	MOUNT ROYAL LAUNDROMAT		
Incident Address:	160 BEDFORD RD,,KITCHENER,ON,N2G 3A4,CA		
Operation Type:			
Pipeline Type:			
Regulator Type:			
Summary:			
Reported By:			
Affiliation:			
Occurrence Desc:			
Damage Reason:			
Notes:			

Map Key	Number of Records	Elevation (m)	Site	DB
139	1 of 1	315.8	DUNDAS ST. 7 OTTAWA ST. S KITCHENER ON	WWIS

Well ID:	7206267	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	15-Aug-2013 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z173130	**Contractor:**	7320
Tag:	A149535	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2013/07/14
Year Completed:	2013
Depth (m):	4.6
Latitude:	43.4381669989675
Longitude:	-80.4754027553649
Path:	

Bore Hole Information

Bore Hole ID:	1004513154	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542454.00
Code OB Desc:		***North83:***	4809608.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	4
Date Completed:	14-Jul-2013 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1004987036
Layer:	1
Color:	8
General Color:	BLACK
Mat1:	11
Most Common Material:	GRAVEL
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.0
Formation End Depth:	0.30000001192092896
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1004987037
Layer:	2
Color:	2
General Color:	GREY
Mat1:	11
Most Common Material:	GRAVEL
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.30000001192092896
Formation End Depth:	0.800000011920929
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1004987038
Layer:	3
Color:	6
General Color:	BROWN
Mat1:	05

Most Common Material: CLAY
Mat2: 06
Mat2 Desc: SILT
Mat3:
Mat3 Desc:
Formation Top Depth: 0.800000011920929
Formation End Depth: 1.7999999523162842
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1004987039
Layer: 4
Color: 6
General Color: BROWN
Mat1: 09
Most Common Material: MEDIUM SAND
Mat2: 05
Mat2 Desc: CLAY
Mat3: 06
Mat3 Desc: SILT
Formation Top Depth: 1.7999999523162842
Formation End Depth: 4.599999904632568
Formation End Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1004987046
Layer: 1
Plug From: 0.0
Plug To: 1.2000000476837158
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1004987047
Layer: 2
Plug From: 1.2000000476837158
Plug To: 4.599999904632568
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1004987045
Method Construction Code: D
Method Construction: Direct Push
Other Method Construction: DRIVING

Pipe Information

Pipe ID: 1004987035
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID:	1004987042
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	1.5
Casing Diameter:	3.200000047683716
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1004987043
Layer:	1
Slot:	10
Screen Top Depth:	1.5
Screen End Depth:	4.599999904632568
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	4.199999809265137

Water Details

Water ID:	1004987041
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1004987040
Diameter:	10.0
Depth From:	0.0
Depth To:	4.599999904632568
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1004513154	***Tag No:***	A149535
Depth M:	4.6	***Contractor:***	7320
Year Completed:	2013	***Path:***	720\7206267.pdf
Well Completed Dt:	2013/07/14	***Latitude:***	43.4381669989675
Audit No:	Z173130	***Longitude:***	-80.4754027553649

---

140 ***1 of 1*** ***315.8*** ***135 OTTAWA ST. S lot 1 Kitchener ON*** ***WWIS***

Well ID:	7227691	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Monitoring and Test Hole	***Data Entry Status:***	
Use 2nd:	0	***Data Src:***	
Final Well Status:	Observation Wells	***Date Received:***	19-Sep-2014 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	Z185476	***Contractor:***	7238
Tag:	A155082	***Form Version:***	7

Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	001
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	GCT
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2014/06/19
Year Completed:	2014
Depth (m):	7.3152
Latitude:	43.4381304726663
Longitude:	-80.4752918596226
Path:	

Bore Hole Information

Bore Hole ID:	1005128856	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542463.00
Code OB Desc:		**North83:**	4809604.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	2
Date Completed:	19-Jun-2014 00:00:00	**UTMRC Desc:**	margin of error : 3 - 10 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1005378454
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	
Mat3 Desc:	
Formation Top Depth:	3.0
Formation End Depth:	8.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1005378453
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	11
Mat3 Desc:	GRAVEL
Formation Top Depth:	0.0
Formation End Depth:	3.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1005378455
Layer:	3
Color:	2
General Color:	GREY
Mat1:	06
Most Common Material:	SILT
Mat2:	05
Mat2 Desc:	CLAY
Mat3:	28
Mat3 Desc:	SAND
Formation Top Depth:	8.0
Formation End Depth:	24.0
Formation End Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1005378462
Method Construction Code:	E
Method Construction:	Auger
Other Method Construction:	

Pipe Information

Pipe ID:	1005378452
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1005378458
Layer:	1
Material:	
Open Hole or Material:	
Depth From:	
Depth To:	
Casing Diameter:	1.5
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1005378459

Layer:	1
Slot:	
Screen Top Depth:	
Screen End Depth:	
Screen Material:	
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	1.5

Water Details

Water ID:	1005378457
Layer:	1
Kind Code:	8
Kind:	Untested
Water Found Depth:	8.0
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1005378456
Diameter:	8.0
Depth From:	0.0
Depth To:	24.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1005128856	**Tag No:**	A155082
Depth M:	7.3152	**Contractor:**	7238
Year Completed:	2014	**Path:**	
Well Completed Dt:	2014/06/19	**Latitude:**	43.4381304726663
Audit No:	Z185476	**Longitude:**	-80.4752918596226

---

141 | ***1 of 1*** | ***318.9*** | ***Kitchener Utilities<UNOFFICIAL>***
Ottawa Street and Bedford Road Intersection
Kitchener ON | ***SPL***

Ref No:	2102-A8ZHLC	**Contaminant Qty:**	0 L
Site No:	NA	**Nature of Damage:**	
Incident Dt:	2016/04/14	**Discharger Report:**	
Year:		**Material Group:**	
Incident Cause:		**Health/Env Conseq:**	
Incident Event:	Leak/Break	**Agency Involved:**	
Environment Impact:		**Site Lot:**	
Nature of Impact:		**Site Conc:**	
MOE Response:	No	**Site Geo Ref Accu:**	
Dt MOE Arvl on Scn:		**Site Map Datum:**	
MOE Reported Dt:	2016/04/14	**Northing:**	
Dt Document Closed:	2016/05/17	**Easting:**	
Municipality No:			
System Facility Address:			
Client Type:			
Call Report Location Geodata:			
Contaminant Code:	35		
Contaminant Name:	NATURAL GAS (METHANE)		
Contaminant Limit 1:			
Contam Limit Freq 1:			
Contaminant UN No 1:			
Receiving Medium:			
Receiving Environment:	Air		

Incident Reason:	Operator/Human Error
Incident Summary:	TSSA FSB; 1/2" pl gas service line, made safe
Site Region:	
Site Municipality:	Kitchener
Activity Preceding Spill:	
Property 2nd Watershed:	
Property Tertiary Watershed:	
Sector Type:	Unknown / N/A
SAC Action Class:	TSSA - Fuel Safety Branch - Hydrocarbon Fuel Release/Spill
Source Type:	
Site County/District:	
Site Geo Ref Meth:	
Site District Office:	
Nearest Watercourse:	
Site Name:	North East Corner<UNOFFICIAL>
Site Address:	Ottawa Street and Bedford Road Intersection
Client Name:	Kitchener Utilities<UNOFFICIAL>

---

142 **1 of 21** **315.8** **NEWTEX CLEANERS LTD.**
135 OTTAWA STREET SOUTH
KITCHENER ON N2G 3T1
GEN

Generator No:	ON0398200
SIC Code:	9721
SIC Description:	POWER LAUND./CLEANERS
Approval Years:	86,87,88,89,90
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	241
Waste Class Name:	HALOGENATED SOLVENTS

---

142 **2 of 21** **315.8** **NEWTEX CLEANERS LIMITED**
135 OTTAWA STREET SOUTH
KITCHENER ON N2G 3T1
GEN

Generator No:	ON0398200
SIC Code:	9721
SIC Description:	POWER LAUND./CLEANER
Approval Years:	92,93,97,98,99,00,01,02,03,04,05,06,07,08
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	241
Waste Class Name:	HALOGENATED SOLVENTS

Waste Class: 221
Waste Class Name: LIGHT FUELS

---

142 **3 of 21** **315.8** **NEWTEX CLEANERS LTD. 28-083** **GEN**
135 OTTAWA STREET SOUTH
KITCHENER ON N2G 3T1

Generator No: ON0398200
SIC Code: 9721
SIC Description: POWER LAUND./CLEANER
Approval Years: 94,95,96
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 241
Waste Class Name: HALOGENATED SOLVENTS

---

142 **4 of 21** **315.8** **Newtex Limited** **DTNK**
135 Ottawa St S
KITCHENER ON N2G 3T1

Delisted Commercial Fuel Oil Tanks

Licence No:
Registration No: 200204-0043
Posse File No: FS OIL 2005-00064
Posse Reg No: 4174
Instance No:
Status Name:
Tank Type:
Tank Size: 6000
Tank Material: steel
Tk Age(as of 05/1992):
Tank Address: same as above
Instance Type:
Instance Creation Dt:
Instance Install Dt:
Item:
Item Desc:
Device InstId Loc:
Description:
Original Source: CFOT
Record Date: Up to Apr 2013

Facility Type:
Fuel Type:
Corrosion Protection:
NBR:
Contact Name:
Contact Address: 135 Ottawa St S
Contact Address2:
Contact Suite:
Contact City: KITCHENER
Contact Prov: ON
Contact Postal: N2G 3T1
Province:
Letter Sent:
Context:
Distributor: Baoucher & Jones Inc.
Comments:

---

142 **5 of 21** **315.8** **135 Ottawa Street South** **EHS**
Kitchener ON N2G 3T1

Order No: 20081119032
Status: C
Report Type: Standard Report

Nearest Intersection:
Municipality:
Client Prov/State: ON

Report Date:	11/28/2008	**Search Radius (km):**	0.25
Date Received:	11/19/2008	**X:**	-80.475224
Previous Site Name:		**Y:**	43.438221
Lot/Building Size:			
Additional Info Ordered:	Title Search		

142 **6 of 21** **315.8** **NEWTEX CLEANERS LIMITED** **GEN**
135 OTTAWA STREET SOUTH
KITCHENER ON N2G 3T1

Generator No:	ON0398200
SIC Code:	812320
SIC Description:	Dry Cleaning and Laundry Services (except Coin-Operated)
Approval Years:	2009
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	241
Waste Class Name:	HALOGENATED SOLVENTS
Waste Class:	221
Waste Class Name:	LIGHT FUELS

142 **7 of 21** **315.8** **NEWTEX CLEANERS LIMITED** **GEN**
135 OTTAWA STREET SOUTH
KITCHENER ON N2G 3T1

Generator No:	ON0398200
SIC Code:	812320
SIC Description:	Dry Cleaning and Laundry Services (except Coin-Operated)
Approval Years:	2010
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	221
Waste Class Name:	LIGHT FUELS
Waste Class:	241
Waste Class Name:	HALOGENATED SOLVENTS

142 **8 of 21** **315.8** **NEWTEX CLEANERS LIMITED** **GEN**
135 OTTAWA STREET SOUTH
KITCHENER ON N2G 3T1

Generator No:	ON0398200
SIC Code:	812320
SIC Description:	Dry Cleaning and Laundry Services (except Coin-Operated)
Approval Years:	2011
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	241
Waste Class Name:	HALOGENATED SOLVENTS
Waste Class:	221
Waste Class Name:	LIGHT FUELS

---

142 | ***9 of 21*** | ***315.8*** | ***NEWTEX LIMITED***
135 OTTAWA ST S KITCHENER N2G 3T1 ON CA
ON | ***DTNK***

Delisted Expired Fuel Safety Facilities

Instance No:	38066063	**Expired Date:**	
Status:	EXPIRED	**Max Hazard Rank:**	NULL
Instance ID:		**Facility Location:**	135 OTTAWA ST S KITCHENER N2G 3T1 ON CA
Instance Type:		**Facility Type:**	FS FUEL OIL TANK
Instance Creation Dt:	8/30/2005	**Fuel Type 2:**	
Instance Install Dt:	8/30/2005	**Fuel Type 3:**	
Item Description:	Fuel Oil Tank	**Panam Related:**	NULL
Manufacturer:	NULL	**Panam Venue Nm:**	NULL
Model:	NULL	**External Identifier:**	NULL
Serial No:	NULL	**Item:**	
ULC Standard:	NULL	**Piping Steel:**	
Quantity:	1	**Piping Galvanized:**	
Unit of Measure:	EA	**Tank Single Wall St:**	
Overfill Prot Type:		**Piping Underground:**	
Creation Date:	7/5/2009 2:56:32 AM	**Tank Underground:**	
Next Periodic Str DT:	NULL	**Source:**	FS Fuel Oil Tank

TSSA Base Sched Cycle 2:	NULL
TSSAMax Hazard Rank 1:	NULL
TSSA Risk Based Periodic Yn:	NULL
TSSA Volume of Directives:	NULL
TSSA Periodic Exempt:	NULL
TSSA Statutory Interval:	NULL
TSSA Recd Insp Interva:	NULL
TSSA Recd Tolerance:	NULL
TSSA Program Area:	NULL
TSSA Program Area 2:	NULL
Description:	NULL
Original Source:	EXP
Record Date:	31-MAY-2021

---

142 | ***10 of 21*** | ***315.8*** | ***NEWTEX CLEANERS LIMITED***
135 OTTAWA STREET SOUTH | ***GEN***

KITCHENER ON N2G 3T1

Generator No: ON0398200
SIC Code: 812320
SIC Description: Dry Cleaning and Laundry Services (except Coin-Operated)
Approval Years: 2012
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 241
Waste Class Name: HALOGENATED SOLVENTS

Waste Class: 221
Waste Class Name: LIGHT FUELS

---

142 | ***11 of 21*** | ***315.8*** | ***NEWTEX CLEANERS LIMITED***
135 OTTAWA STREET SOUTH
KITCHENER ON | ***GEN***

Generator No: ON0398200
SIC Code: 812320
SIC Description: DRY CLEANING AND LAUNDRY SERVICES (EXCEPT COIN-OPERATED)
Approval Years: 2013
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 241
Waste Class Name: HALOGENATED SOLVENTS

Waste Class: 221
Waste Class Name: LIGHT FUELS

Waste Class: 211
Waste Class Name: AROMATIC SOLVENTS

---

142 | ***12 of 21*** | ***315.8*** | ***NEWTEX LIMITED***
135 OTTAWA ST S KITCHENER N2G 3T1 ON CA
ON | ***CFOT***

Licence No:
Registration No:
Posse File No:
Posse Reg No:
Status Name:
Tank Type: Liquid Fuel Single Wall UST
Tank Size: 22712.4708
Item Description: Fuel Oil Tank
Instance Type:
Facility Type:
Fuel Type:
Distributor:
Letter Sent:
Comments:

Tank Material:	Steel	**Corrosion Protect:**	
Instance No:	38066063	**Province:**	
Inst Creation Date:	8/30/2005	**Nbr:**	
Inst Install Date:	8/30/2005	**Context:**	FS Fuel Oil Tank
Item:	FS FUEL OIL TANK		

Tank Age (as of 05/1992):
Device Installed Location: 135 OTTAWA ST S KITCHENER N2G 3T1 ON CA
Description: NULL
Contact Name:
Contact Address:
Contact Address2:
Contact Suite:
Contact City:
Contact Prov:
Contact Postal:

---

142 **13 of 21** **315.8** **NEWTEX CLEANERS LIMITED**
135 OTTAWA STREET SOUTH
KITCHENER ON N2G 3T1 **GEN**

Generator No: ON0398200
SIC Code: 812320
SIC Description: DRY CLEANING AND LAUNDRY SERVICES (EXCEPT COIN-OPERATED)
Approval Years: 2016
PO Box No:
Country: Canada
Status:
Co Admin:
Choice of Contact: CO_OFFICIAL
Phone No Admin:
Contaminated Facility: No
MHSW Facility: No

Detail(s)

Waste Class: 221
Waste Class Name: LIGHT FUELS

Waste Class: 241
Waste Class Name: HALOGENATED SOLVENTS

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

Waste Class: 211
Waste Class Name: AROMATIC SOLVENTS

---

142 **14 of 21** **315.8** **NEWTEX CLEANERS LIMITED**
135 OTTAWA STREET SOUTH
KITCHENER ON N2G 3T1 **GEN**

Generator No: ON0398200
SIC Code: 812320
SIC Description: DRY CLEANING AND LAUNDRY SERVICES (EXCEPT COIN-OPERATED)
Approval Years: 2015
PO Box No:
Country: Canada
Status:
Co Admin:
Choice of Contact: CO_OFFICIAL
Phone No Admin:
Contaminated Facility: No

MHSW Facility: No

Detail(s)

Waste Class: 211
Waste Class Name: AROMATIC SOLVENTS

Waste Class: 221
Waste Class Name: LIGHT FUELS

Waste Class: 241
Waste Class Name: HALOGENATED SOLVENTS

---

142 ***15 of 21*** ***315.8*** ***NEWTEX CLEANERS LIMITED***
135 OTTAWA STREET SOUTH
KITCHENER ON N2G 3T1 ***GEN***

Generator No: ON0398200
SIC Code: 812320
SIC Description: DRY CLEANING AND LAUNDRY SERVICES (EXCEPT COIN-OPERATED)
Approval Years: 2014
PO Box No:
Country: Canada
Status:
Co Admin:
Choice of Contact: CO_OFFICIAL
Phone No Admin:
Contaminated Facility: No
MHSW Facility: No

Detail(s)

Waste Class: 211
Waste Class Name: AROMATIC SOLVENTS

Waste Class: 241
Waste Class Name: HALOGENATED SOLVENTS

Waste Class: 221
Waste Class Name: LIGHT FUELS

---

142 ***16 of 21*** ***315.8*** ***NEWTEX CLEANERS LIMITED***
135 OTTAWA STREET SOUTH
KITCHENER ON N2G 3T1 ***GEN***

Generator No: ON0398200
SIC Code:
SIC Description:
Approval Years: As of Dec 2018
PO Box No:
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 213 L

Waste Class Name:	Petroleum distillates
Waste Class:	241 T
Waste Class Name:	Halogenated solvents and residues

---

142 | ***17 of 21*** | ***315.8*** | ***Newtex Cleaners Ltd***
135 Ottawa St S
Kitchener ON N2G3T1 | ***CDRY***

Legal Name of Company:	
Region:	
Type of Reporter:	

Waste Quantity by Year

Reporting Year:	2012
Quantity of PERC (kg):	236
Total Waste Water (kg):	0
Total Waste Water (L):	-
Total Residue (kg):	0
Total Residue (L):	-
Total Mix (kg):	-
Total Mix (L):	205
Request for Confidentiality:	No
Reason for Confidentiality:	

Reporting Year:	2011
Quantity of PERC (kg):	942
Total Waste Water (kg):	0
Total Waste Water (L):	-
Total Residue (kg):	0
Total Residue (L):	-
Total Mix (kg):	2324
Total Mix (L):	-
Request for Confidentiality:	No
Reason for Confidentiality:	

Reporting Year:	2004
Quantity of PERC (kg):	349
Total Waste Water (kg):	0
Total Waste Water (L):	-
Total Residue (kg):	-
Total Residue (L):	410
Total Mix (kg):	0
Total Mix (L):	-
Request for Confidentiality:	No
Reason for Confidentiality:	N/A

---

142 | ***18 of 21*** | ***315.8*** | ***NEWTEX CLEANERS LIMITED***
135 OTTAWA STREET SOUTH
KITCHENER ON N2G 3T1 | ***GEN***

Generator No:	ON0398200
SIC Code:	
SIC Description:	
Approval Years:	As of Oct 2019
PO Box No:	
Country:	Canada
Status:	Registered
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	

MHSW Facility:

Detail(s)

Waste Class: 213 L
Waste Class Name: Petroleum distillates

Waste Class: 241 T
Waste Class Name: Halogenated solvents and residues

---

142 ***19 of 21*** ***315.8*** ***Newtex Limited***
135 Ottawa St S
Kitchener ON N2G 3T1 ***SPL***

Ref No: 5416-BDATKZ
Site No: 1768-6AYSBF
Incident Dt: 6/19/2019
Year:
Incident Cause:
Incident Event: Dumping
Environment Impact:
Nature of Impact:
MOE Response: No
Dt MOE Arvl on Scn:
MOE Reported Dt: 6/19/2019
Dt Document Closed:
Municipality No:
System Facility Address:
Client Type: Corporation
Call Report Location Geodata:
Contaminant Code: 42
Contaminant Name: WASTE PARTICULATE
Contaminant Limit 1:
Contam Limit Freq 1:
Contaminant UN No 1: n/a
Receiving Medium:
Receiving Environment: Land
Incident Reason: Deliberate Act
Incident Summary: CB clean out and deposit to property right of way - Kitchener
Site Region: West Central
Site Municipality: Kitchener
Activity Preceding Spill:
Property 2nd Watershed:
Property Tertiary Watershed:
Sector Type: Miscellaneous Communal
SAC Action Class: Land Spills
Source Type: Other
Site County/District: Regional Municipality of Waterloo
Site Geo Ref Meth: NA
Site District Office: Guelph
Nearest Watercourse:
Site Name: 135 Ottawa Street South
Site Address: 135 Ottawa St S
Client Name: Newtex Limited

Contaminant Qty: 0.5 m^3
Nature of Damage:
Discharger Report:
Material Group:
Health/Env Conseq: 2 - Minor Environment
Agency Involved:
Site Lot:
Site Conc: NA
Site Geo Ref Accu: NA
Site Map Datum: NA
Northing: NA
Easting: NA

---

142 ***20 of 21*** ***315.8*** ***NEWTEX CLEANERS LIMITED***
135 OTTAWA STREET SOUTH
KITCHENER ON N2G 3T1 ***GEN***

Generator No: ON0398200
SIC Code:
SIC Description:

Approval Years:	As of Nov 2021
PO Box No:	
Country:	Canada
Status:	Registered
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	241 T
Waste Class Name:	Halogenated solvents and residues
Waste Class:	213 L
Waste Class Name:	Petroleum distillates

---

142 | ***21 of 21*** | ***315.8*** | ***NEWTEX CLEANERS LIMITED***
135 OTTAWA STREET SOUTH
KITCHENER ON N2G 3T1 | ***GEN***

Generator No:	ON0398200
SIC Code:	
SIC Description:	
Approval Years:	As of Oct 2022
PO Box No:	
Country:	Canada
Status:	Registered
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	213 L
Waste Class Name:	PETROLEUM DISTILLATES
Waste Class:	241 T
Waste Class Name:	HALOGENATED SOLVENTS

---

143 | ***1 of 1*** | ***315.8*** | ***135 OTTAWA ST S***
Kitchener ON | ***WWIS***

Well ID:	7179911	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	24-Apr-2012 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z146069	**Contractor:**	7366
Tag:	A127624	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	

Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/717\7179911.pdf

Additional Detail(s) (Map)

Well Completed Date:	2012/03/06
Year Completed:	2012
Depth (m):	4.5
Latitude:	43.4380041895853
Longitude:	-80.4752435237196
Path:	717\7179911.pdf

Bore Hole Information

Bore Hole ID:	1003713252	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542467.00
Code OB Desc:		**North83:**	4809590.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	06-Mar-2012 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1004288661
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	06
Most Common Material:	SILT
Mat2:	28
Mat2 Desc:	SAND
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.30000001192092896
Formation End Depth:	4.5
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1004288660
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	01
Most Common Material:	FILL
Mat2:	

Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 0.30000001192092896
Formation End Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1004288669
Layer: 2
Plug From: 0.30000001192092896
Plug To: 1.2000000476837158
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1004288668
Layer: 1
Plug From: 0.0
Plug To: 0.30000001192092896
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1004288670
Layer: 3
Plug From: 1.2000000476837158
Plug To: 4.5
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1004288667
Method Construction Code: 9
Method Construction: Driving
Other Method Construction:

Pipe Information

Pipe ID: 1004288659
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1004288664
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 4.5
Casing Diameter: 3.799999952316284
Casing Diameter UOM: cm
Casing Depth UOM: m

Construction Record - Screen

Screen ID:	1004288665
Layer:	1
Slot:	10
Screen Top Depth:	1.5
Screen End Depth:	4.5
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	4.0

Water Details

Water ID:	1004288663
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1004288662
Diameter:	10.0
Depth From:	0.0
Depth To:	4.5
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1003713252	***Tag No:***	A127624
Depth M:	4.5	***Contractor:***	7366
Year Completed:	2012	***Path:***	717\7179911.pdf
Well Completed Dt:	2012/03/06	***Latitude:***	43.4380041895853
Audit No:	Z146069	***Longitude:***	-80.4752435237196

---

144 ***1 of 1*** ***320.4*** ***108 SYDNEY ST. SIOUTH Kitchener ON*** ***WWIS***

Well ID:	7197469	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Monitoring	***Data Entry Status:***	
Use 2nd:		***Data Src:***	
Final Well Status:	Observation Wells	***Date Received:***	19-Feb-2013 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	Z164967	***Contractor:***	7320
Tag:	A143411	***Form Version:***	7
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		

Site Info:

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date: 2013/01/16
Year Completed: 2013
Depth (m): 6.1
Latitude: 43.4393488879256
Longitude: -80.4739467681514
Path:

Bore Hole Information

Bore Hole ID: 1004255536
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 16-Jan-2013 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone: 17
East83: 542571.00
North83: 4809740.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Overburden and Bedrock Materials Interval

Formation ID: 1004820765
Layer: 4
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 2.700000047683716
Formation End Depth: 3.4000000953674316
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1004820767
Layer: 6
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:

Formation Top Depth: 5.800000190734863
Formation End Depth: 6.099999904632568
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1004820763
Layer: 2
Color: 6
General Color: BROWN
Mat1: 05
Most Common Material: CLAY
Mat2: 11
Mat2 Desc: GRAVEL
Mat3: 06
Mat3 Desc: SILT
Formation Top Depth: 0.30000001192092896
Formation End Depth: 1.7999999523162842
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1004820764
Layer: 3
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 05
Mat2 Desc: CLAY
Mat3: 06
Mat3 Desc: SILT
Formation Top Depth: 1.7999999523162842
Formation End Depth: 2.700000047683716
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1004820762
Layer: 1
Color: 8
General Color: BLACK
Mat1: 02
Most Common Material: TOPSOIL
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 0.30000001192092896
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1004820766
Layer: 5
Color: 6
General Color: BROWN

Mat1: 28
Most Common Material: SAND
Mat2: 06
Mat2 Desc: SILT
Mat3:
Mat3 Desc:
Formation Top Depth: 3.4000000953674316
Formation End Depth: 5.800000190734863
Formation End Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1004820774
Layer: 1
Plug From: 0.0
Plug To: 4.300000190734863
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1004820775
Layer: 2
Plug From: 4.300000190734863
Plug To: 6.099999904632568
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1004820773
Method Construction Code: 6
Method Construction: Boring
Other Method Construction: HSA

Pipe Information

Pipe ID: 1004820761
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1004820770
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 4.599999904632568
Casing Diameter: 5.099999904632568
Casing Diameter UOM: cm
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1004820771
Layer: 1
Slot: 10

Screen Top Depth:	4.599999904632568
Screen End Depth:	6.099999904632568
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	6.099999904632568

Water Details

Water ID:	1004820769
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1004820768
Diameter:	21.0
Depth From:	0.0
Depth To:	6.099999904632568
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1004255536	**Tag No:**	A143411
Depth M:	6.1	**Contractor:**	7320
Year Completed:	2013	**Path:**	
Well Completed Dt:	2013/01/16	**Latitude:**	43.4393488879256
Audit No:	Z164967	**Longitude:**	-80.4739467681514

---

145 ***1 of 1*** ***322.9*** ***108 SUDNEY ST. SOUTH***
Kitchener ON ***WWIS***

Well ID:	7197470	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	19-Feb-2013 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z164966	**Contractor:**	7320
Tag:	A143410	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date: 2013/01/16
Year Completed: 2013
Depth (m): 6.1
Latitude: 43.4394655990473
Longitude: -80.4738716144849
Path:

Bore Hole Information

Bore Hole ID: 1004255539
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 16-Jan-2013 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone: 17
East83: 542577.00
North83: 4809753.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Overburden and Bedrock Materials Interval

Formation ID: 1004820797
Layer: 6
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 5.800000190734863
Formation End Depth: 6.099999904632568
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1004820792
Layer: 1
Color: 8
General Color: BLACK
Mat1: 02
Most Common Material: TOPSOIL
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 0.30000001192092896
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID:	1004820794
Layer:	3
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	05
Mat2 Desc:	CLAY
Mat3:	06
Mat3 Desc:	SILT
Formation Top Depth:	1.7999999523162842
Formation End Depth:	2.700000047683716
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1004820795
Layer:	4
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	2.700000047683716
Formation End Depth:	3.4000000953674316
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1004820793
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	05
Most Common Material:	CLAY
Mat2:	11
Mat2 Desc:	GRAVEL
Mat3:	06
Mat3 Desc:	SILT
Formation Top Depth:	0.30000001192092896
Formation End Depth:	1.7999999523162842
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1004820796
Layer:	5
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	
Mat3 Desc:	
Formation Top Depth:	3.4000000953674316

Formation End Depth: 5.800000190734863
Formation End Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1004820805
Layer: 2
Plug From: 4.300000190734863
Plug To: 6.099999904632568
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1004820804
Layer: 1
Plug From: 0.0
Plug To: 4.300000190734863
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1004820803
Method Construction Code: 6
Method Construction: Boring
Other Method Construction: HSA

Pipe Information

Pipe ID: 1004820791
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1004820800
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 4.599999904632568
Casing Diameter: 5.099999904632568
Casing Diameter UOM: cm
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1004820801
Layer: 1
Slot: 10
Screen Top Depth: 4.599999904632568
Screen End Depth: 6.099999904632568
Screen Material: 5
Screen Depth UOM: m
Screen Diameter UOM: cm
Screen Diameter: 6.099999904632568

Water Details

Water ID:	1004820799
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1004820798
Diameter:	21.0
Depth From:	0.0
Depth To:	6.099999904632568
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1004255539	***Tag No:***	A143410
Depth M:	6.1	***Contractor:***	7320
Year Completed:	2013	***Path:***	
Well Completed Dt:	2013/01/16	***Latitude:***	43.4394655990473
Audit No:	Z164966	***Longitude:***	-80.4738716144849

---

146 ***1 of 1*** ***314.8*** ***NYBERG ST + OTTAWA ST con -00 Kitchener ON*** ***WWIS***

Well ID:	7353926	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Monitoring and Test Hole	***Data Entry Status:***	
Use 2nd:		***Data Src:***	
Final Well Status:	Monitoring and Test Hole	***Date Received:***	24-Feb-2020 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	Z320390	***Contractor:***	7320
Tag:	A284217	***Form Version:***	7
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	-00
Well Depth:		***Concession Name:***	GCT
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2020/01/12
Year Completed:	2020
Depth (m):	4.572
Latitude:	43.4385320789349
Longitude:	-80.4745099048867
Path:	

Bore Hole Information

Bore Hole ID:	1008171688	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542526.00
Code OB Desc:		***North83:***	4809649.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	4
Date Completed:	12-Jan-2020 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1008232379
Layer:	2
Color:	2
General Color:	GREY
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	05
Mat3 Desc:	CLAY
Formation Top Depth:	4.0
Formation End Depth:	15.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1008232378
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	01
Most Common Material:	FILL
Mat2:	28
Mat2 Desc:	SAND
Mat3:	11
Mat3 Desc:	GRAVEL
Formation Top Depth:	0.0
Formation End Depth:	4.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008234618
Layer:	1
Plug From:	0.0
Plug To:	1.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008234619
Layer:	2
Plug From:	1.0
Plug To:	3.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1008234620
Layer:	3
Plug From:	3.0
Plug To:	15.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1008236704
Method Construction Code:	2
Method Construction:	Rotary (Convent.)
Other Method Construction:	

Method of Construction & Well Use

Method Construction ID:	1008236705
Method Construction Code:	B
Method Construction:	Other Method
Other Method Construction:	HOLLOW STEM

Pipe Information

Pipe ID:	1008229407
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1008237666
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	5.0
Casing Diameter:	2.0
Casing Diameter UOM:	Inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1008238514
Layer:	1
Slot:	10
Screen Top Depth:	5.0
Screen End Depth:	15.0

Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.200000047683716

Results of Well Yield Testing

Pumping Test Method Desc:	
Pump Test ID:	1008239857
Pump Set At:	
Static Level:	
Final Level After Pumping:	
Recommended Pump Depth:	
Pumping Rate:	
Flowing Rate:	
Recommended Pump Rate:	
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	
Water State After Test:	
Pumping Test Method:	0
Pumping Duration HR:	
Pumping Duration MIN:	
Flowing:	

Water Details

Water ID:	1008238729
Layer:	1
Kind Code:	8
Kind:	Untested
Water Found Depth:	
Water Found Depth UOM:	

Hole Diameter

Hole ID:	1008235719
Diameter:	8.0
Depth From:	0.0
Depth To:	15.0
Hole Depth UOM:	ft
Hole Diameter UOM:	Inch

Links

Bore Hole ID:	1008171688	**Tag No:**	A284217
Depth M:	4.572	**Contractor:**	7320
Year Completed:	2020	**Path:**	
Well Completed Dt:	2020/01/12	**Latitude:**	43.4385320789349
Audit No:	Z320390	**Longitude:**	-80.4745099048867

---

147 | ***1 of 11*** | ***319.2*** | ***LEE CRAFT DIV OF L J LEE MANUF***
109 OTTAWA ST S
KITCHENER ON N2G 3S8 | ***SCT***

Established:	1973
Plant Size (ft²):	
Employment:	4

--Details--

Description: FABRICATED METAL PRODUCTS, N.E.C.
SIC/NAICS Code: 3499

---

147 **2 of 11** **319.2** **L J LEE MANUFACTURING LTD.** **SCT**
109 Ottawa St S
Kitchener ON N2G 3S8

Established: 1972
Plant Size (ft²): 2600
Employment: 0

--Details--
Description: All Other Plastic Product Manufacturing
SIC/NAICS Code: 326198

Description: Coating, Engraving, Heat Treating and Allied Activities
SIC/NAICS Code: 332810

Description: All Other Miscellaneous Fabricated Metal Product Manufacturing
SIC/NAICS Code: 332999

Description: All Other Miscellaneous Manufacturing
SIC/NAICS Code: 339990

---

147 **3 of 11** **319.2** **BERT DIETRICH OFFICE EQUIPMENT** **GEN**
109 OTTAWA ST. SOUTH
KITCHENER ON N2G 3S8

Generator No: ON1243300
SIC Code: 5791
SIC Description: OFF./STORE. MACH.
Approval Years: 89
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

---

147 **4 of 11** **319.2** **BERT DIETRICH OFFICE EQUIPMENT 05-340** **GEN**
109 OTTAWA ST. SOUTH
KITCHENER ON N2G 3S8

Generator No: ON1243300
SIC Code: 5791
SIC Description: OFF./STORE. MACH.
Approval Years: 92,93,94,95,96,97,98
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:

Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

---

147 **5 of 11** **319.2** **BERT DIETRICH OFFICE EQUIPMENT** **GEN**
109 OTTAWA STREET SOUTH
KITCHENER ON N2G 3S8

Generator No: ON1243300
SIC Code: 5791
SIC Description: OFF./STORE. MACH.
Approval Years: 99,00,01,03
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

---

147 **6 of 11** **319.2** **BERT DIETRICH OFFICE EQUIPMENT** **GEN**
109 OTTAWA STREET SOUTH
KITCHENER ON N2G 3S8

Generator No: ON1243300
SIC Code:
SIC Description:
Approval Years: 02
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

---

147 **7 of 11** **319.2** **BERT DIETRICH OFFICE EQUIPMENT** **GEN**
109 OTTAWA STREET SOUTH
KITCHENER ON N2G 3S8

Generator No: ON1243300
SIC Code:
SIC Description:
Approval Years: 04
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:

Phone No Admin:
Contaminated Facility:
MHSW Facility:

---

147 **8 of 11** **319.2** **Advantedge Mailing Solutions** **SCT**
109 Ottawa St S
Kitchener ON N2G 3S8

Established: 01-JUL-00
Plant Size (ft²): 4000
Employment:

--Details--
Description: Direct Mail Advertising
SIC/NAICS Code: 541860

Description: All Other Support Services
SIC/NAICS Code: 561990

Description: Other Business Support Services
SIC/NAICS Code: 561490

Description: Support Activities for Printing
SIC/NAICS Code: 323120

Description: Packaging and Labelling Services
SIC/NAICS Code: 561910

Description: Direct Mail Advertising
SIC/NAICS Code: 541860

---

147 **9 of 11** **319.2** **109 Ottawa Street South** **EHS**
Kitchener ON N2G 3S8

Order No: 21060400092
Status: C
Report Type: Standard Report
Report Date: 09-JUN-21
Date Received: 04-JUN-21
Previous Site Name:
Lot/Building Size:
Additional Info Ordered: Fire Insur. Maps and/or Site Plans

Nearest Intersection:
Municipality:
Client Prov/State: ON
Search Radius (km): .25
X: -80.4738125
Y: 43.4391461

---

147 **10 of 11** **319.2** **109 Ottawa Street South** **EHS**
Kitchener ON N2G 3S8

Order No: 21060400092
Status: C
Report Type: Standard Report
Report Date: 09-JUN-21
Date Received: 04-JUN-21
Previous Site Name:
Lot/Building Size:
Additional Info Ordered: Fire Insur. Maps and/or Site Plans

Nearest Intersection:
Municipality:
Client Prov/State: ON
Search Radius (km): .25
X: -80.4738125
Y: 43.4391461

---

147 **11 of 11** **319.2** **109 Ottawa Street South** **EHS**
Kitchener ON N2G 3S8

Order No:	21060400092	**Nearest Intersection:**	
Status:	C	**Municipality:**	
Report Type:	Standard Report	**Client Prov/State:**	ON
Report Date:	09-JUN-21	**Search Radius (km):**	.25
Date Received:	04-JUN-21	**X:**	-80.4738125
Previous Site Name:		**Y:**	43.4391461
Lot/Building Size:			
Additional Info Ordered:	Fire Insur. Maps and/or Site Plans		

---

148 | 1 of 3 | 321.2 | **K-W Habilitation Services**
99 Ottawa Street South Kitchener, Regional Municipality of Waterloo
N2G 3S8 CITY OF KITCHENER
ON | **EBR**

EBR Registry No:	012-1497	**Decision Posted:**	
Ministry Ref No:	3384-9FJQCS	**Exception Posted:**	
Notice Type:	Instrument Decision	**Section:**	
Notice Stage:		**Act 1:**	
Notice Date:	December 15, 2015	**Act 2:**	
Proposal Date:	April 09, 2014	**Site Location Map:**	
Year:	2014		
Instrument Type:	(EPA Part II.1-air) - Environmental Compliance Approval (project type: air)		
Off Instrument Name:			
Posted By:			
Company Name:	K-W Habilitation Services		
Site Address:			
Location Other:			
Proponent Name:			
Proponent Address:	99 Ottawa Street South, Kitchener Ontario, Canada N2G 3S8		
Comment Period:			
URL:			

Site Location Details:

99 Ottawa Street South Kitchener, Regional Municipality of Waterloo N2G 3S8 CITY OF KITCHENER

---

148 | 2 of 3 | 321.2 | **K-W Habilitation Services**
99 Ottawa St S
Kitchener ON N2G 3V2 | **ECA**

Approval No:	6083-A4ETR3	**MOE District:**	
Approval Date:	2015-12-08	**City:**	
Status:	Approved	**Longitude:**	
Record Type:	ECA	**Latitude:**	
Link Source:	IDS	**Geometry X:**	
SWP Area Name:		**Geometry Y:**	
Approval Type:	ECA-AIR		
Project Type:	AIR		
Business Name:	K-W Habilitation Services		
Address:	99 Ottawa St S		
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/3384-9FJQCS-14.pdf		
PDF Site Location:			

---

148 | 3 of 3 | 321.2 | **Grandlinq Contractors**
99 Ottawa Street South
Kitchener ON N2G 3S8 | **GEN**

Generator No:	ON4549864

SIC Code:	237310
SIC Description:	HIGHWAY, STREET AND BRIDGE CONSTRUCTION
Approval Years:	2016
PO Box No:	
Country:	Canada
Status:	
Co Admin:	Jonathan Sammut
Choice of Contact:	CO_OFFICIAL
Phone No Admin:	519-742-9163 Ext.
Contaminated Facility:	No
MHSW Facility:	No

Detail(s)

Waste Class:	146
Waste Class Name:	OTHER SPECIFIED INORGANICS

---

149 ***1 of 1*** ***319.8*** ***ON*** ***BORE***

Borehole ID:	680815	**Inclin FLG:**	No
OGF ID:	215557811	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:	Geotechnical/Geological Investigation	**Primary Name:**	
Completion Date:	1900	**Municipality:**	
Static Water Level:		**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	43.441917
Total Depth m:	1.5	**Longitude DD:**	-80.482204
Depth Ref:	Ground Surface	**UTM Zone:**	17
Depth Elev:		**Easting:**	541901
Drill Method:	Backhoe	**Northing:**	4810021
Orig Ground Elev m:	320	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	320		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218551331	**Mat Consistency:**	
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	1.5	**Material Texture:**	
Material Color:		**Non Geo Mat Type:**	
Material 1:	Fill	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	fill
Gsc Material Description:			
Stratum Description:	(No description) **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	4
Source Date:	1900 - 1977	**Scale or Res:**	Varies
Confidence:	H	**Horizontal:**	NAD27
Observatio:	1900/	**Verticalda:**	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		

Source Details: 782
Confiden 1:

Source List

Source Identifier: 4
Source Type: Data Survey
Source Date: 1900 - 1977
Scale or Resolution: Varies
Source Name: Waterloo Area Geology Automated Information System (WAGAIS)
Source Originators: Geological Survey of Canada
Horizontal Datum: NAD27
Vertical Datum: Mean Average Sea Level
Projection Name: Universal Traverse Mercator

---

150 **1 of 1** **314.9** **ON** **BORE**

Borehole ID: 682797
OGF ID: 215559793
Status:
Type: Borehole
Use: Geotechnical/Geological Investigation
Completion Date: JUL-1964
Static Water Level:
Primary Water Use:
Sec. Water Use:
Total Depth m: 5
Depth Ref: Ground Surface
Depth Elev:
Drill Method: Power auger
Orig Ground Elev m: 318
Elev Reliabil Note:
DEM Ground Elev m: 317
Concession:
Location D:
Survey D:
Comments:
Inclin FLG: No
SP Status: Initial Entry
Surv Elev: No
Piezometer: No
Primary Name:
Municipality:
Lot:
Township:
Latitude DD: 43.437921
Longitude DD: -80.474701
UTM Zone: 17
Easting: 542511
Northing: 4809581
Location Accuracy:
Accuracy: Not Applicable

Borehole Geology Stratum

Geology Stratum ID: 218559026
Top Depth: 2
Bottom Depth: 4.9
Material Color: Grey
Material 1: Clay
Material 2:
Material 3:
Material 4:
Gsc Material Description:
Stratum Description: SILT & SAND SEAMS, GREY VERY STIFF **Note: Many records provided by the department have a truncated [Stratum Description] field.
Mat Consistency: Stiff
Material Moisture:
Material Texture:
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen:

Geology Stratum ID: 218559023
Top Depth: 0
Bottom Depth: .2
Material Color:
Material 1: Gravel
Material 2:
Material 3:
Material 4:
Gsc Material Description:
Stratum Description: (No description) **Note: Many records provided by the department have a truncated [Stratum Description] field.
Mat Consistency:
Material Moisture:
Material Texture:
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen:

Geology Stratum ID: 218559024
Top Depth: .2
Mat Consistency: Compact
Material Moisture:

Bottom Depth:	.9	**Material Texture:**	Coarse
Material Color:		**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	MEDIUM COARSE SAND COMPACT **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218559027	**Mat Consistency:**	Compact
Top Depth:	4.9	**Material Moisture:**	
Bottom Depth:	5	**Material Texture:**	
Material Color:	Red	**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	LAYERED SILTY CLAY & SILT GREY, COMPACT **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218559025	**Mat Consistency:**	Compact
Top Depth:	.9	**Material Moisture:**	
Bottom Depth:	2	**Material Texture:**	
Material Color:	Brown	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	CLAYEY SILT SEAMS, PALE BROWN, COMPACT TO DENSE **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	4
Source Date:	1900 - 1977	**Scale or Res:**	Varies
Confidence:	H	**Horizontal:**	NAD27
Observatio:	1964/7	**Verticalda:**	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Details:	12344		
Confiden 1:			

Source List

Source Identifier:	4	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1900 - 1977	**Projection Name:**	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Originators:	Geological Survey of Canada		

151 ***1 of 1*** ***315.6*** ***ON*** ***BORE***

Borehole ID:	680056	**Inclin FLG:**	No
OGF ID:	215557052	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:	Geotechnical/Geological Investigation	**Primary Name:**	
Completion Date:	SEP-1968	**Municipality:**	

Static Water Level:		***Lot:***	
Primary Water Use:		***Township:***	
Sec. Water Use:		***Latitude DD:***	43.438458
Total Depth m:	14.3	***Longitude DD:***	-80.474078
Depth Ref:	Ground Surface	***UTM Zone:***	17
Depth Elev:		***Easting:***	542561
Drill Method:	Power auger	***Northing:***	4809641
Orig Ground Elev m:	317	***Location Accuracy:***	
Elev Reliabil Note:		***Accuracy:***	Not Applicable
DEM Ground Elev m:	317		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218549118	***Mat Consistency:***	
Top Depth:	0	***Material Moisture:***	
Bottom Depth:	1.2	***Material Texture:***	
Material Color:	Dark	***Non Geo Mat Type:***	
Material 1:	Fill	***Geologic Formation:***	
Material 2:		***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	fill
Gsc Material Description:			
Stratum Description:	DARK, BROWN.		

Geology Stratum ID:	218549120	***Mat Consistency:***	Stiff
Top Depth:	5.8	***Material Moisture:***	
Bottom Depth:	10.4	***Material Texture:***	
Material Color:	Brown	***Non Geo Mat Type:***	
Material 1:	Clay	***Geologic Formation:***	
Material 2:	Silt	***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			
Stratum Description:	BROWN, STIFF, SEAMS.		

Geology Stratum ID:	218549121	***Mat Consistency:***	Dense
Top Depth:	10.4	***Material Moisture:***	
Bottom Depth:	14.3	***Material Texture:***	
Material Color:	Red-Brown	***Non Geo Mat Type:***	
Material 1:	Silt	***Geologic Formation:***	
Material 2:	Clay	***Geologic Group:***	
Material 3:	Sand	***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			
Stratum Description:	BROWN, DENSE, LAYERED.		

Geology Stratum ID:	218549119	***Mat Consistency:***	Compact
Top Depth:	1.2	***Material Moisture:***	
Bottom Depth:	5.8	***Material Texture:***	
Material Color:	Dark	***Non Geo Mat Type:***	
Material 1:	Silt	***Geologic Formation:***	
Material 2:	Clay	***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			
Stratum Description:	DARK, BROWN, COMPACT, SEAMS.		

Source

Source Type:	Data Survey	***Source Appl:***	Spatial/Tabular

Source Orig:	Geological Survey of Canada	**Source Iden:**	4
Source Date:	1900 - 1977	**Scale or Res:**	Varies
Confidence:	H	**Horizontal:**	NAD27
Observatio:	1968/9	**Verticalda:**	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Details:	65		
Confiden 1:			

Source List

Source Identifier:	4	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1900 - 1977	**Projection Name:**	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Originators:	Geological Survey of Canada		

---

152 | ***1 of 15*** | ***317.9*** | ***Twin City Auto Parts Inc***
134 Sydney St S
Kitchener ON N2G 3V2 | ***SCT***

Established:	01-AUG-32
Plant Size (ft²):	14000
Employment:	

--Details--

Description:	Other Motor Vehicle Parts Manufacturing
SIC/NAICS Code:	336390
Description:	Machine Shops
SIC/NAICS Code:	332710
Description:	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing
SIC/NAICS Code:	336310

---

152 | ***2 of 15*** | ***317.9*** | ***Twin City Auto Parts Inc.***
134 Sydney St S
Kitchener ON N2G 3V2 | ***SCT***

Established:	1932
Plant Size (ft²):	14000
Employment:	15

--Details--

Description:	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing
SIC/NAICS Code:	336310
Description:	Other New Motor Vehicle Parts and Accessories Wholesaler-Distributors
SIC/NAICS Code:	415290

---

152 | ***3 of 15*** | ***317.9*** | ***TWIN CITY AUTO PARTS INC.***
134 SYDNEY STREET SOUTH
KITCHENER ON N2G 3Y9 | ***GEN***

Generator No:	ON1398800
SIC Code:	3251
SIC Description:	VEHICLE ENGINE IND.
Approval Years:	90,99,00,01

PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 252
Waste Class Name: WASTE OILS & LUBRICANTS

Waste Class: 253
Waste Class Name: EMULSIFIED OILS

Waste Class: 122
Waste Class Name: ALKALINE WASTES - OTHER METALS

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

---

152 **4 of 15** **317.9** **TWIN CITY AUTO PARTS INC. 37-755**
134 SYDNEY STREET SOUTH
KITCHENER ON N2G 3Y9 **GEN**

Generator No: ON1398800
SIC Code: 3251
SIC Description: VEHICLE ENGINE IND.
Approval Years: 92,93,94,95,96,97,98
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 122
Waste Class Name: ALKALINE WASTES - OTHER METALS

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

Waste Class: 252
Waste Class Name: WASTE OILS & LUBRICANTS

Waste Class: 253
Waste Class Name: EMULSIFIED OILS

---

152 **5 of 15** **317.9** **TWIN CITY AUTO PARTS INC.**
134 Sydney St S
Kitchener ON N2G 3V2 **GEN**

Generator No: ON1398800
SIC Code:
SIC Description:
Approval Years: 02,03,04,05,06,07,08

PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 122
Waste Class Name: ALKALINE WASTES - OTHER METALS

Waste Class: 253
Waste Class Name: EMULSIFIED OILS

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

Waste Class: 252
Waste Class Name: WASTE OILS & LUBRICANTS

---

152 | ***6 of 15*** | ***317.9*** | ***TWIN CITY AUTO PARTS INC.***
134 Sydney St S
Kitchener ON N2G 3V2 | ***GEN***

Generator No: ON1398800
SIC Code: 441310
SIC Description: Automotive Parts and Accessories Stores
Approval Years: 2009
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

Waste Class: 252
Waste Class Name: WASTE OILS & LUBRICANTS

---

152 | ***7 of 15*** | ***317.9*** | ***TWIN CITY AUTO PARTS INC.***
134 Sydney St S
Kitchener ON N2G 3V2 | ***GEN***

Generator No: ON1398800
SIC Code: 441310
SIC Description: Automotive Parts and Accessories Stores
Approval Years: 2010
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:

Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 252
Waste Class Name: WASTE OILS & LUBRICANTS

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

---

152 | ***8 of 15*** | ***317.9*** | ***TWIN CITY AUTO PARTS INC.***
134 Sydney St S
Kitchener ON N2G 3V2 | ***GEN***

Generator No: ON1398800
SIC Code: 441310
SIC Description: Automotive Parts and Accessories Stores
Approval Years: 2011
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 252
Waste Class Name: WASTE OILS & LUBRICANTS

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

---

152 | ***9 of 15*** | ***317.9*** | ***TWIN CITY AUTO PARTS INC.***
134 Sydney St S
Kitchener ON N2G 3V2 | ***GEN***

Generator No: ON1398800
SIC Code: 441310
SIC Description: Automotive Parts and Accessories Stores
Approval Years: 2012
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 252
Waste Class Name: WASTE OILS & LUBRICANTS

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

Map Key	Number of Records	Elevation (m)	Site	DB
152	10 of 15	317.9	TWIN CITY AUTO PARTS INC. 134 Sydney St S Kitchener ON	GEN

Generator No: ON1398800
SIC Code: 441310
SIC Description: AUTOMOTIVE PARTS AND ACCESSORIES STORES
Approval Years: 2013
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

Waste Class: 252
Waste Class Name: WASTE OILS & LUBRICANTS

Map Key	Number of Records	Elevation (m)	Site	DB
152	11 of 15	317.9	TWIN CITY AUTO PARTS INC. 134 Sydney St S Kitchener ON N2G3V2	GEN

Generator No: ON1398800
SIC Code: 441310
SIC Description: AUTOMOTIVE PARTS AND ACCESSORIES STORES
Approval Years: 2016
PO Box No:
Country: Canada
Status:
Co Admin: Terry Greguol
Choice of Contact: CO_OFFICIAL
Phone No Admin: 519-745-6196 Ext.
Contaminated Facility: No
MHSW Facility: No

Detail(s)

Waste Class: 252
Waste Class Name: WASTE OILS & LUBRICANTS

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

Map Key	Number of Records	Elevation (m)	Site	DB
152	12 of 15	317.9	TWIN CITY AUTO PARTS INC. 134 Sydney St S Kitchener ON N2G3V2	GEN

Generator No: ON1398800
SIC Code: 441310
SIC Description: AUTOMOTIVE PARTS AND ACCESSORIES STORES
Approval Years: 2015
PO Box No:
Country: Canada
Status:

Co Admin:	Terry Greguol
Choice of Contact:	CO_OFFICIAL
Phone No Admin:	519-745-6196 Ext.
Contaminated Facility:	No
MHSW Facility:	No

Detail(s)

Waste Class:	251
Waste Class Name:	OIL SKIMMINGS & SLUDGES
Waste Class:	252
Waste Class Name:	WASTE OILS & LUBRICANTS

---

152 | ***13 of 15*** | ***317.9*** | ***TWIN CITY AUTO PARTS INC.***
134 Sydney St S
Kitchener ON N2G3V2 | ***GEN***

Generator No:	ON1398800
SIC Code:	441310
SIC Description:	AUTOMOTIVE PARTS AND ACCESSORIES STORES
Approval Years:	2014
PO Box No:	
Country:	Canada
Status:	
Co Admin:	Terry Greguol
Choice of Contact:	CO_OFFICIAL
Phone No Admin:	519-745-6196 Ext.
Contaminated Facility:	No
MHSW Facility:	No

Detail(s)

Waste Class:	252
Waste Class Name:	WASTE OILS & LUBRICANTS
Waste Class:	251
Waste Class Name:	OIL SKIMMINGS & SLUDGES

---

152 | ***14 of 15*** | ***317.9*** | ***TWIN CITY AUTO PARTS INC.***
134 Sydney St S
Kitchener ON N2G3V2 | ***GEN***

Generator No:	ON1398800
SIC Code:	
SIC Description:	
Approval Years:	As of Jun 2017
PO Box No:	
Country:	Canada
Status:	Registered
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	252 L
Waste Class Name:	Waste crankcase oils and lubricants

Waste Class: 122 T
Waste Class Name: Alkaline slutions - containing other metals and non-metals (not cyanide)

Waste Class: 251 T
Waste Class Name: Waste oils/sludges (petroleum based)

Waste Class: 251 L
Waste Class Name: Waste oils/sludges (petroleum based)

---

152 | ***15 of 15*** | ***317.9*** | ***134 Sydney St S, Kitchener ON N2G3V2*** | ***EHS***

Order No:	20170310177	**Nearest Intersection:**	
Status:	C	**Municipality:**	
Report Type:	Standard Express Report	**Client Prov/State:**	ON
Report Date:	10-MAR-17	**Search Radius (km):**	.25
Date Received:	10-MAR-17	**X:**	-80.473713
Previous Site Name:		**Y:**	43.438666
Lot/Building Size:			

Additional Info Ordered: Fire Insur. Maps and/or Site Plans; Title Searches; City Directory; Aerial Photos

---

153 | ***1 of 1*** | ***317.8*** | ***108 SYDNEY ST S, Kitchener ON*** | ***WWIS***

Well ID:	7215998	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring and Test Hole	**Data Entry Status:**	
Use 2nd:	0	**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	10-Feb-2014 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z168999	**Contractor:**	7241
Tag:	A150220	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY (WATERLOO TWP)		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/721\7215998.pdf

Additional Detail(s) (Map)

Well Completed Date: 2013/12/23
Year Completed: 2013
Depth (m): 4
Latitude: 43.4388595995706
Longitude: -80.4732837313331
Path: 721\7215998.pdf

Bore Hole Information

Bore Hole ID:	1004706045	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17

Code OB:		***East83:***	542625.00
Code OB Desc:		***North83:***	4809686.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	4
Date Completed:	23-Dec-2013 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1005078667
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	02
Most Common Material:	TOPSOIL
Mat2:	
Mat2 Desc:	
Mat3:	85
Mat3 Desc:	SOFT
Formation Top Depth:	0.0
Formation End Depth:	1.0
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1005078668
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	85
Mat2 Desc:	SOFT
Mat3:	
Mat3 Desc:	
Formation Top Depth:	1.0
Formation End Depth:	3.0
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1005078669
Layer:	3
Color:	2
General Color:	GREY
Mat1:	06
Most Common Material:	SILT
Mat2:	08
Mat2 Desc:	FINE SAND
Mat3:	85
Mat3 Desc:	SOFT
Formation Top Depth:	3.0
Formation End Depth:	4.0

Formation End Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1005078679
Layer: 3
Plug From: 2.200000047683716
Plug To: 4.0
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1005078677
Layer: 1
Plug From: 0.0
Plug To: 0.3100000023841858
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1005078678
Layer: 2
Plug From: 0.3100000023841858
Plug To: 2.200000047683716
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1005078676
Method Construction Code: 2
Method Construction: Rotary (Convent.)
Other Method Construction:

Pipe Information

Pipe ID: 1005078666
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1005078672
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 2.5
Casing Diameter: 5.199999809265137
Casing Diameter UOM: cm
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1005078673
Layer: 1

Slot:	10
Screen Top Depth:	2.5
Screen End Depth:	4.0
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	6.099999904632568

Water Details

Water ID:	1005078671
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1005078670
Diameter:	20.0
Depth From:	0.0
Depth To:	4.0
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1004706045	**Tag No:**	A150220
Depth M:	4	**Contractor:**	7241
Year Completed:	2013	**Path:**	721\7215998.pdf
Well Completed Dt:	2013/12/23	**Latitude:**	43.4388595995706
Audit No:	Z168999	**Longitude:**	-80.4732837313331

---

154 **1 of 1** **317.8** ***108 SYDNEY ST Kitchener ON*** ***WWIS***

Well ID:	7216000	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring and Test Hole	**Data Entry Status:**	
Use 2nd:	0	**Data Src:**	
Final Well Status:	Test Hole	**Date Received:**	10-Feb-2014 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z169000	**Contractor:**	7241
Tag:	A150034	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/721\7216000.pdf

Additional Detail(s) (Map)

Well Completed Date:	2013/12/23
Year Completed:	2013
Depth (m):	7.0104
Latitude:	43.438850538639
Longitude:	-80.4732714529743
Path:	721\7216000.pdf

Bore Hole Information

Bore Hole ID:	1004706051	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542626.00
Code OB Desc:		**North83:**	4809685.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	23-Dec-2013 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1005078747
Layer:	1
Color:	4
General Color:	GREEN
Mat1:	
Most Common Material:	
Mat2:	85
Mat2 Desc:	SOFT
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.0
Formation End Depth:	0.5
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1005078750
Layer:	4
Color:	2
General Color:	GREY
Mat1:	06
Most Common Material:	SILT
Mat2:	08
Mat2 Desc:	FINE SAND
Mat3:	85
Mat3 Desc:	SOFT
Formation Top Depth:	8.0
Formation End Depth:	23.0
Formation End Depth UOM:	ft

Overburden and Bedrock

Materials Interval

Formation ID:	1005078748
Layer:	2
Color:	8
General Color:	BLACK
Mat1:	02
Most Common Material:	TOPSOIL
Mat2:	
Mat2 Desc:	
Mat3:	85
Mat3 Desc:	SOFT
Formation Top Depth:	0.5
Formation End Depth:	2.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1005078749
Layer:	3
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	85
Mat3 Desc:	SOFT
Formation Top Depth:	2.0
Formation End Depth:	8.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1005078759
Layer:	2
Plug From:	1.0
Plug To:	17.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1005078760
Layer:	3
Plug From:	17.0
Plug To:	23.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1005078758
Layer:	1
Plug From:	0.0
Plug To:	1.0
Plug Depth UOM:	ft

Method of Construction & Well

Use

Method Construction ID: 1005078757
Method Construction Code: D
Method Construction: Direct Push
Other Method Construction:

Pipe Information

Pipe ID: 1005078746
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1005078753
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 18.0
Casing Diameter: 2.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Screen

Screen ID: 1005078754
Layer: 1
Slot: 10
Screen Top Depth: 18.0
Screen End Depth: 22.0
Screen Material: 5
Screen Depth UOM: ft
Screen Diameter UOM: inch
Screen Diameter: 2.25

Water Details

Water ID: 1005078752
Layer:
Kind Code:
Kind:
Water Found Depth:
Water Found Depth UOM: ft

Hole Diameter

Hole ID: 1005078751
Diameter: 8.0
Depth From: 0.0
Depth To: 23.0
Hole Depth UOM: ft
Hole Diameter UOM: inch

Links

Bore Hole ID: 1004706051 ***Tag No:*** A150034
Depth M: 7.0104 ***Contractor:*** 7241

Year Completed:	2013	**Path:**	721\7216000.pdf
Well Completed Dt:	2013/12/23	**Latitude:**	43.438850538639
Audit No:	Z169000	**Longitude:**	-80.4732714529743

155 **1 of 1** **322.1** **108 SYDNEY ST S**
Kitchener ON
WWIS

Well ID:	7215997	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring and Test Hole	**Data Entry Status:**	
Use 2nd:	0	**Data Src:**	
Final Well Status:	0	**Date Received:**	10-Feb-2014 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z168950	**Contractor:**	7241
Tag:	A098735	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/721\7215997.pdf

Additional Detail(s) (Map)

Well Completed Date:	2013/12/23
Year Completed:	2013
Depth (m):	2.1336
Latitude:	43.4392546376816
Longitude:	-80.4730331637002
Path:	721\7215997.pdf

Bore Hole Information

Bore Hole ID:	1004706042	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542645.00
Code OB Desc:		**North83:**	4809730.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	23-Dec-2013 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID: 1005078615

Layer: 1
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 11
Mat2 Desc: GRAVEL
Mat3: 85
Mat3 Desc: SOFT
Formation Top Depth: 0.0
Formation End Depth: 1.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1005078617
Layer: 3
Color: 2
General Color: GREY
Mat1: 06
Most Common Material: SILT
Mat2: 08
Mat2 Desc: FINE SAND
Mat3: 85
Mat3 Desc: SOFT
Formation Top Depth: 4.0
Formation End Depth: 7.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1005078616
Layer: 2
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 06
Mat2 Desc: SILT
Mat3: 85
Mat3 Desc: SOFT
Formation Top Depth: 1.0
Formation End Depth: 4.0
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1005078627
Layer: 3
Plug From: 5.199999809265137
Plug To: 7.0
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1005078625
Layer: 1
Plug From: 0.0

Plug To:	0.3100000023841858
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1005078626
Layer:	2
Plug From:	0.3100000023841858
Plug To:	5.199999809265137
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1005078624
Method Construction Code:	2
Method Construction:	Rotary (Convent.)
Other Method Construction:	

Pipe Information

Pipe ID:	1005078614
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1005078620
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	5.5
Casing Diameter:	5.199999809265137
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1005078621
Layer:	1
Slot:	10
Screen Top Depth:	5.5
Screen End Depth:	7.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	6.099999904632568

Water Details

Water ID:	1005078619
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1005078618
Diameter:	10.899999618530273
Depth From:	0.0
Depth To:	7.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1004706042	***Tag No:***	A098735
Depth M:	2.1336	***Contractor:***	7241
Year Completed:	2013	***Path:***	721\7215997.pdf
Well Completed Dt:	2013/12/23	***Latitude:***	43.4392546376816
Audit No:	Z168950	***Longitude:***	-80.4730331637002

156 ***1 of 1*** ***319.9*** ***ON*** ***BORE***

Borehole ID:	680857	***Inclin FLG:***	No
OGF ID:	215557853	***SP Status:***	Initial Entry
Status:		***Surv Elev:***	No
Type:	Borehole	***Piezometer:***	No
Use:	Geotechnical/Geological Investigation	***Primary Name:***	
Completion Date:	AUG-1958	***Municipality:***	
Static Water Level:	1.5	***Lot:***	
Primary Water Use:		***Township:***	
Sec. Water Use:		***Latitude DD:***	43.44192
Total Depth m:	7.6	***Longitude DD:***	-80.482822
Depth Ref:	Ground Surface	***UTM Zone:***	17
Depth Elev:		***Easting:***	541851
Drill Method:	Power auger	***Northing:***	4810021
Orig Ground Elev m:	319	***Location Accuracy:***	
Elev Reliabil Note:		***Accuracy:***	Not Applicable
DEM Ground Elev m:	320		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218552937	***Mat Consistency:***	Compact
Top Depth:	2.3	***Material Moisture:***	
Bottom Depth:	3.4	***Material Texture:***	Fine to Medium
Material Color:	Grey-Brown	***Non Geo Mat Type:***	
Material 1:	Sand	***Geologic Formation:***	
Material 2:	organic material	***Geologic Group:***	
Material 3:	Gravel	***Geologic Period:***	
Material 4:		***Depositional Gen:***	organic
Gsc Material Description:			
Stratum Description:	BROWN, GREY, COMPACT.		

Geology Stratum ID:	218552940	***Mat Consistency:***	Dense
Top Depth:	7	***Material Moisture:***	
Bottom Depth:	7.6	***Material Texture:***	Medium
Material Color:	Grey	***Non Geo Mat Type:***	
Material 1:	Sand	***Geologic Formation:***	
Material 2:	Silt	***Geologic Group:***	
Material 3:	Clay	***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			

Stratum Description: GREY, DENSE, SEAMS.

Geology Stratum ID:	218552939	***Mat Consistency:***	Compact
Top Depth:	4.6	***Material Moisture:***	
Bottom Depth:	7	***Material Texture:***	Medium
Material Color:	Grey	***Non Geo Mat Type:***	
Material 1:	Sand	***Geologic Formation:***	
Material 2:	Silt	***Geologic Group:***	
Material 3:	Clay	***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			

Stratum Description: GREY, COMPACT, SEAM.

Geology Stratum ID:	218552938	***Mat Consistency:***	Compact
Top Depth:	3.4	***Material Moisture:***	
Bottom Depth:	4.6	***Material Texture:***	Medium
Material Color:	Grey	***Non Geo Mat Type:***	
Material 1:	Sand	***Geologic Formation:***	
Material 2:	Silt	***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			

Stratum Description: GREY, COMPACT.

Geology Stratum ID:	218552936	***Mat Consistency:***	
Top Depth:	0	***Material Moisture:***	
Bottom Depth:	2.3	***Material Texture:***	Medium
Material Color:	Brown	***Non Geo Mat Type:***	
Material 1:	Sand	***Geologic Formation:***	
Material 2:		***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			

Stratum Description: BROWN.

Source

Source Type:	Data Survey	***Source Appl:***	Spatial/Tabular
Source Orig:	Geological Survey of Canada	***Source Iden:***	4
Source Date:	1900 - 1977	***Scale or Res:***	Varies
Confidence:	H	***Horizontal:***	NAD27
Observatio:	1958/8	***Verticalda:***	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Details:	1309		
Confiden 1:			

Source List

Source Identifier:	4	***Horizontal Datum:***	NAD27
Source Type:	Data Survey	***Vertical Datum:***	Mean Average Sea Level
Source Date:	1900 - 1977	***Projection Name:***	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Originators:	Geological Survey of Canada		

157 ***1 of 2*** ***319.9*** ***ON*** ***BORE***

Borehole ID:	680858	***Inclin FLG:***	No
OGF ID:	215557854	***SP Status:***	Initial Entry
Status:		***Surv Elev:***	No
Type:	Borehole	***Piezometer:***	No
Use:	Geotechnical/Geological Investigation	***Primary Name:***	

Completion Date:	AUG-1958	**Municipality:**	
Static Water Level:	1.5	**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	43.44174
Total Depth m:	7.9	**Longitude DD:**	-80.482947
Depth Ref:	Ground Surface	**UTM Zone:**	17
Depth Elev:		**Easting:**	541841
Drill Method:	Power auger	**Northing:**	4810001
Orig Ground Elev m:	319	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	320		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218552941	**Mat Consistency:**	Loose
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	1.5	**Material Texture:**	Fine to Medium
Material Color:	Brown	**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	BROWN, LOOSE.		

Geology Stratum ID:	218552945	**Mat Consistency:**	Compact
Top Depth:	3.7	**Material Moisture:**	
Bottom Depth:	7.6	**Material Texture:**	Medium
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:	Silt	**Geologic Group:**	
Material 3:	Clay	**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	GREY, COMPACT, SEAMS.		

Geology Stratum ID:	218552943	**Mat Consistency:**	Compact
Top Depth:	2.1	**Material Moisture:**	
Bottom Depth:	3	**Material Texture:**	Medium
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:	Silt	**Geologic Group:**	
Material 3:	organic material	**Geologic Period:**	
Material 4:		**Depositional Gen:**	organic
Gsc Material Description:			
Stratum Description:	GREY, COMPACT.		

Geology Stratum ID:	218552942	**Mat Consistency:**	Loose
Top Depth:	1.5	**Material Moisture:**	
Bottom Depth:	2.1	**Material Texture:**	Fine to Medium
Material Color:	Black	**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:	Clay	**Geologic Group:**	
Material 3:	organic material	**Geologic Period:**	
Material 4:		**Depositional Gen:**	peat
Gsc Material Description:			
Stratum Description:	BROWN, BLACK, VERY LOOSE.		

Geology Stratum ID:	218552944	**Mat Consistency:**	Compact
Top Depth:	3	**Material Moisture:**	
Bottom Depth:	3.7	**Material Texture:**	Fine to Medium

Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	GREY, COMPACT.		

Geology Stratum ID:	218552946	**Mat Consistency:**	Dense
Top Depth:	7.6	**Material Moisture:**	
Bottom Depth:	7.9	**Material Texture:**	Medium
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:	Silt	**Geologic Group:**	
Material 3:	Clay	**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	GREY, DENSE, SEAMS.		

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	4
Source Date:	1900 - 1977	**Scale or Res:**	Varies
Confidence:	H	**Horizontal:**	NAD27
Observatio:	1958/8	**Verticalda:**	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Details:	1310		
Confiden 1:			

Source List

Source Identifier:	4	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1900 - 1977	**Projection Name:**	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Originators:	Geological Survey of Canada		

---

157 **2 of 2** **319.9** **ON** **BORE**

Borehole ID:	683543	**Inclin FLG:**	No
OGF ID:	215560539	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:	Geotechnical/Geological Investigation	**Primary Name:**	
Completion Date:	JAN-1975	**Municipality:**	
Static Water Level:	2.8	**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	43.44174
Total Depth m:	15.7	**Longitude DD:**	-80.482947
Depth Ref:	Ground Surface	**UTM Zone:**	17
Depth Elev:		**Easting:**	541841
Drill Method:	Power auger	**Northing:**	4810001
Orig Ground Elev m:	319	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	320		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218561582	***Mat Consistency:***	
Top Depth:	0	***Material Moisture:***	
Bottom Depth:	1.7	***Material Texture:***	
Material Color:		***Non Geo Mat Type:***	
Material 1:	Fill	***Geologic Formation:***	
Material 2:		***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	fill
Gsc Material Description:			
Stratum Description:	(No description) **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218561583	***Mat Consistency:***	
Top Depth:	1.7	***Material Moisture:***	Wet
Bottom Depth:	3.2	***Material Texture:***	
Material Color:		***Non Geo Mat Type:***	
Material 1:	Silt	***Geologic Formation:***	
Material 2:		***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			
Stratum Description:	WET, SILT **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218561587	***Mat Consistency:***	Dense
Top Depth:	11.6	***Material Moisture:***	Moist
Bottom Depth:	15.7	***Material Texture:***	
Material Color:	Grey	***Non Geo Mat Type:***	
Material 1:	Silt	***Geologic Formation:***	
Material 2:		***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			
Stratum Description:	TILL, VERY DENSE, GREY MOIST **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218561586	***Mat Consistency:***	
Top Depth:	9.1	***Material Moisture:***	
Bottom Depth:	11.6	***Material Texture:***	
Material Color:		***Non Geo Mat Type:***	
Material 1:	Sand	***Geologic Formation:***	
Material 2:		***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			
Stratum Description:	MORE SILTY AND CLAYEY **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218561585	***Mat Consistency:***	
Top Depth:	7.6	***Material Moisture:***	
Bottom Depth:	9.1	***Material Texture:***	
Material Color:		***Non Geo Mat Type:***	
Material 1:	Sand	***Geologic Formation:***	
Material 2:		***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			
Stratum Description:	WITH THIN CLAY LAYERS **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218561584	***Mat Consistency:***	Compact
Top Depth:	3.2	***Material Moisture:***	Moist
Bottom Depth:	7.6	***Material Texture:***	Fine
Material Color:	Grey	***Non Geo Mat Type:***	
Material 1:	Sand	***Geologic Formation:***	

Material 2:
Material 3:
Material 4:
Gsc Material Description:
Stratum Description: SILTY FINE COMPACT GREY THIN LAYERS OF SILTY CLAY AND CLAYEY SILT VERY MOIST **Note: Many records provided by the department have a truncated [Stratum Description] field.

Geologic Group:
Geologic Period:
Depositional Gen:

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	4
Source Date:	1900 - 1977	**Scale or Res:**	Varies
Confidence:	H	**Horizontal:**	NAD27
Observatio:	1975/1	**Verticalda:**	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Details:	13164		
Confiden 1:			

Source List

Source Identifier:	4	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1900 - 1977	**Projection Name:**	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Originators:	Geological Survey of Canada		

---

158 ***1 of 11*** ***315.4*** ***MTD PRODUCTS LIMITED***
140 SYDNEY STREET SOUTH
KITCHENER ON N2G 3V2 ***GEN***

Generator No: ON0116901
SIC Code: 3049
SIC Description: OTHER STAMPED METAL
Approval Years: 86,87,88,89,90
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

Waste Class: 253
Waste Class Name: EMULSIFIED OILS

---

158 ***2 of 11*** ***315.4*** ***MTD PRODUCTS LIMITED 25-135***
140 SYDNEY STREET SOUTH
KITCHENER ON N2G 3V2 ***GEN***

Generator No: ON0116901
SIC Code: 3049
SIC Description: OTHER STAMPED METAL
Approval Years: 92,93,94,95,96,97
PO Box No:

Map Key	Number of Records	Elevation (m)	Site	DB

Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

Waste Class: 253
Waste Class Name: EMULSIFIED OILS

---

158 | ***3 of 11*** | ***315.4*** | ***MTD PRODUCTS LIMITED***
140 SYDNEY STREET SOUTH
KITCHENER ON N2G 3V2 | ***GEN***

Generator No: ON0116901
SIC Code: 3049
SIC Description: OTHER STAMPED METAL
Approval Years: 98
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

Waste Class: 253
Waste Class Name: EMULSIFIED OILS

---

158 | ***4 of 11*** | ***315.4*** | ***Polwood Cabinets Ltd.***
140 Sydney St S
Kitchener ON N2G 3V2 | ***SCT***

Established: 01-AUG-99
Plant Size (ft²): 16000
Employment:

--Details--
Description: Other Millwork
SIC/NAICS Code: 321919

Description: Wood Kitchen Cabinet and Counter Top Manufacturing
SIC/NAICS Code: 337110

Description: Household Furniture (except Wood and Upholstered) Manufacturing
SIC/NAICS Code: 337126

Description: Other Wood Household Furniture Manufacturing
SIC/NAICS Code: 337123

Description: Heating Equipment and Commercial Refrigeration Equipment Manufacturing
SIC/NAICS Code: 333416

---

158 **5 of 11** **315.4** **MTD Products** **GEN**
140 Sydney Street South
Kitchener ON N2G 3V2

Generator No: ON2861216
SIC Code: 493110 335229
SIC Description: General Warehousing and Storage, Other Major Appliance Manufacturing
Approval Years: 07,08
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 221
Waste Class Name: LIGHT FUELS

Waste Class: 241
Waste Class Name: HALOGENATED SOLVENTS

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

---

158 **6 of 11** **315.4** **Polwood Cabinets** **GEN**
140 Sydney Street South
Kitchener ON N2G 3V3

Generator No: ON6784974
SIC Code: 321919
SIC Description: OTHER MILLWORK
Approval Years: 2015
PO Box No:
Country: Canada
Status:
Co Admin:
Choice of Contact: CO_OFFICIAL
Phone No Admin:
Contaminated Facility: No
MHSW Facility: No

Detail(s)

Waste Class: 145
Waste Class Name: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 213
Waste Class Name: PETROLEUM DISTILLATES

---

158 **7 of 11** **315.4** **Polwood Cabinets** **GEN**
140 Sydney Street South
Kitchener ON N2G 3V3

Generator No:	ON6784974
SIC Code:	321919
SIC Description:	OTHER MILLWORK
Approval Years:	2016
PO Box No:	
Country:	Canada
Status:	
Co Admin:	
Choice of Contact:	CO_OFFICIAL
Phone No Admin:	
Contaminated Facility:	No
MHSW Facility:	No

Detail(s)

Waste Class:	145
Waste Class Name:	PAINT/PIGMENT/COATING RESIDUES
Waste Class:	213
Waste Class Name:	PETROLEUM DISTILLATES

---

158 **8 of 11** **315.4** **Polwood Cabinets**
140 Sydney Street South
Kitchener ON N2G 3V3
GEN

Generator No:	ON6784974
SIC Code:	
SIC Description:	
Approval Years:	As of Dec 2018
PO Box No:	
Country:	Canada
Status:	Registered
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	145 L
Waste Class Name:	Wastes from the use of pigments, coatings and paints
Waste Class:	213 I
Waste Class Name:	Petroleum distillates

---

158 **9 of 11** **315.4** **Polwood Cabinets**
140 Sydney Street South
Kitchener ON N2G 3V3
GEN

Generator No:	ON6784974
SIC Code:	
SIC Description:	
Approval Years:	As of Jul 2020
PO Box No:	
Country:	Canada
Status:	Registered
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	

MHSW Facility:

Detail(s)

Waste Class: 145 L
Waste Class Name: Wastes from the use of pigments, coatings and paints

Waste Class: 213 I
Waste Class Name: Petroleum distillates

---

158 | ***10 of 11*** | ***315.4*** | ***Polwood Cabinets***
140 Sydney Street South
Kitchener ON N2G 3V3 | ***GEN***

Generator No: ON6784974
SIC Code:
SIC Description:
Approval Years: As of Nov 2021
PO Box No:
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 213 I
Waste Class Name: Petroleum distillates

Waste Class: 145 L
Waste Class Name: Wastes from the use of pigments, coatings and paints

---

158 | ***11 of 11*** | ***315.4*** | ***Polwood Cabinets***
140 Sydney Street South
Kitchener ON N2G 3V3 | ***GEN***

Generator No: ON6784974
SIC Code:
SIC Description:
Approval Years: As of Oct 2022
PO Box No:
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 145 L
Waste Class Name: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 213 I
Waste Class Name: PETROLEUM DISTILLATES

Map Key	Number of Records	Elevation (m)	Site	DB
159	1 of 1	320.2	108 SYDNEY ST S KITCHENER ON	WWIS

Well ID:	7237604	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring and Test Hole	**Data Entry Status:**	
Use 2nd:	0	**Data Src:**	
Final Well Status:	0	**Date Received:**	16-Feb-2015 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z203849	**Contractor:**	7241
Tag:	A176723	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/723\7237604.pdf

Additional Detail(s) (Map)

Well Completed Date:	2015/01/13
Year Completed:	2015
Depth (m):	3.9624
Latitude:	43.4390914832682
Longitude:	-80.4727997965392
Path:	723\7237604.pdf

Bore Hole Information

Bore Hole ID:	1005307857	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542664.00
Code OB Desc:		**North83:**	4809712.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	13-Jan-2015 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1005539153
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND

Mat2: 11
Mat2 Desc: GRAVEL
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 8.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1005539154
Layer: 2
Color: 6
General Color: BROWN
Mat1: 05
Most Common Material: CLAY
Mat2: 28
Mat2 Desc: SAND
Mat3:
Mat3 Desc:
Formation Top Depth: 8.0
Formation End Depth: 13.0
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1005539163
Layer: 2
Plug From: 7.0
Plug To: 0.0
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1005539162
Layer: 1
Plug From: 13.0
Plug To: 7.0
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 1005539161
Method Construction Code: D
Method Construction: Direct Push
Other Method Construction:

Pipe Information

Pipe ID: 1005539152
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID:	1005539157
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	8.0
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1005539158
Layer:	1
Slot:	.10
Screen Top Depth:	8.0
Screen End Depth:	13.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.25

Water Details

Water ID:	1005539156
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1005539155
Diameter:	8.0
Depth From:	0.0
Depth To:	13.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1005307857	***Tag No:***	A176723
Depth M:	3.9624	***Contractor:***	7241
Year Completed:	2015	***Path:***	723\7237604.pdf
Well Completed Dt:	2015/01/13	***Latitude:***	43.4390914832682
Audit No:	Z203849	***Longitude:***	-80.4727997965392

---

160 ***1 of 1*** ***320.2*** ***ON*** ***BORE***

Borehole ID:	680399	***Inclin FLG:***	No
OGF ID:	215557395	***SP Status:***	Initial Entry
Status:		***Surv Elev:***	No
Type:	Borehole	***Piezometer:***	No
Use:	Geotechnical/Geological Investigation	***Primary Name:***	
Completion Date:	MAY-1962	***Municipality:***	
Static Water Level:		***Lot:***	
Primary Water Use:		***Township:***	
Sec. Water Use:		***Latitude DD:***	43.439082
Total Depth m:	2.4	***Longitude DD:***	-80.472713

Depth Ref:	Ground Surface	**UTM Zone:**	17
Depth Elev:		**Easting:**	542671
Drill Method:	Backhoe	**Northing:**	4809711
Orig Ground Elev m:	320	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	319		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218550216	**Mat Consistency:**	
Top Depth:	1.8	**Material Moisture:**	
Bottom Depth:	2.4	**Material Texture:**	Fine
Material Color:		**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	STRATIFIED.		

Geology Stratum ID:	218550214	**Mat Consistency:**	
Top Depth:	.3	**Material Moisture:**	
Bottom Depth:	1.2	**Material Texture:**	Medium
Material Color:	Brown	**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:	Silt	**Geologic Group:**	
Material 3:	Clay	**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	BROWN, SEAMS.		

Geology Stratum ID:	218550215	**Mat Consistency:**	
Top Depth:	1.2	**Material Moisture:**	
Bottom Depth:	1.8	**Material Texture:**	
Material Color:		**Non Geo Mat Type:**	
Material 1:	Silt	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	(No description) **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218550213	**Mat Consistency:**	
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	.3	**Material Texture:**	
Material Color:		**Non Geo Mat Type:**	
Material 1:	Fill	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	fill
Gsc Material Description:			
Stratum Description:	(No description) **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	4
Source Date:	1900 - 1977	**Scale or Res:**	Varies
Confidence:	H	**Horizontal:**	NAD27
Observatio:	1962/5	**Verticalda:**	Mean Average Sea Level

Source Name: Waterloo Area Geology Automated Information System (WAGAIS)
Source Details: 370
Confiden 1:

Source List

Source Identifier: 4
Source Type: Data Survey
Source Date: 1900 - 1977
Scale or Resolution: Varies
Source Name: Waterloo Area Geology Automated Information System (WAGAIS)
Source Originators: Geological Survey of Canada
Horizontal Datum: NAD27
Vertical Datum: Mean Average Sea Level
Projection Name: Universal Traverse Mercator

---

161 | **1 of 1** | **318.9** | **108 SYDNEY ST S ON** | **WWIS**

Well ID: 7237601
Construction Date:
Use 1st: Monitoring and Test Hole
Use 2nd: 0
Final Well Status: Monitoring and Test Hole
Water Type:
Casing Material:
Audit No: Z203846
Tag: A177196
Constructn Method:
Elevation (m):
Elevatn Reliabilty:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Clear/Cloudy:
Municipality: KITCHENER CITY
Site Info:
Flowing (Y/N):
Flow Rate:
Data Entry Status:
Data Src:
Date Received: 16-Feb-2015 00:00:00
Selected Flag: TRUE
Abandonment Rec:
Contractor: 7241
Form Version: 7
Owner:
County: WATERLOO
Lot:
Concession:
Concession Name:
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/723\7237601.pdf

Additional Detail(s) (Map)

Well Completed Date: 2015/01/13
Year Completed: 2015
Depth (m): 3.9624
Latitude: 43.4388574358404
Longitude: -80.4728141856286
Path: 723\7237601.pdf

Bore Hole Information

Bore Hole ID: 1005307848
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 13-Jan-2015 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Elevation:
Elevrc:
Zone: 17
East83: 542663.00
North83: 4809686.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 1005539064
Layer: 1
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 06
Mat2 Desc: SILT
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 13.0
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1005539073
Layer: 2
Plug From: 7.0
Plug To: 0.0
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1005539072
Layer: 1
Plug From: 13.0
Plug To: 7.0
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 1005539071
Method Construction Code: D
Method Construction: Direct Push
Other Method Construction:

Pipe Information

Pipe ID: 1005539063
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1005539067
Layer: 1
Material: 5

Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	8.0
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1005539068
Layer:	1
Slot:	.10
Screen Top Depth:	8.0
Screen End Depth:	13.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.25

Water Details

Water ID:	1005539066
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1005539065
Diameter:	8.0
Depth From:	0.0
Depth To:	13.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1005307848	***Tag No:***	A177196
Depth M:	3.9624	***Contractor:***	7241
Year Completed:	2015	***Path:***	723\7237601.pdf
Well Completed Dt:	2015/01/13	***Latitude:***	43.4388574358404
Audit No:	Z203846	***Longitude:***	-80.4728141856286

---

162 ***1 of 19*** ***320.2*** ***108 Sydney Street South*** ***EHS***
Kitchener ON N2G 3V2

Order No:	20090513014	***Nearest Intersection:***	Sydney Street South and Nyberg Street
Status:	C	***Municipality:***	Region of Waterloo
Report Type:	Standard Report	***Client Prov/State:***	ON
Report Date:	5/22/2009	***Search Radius (km):***	0.25
Date Received:	5/13/2009	***X:***	-80.472794
Previous Site Name:		***Y:***	43.438973
Lot/Building Size:			
Additional Info Ordered:			

---

162 ***2 of 19*** ***320.2*** ***K-W Habilitation Services Day Options*** ***GEN***
108 Sydney Street South

Kitchener ON N2G 3V2

Generator No: ON2921757
SIC Code: 623222
SIC Description: Homes for the Psychiatrically Disabled
Approval Years: 2009
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 221
Waste Class Name: LIGHT FUELS

---

162 ***3 of 19*** ***320.2*** ***108 Sydney St S*** ***EHS***
Kitchener ON N2G 3V2

Order No: 20120221014
Status: C
Report Type: Standard Select Report
Report Date: 2/29/2012 10:17:04 AM
Date Received: 2/21/2012 10:14:28 AM
Previous Site Name:
Lot/Building Size:
Additional Info Ordered:
Nearest Intersection:
Municipality: Kitchener
Client Prov/State: ON
Search Radius (km): 0.25
X: -80.472816
Y: 43.43904

---

162 ***4 of 19*** ***320.2*** ***K-W Habilitation Services Day Options*** ***GEN***
108 Sydney Street South
Kitchener ON N2G 3V2

Generator No: ON2921757
SIC Code: 623222
SIC Description: Homes for the Psychiatrically Disabled
Approval Years: 2010
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 221
Waste Class Name: LIGHT FUELS

---

162 ***5 of 19*** ***320.2*** ***K-W Habilitation Services Day Options*** ***GEN***
108 Sydney Street South
Kitchener ON N2G 3V2

Generator No: ON2921757
SIC Code: 623222

SIC Description: Homes for the Psychiatrically Disabled
Approval Years: 2011
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 221
Waste Class Name: LIGHT FUELS

---

162 | ***6 of 19*** | ***320.2*** | ***K-W Habilitation Services Day Options***
108 Sydney Street South
Kitchener ON | ***GEN***

Generator No: ON2921757
SIC Code: 623222
SIC Description:
Approval Years: 2013
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 221
Waste Class Name: LIGHT FUELS

---

162 | ***7 of 19*** | ***320.2*** | ***K-W Habilitation Services Day Options***
108 Sydney Street South
Kitchener ON N2G 3V2 | ***GEN***

Generator No: ON2921757
SIC Code: 623222
SIC Description: Homes for the Psychiatrically Disabled
Approval Years: 2012
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 221
Waste Class Name: LIGHT FUELS

Map Key	Number of Records	Elevation (m)	Site	DB
162	8 of 19	320.2	108 Sydney St S Kitchener ON N2G3V2	EHS

Order No:	20141105032	**Nearest Intersection:**	
Status:	C	**Municipality:**	Kitchener
Report Type:	Custom Report	**Client Prov/State:**	ON
Report Date:	11-NOV-14	**Search Radius (km):**	.25
Date Received:	05-NOV-14	**X:**	-80.472562
Previous Site Name:		**Y:**	43.438939
Lot/Building Size:			
Additional Info Ordered:			

Map Key	Number of Records	Elevation (m)	Site	DB
162	9 of 19	320.2	K-W Habilitation Services ON	CPU

EBR Registry No:	012-9743	**Decision Posted:**	
Ministry Ref No:	7557-AGGL8B	**Exception Posted:**	
Notice Type:	Instrument Decision	**Section:**	
Notice Stage:		**Act 1:**	
Notice Date:	March 13, 2017	**Act 2:**	
Proposal Date:	January 31, 2017	**Site Location Map:**	
Year:	2017		
Instrument Type:	(EPA s. 168.6) - Certificate of Property Use		
Off Instrument Name:			
Posted By:			
Company Name:	K-W Habilitation Services		
Site Address:			
Location Other:			
Proponent Name:			
Proponent Address:	99 Ottawa Street South, Kitchener Ontario, Canada N2G 3S8		
Comment Period:			
URL:			

Site Location Details:

108 Sydney Street South, Kitchener With a Legal Description of: Part of Lots 88, 89, 90 and all of Lots 91, 92, Plan 262 and Part of Lot 162, Street and Lanes (being part of a Lane established by Plan 262 and closed by Bylaw 4964, Reg. as 257451) designated as Parts 7, 8, 9, 10, 11, 12, Plan 58R18710; together with an easement over Part Lots 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, Plan 262 designated as Parts 2, 6, Plan 58R18710 as in WR937681; together with an easement over Part Lots 89, 90, Plan 262, designated as Parts 5, 6, Plan 58R18710 as in WR937681; subject to an easement over Parts 7, 9, Plan 58R18710 in favour of Part Lots 88, 89, 90 and all Lots 81, 82, 83, 84, 85, 86, 87, Plan 262 designated as Parts 1, 2, 3, 4, 5, 6, Plan 58R18710 as in WR937681; City of Kitchener. PIN: 22578-0193(LT) CITY OF KITCHENER

Map Key	Number of Records	Elevation (m)	Site	DB
162	10 of 19	320.2	K-W HABILITATION SERVICES 108 SYDNEY STREET SOUTH, KITCHENER, ON N2G 3V2 Kitchener ON	RSC

RSC ID:	223430	**Cert Date:**	
RA No:	RA1506-16	**Cert Prop Use No:**	
RSC Type:	Phase 1 and 2 RSC with RA	**Intended Prop Use:**	Residential
Curr Property Use:	Commercial	**Qual Person Name:**	DAVID SMYTH
Ministry District:	Guelph District Office	**Stratified (Y/N):**	
Filing Date:	2017/05/24	**Audit (Y/N):**	
Date Ack:		**Entire Leg Prop. (Y/N):**	
Date Returned:		**Accuracy Estimate:**	
Restoration Type:		**Telephone:**	
Soil Type:		**Fax:**	
Criteria:		**Email:**	
CPU Issued Sect 1686:			
Asmt Roll No:	30120400080600400		

Prop ID No (PIN):	22578-0193 (LT)
Property Municipal Address:	108 SYDNEY STREET SOUTH, KITCHENER, ON N2G 3V2
Mailing Address:	
Latitude & Latitude:	
UTM Coordinates:	
Consultant:	
Legal Desc:	
Measurement Method:	
Applicable Standards:	
RSC PDF:	https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=81004&fileName=BROWNFIELDS-E.pdf

Document(s) Detail

Document Heading:	Supporting Documents
Document Name:	Areas of Potential Environmental Concern.pdf
Document Type:	Area(s) of Potential Environmental Concern
Document Link:	https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=81001&fileName=Areas+of+Potential+Environmental+Concern.pdf
Document Heading:	Supporting Documents
Document Name:	Parcel register and Transfer 2017May18.pdf
Document Type:	Copy of any deed(s), transfer(s) or other document(s)
Document Link:	https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=80994&fileName=Parcel+register+and+Transfer+2017May18.pdf
Document Heading:	Supporting Documents
Document Name:	PSS RA1506-16b - Mar 23-17.xls
Document Type:	Property Specific Standards
Document Link:	https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=80997&fileName=PSS+RA1506-16b+-+Mar+23-17.xls
Document Heading:	Supporting Documents
Document Name:	Phase Two CSM with figures reduced.pdf
Document Type:	Phase 2 Conceptual Site Model
Document Link:	https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=81002&fileName=Phase+Two+CSM+with+figures+reduced.pdf
Document Heading:	Orders and Notices
Document Name:	108 Sydney St Kitchener CPU No 7557-AGGL8B March 6 2017.pdf
Document Type:	CPU
Document Link:	https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=81073&fileName=108+Sydney+St+Kitchener+CPU+No+7557-AGGL8B+March+6+2017.pdf
Document Heading:	Supporting Documents
Document Name:	K-W Hab Certificate of Status.pdf
Document Type:	Certificate of Status
Document Link:	https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=81000&fileName=K-W+Hab+Certificate+of+Status.pdf
Document Heading:	Supporting Documents
Document Name:	Lawyers letter 2017May18.pdf
Document Type:	Lawyer's letter consisting of a legal description of the property
Document Link:	https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=80999&fileName=Lawyers+letter+2017May18.pdf
Document Heading:	Supporting Documents
Document Name:	Plan of Survey 58R 18710 Marked.pdf
Document Type:	A Current plan of Survey
Document Link:	https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=80996&fileName=Plan+of+Survey+58R+18710+Marked.pdf
Document Heading:	Supporting Documents
Document Name:	Current and Past Uses of the Site cwc.pdf
Document Type:	Table of Current and Past Property Use

Document Link: https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=80998&fileName=Current+and+Past+Uses+of+the+Site+cwc.pdf

---

162 | **11 of 19** | **320.2** | **K-W Habilitation Services Day Options**
108 Sydney Street South
Kitchener ON N2G 3V2 | **GEN**

Generator No: ON2921757
SIC Code: 623222
SIC Description: 623222
Approval Years: 2016
PO Box No:
Country: Canada
Status:
Co Admin: Catherine Guiao
Choice of Contact: CO_ADMIN
Phone No Admin: 905 567 6100 Ext.2557
Contaminated Facility: No
MHSW Facility: No

Detail(s)

Waste Class: 221
Waste Class Name: LIGHT FUELS

Waste Class: 241
Waste Class Name: HALOGENATED SOLVENTS

---

162 | **12 of 19** | **320.2** | **K-W Habilitation Services Day Options**
108 Sydney Street South
Kitchener ON N2G 3V2 | **GEN**

Generator No: ON2921757
SIC Code: 623222
SIC Description: 623222
Approval Years: 2015
PO Box No:
Country: Canada
Status:
Co Admin: Catherine Guiao
Choice of Contact: CO_ADMIN
Phone No Admin: 905 567 6100 Ext.2557
Contaminated Facility: No
MHSW Facility: No

Detail(s)

Waste Class: 241
Waste Class Name: HALOGENATED SOLVENTS

Waste Class: 221
Waste Class Name: LIGHT FUELS

---

162 | **13 of 19** | **320.2** | **K-W Habilitation Services Day Options**
108 Sydney Street South
Kitchener ON N2G 3V2 | **GEN**

Generator No: ON2921757
SIC Code: 623222
SIC Description: 623222
Approval Years: 2014

PO Box No:
Country: Canada
Status:
Co Admin: Keith Salt
Choice of Contact: CO_ADMIN
Phone No Admin: 905 567 6100 Ext.1338
Contaminated Facility: No
MHSW Facility: No

Detail(s)

Waste Class: 221
Waste Class Name: LIGHT FUELS

Waste Class: 241
Waste Class Name: HALOGENATED SOLVENTS

---

162 **14 of 19** **320.2** **K-W Habilitation Services Day Options**
108 Sydney Street South
Kitchener ON N2G 3V2
GEN

Generator No: ON2921757
SIC Code:
SIC Description:
Approval Years: As of Dec 2018
PO Box No:
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 221 L
Waste Class Name: Light fuels

Waste Class: 241 L
Waste Class Name: Halogenated solvents and residues

---

162 **15 of 19** **320.2** **K-W HABILITATION SERVICES**
108 Sydney ST
Kitchener ON N2G 3V2
EASR

Approval No: R-010-1110449563
Status: REGISTERED
Date: 2018-05-15
Record Type: EASR
Link Source: MOFA
Project Type: Air Emissions
Full Address:
Approval Type: EASR-Air Emissions
SWP Area Name: Grand River
PDF URL:
PDF Site Location:

MOE District: Guelph
Municipality: Kitchener
Latitude: 43.43916667
Longitude: -80.47305556
Geometry X:
Geometry Y:

---

162 **16 of 19** **320.2** **K-W Habilitation Services Day Options**
108 Sydney Street South
GEN

Kitchener ON N2G 3V2

Generator No: ON2921757
SIC Code:
SIC Description:
Approval Years: As of Jul 2020
PO Box No:
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 241 L
Waste Class Name: Halogenated solvents and residues

Waste Class: 221 L
Waste Class Name: Light fuels

---

162 | ***17 of 19*** | ***320.2*** | ***K-W Habilitation Services*** | ***SPL***
108 Sydney St S
Kitchener ON N2G 3S8

Ref No: 4173-BAVL5R
Site No: 6972-A6HM93
Incident Dt: 4/3/2019
Year:
Incident Cause:
Incident Event:
Environment Impact:
Nature of Impact:
MOE Response: No
Dt MOE Arvl on Scn:
MOE Reported Dt: 4/3/2019
Dt Document Closed: 5/31/2019
Municipality No:
System Facility Address:
Client Type: Corporation
Call Report Location Geodata:
Contaminant Code:
Contaminant Name:
Contaminant Limit 1:
Contam Limit Freq 1:
Contaminant UN No 1:
Receiving Medium:
Receiving Environment:
Incident Reason:
Incident Summary: 2018 Annual Monitoring Report
Site Region: West Central
Site Municipality: Kitchener
Activity Preceding Spill:
Property 2nd Watershed:
Property Tertiary Watershed:
Sector Type:
SAC Action Class:
Source Type:
Site County/District: Regional Municipality of Waterloo
Site Geo Ref Meth: 1-10 metres eg. Good Quality GPS
Site District Office: Guelph

Contaminant Qty:
Nature of Damage:
Discharger Report:
Material Group:
Health/Env Conseq: 0 - No Impact
Agency Involved:
Site Lot:
Site Conc: NA
Site Geo Ref Accu: Not Available
Site Map Datum: NAD83
Northing: 4809696
Easting: 542680

Map Key	Number of Records	Elevation (m)	Site	DB

Nearest Watercourse:
Site Name: 108 Sydney Street South
Site Address: 108 Sydney St S
Client Name: K-W Habilitation Services

---

162 ***18 of 19*** ***320.2*** ***K-W Habilitation Services Day Options***
108 Sydney Street South
Kitchener ON N2G 3V2 ***GEN***

Generator No: ON2921757
SIC Code:
SIC Description:
Approval Years: As of Nov 2021
PO Box No:
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 241 L
Waste Class Name: Halogenated solvents and residues

Waste Class: 221 L
Waste Class Name: Light fuels

---

162 ***19 of 19*** ***320.2*** ***K-W Habilitation Services Day Options***
108 Sydney Street South
Kitchener ON N2G 3V2 ***GEN***

Generator No: ON2921757
SIC Code:
SIC Description:
Approval Years: As of Oct 2022
PO Box No:
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 221 L
Waste Class Name: LIGHT FUELS

Waste Class: 241 L
Waste Class Name: HALOGENATED SOLVENTS

---

163 ***1 of 1*** ***319.9*** ***ON*** ***BORE***

Borehole ID: 680859 ***Inclin FLG:*** No
OGF ID: 215557855 ***SP Status:*** Initial Entry

Status:		***Surv Elev:***	No
Type:	Borehole	***Piezometer:***	No
Use:	Geotechnical/Geological Investigation	***Primary Name:***	
Completion Date:	AUG-1958	***Municipality:***	
Static Water Level:	1.5	***Lot:***	
Primary Water Use:		***Township:***	
Sec. Water Use:		***Latitude DD:***	43.441832
Total Depth m:	7.9	***Longitude DD:***	-80.483317
Depth Ref:	Ground Surface	***UTM Zone:***	17
Depth Elev:		***Easting:***	541811
Drill Method:	Power auger	***Northing:***	4810011
Orig Ground Elev m:	319	***Location Accuracy:***	
Elev Reliabil Note:		***Accuracy:***	Not Applicable
DEM Ground Elev m:	320		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218552950	***Mat Consistency:***	Compact
Top Depth:	2.1	***Material Moisture:***	
Bottom Depth:	2.7	***Material Texture:***	
Material Color:	Grey	***Non Geo Mat Type:***	
Material 1:	Silt	***Geologic Formation:***	
Material 2:	organic material	***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	organic
Gsc Material Description:			
Stratum Description:	GREY, COMPACT.		

Geology Stratum ID:	218552947	***Mat Consistency:***	
Top Depth:	0	***Material Moisture:***	
Bottom Depth:	.9	***Material Texture:***	Medium
Material Color:	Brown	***Non Geo Mat Type:***	
Material 1:	Sand	***Geologic Formation:***	
Material 2:	organic material	***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	organic
Gsc Material Description:			
Stratum Description:	LIGHT, BROWN.		

Geology Stratum ID:	218552952	***Mat Consistency:***	Dense
Top Depth:	6.1	***Material Moisture:***	
Bottom Depth:	7.9	***Material Texture:***	Medium
Material Color:	Grey	***Non Geo Mat Type:***	
Material 1:	Sand	***Geologic Formation:***	
Material 2:	Silt	***Geologic Group:***	
Material 3:	Clay	***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			
Stratum Description:	GREY, DENSE, SEAMS.		

Geology Stratum ID:	218552949	***Mat Consistency:***	Loose
Top Depth:	1.5	***Material Moisture:***	
Bottom Depth:	2.1	***Material Texture:***	Medium
Material Color:	Dark	***Non Geo Mat Type:***	
Material 1:	Sand	***Geologic Formation:***	
Material 2:	organic material	***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	organic
Gsc Material Description:			
Stratum Description:	DARK, GREEN, VERY LOOSE.		

Geology Stratum ID:	218552951	**Mat Consistency:**	Compact
Top Depth:	2.7	**Material Moisture:**	
Bottom Depth:	6.1	**Material Texture:**	Medium
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:	Silt	**Geologic Group:**	
Material 3:	Clay	**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	GREY, COMPACT, SEAMS.		

Geology Stratum ID:	218552948	**Mat Consistency:**	Soft
Top Depth:	.9	**Material Moisture:**	
Bottom Depth:	1.5	**Material Texture:**	
Material Color:	Black	**Non Geo Mat Type:**	
Material 1:	Clay	**Geologic Formation:**	
Material 2:	Silt	**Geologic Group:**	
Material 3:	Sand	**Geologic Period:**	
Material 4:		**Depositional Gen:**	organic
Gsc Material Description:			
Stratum Description:	BLACK, VERY SOFT.		

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	4
Source Date:	1900 - 1977	**Scale or Res:**	Varies
Confidence:	H	**Horizontal:**	NAD27
Observatio:	1958/8	**Verticalda:**	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Details:	1311		
Confiden 1:			

Source List

Source Identifier:	4	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1900 - 1977	**Projection Name:**	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Originators:	Geological Survey of Canada		

---

164 **1 of 1** **314.9** **ON** **BORE**

Borehole ID:	680055	**Inclin FLG:**	No
OGF ID:	215557051	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:	Geotechnical/Geological Investigation	**Primary Name:**	
Completion Date:	SEP-1968	**Municipality:**	
Static Water Level:		**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	43.437915
Total Depth m:	9.8	**Longitude DD:**	-80.473465
Depth Ref:	Ground Surface	**UTM Zone:**	17
Depth Elev:		**Easting:**	542611
Drill Method:	Power auger	**Northing:**	4809581
Orig Ground Elev m:	316	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	317		
Concession:			
Location D:			

Survey D:
Comments:

Borehole Geology Stratum

Geology Stratum ID: 218549114
Top Depth: .9
Bottom Depth: 1.2
Material Color: Brown
Material 1: Clay
Material 2:
Material 3:
Material 4:
Gsc Material Description:
Stratum Description: BROWN.

Mat Consistency:
Material Moisture:
Material Texture:
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen:

Geology Stratum ID: 218549113
Top Depth: 0
Bottom Depth: .9
Material Color:
Material 1: Fill
Material 2:
Material 3:
Material 4:
Gsc Material Description:
Stratum Description: (No description) **Note: Many records provided by the department have a truncated [Stratum Description] field.

Mat Consistency:
Material Moisture:
Material Texture:
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen: fill

Geology Stratum ID: 218549115
Top Depth: 1.2
Bottom Depth: 2.4
Material Color: Dark
Material 1: Silt
Material 2: Clay
Material 3:
Material 4:
Gsc Material Description:
Stratum Description: DARK, BROWN, COMPACT.

Mat Consistency: Compact
Material Moisture:
Material Texture:
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen:

Geology Stratum ID: 218549117
Top Depth: 3.7
Bottom Depth: 9.8
Material Color: Dark
Material 1: Silt
Material 2:
Material 3:
Material 4:
Gsc Material Description:
Stratum Description: DARK, BROWN, DENSE.

Mat Consistency: Dense
Material Moisture:
Material Texture:
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen:

Geology Stratum ID: 218549116
Top Depth: 2.4
Bottom Depth: 3.7
Material Color: Brown
Material 1: Clay
Material 2: Silt
Material 3:
Material 4:
Gsc Material Description:
Stratum Description: BROWN, STIFF.

Mat Consistency: Stiff
Material Moisture:
Material Texture:
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen:

Source

Source Type: Data Survey
Source Orig: Geological Survey of Canada
Source Appl: Spatial/Tabular
Source Iden: 4

Source Date:	1900 - 1977	**Scale or Res:**	Varies
Confidence:	H	**Horizontal:**	NAD27
Observatio:	1968/9	**Verticalda:**	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Details:	64		
Confiden 1:			

Source List

Source Identifier:	4	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1900 - 1977	**Projection Name:**	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Originators:	Geological Survey of Canada		

---

165 | ***1 of 1*** | ***321.2*** | ***260 COURTLAND AVE KITCHENER ON*** | ***WWIS***

Well ID:	7186637	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:		**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Abandoned-Other	**Date Received:**	05-Sep-2012 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	Yes
Audit No:	Z146702	**Contractor:**	7238
Tag:		**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/718\7186637.pdf

Additional Detail(s) (Map)

Well Completed Date:	2012/04/04
Year Completed:	2012
Depth (m):	7.3152
Latitude:	43.4408969391217
Longitude:	-80.4836709675766
Path:	718\7186637.pdf

Bore Hole Information

Bore Hole ID:	1004149470	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	541783.00
Code OB Desc:		**North83:**	4809907.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	04-Apr-2012 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr

Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 1004424301
Layer: 1
Color: 2
General Color: GREY
Mat1: 06
Most Common Material: SILT
Mat2: 28
Mat2 Desc: SAND
Mat3: 85
Mat3 Desc: SOFT
Formation Top Depth: 0.0
Formation End Depth: 24.0
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1004424307
Layer: 1
Plug From: 0.0
Plug To: 10.0
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 1004424306
Method Construction Code: 6
Method Construction: Boring
Other Method Construction:

Pipe Information

Pipe ID: 1004424300
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1004424304
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 4.0
Casing Diameter: 2.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Screen

Screen ID:	1004424305
Layer:	1
Slot:	10
Screen Top Depth:	4.0
Screen End Depth:	24.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.0

Water Details

Water ID:	1004424303
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1004424302
Diameter:	6.0
Depth From:	0.0
Depth To:	24.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1004149470	***Tag No:***	
Depth M:	7.3152	***Contractor:***	7238
Year Completed:	2012	***Path:***	718\7186637.pdf
Well Completed Dt:	2012/04/04	***Latitude:***	43.4408969391217
Audit No:	Z146702	***Longitude:***	-80.4836709675766

---

166 | ***1 of 1*** | ***320.2*** | ***108 SYDNEY STREET SOUTH Kitchener ON*** | ***WWIS***

Well ID:	7250410	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Monitoring and Test Hole	***Data Entry Status:***	
Use 2nd:	0	***Data Src:***	
Final Well Status:	Monitoring and Test Hole	***Date Received:***	16-Oct-2015 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	Z212454	***Contractor:***	7241
Tag:	A188563	***Form Version:***	7
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:	WKQ-008302 A0-A02		

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date: 2015/09/25
Year Completed: 2015
Depth (m): 5.1816
Latitude: 43.4390723926167
Longitude: -80.4725651792283
Path:

Bore Hole Information

Bore Hole ID: 1005751484
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 25-Sep-2015 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone: 17
East83: 542683.00
North83: 4809710.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Overburden and Bedrock Materials Interval

Formation ID: 1005775818
Layer: 1
Color: 6
General Color: BROWN
Mat1: 01
Most Common Material: FILL
Mat2: 11
Mat2 Desc: GRAVEL
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 5.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1005775819
Layer: 2
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 06
Mat2 Desc: SILT
Mat3:
Mat3 Desc:
Formation Top Depth: 5.0

Formation End Depth: 10.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1005775820
Layer: 3
Color: 2
General Color: GREY
Mat1: 06
Most Common Material: SILT
Mat2: 28
Mat2 Desc: SAND
Mat3: 05
Mat3 Desc: CLAY
Formation Top Depth: 10.0
Formation End Depth: 17.0
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1005775828
Layer: 1
Plug From: 0.0
Plug To: 1.0
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1005775830
Layer: 3
Plug From: 11.0
Plug To: 17.0
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1005775829
Layer: 2
Plug From: 1.0
Plug To: 11.0
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 1005775827
Method Construction Code: D
Method Construction: Direct Push
Other Method Construction:

Pipe Information

Pipe ID: 1005775817
Casing No: 0
Comment:

Alt Name:

Construction Record - Casing

Casing ID:	1005775823
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	12.0
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1005775824
Layer:	1
Slot:	10
Screen Top Depth:	12.0
Screen End Depth:	17.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.25

Water Details

Water ID:	1005775822
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1005775821
Diameter:	8.0
Depth From:	0.0
Depth To:	17.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1005751484	***Tag No:***	A188563
Depth M:	5.1816	***Contractor:***	7241
Year Completed:	2015	***Path:***	725\7250410.pdf
Well Completed Dt:	2015/09/25	***Latitude:***	43.4390723926167
Audit No:	Z212454	***Longitude:***	-80.4725651792283

---

167 ***1 of 1*** ***320.2*** ***108 SYDNEY STREET SOUTH Kitchener ON*** ***WWIS***

Well ID:	7250409	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Monitoring and Test Hole	***Data Entry Status:***	
Use 2nd:	0	***Data Src:***	
Final Well Status:	Monitoring and Test Hole	***Date Received:***	16-Oct-2015 00:00:00

Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	Z212452	***Contractor:***	7241
Tag:	A188562	***Form Version:***	7
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:	WKQ-008302 A0-A02		

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	2015/09/25
Year Completed:	2015
Depth (m):	3.9624
Latitude:	43.439036376558
Longitude:	-80.4725654920803
Path:	

Bore Hole Information

Bore Hole ID:	1005751481	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542683.00
Code OB Desc:		***North83:***	4809706.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	4
Date Completed:	25-Sep-2015 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1005775685
Layer:	3
Color:	2
General Color:	GREY
Mat1:	06
Most Common Material:	SILT
Mat2:	28
Mat2 Desc:	SAND
Mat3:	05
Mat3 Desc:	CLAY
Formation Top Depth:	10.0
Formation End Depth:	13.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1005775684
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	
Mat3 Desc:	
Formation Top Depth:	5.0
Formation End Depth:	10.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1005775683
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	01
Most Common Material:	FILL
Mat2:	11
Mat2 Desc:	GRAVEL
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.0
Formation End Depth:	5.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1005775695
Layer:	3
Plug From:	7.0
Plug To:	13.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1005775693
Layer:	1
Plug From:	0.0
Plug To:	1.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1005775694
Layer:	2
Plug From:	1.0
Plug To:	7.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID: 1005775692
Method Construction Code: D
Method Construction: Direct Push
Other Method Construction:

Pipe Information

Pipe ID: 1005775682
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1005775688
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 8.0
Casing Diameter: 2.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Screen

Screen ID: 1005775689
Layer: 1
Slot: 10
Screen Top Depth: 8.0
Screen End Depth: 13.0
Screen Material: 5
Screen Depth UOM: ft
Screen Diameter UOM: inch
Screen Diameter: 2.25

Water Details

Water ID: 1005775687
Layer:
Kind Code:
Kind:
Water Found Depth:
Water Found Depth UOM: ft

Hole Diameter

Hole ID: 1005775686
Diameter: 8.0
Depth From: 0.0
Depth To: 13.0
Hole Depth UOM: ft
Hole Diameter UOM: inch

Links

Bore Hole ID: 1005751481 ***Tag No:*** A188562

Depth M:	3.9624	**Contractor:**	7241
Year Completed:	2015	**Path:**	725\7250409.pdf
Well Completed Dt:	2015/09/25	**Latitude:**	43.439036376558
Audit No:	Z212452	**Longitude:**	-80.4725654920803

168 | **1 of 1** | **318.8** | **108 SYDNEY ST S KITCHENER ON** | **WWIS**

Well ID:	7237602	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring and Test Hole	**Data Entry Status:**	
Use 2nd:	0	**Data Src:**	
Final Well Status:	Monitoring and Test Hole	**Date Received:**	16-Feb-2015 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z203851	**Contractor:**	7241
Tag:	A176574	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/723\7237602.pdf

Additional Detail(s) (Map)

Well Completed Date:	2015/01/13
Year Completed:	2015
Depth (m):	7.9248
Latitude:	43.4387848339954
Longitude:	-80.4726912465281
Path:	723\7237602.pdf

Bore Hole Information

Bore Hole ID:	1005307851	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542673.00
Code OB Desc:		**North83:**	4809678.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	13-Jan-2015 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1005539103
Layer:	3
Color:	2
General Color:	GREY
Mat1:	06
Most Common Material:	SILT
Mat2:	28
Mat2 Desc:	SAND
Mat3:	
Mat3 Desc:	
Formation Top Depth:	15.0
Formation End Depth:	26.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1005539102
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	06
Most Common Material:	SILT
Mat2:	28
Mat2 Desc:	SAND
Mat3:	
Mat3 Desc:	
Formation Top Depth:	7.0
Formation End Depth:	15.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1005539101
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.0
Formation End Depth:	7.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1005539112
Layer:	2
Plug From:	20.0
Plug To:	0.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1005539111
Layer:	1

Plug From:	26.0
Plug To:	20.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1005539110
Method Construction Code:	D
Method Construction:	Direct Push
Other Method Construction:	

Pipe Information

Pipe ID:	1005539100
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1005539106
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	21.0
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1005539107
Layer:	1
Slot:	.10
Screen Top Depth:	21.0
Screen End Depth:	25.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.25

Water Details

Water ID:	1005539105
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1005539104
Diameter:	8.0
Depth From:	0.0
Depth To:	26.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1005307851	***Tag No:***	A176574
Depth M:	7.9248	***Contractor:***	7241
Year Completed:	2015	***Path:***	723\7237602.pdf
Well Completed Dt:	2015/01/13	***Latitude:***	43.4387848339954
Audit No:	Z203851	***Longitude:***	-80.4726912465281

169 *1 of 1* *316.2* *ON* ***WWIS***

Well ID:	7103545	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Not Used	***Data Entry Status:***	
Use 2nd:		***Data Src:***	
Final Well Status:	Test Hole	***Date Received:***	03-Apr-2008 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	Z70752	***Contractor:***	7082
Tag:	A055227	***Form Version:***	3
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/710\7103545.pdf

Additional Detail(s) (Map)

Well Completed Date:	2007/09/05
Year Completed:	2007
Depth (m):	3.7
Latitude:	43.4382193466711
Longitude:	-80.4730792190478
Path:	710\7103545.pdf

Bore Hole Information

Bore Hole ID:	1001563024	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542642.00
Code OB Desc:		***North83:***	4809615.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	3
Date Completed:	05-Sep-2007 00:00:00	***UTMRC Desc:***	margin of error : 10 - 30 m
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID: 1001666327
Layer: 1
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 06
Mat2 Desc: SILT
Mat3: 84
Mat3 Desc: SILTY
Formation Top Depth: 0.0
Formation End Depth: 0.30000001192092896
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1001666330
Layer: 4
Color: 2
General Color: GREY
Mat1: 28
Most Common Material: SAND
Mat2: 06
Mat2 Desc: SILT
Mat3: 91
Mat3 Desc: WATER-BEARING
Formation Top Depth: 2.4000000953674316
Formation End Depth: 2.799999952316284
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1001666331
Layer: 5
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY
Mat2: 06
Mat2 Desc: SILT
Mat3: 28
Mat3 Desc: SAND
Formation Top Depth: 2.799999952316284
Formation End Depth: 3.700000047683716
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1001666328
Layer: 2
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 06

Mat2 Desc:	SILT
Mat3:	05
Mat3 Desc:	CLAY
Formation Top Depth:	0.30000001192092896
Formation End Depth:	2.0
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1001666329
Layer:	3
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	11
Mat2 Desc:	GRAVEL
Mat3:	91
Mat3 Desc:	WATER-BEARING
Formation Top Depth:	2.0
Formation End Depth:	2.4000000953674316
Formation End Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1001666336
Layer:	1
Plug From:	0.0
Plug To:	0.8999999761581421
Plug Depth UOM:	m

Method of Construction & Well Use

Method Construction ID:	1001666341
Method Construction Code:	9
Method Construction:	Driving
Other Method Construction:	

Pipe Information

Pipe ID:	1001666326
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1001666338
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	1.2000000476837158
Casing Diameter:	3.4000000953674316
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1001666339
Layer:	1
Slot:	10
Screen Top Depth:	1.2000000476837158
Screen End Depth:	3.700000047683716
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	4.199999809265137

Water Details

Water ID:	1001666337
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1001666335
Diameter:	9.5
Depth From:	0.0
Depth To:	3.700000047683716
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1001563024	***Tag No:***	A055227
Depth M:	3.7	***Contractor:***	7082
Year Completed:	2007	***Path:***	710\7103545.pdf
Well Completed Dt:	2007/09/05	***Latitude:***	43.4382193466711
Audit No:	Z70752	***Longitude:***	-80.4730792190478

---

170 ***1 of 1*** ***319.7*** ***ON*** ***BORE***

Borehole ID:	683544	***Inclin FLG:***	No
OGF ID:	215560540	***SP Status:***	Initial Entry
Status:		***Surv Elev:***	No
Type:	Borehole	***Piezometer:***	No
Use:	Geotechnical/Geological Investigation	***Primary Name:***	
Completion Date:	JAN-1975	***Municipality:***	
Static Water Level:	2.2	***Lot:***	
Primary Water Use:		***Township:***	
Sec. Water Use:		***Latitude DD:***	43.441832
Total Depth m:	15.7	***Longitude DD:***	-80.483441
Depth Ref:	Ground Surface	***UTM Zone:***	17
Depth Elev:		***Easting:***	541801
Drill Method:	Power auger	***Northing:***	4810011
Orig Ground Elev m:	319	***Location Accuracy:***	
Elev Reliabil Note:		***Accuracy:***	Not Applicable
DEM Ground Elev m:	321		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218561588	***Mat Consistency:***	
Top Depth:	0	***Material Moisture:***	
Bottom Depth:	1.7	***Material Texture:***	
Material Color:		***Non Geo Mat Type:***	
Material 1:	Fill	***Geologic Formation:***	
Material 2:		***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	fill
Gsc Material Description:			
Stratum Description:	(No description) **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218561593	***Mat Consistency:***	Dense
Top Depth:	13.4	***Material Moisture:***	Moist
Bottom Depth:	15.7	***Material Texture:***	
Material Color:	Grey	***Non Geo Mat Type:***	
Material 1:	Silt	***Geologic Formation:***	
Material 2:		***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			
Stratum Description:	TILL VERY DENSE GREY MOIST **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218561589	***Mat Consistency:***	
Top Depth:	1.7	***Material Moisture:***	Wet
Bottom Depth:	3.2	***Material Texture:***	
Material Color:		***Non Geo Mat Type:***	
Material 1:	Silt	***Geologic Formation:***	
Material 2:		***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			
Stratum Description:	ROOTS, VERY MOIST-WET **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218561591	***Mat Consistency:***	Compact
Top Depth:	4	***Material Moisture:***	Wet
Bottom Depth:	9.1	***Material Texture:***	Fine
Material Color:	Grey	***Non Geo Mat Type:***	
Material 1:	Sand	***Geologic Formation:***	
Material 2:		***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			
Stratum Description:	FINE, COMPACT, GREY THIN CLAY LAYERS WET TO SATURATED **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218561592	***Mat Consistency:***	
Top Depth:	9.1	***Material Moisture:***	Moist
Bottom Depth:	13.4	***Material Texture:***	
Material Color:		***Non Geo Mat Type:***	
Material 1:	Silt	***Geologic Formation:***	
Material 2:		***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			
Stratum Description:	WITH CLAY LAYERS VERY MOIST, MORE CLAY WITH DEPTH **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218561590	***Mat Consistency:***	Compact
Top Depth:	3.2	***Material Moisture:***	Wet
Bottom Depth:	4	***Material Texture:***	
Material Color:	Grey	***Non Geo Mat Type:***	

Material 1:	Sand	**Geologic Formation:**	
Material 2:	Gravel	**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	COMPACT, GREY WET **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	4
Source Date:	1900 - 1977	**Scale or Res:**	Varies
Confidence:	H	**Horizontal:**	NAD27
Observatio:	1975/1	**Verticalda:**	Mean Average Sea Level
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Details:	13165		
Confiden 1:			

Source List

Source Identifier:	4	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1900 - 1977	**Projection Name:**	Universal Traverse Mercator
Scale or Resolution:	Varies		
Source Name:	Waterloo Area Geology Automated Information System (WAGAIS)		
Source Originators:	Geological Survey of Canada		

---

171 | ***1 of 1*** | ***318.8*** | ***108 SYDNEY ST S Kitchener ON*** | ***WWIS***

Well ID:	7215999	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring and Test Hole	**Data Entry Status:**	
Use 2nd:	0	**Data Src:**	
Final Well Status:	Test Hole	**Date Received:**	10-Feb-2014 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z168998	**Contractor:**	7241
Tag:	A149955	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/721\7215999.pdf

Additional Detail(s) (Map)

Well Completed Date:	2013/12/23
Year Completed:	2013
Depth (m):	4
Latitude:	43.4388024431411
Longitude:	-80.4726045949646
Path:	721\7215999.pdf

Bore Hole Information

Bore Hole ID:	1004706048	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542680.00
Code OB Desc:		***North83:***	4809680.00
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	4
Date Completed:	23-Dec-2013 00:00:00	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1005078687
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	02
Most Common Material:	TOPSOIL
Mat2:	
Mat2 Desc:	
Mat3:	85
Mat3 Desc:	SOFT
Formation Top Depth:	0.0
Formation End Depth:	1.0
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1005078688
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	85
Mat2 Desc:	SOFT
Mat3:	
Mat3 Desc:	
Formation Top Depth:	1.0
Formation End Depth:	3.0
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1005078689
Layer:	3
Color:	2
General Color:	GREY
Mat1:	06

Most Common Material: SILT
Mat2: 08
Mat2 Desc: FINE SAND
Mat3: 85
Mat3 Desc: SOFT
Formation Top Depth: 3.0
Formation End Depth: 4.0
Formation End Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1005078698
Layer: 2
Plug From: 0.3100000023841858
Plug To: 2.200000047683716
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1005078697
Layer: 1
Plug From: 0.0
Plug To: 0.3100000023841858
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1005078699
Layer: 3
Plug From: 2.200000047683716
Plug To: 4.0
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1005078696
Method Construction Code: 2
Method Construction: Rotary (Convent.)
Other Method Construction:

Pipe Information

Pipe ID: 1005078686
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1005078692
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0.0
Depth To: 2.5
Casing Diameter: 5.199999809265137

Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1005078693
Layer:	1
Slot:	10
Screen Top Depth:	2.559999942779541
Screen End Depth:	4.0
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	6.099999904632568

Water Details

Water ID:	1005078691
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1005078690
Diameter:	20.0
Depth From:	0.0
Depth To:	4.0
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Links

Bore Hole ID:	1004706048	***Tag No:***	A149955
Depth M:	4	***Contractor:***	7241
Year Completed:	2013	***Path:***	721\7215999.pdf
Well Completed Dt:	2013/12/23	***Latitude:***	43.4388024431411
Audit No:	Z168998	***Longitude:***	-80.4726045949646

---

172 ***1 of 1*** ***320.9*** ***LION HORSE TRAIL*** ***WWIS***
Kitchener ON

Well ID:	7353963	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Monitoring and Test Hole	***Data Entry Status:***	
Use 2nd:		***Data Src:***	
Final Well Status:	Monitoring and Test Hole	***Date Received:***	24-Feb-2020 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	Z326427	***Contractor:***	7320
Tag:	A284214	***Form Version:***	7
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	

Clear/Cloudy: ***UTM Reliability:***
Municipality: KITCHENER CITY
Site Info:

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date: 2020/01/27
Year Completed: 2020
Depth (m): 4.572
Latitude: 43.4413743199504
Longitude: -80.4837039802543
Path:

Bore Hole Information

Bore Hole ID: 1008171799 ***Elevation:***
DP2BR: ***Elevrc:***
Spatial Status: ***Zone:*** 17
Code OB: ***East83:*** 541780.00
Code OB Desc: ***North83:*** 4809960.00
Open Hole: ***Org CS:*** UTM83
Cluster Kind: ***UTMRC:*** 4
Date Completed: 27-Jan-2020 00:00:00 ***UTMRC Desc:*** margin of error : 30 m - 100 m
Remarks: ***Location Method:*** digit
Loc Method Desc:
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 1008232430
Layer: 2
Color: 6
General Color: BROWN
Mat1: 05
Most Common Material: CLAY
Mat2: 06
Mat2 Desc: SILT
Mat3:
Mat3 Desc:
Formation Top Depth: 13.0
Formation End Depth: 15.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 1008232429
Layer: 1
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 21
Mat2 Desc: GRANITE

Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 13.0
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1008234685
Layer: 1
Plug From: 0.0
Plug To: 1.0
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1008234686
Layer: 2
Plug From: 1.0
Plug To: 4.0
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1008234687
Layer: 3
Plug From: 4.0
Plug To: 15.0
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 1008236744
Method Construction Code: 2
Method Construction: Rotary (Convent.)
Other Method Construction:

Method of Construction & Well Use

Method Construction ID: 1008236745
Method Construction Code: 6
Method Construction: Boring
Other Method Construction:

Pipe Information

Pipe ID: 1008229429
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1008237688
Layer: 1

Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	5.0
Casing Diameter:	2.0
Casing Diameter UOM:	Inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1008238536
Layer:	1
Slot:	.01
Screen Top Depth:	5.0
Screen End Depth:	15.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.0

Results of Well Yield Testing

Pumping Test Method Desc:	
Pump Test ID:	1008239879
Pump Set At:	
Static Level:	
Final Level After Pumping:	
Recommended Pump Depth:	
Pumping Rate:	
Flowing Rate:	
Recommended Pump Rate:	
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	
Water State After Test:	
Pumping Test Method:	0
Pumping Duration HR:	
Pumping Duration MIN:	
Flowing:	

Hole Diameter

Hole ID:	1008235742
Diameter:	8.0
Depth From:	0.0
Depth To:	15.0
Hole Depth UOM:	ft
Hole Diameter UOM:	Inch

Links

Bore Hole ID:	1008171799	***Tag No:***	A284214
Depth M:	4.572	***Contractor:***	7320
Year Completed:	2020	***Path:***	735\7353963.pdf
Well Completed Dt:	2020/01/27	***Latitude:***	43.4413743199504
Audit No:	Z326427	***Longitude:***	-80.4837039802543

173	***1 of 2***	***314.9***	***RUMPLE FELT*** ***IN SCHNEIDER CREEK NEAR SYDNEY ST.*** ***KITCHENER CITY ON***	***SPL***

Ref No:	57088	**Contaminant Qty:**	
Site No:		**Nature of Damage:**	
Incident Dt:	9/10/1991	**Discharger Report:**	
Year:		**Material Group:**	
Incident Cause:	OTHER CONTAINER LEAK	**Health/Env Conseq:**	
Incident Event:		**Agency Involved:**	REGION OF WATERLOO
Environment Impact:	CONFIRMED	**Site Lot:**	
Nature of Impact:	Water course or lake	**Site Conc:**	
MOE Response:		**Site Geo Ref Accu:**	
Dt MOE Arvl on Scn:		**Site Map Datum:**	
MOE Reported Dt:	9/10/1991	**Northing:**	
Dt Document Closed:		**Easting:**	
Municipality No:	25102		
System Facility Address:			
Client Type:			
Call Report Location Geodata:			
Contaminant Code:			
Contaminant Name:			
Contaminant Limit 1:			
Contam Limit Freq 1:			
Contaminant UN No 1:			
Receiving Medium:	WATER		
Receiving Environment:			
Incident Reason:	EQUIPMENT FAILURE		
Incident Summary:	RUMPLE FELT - 4500 L OF DYE RINSE TO SCHNEIDER CRK. FROM SUMP.		
Site Region:			
Site Municipality:	KITCHENER CITY		
Activity Preceding Spill:			
Property 2nd Watershed:			
Property Tertiary Watershed:			
Sector Type:			
SAC Action Class:			
Source Type:			
Site County/District:			
Site Geo Ref Meth:			
Site District Office:			
Nearest Watercourse:			
Site Name:			
Site Address:			
Client Name:			

173	2 of 2	314.9	Schneider Creek, at Niberg and Sydney Street Kitchener ON	SPL

Ref No:	8004-8VU3U9	**Contaminant Qty:**	
Site No:		**Nature of Damage:**	
Incident Dt:	02-JUL-12	**Discharger Report:**	
Year:		**Material Group:**	
Incident Cause:	Discharge Or Bypass To A Watercourse	**Health/Env Conseq:**	
Incident Event:		**Agency Involved:**	
Environment Impact:	Confirmed	**Site Lot:**	
Nature of Impact:	Surface Water Pollution	**Site Conc:**	
MOE Response:	Planned Field Response	**Site Geo Ref Accu:**	
Dt MOE Arvl on Scn:	27-AUG-12	**Site Map Datum:**	
MOE Reported Dt:	02-JUL-12	**Northing:**	
Dt Document Closed:	31-AUG-12	**Easting:**	
Municipality No:			
System Facility Address:			
Client Type:			
Call Report Location Geodata:			
Contaminant Code:	15		
Contaminant Name:	PETROLEUM OIL (N.O.S.)		
Contaminant Limit 1:			
Contam Limit Freq 1:			

Contaminant UN No 1:	
Receiving Medium:	Sewage - Municipal/Private and Commercial
Receiving Environment:	
Incident Reason:	Unknown - Reason not determined
Incident Summary:	Light sheen pooling in Schneider Creek, contained.
Site Region:	
Site Municipality:	Kitchener
Activity Preceding Spill:	
Property 2nd Watershed:	
Property Tertiary Watershed:	
Sector Type:	Unknown
SAC Action Class:	Watercourse Spills
Source Type:	
Site County/District:	
Site Geo Ref Meth:	
Site District Office:	
Nearest Watercourse:	
Site Name:	Schneider Creek, at Niberg and Sydney Street<UNOFFICIAL>
Site Address:	Schneider Creek, at Niberg and Sydney Street
Client Name:	

174 **1 of 1** **314.9** ***UNKNOWN***
SCHNEIDER'S CREEK AT THE CORNER OF SIDNEY ST. & NYBERG ST.
KITCHENER CITY ON **SPL**

Ref No:	210033	**Contaminant Qty:**	
Site No:		**Nature of Damage:**	
Incident Dt:		**Discharger Report:**	
Year:		**Material Group:**	
Incident Cause:	UNKNOWN	**Health/Env Conseq:**	
Incident Event:		**Agency Involved:**	CITY OF KITCHER, REGION OF WATERLOO
Environment Impact:	Confirmed	**Site Lot:**	
Nature of Impact:	Water course or lake	**Site Conc:**	
MOE Response:		**Site Geo Ref Accu:**	
Dt MOE Arvl on Scn:		**Site Map Datum:**	
MOE Reported Dt:	8/27/2001	**Northing:**	
Dt Document Closed:		**Easting:**	
Municipality No:	25102		
System Facility Address:			
Client Type:			
Call Report Location Geodata:			
Contaminant Code:			
Contaminant Name:			
Contaminant Limit 1:			
Contam Limit Freq 1:			
Contaminant UN No 1:			
Receiving Medium:	Water		
Receiving Environment:			
Incident Reason:	UNKNOWN		
Incident Summary:	SOURCE UNKNOWN - LIGHT OIL SHEEN ON SCHNEIDER'S CREEK IN KITCHENER.		
Site Region:			
Site Municipality:	KITCHENER CITY		
Activity Preceding Spill:			
Property 2nd Watershed:			
Property Tertiary Watershed:			
Sector Type:			
SAC Action Class:			
Source Type:			
Site County/District:			
Site Geo Ref Meth:			
Site District Office:			
Nearest Watercourse:			
Site Name:			

Map Key	Number of Records	Elevation (m)	Site	DB

Site Address:
Client Name:

---

175 | ***1 of 2*** | ***314.9*** | ***KITCHENER CITY***
SYDNEY ST./NYBERG ST
KITCHENER CITY ON | ***CA***

Certificate #: 3-1471-92-
Application Year: 92
Issue Date: 11/5/1992
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

---

175 | ***2 of 2*** | ***314.9*** | ***Intersection of Nyberg St. and Sydney St. S***
Kitchener ON | ***SPL***

Ref No: 1537-A9Q3K7
Site No: NA
Incident Dt: 2016/05/06
Year:
Incident Cause:
Incident Event: Unknown / N/A
Environment Impact:
Nature of Impact:
MOE Response: Yes
Dt MOE Arvl on Scn: 2016/05/17
MOE Reported Dt: 2016/05/06
Dt Document Closed: 2016/05/25
Municipality No:
System Facility Address:
Client Type:
Call Report Location Geodata:
Contaminant Code: 14
Contaminant Name: GREASE (N.O.S.)
Contaminant Limit 1:
Contam Limit Freq 1:
Contaminant UN No 1:
Receiving Medium:
Receiving Environment: Surface Water
Incident Reason: Unknown / N/A
Incident Summary: City of Kitchener: Unknown substance to Schneider Creek
Site Region:
Site Municipality: Kitchener
Activity Preceding Spill:
Property 2nd Watershed:
Property Tertiary Watershed:
Sector Type: Unknown / N/A
SAC Action Class: Watercourse Spills
Source Type:
Site County/District:
Site Geo Ref Meth:
Site District Office:
Nearest Watercourse: Grand River
Site Name: Schneider Creek<UNOFFICIAL>

Contaminant Qty: 0 other - see incident description
Nature of Damage:
Discharger Report:
Material Group:
Health/Env Conseq:
Agency Involved:
Site Lot:
Site Conc:
Site Geo Ref Accu: Map
Site Map Datum:
Northing: 4809560
Easting: 542626

Site Address: Intersection of Nyberg St. and Sydney St. S
Client Name:

---

176 *1 of 1* *314.9* ***At Sydney Street Bridge***
Kitchener ON ***SPL***

Ref No:	0331-APYSSZ	***Contaminant Qty:***	0 other - see incident description
Site No:	NA	***Nature of Damage:***	
Incident Dt:	8/6/2017	***Discharger Report:***	
Year:		***Material Group:***	
Incident Cause:		***Health/Env Conseq:***	2 - Minor Environment
Incident Event:	Unknown / N/A	***Agency Involved:***	
Environment Impact:		***Site Lot:***	
Nature of Impact:		***Site Conc:***	
MOE Response:	No	***Site Geo Ref Accu:***	
Dt MOE Arvl on Scn:		***Site Map Datum:***	
MOE Reported Dt:	8/6/2017	***Northing:***	4809574.15
Dt Document Closed:	8/8/2017	***Easting:***	542636.04

Municipality No:
System Facility Address:
Client Type:
Call Report Location Geodata:
Contaminant Code: 13
Contaminant Name: HYDROCARBON LIGHT
Contaminant Limit 1:
Contam Limit Freq 1: any
Contaminant UN No 1: n/a
Receiving Medium:
Receiving Environment: Surface Water; Source Water Zone
Incident Reason: Unknown / N/A
Incident Summary: Sheen in Schneider Creek, Kitchener, containing
Site Region: West Central
Site Municipality: Kitchener
Activity Preceding Spill:
Property 2nd Watershed:
Property Tertiary Watershed:
Sector Type: Unknown / N/A
SAC Action Class: Primary Assessment of Spills
Source Type: Unknown / N/A
Site County/District: Regional Municipality of Waterloo
Site Geo Ref Meth:
Site District Office: Guelph
Nearest Watercourse:
Site Name: Schneider's Creek<UNOFFICIAL>
Site Address: At Sydney Street Bridge
Client Name:

---

177 *1 of 6* *320.5* ***HOGG FUELS***
260 COURTLAND AVE. TANK CONTAINMENT AREA KITCHENER
DEPOT 5 HILL STREET
KITCHENER CITY ON N2G 2V7 ***SPL***

Ref No:	1110	***Contaminant Qty:***	
Site No:		***Nature of Damage:***	
Incident Dt:	3/9/1988	***Discharger Report:***	
Year:		***Material Group:***	
Incident Cause:	ABOVE-GROUND TANK LEAK	***Health/Env Conseq:***	
Incident Event:		***Agency Involved:***	
Environment Impact:		***Site Lot:***	
Nature of Impact:		***Site Conc:***	
MOE Response:		***Site Geo Ref Accu:***	
Dt MOE Arvl on Scn:		***Site Map Datum:***	

MOE Reported Dt:	3/9/1988	**Northing:**	
Dt Document Closed:		**Easting:**	
Municipality No:	25102		
System Facility Address:			
Client Type:			
Call Report Location Geodata:			
Contaminant Code:			
Contaminant Name:			
Contaminant Limit 1:			
Contam Limit Freq 1:			
Contaminant UN No 1:			
Receiving Medium:	LAND		
Receiving Environment:			
Incident Reason:	UNKNOWN		
Incident Summary:	HOGG FUELS - 25 LTR ULEADED GAS TO DYKE, ABSORBED.		
Site Region:			
Site Municipality:	KITCHENER CITY		
Activity Preceding Spill:			
Property 2nd Watershed:			
Property Tertiary Watershed:			
Sector Type:			
SAC Action Class:			
Source Type:			
Site County/District:			
Site Geo Ref Meth:			
Site District Office:			
Nearest Watercourse:			
Site Name:			
Site Address:			
Client Name:			

177 **2 of 6** **320.5** ***HOGG FUELS***
260 COURTLAND AVENUE EAST KITCHENER DEPOT 5 HILL STREET
KITCHENER CITY ON N2G 2V7 **SPL**

Ref No:	1483	**Contaminant Qty:**	
Site No:		**Nature of Damage:**	
Incident Dt:	3/21/1988	**Discharger Report:**	
Year:		**Material Group:**	
Incident Cause:	UNKNOWN	**Health/Env Conseq:**	
Incident Event:		**Agency Involved:**	
Environment Impact:	NOT ANTICIPATED	**Site Lot:**	
Nature of Impact:		**Site Conc:**	
MOE Response:		**Site Geo Ref Accu:**	
Dt MOE Arvl on Scn:		**Site Map Datum:**	
MOE Reported Dt:	3/21/1988	**Northing:**	
Dt Document Closed:		**Easting:**	
Municipality No:	25102		
System Facility Address:			
Client Type:			
Call Report Location Geodata:			
Contaminant Code:			
Contaminant Name:			
Contaminant Limit 1:			
Contam Limit Freq 1:			
Contaminant UN No 1:			
Receiving Medium:	LAND		
Receiving Environment:			
Incident Reason:	UNKNOWN		
Incident Summary:	HOGG FUELS-400-600 L FUEL OIL SPILLED TO PARKING LOT		
Site Region:			
Site Municipality:	KITCHENER CITY		
Activity Preceding Spill:			

Property 2nd Watershed:
Property Tertiary Watershed:
Sector Type:
SAC Action Class:
Source Type:
Site County/District:
Site Geo Ref Meth:
Site District Office:
Nearest Watercourse:
Site Name:
Site Address:
Client Name:

---

177 *3 of 6* *320.5* ***HOGG FUEL AND SUPPLY LTD*** ***PRT***
260 COURTLAND AV
KITCHENER ON N2G2V7

Location ID:	20628
Type:	retail
Expiry Date:	1995-12-31
Capacity (L):	904750
Licence #:	0022433001

---

177 *4 of 6* *320.5* ***CORNERSTONE ENGINEERING&RESTORATION INC.*** ***GEN***
260 COURTLAND AVENUE EAST
KITCHENER ON N2G 2V7

Generator No:	ON2355100
SIC Code:	3199
SIC Description:	OTHER MACHINERY
Approval Years:	97,98,99,00,01
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	145
Waste Class Name:	PAINT/PIGMENT/COATING RESIDUES

---

177 *5 of 6* *320.5* ***HOGG FUEL AND SUPPLY LIMITED*** ***GEN***
260 COURTLAND AVENUE
KITCHENER ON N2G 2V7

Generator No:	ON7415005
SIC Code:	9999
SIC Description:	OTHER SERVICES
Approval Years:	01
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	

Map Key	Number of Records	Elevation (m)	Site	DB

MHSW Facility:

Detail(s)

Waste Class: 221
Waste Class Name: LIGHT FUELS

---

177 | ***6 of 6*** | ***320.5*** | ***Hogg Fuel and Supply Limited***
260 Courtland Aveue
Kitchener ON N2G 2V7 | ***GEN***

Generator No: ON7415005
SIC Code:
SIC Description:
Approval Years: 02,03,04
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 221
Waste Class Name: LIGHT FUELS

---

178 | ***1 of 1*** | ***319.5*** | ***- Sydney Street South Area lot 1***
Kitchener ON | ***WWIS***

Well ID:	7387644	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:		***Data Entry Status:***	
Use 2nd:		***Data Src:***	
Final Well Status:	Abandoned-Other	***Date Received:***	13-May-2021 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	Yes
Audit No:	MUWR4XNS	***Contractor:***	7732
Tag:	_NO_TAG	***Form Version:***	9
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	001
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	GCT
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:			

Bore Hole Information

Bore Hole ID:	1008643709	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	542690.00
Code OB Desc:		***North83:***	4809660.00
Open Hole:		***Org CS:***	UTM83

Cluster Kind:		**UTMRC:**	4
Date Completed:	22-Apr-2021 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1008643783
Layer:	1
Color:	
General Color:	
Mat1:	
Most Common Material:	
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.0
Formation End Depth:	
Formation End Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1008643853
Layer:	1
Plug From:	0.0
Plug To:	2.9000000953674316
Plug Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1008643838
Layer:	1
Plug From:	
Plug To:	
Plug Depth UOM:	m

Pipe Information

Pipe ID:	1008643743
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1008643801
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	1.399999976158142

Casing Diameter:	5.0
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1008643816
Layer:	1
Slot:	
Screen Top Depth:	1.399999976158142
Screen End Depth:	2.9000000953674316
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	6.300000190734863

Results of Well Yield Testing

Pumping Test Method Desc:	
Pump Test ID:	1008643744
Pump Set At:	
Static Level:	
Final Level After Pumping:	
Recommended Pump Depth:	
Pumping Rate:	
Flowing Rate:	
Recommended Pump Rate:	
Levels UOM:	m
Rate UOM:	LPM
Water State After Test Code:	
Water State After Test:	
Pumping Test Method:	
Pumping Duration HR:	
Pumping Duration MIN:	
Flowing:	

Water Details

Water ID:	1008643769
Layer:	1
Kind Code:	8
Kind:	Untested
Water Found Depth:	1.100000023841858
Water Found Depth UOM:	m

Links

Bore Hole ID:	1008643709	***Tag No:***	_NO_TAG
Depth M:		***Contractor:***	7732
Year Completed:	2021	***Path:***	738\7387644.pdf
Well Completed Dt:	2021/04/22	***Latitude:***	43.4386217928899
Audit No:	MUWR4XNS	***Longitude:***	-80.4724825949191

179 ***1 of 1*** ***320.3*** ***108 SYDNEY ST S ON*** ***WWIS***

Well ID:	7237603	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Monitoring and Test Hole	***Data Entry Status:***	
Use 2nd:	0	***Data Src:***	
Final Well Status:	Monitoring and Test Hole	***Date Received:***	16-Feb-2015 00:00:00

Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z203850	**Contractor:**	7241
Tag:	A177195	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/723\7237603.pdf

Additional Detail(s) (Map)

Well Completed Date:	2015/01/13
Year Completed:	2015
Depth (m):	3.9624
Latitude:	43.4388912292239
Longitude:	-80.4723319705242
Path:	723\7237603.pdf

Bore Hole Information

Bore Hole ID:	1005307854	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542702.00
Code OB Desc:		**North83:**	4809690.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	13-Jan-2015 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1005539128
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	06
Mat2 Desc:	SILT
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.0
Formation End Depth:	13.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1005539137
Layer:	2
Plug From:	7.0
Plug To:	0.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1005539136
Layer:	1
Plug From:	13.0
Plug To:	7.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1005539135
Method Construction Code:	D
Method Construction:	Direct Push
Other Method Construction:	

Pipe Information

Pipe ID:	1005539127
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1005539131
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	8.0
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1005539132
Layer:	1
Slot:	.10
Screen Top Depth:	8.0
Screen End Depth:	13.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.25

Water Details

Water ID:	1005539130

Layer:
Kind Code:
Kind:
Water Found Depth:
Water Found Depth UOM: ft

Hole Diameter

Hole ID: 1005539129
Diameter: 8.0
Depth From: 0.0
Depth To: 13.0
Hole Depth UOM: ft
Hole Diameter UOM: inch

Links

Bore Hole ID: 1005307854
Depth M: 3.9624
Year Completed: 2015
Well Completed Dt: 2015/01/13
Audit No: Z203850
Tag No: A177195
Contractor: 7241
Path: 723\7237603.pdf
Latitude: 43.4388912292239
Longitude: -80.4723319705242

---

180 | ***1 of 1*** | ***320.5*** | ***260 COURTLAND AVE KITCHENER ON*** | ***WWIS***

Well ID: 7186636
Construction Date:
Use 1st:
Use 2nd:
Final Well Status: Abandoned-Other
Water Type:
Casing Material:
Audit No: Z146714
Tag:
Constructn Method:
Elevation (m):
Elevatn Reliabilty:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Clear/Cloudy:
Municipality: KITCHENER CITY
Site Info:
Flowing (Y/N):
Flow Rate:
Data Entry Status:
Data Src:
Date Received: 05-Sep-2012 00:00:00
Selected Flag: TRUE
Abandonment Rec: Yes
Contractor: 7238
Form Version: 7
Owner:
County: WATERLOO
Lot:
Concession:
Concession Name:
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/718\7186636.pdf

Additional Detail(s) (Map)

Well Completed Date: 2012/04/04
Year Completed: 2012
Depth (m): 7.3152
Latitude: 43.4411415538447
Longitude: -80.4840025378365
Path: 718\7186636.pdf

Bore Hole Information

Bore Hole ID: 1004149467
Elevation:

DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	541756.00
Code OB Desc:		**North83:**	4809934.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	04-Apr-2012 00:00:00	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1004424293
Layer:	1
Color:	2
General Color:	GREY
Mat1:	06
Most Common Material:	SILT
Mat2:	28
Mat2 Desc:	SAND
Mat3:	85
Mat3 Desc:	SOFT
Formation Top Depth:	0.0
Formation End Depth:	24.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1004424299
Layer:	1
Plug From:	0.0
Plug To:	12.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1004424298
Method Construction Code:	6
Method Construction:	Boring
Other Method Construction:	

Pipe Information

Pipe ID:	1004424292
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1004424296
Layer:	1

Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	4.0
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1004424297
Layer:	1
Slot:	10
Screen Top Depth:	4.0
Screen End Depth:	20.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.0

Water Details

Water ID:	1004424295
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1004424294
Diameter:	6.0
Depth From:	0.0
Depth To:	24.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1004149467	**Tag No:**	
Depth M:	7.3152	**Contractor:**	7238
Year Completed:	2012	**Path:**	718\7186636.pdf
Well Completed Dt:	2012/04/04	**Latitude:**	43.4411415538447
Audit No:	Z146714	**Longitude:**	-80.4840025378365

181 | ***1 of 1*** | ***317.2*** | ***128 SYDNY ST Kitchener ON*** | ***WWIS***

Well ID:	7299211	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Monitoring	**Data Entry Status:**	
Use 2nd:		**Data Src:**	
Final Well Status:	Observation Wells	**Date Received:**	16-Nov-2017 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	Z256963	**Contractor:**	7295
Tag:	A225716	**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	

Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/729\7299211.pdf

Additional Detail(s) (Map)

Well Completed Date:	2017/03/16
Year Completed:	2017
Depth (m):	4.572
Latitude:	43.4380558505497
Longitude:	-80.4727717179013
Path:	729\7299211.pdf

Bore Hole Information

Bore Hole ID:	1006797438	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542667.00
Code OB Desc:		**North83:**	4809597.00
Open Hole:		**Org CS:**	dms83
Cluster Kind:		**UTMRC:**	5
Date Completed:	16-Mar-2017 00:00:00	**UTMRC Desc:**	margin of error : 100 m - 300 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1006988611
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	11
Most Common Material:	GRAVEL
Mat2:	28
Mat2 Desc:	SAND
Mat3:	01
Mat3 Desc:	FILL
Formation Top Depth:	0.0
Formation End Depth:	1.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1006988614
Layer:	4
Color:	6

General Color:	BROWN
Mat1:	06
Most Common Material:	SILT
Mat2:	28
Mat2 Desc:	SAND
Mat3:	91
Mat3 Desc:	WATER-BEARING
Formation Top Depth:	10.0
Formation End Depth:	15.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1006988613
Layer:	3
Color:	6
General Color:	BROWN
Mat1:	05
Most Common Material:	CLAY
Mat2:	81
Mat2 Desc:	SANDY
Mat3:	91
Mat3 Desc:	WATER-BEARING
Formation Top Depth:	5.0
Formation End Depth:	10.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	1006988612
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	13
Mat2 Desc:	BOULDERS
Mat3:	91
Mat3 Desc:	WATER-BEARING
Formation Top Depth:	1.0
Formation End Depth:	5.0
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1006988621
Layer:	1
Plug From:	0.0
Plug To:	4.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1006988620
Method Construction Code:	6
Method Construction:	Boring
Other Method Construction:	

Pipe Information

Pipe ID:	1006988610
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1006988617
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0.0
Depth To:	5.0
Casing Diameter:	1.7999999523162842
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1006988618
Layer:	1
Slot:	
Screen Top Depth:	5.0
Screen End Depth:	15.0
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.0

Water Details

Water ID:	1006988616
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1006988615
Diameter:	10.0
Depth From:	0.0
Depth To:	15.0
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

Links

Bore Hole ID:	1006797438	***Tag No:***	A225716
Depth M:	4.572	***Contractor:***	7295
Year Completed:	2017	***Path:***	729\7299211.pdf
Well Completed Dt:	2017/03/16	***Latitude:***	43.4380558505497
Audit No:	Z256963	***Longitude:***	-80.4727717179013

182 ***1 of 1*** ***314.9*** ***ON*** ***WWIS***

Well ID:	6507420	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Municipal	**Data Entry Status:**	
Use 2nd:		**Data Src:**	1
Final Well Status:	Dewatering	**Date Received:**	28-Apr-1993 00:00:00
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:	63281	**Contractor:**	3366
Tag:		**Form Version:**	1
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	WATERLOO
Elevatn Reliabilty:		**Lot:**	
Depth to Bedrock:		**Concession:**	
Well Depth:		**Concession Name:**	
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	KITCHENER CITY		
Site Info:			

Bore Hole Information

Bore Hole ID:	10458647	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	17
Code OB:		**East83:**	542659.99
Code OB Desc:		**North83:**	4809584.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	3
Date Completed:	01-Apr-1993 00:00:00	**UTMRC Desc:**	margin of error : 10 - 30 m
Remarks:		**Location Method:**	gps
Loc Method Desc:	from gps		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	932583292
Layer:	6
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	42.0
Formation End Depth:	44.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	932583291
Layer:	5
Color:	2

General Color:	GREY
Mat1:	28
Most Common Material:	SAND
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	32.0
Formation End Depth:	42.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	932583290
Layer:	4
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	14.0
Formation End Depth:	32.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	932583288
Layer:	2
Color:	
General Color:	
Mat1:	11
Most Common Material:	GRAVEL
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	6.0
Formation End Depth:	10.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	932583287
Layer:	1
Color:	
General Color:	
Mat1:	00
Most Common Material:	UNKNOWN TYPE
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.0
Formation End Depth:	6.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	932583289
Layer:	3
Color:	6
General Color:	BROWN
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	10.0
Formation End Depth:	14.0
Formation End Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	966507420
Method Construction Code:	2
Method Construction:	Rotary (Convent.)
Other Method Construction:	

Pipe Information

Pipe ID:	11007217
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930743823
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	
Depth To:	39.0
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	933384964
Layer:	1
Slot:	010
Screen Top Depth:	39.0
Screen End Depth:	42.0
Screen Material:	
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.0

Water Details

Water ID:	933945872
Layer:	1
Kind Code:	1

Kind: FRESH
Water Found Depth: 32.0
Water Found Depth UOM: ft

Links

Bore Hole ID: 10458647
Depth M: 13.4112
Year Completed: 1993
Well Completed Dt: 1993/04/01
Audit No: 63281
Tag No:
Contractor: 3366
Path: 650\6507420.pdf
Latitude: 43.4379391976541
Longitude: -80.472859351745

---

183 **1 of 10** **321.1** **ADRIATIC AUTO SERVICE LTD**
249 COURTLAND AV AND STERLING
KITCHENER ON **PRT**

Location ID: 7254
Type: retail
Expiry Date: 1995-05-31
Capacity (L): 15000
Licence #: 0076363324

---

183 **2 of 10** **321.1** **N & G Custom Woodworking**
249 Courtland Ave E Unit 2
Kitchener ON N2G 2V6 **SCT**

Established: 01-JUL-01
Plant Size (ft²): 2000
Employment:

--Details--
Description: Other Wood Household Furniture Manufacturing
SIC/NAICS Code: 337123

Description: Residential Building Construction
SIC/NAICS Code: 236110

Description: Other Millwork
SIC/NAICS Code: 321919

Description: Wood Kitchen Cabinet and Counter Top Manufacturing
SIC/NAICS Code: 337110

Description: Wood Kitchen Cabinet and Counter Top Manufacturing
SIC/NAICS Code: 337110

---

183 **3 of 10** **321.1** **ADRIATIC AUTO SERVICE LTD**
249 COURTLAND AV AND STERLING
KITCHENER ON M1T 3K3 **DTNK**

Delisted Expired Fuel Safety Facilities

Instance No: 9816329
Status: EXPIRED
Instance ID:
Instance Type: FS Facility
Expired Date: 5/22/1992
Max Hazard Rank:
Facility Location:
Facility Type:

Instance Creation Dt:		**Fuel Type 2:**	
Instance Install Dt:		**Fuel Type 3:**	
Item Description:		**Panam Related:**	
Manufacturer:		**Panam Venue Nm:**	
Model:		**External Identifier:**	
Serial No:		**Item:**	
ULC Standard:		**Piping Steel:**	
Quantity:		**Piping Galvanized:**	
Unit of Measure:		**Tank Single Wall St:**	
Overfill Prot Type:		**Piping Underground:**	
Creation Date:		**Tank Underground:**	
Next Periodic Str DT:		**Source:**	
TSSA Base Sched Cycle 2:			
TSSAMax Hazard Rank 1:			
TSSA Risk Based Periodic Yn:			
TSSA Volume of Directives:			
TSSA Periodic Exempt:			
TSSA Statutory Interval:			
TSSA Recd Insp Interva:			
TSSA Recd Tolerance:			
TSSA Program Area:			
TSSA Program Area 2:			
Description:			
Original Source:	EXP		
Record Date:	Up to May 2013		

183 **4 of 10** **321.1** **ADRIATIC AUTO SERVICE LTD**
249 COURTLAND AV AND STERLING
KITCHENER ON
DTNK

Delisted Expired Fuel Safety Facilities

Instance No:	11493564	**Expired Date:**	
Status:	EXPIRED	**Max Hazard Rank:**	
Instance ID:	86924	**Facility Location:**	
Instance Type:	FS Piping	**Facility Type:**	
Instance Creation Dt:		**Fuel Type 2:**	
Instance Install Dt:		**Fuel Type 3:**	
Item Description:		**Panam Related:**	
Manufacturer:		**Panam Venue Nm:**	
Model:		**External Identifier:**	
Serial No:		**Item:**	
ULC Standard:		**Piping Steel:**	
Quantity:		**Piping Galvanized:**	
Unit of Measure:		**Tank Single Wall St:**	
Overfill Prot Type:		**Piping Underground:**	
Creation Date:		**Tank Underground:**	
Next Periodic Str DT:		**Source:**	
TSSA Base Sched Cycle 2:			
TSSAMax Hazard Rank 1:			
TSSA Risk Based Periodic Yn:			
TSSA Volume of Directives:			
TSSA Periodic Exempt:			
TSSA Statutory Interval:			
TSSA Recd Insp Interva:			
TSSA Recd Tolerance:			
TSSA Program Area:			
TSSA Program Area 2:			
Description:	FS Piping		
Original Source:	EXP		
Record Date:	Up to Mar 2012		

Map Key	Number of Records	Elevation (m)	Site	DB
183	5 of 10	321.1	ADRIATIC AUTO SERVICE LTD 249 COURTLAND AV AND STERLING KITCHENER ON	DTNK

Delisted Expired Fuel Safety Facilities

Instance No:	11348167	**Expired Date:**	
Status:	EXPIRED	**Max Hazard Rank:**	
Instance ID:	79185	**Facility Location:**	
Instance Type:	FS Piping	**Facility Type:**	
Instance Creation Dt:		**Fuel Type 2:**	
Instance Install Dt:		**Fuel Type 3:**	
Item Description:		**Panam Related:**	
Manufacturer:		**Panam Venue Nm:**	
Model:		**External Identifier:**	
Serial No:		**Item:**	
ULC Standard:		**Piping Steel:**	
Quantity:		**Piping Galvanized:**	
Unit of Measure:		**Tank Single Wall St:**	
Overfill Prot Type:		**Piping Underground:**	
Creation Date:		**Tank Underground:**	
Next Periodic Str DT:		**Source:**	
TSSA Base Sched Cycle 2:			
TSSAMax Hazard Rank 1:			
TSSA Risk Based Periodic Yn:			
TSSA Volume of Directives:			
TSSA Periodic Exempt:			
TSSA Statutory Interval:			
TSSA Recd Insp Interva:			
TSSA Recd Tolerance:			
TSSA Program Area:			
TSSA Program Area 2:			
Description:	FS Piping		
Original Source:	EXP		
Record Date:	Up to Mar 2012		

Map Key	Number of Records	Elevation (m)	Site	DB
183	6 of 10	321.1	ADRIATIC AUTO SERVICE LTD 249 COURTLAND AV AND STERLING KITCHENER M1T 3K3 ON CA ON	DTNK

Delisted Expired Fuel Safety Facilities

Instance No:	10810932	**Expired Date:**	
Status:	EXPIRED	**Max Hazard Rank:**	NULL
Instance ID:		**Facility Location:**	249 COURTLAND AV AND STERLING KITCHENER M1T 3K3 ON CA
Instance Type:		**Facility Type:**	FS LIQUID FUEL TANK
Instance Creation Dt:	10/2/1989	**Fuel Type 2:**	NULL
Instance Install Dt:	10/2/1989	**Fuel Type 3:**	NULL
Item Description:	FS Liquid Fuel Tank	**Panam Related:**	NULL
Manufacturer:	NULL	**Panam Venue Nm:**	NULL
Model:	NULL	**External Identifier:**	NULL
Serial No:	NULL	**Item:**	
ULC Standard:	NULL	**Piping Steel:**	
Quantity:	1	**Piping Galvanized:**	
Unit of Measure:	EA	**Tank Single Wall St:**	
Overfill Prot Type:	NULL	**Piping Underground:**	
Creation Date:	7/5/2009 1:21:04 AM	**Tank Underground:**	

Next Periodic Str DT:	NULL	**Source:**	FS Liquid Fuel Tank
TSSA Base Sched Cycle 2:	NULL		
TSSAMax Hazard Rank 1:	NULL		
TSSA Risk Based Periodic Yn:	NULL		
TSSA Volume of Directives:	NULL		
TSSA Periodic Exempt:	NULL		
TSSA Statutory Interval:	NULL		
TSSA Recd Insp Interva:	NULL		
TSSA Recd Tolerance:	NULL		
TSSA Program Area:	NULL		
TSSA Program Area 2:	NULL		
Description:	STATUS 'D' AS PER REP E003256		
Original Source:	EXP		
Record Date:	31-JUL-2020		

183 **7 of 10** **321.1** **ADRIATIC AUTO SERVICE LTD** **DTNK**
249 COURTLAND AV AND STERLING KITCHENER M1T 3K3 ON CA
ON

Delisted Expired Fuel Safety Facilities

Instance No:	11493535	**Expired Date:**	
Status:	EXPIRED	**Max Hazard Rank:**	NULL
Instance ID:		**Facility Location:**	249 COURTLAND AV AND STERLING KITCHENER M1T 3K3 ON CA
Instance Type:		**Facility Type:**	FS LIQUID FUEL TANK
Instance Creation Dt:	10/2/1989	**Fuel Type 2:**	NULL
Instance Install Dt:	10/2/1989	**Fuel Type 3:**	NULL
Item Description:	FS Liquid Fuel Tank	**Panam Related:**	NULL
Manufacturer:	NULL	**Panam Venue Nm:**	NULL
Model:	NULL	**External Identifier:**	NULL
Serial No:	NULL	**Item:**	
ULC Standard:	NULL	**Piping Steel:**	
Quantity:	1	**Piping Galvanized:**	
Unit of Measure:	EA	**Tank Single Wall St:**	
Overfill Prot Type:	NULL	**Piping Underground:**	
Creation Date:	7/5/2009 1:25:41 AM	**Tank Underground:**	
Next Periodic Str DT:	NULL	**Source:**	FS Liquid Fuel Tank
TSSA Base Sched Cycle 2:	NULL		
TSSAMax Hazard Rank 1:	NULL		
TSSA Risk Based Periodic Yn:	NULL		
TSSA Volume of Directives:	NULL		
TSSA Periodic Exempt:	NULL		
TSSA Statutory Interval:	NULL		
TSSA Recd Insp Interva:	NULL		
TSSA Recd Tolerance:	NULL		
TSSA Program Area:	NULL		
TSSA Program Area 2:	NULL		
Description:	STATUS 'D' AS PER REP E003256		
Original Source:	EXP		
Record Date:	31-JUL-2020		

183 **8 of 10** **321.1** **ADRIATIC AUTO SERVICE LTD** **FST**
249 COURTLAND AV AND STERLING KITCHENER M1T 3K3 ON CA
ON

Instance No:	11493535	**Manufacturer:**	
Status:		**Serial No:**	
Cont Name:		**Ulc Standard:**	
Instance Type:		**Quantity:**	
Item:		**Unit of Measure:**	

Item Description:	FS Liquid Fuel Tank	***Fuel Type:***	Gasoline
Tank Type:	Liquid Fuel Single Wall UST	***Fuel Type2:***	NULL
Install Date:	10/2/1989	***Fuel Type3:***	NULL
Install Year:	1983	***Piping Steel:***	
Years in Service:		***Piping Galvanized:***	
Model:	NULL	***Tanks Single Wall St:***	
Description:		***Piping Underground:***	
Capacity:	20000	***No Underground:***	
Tank Material:	Fiberglass (FRP)	***Panam Related:***	
Corrosion Protect:	Fiberglass	***Panam Venue:***	
Overfill Protect:			
Facility Type:	FS Liquid Fuel Tank		
Parent Facility Type:			
Facility Location:			
Device Installed Location:	249 COURTLAND AV AND STERLING KITCHENER M1T 3K3 ON CA		

Liquid Fuel Tank Details

Overfill Protection:	
Owner Account Name:	ADRIATIC AUTO SERVICE LTD
Item:	FS LIQUID FUEL TANK

---

183 ***9 of 10*** ***321.1*** ***ADRIATIC AUTO SERVICE LTD*** ***FST***
249 COURTLAND AV AND STERLING KITCHENER M1T 3K3 ON CA
ON

Instance No:	10810932	***Manufacturer:***	
Status:		***Serial No:***	
Cont Name:		***Ulc Standard:***	
Instance Type:		***Quantity:***	
Item:		***Unit of Measure:***	
Item Description:	FS Liquid Fuel Tank	***Fuel Type:***	Gasoline
Tank Type:	Liquid Fuel Single Wall UST	***Fuel Type2:***	NULL
Install Date:	10/2/1989	***Fuel Type3:***	NULL
Install Year:	1983	***Piping Steel:***	
Years in Service:		***Piping Galvanized:***	
Model:	NULL	***Tanks Single Wall St:***	
Description:		***Piping Underground:***	
Capacity:	20000	***No Underground:***	
Tank Material:	Fiberglass (FRP)	***Panam Related:***	
Corrosion Protect:	Fiberglass	***Panam Venue:***	
Overfill Protect:			
Facility Type:	FS Liquid Fuel Tank		
Parent Facility Type:			
Facility Location:			
Device Installed Location:	249 COURTLAND AV AND STERLING KITCHENER M1T 3K3 ON CA		

Liquid Fuel Tank Details

Overfill Protection:	
Owner Account Name:	ADRIATIC AUTO SERVICE LTD
Item:	FS LIQUID FUEL TANK

---

183 ***10 of 10*** ***321.1*** ***12102315 Canada Inc.*** ***GEN***
249 Courtland Ave. East, Unit 8
Kitchener ON N2G 2V6

Generator No:	ON7710545
SIC Code:	
SIC Description:	
Approval Years:	As of Nov 2021
PO Box No:	

Country:	Canada
Status:	Registered
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	252 L
Waste Class Name:	Waste crankcase oils and lubricants

---

184 **1 of 2** **320.7** ***UNKNOWN***
SCHNEIDERS CREEK NEAR COURTLAND AND STIRLING.
KITCHENER CITY ON **SPL**

Ref No:	106628	**Contaminant Qty:**	
Site No:		**Nature of Damage:**	
Incident Dt:	10/24/1994	**Discharger Report:**	
Year:		**Material Group:**	
Incident Cause:	WASTEWATER DISCHARGE TO WATERCOURSE	**Health/Env Conseq:**	
Incident Event:		**Agency Involved:**	KITCHENER WORKS, WATERLOO R.M.
Environment Impact:	POSSIBLE	**Site Lot:**	
Nature of Impact:	Water course or lake	**Site Conc:**	
MOE Response:		**Site Geo Ref Accu:**	
Dt MOE Arvl on Scn:		**Site Map Datum:**	
MOE Reported Dt:	10/24/1994	**Northing:**	
Dt Document Closed:		**Easting:**	
Municipality No:	25102		
System Facility Address:			
Client Type:			
Call Report Location Geodata:			
Contaminant Code:			
Contaminant Name:			
Contaminant Limit 1:			
Contam Limit Freq 1:			
Contaminant UN No 1:			
Receiving Medium:	WATER		
Receiving Environment:			
Incident Reason:	UNKNOWN		
Incident Summary:	UNKNOWN SOURCE-RAINBOW COLOURS IN SCHNEIDER CREEK.		
Site Region:			
Site Municipality:	KITCHENER CITY		
Activity Preceding Spill:			
Property 2nd Watershed:			
Property Tertiary Watershed:			
Sector Type:			
SAC Action Class:			
Source Type:			
Site County/District:			
Site Geo Ref Meth:			
Site District Office:			
Nearest Watercourse:			
Site Name:			
Site Address:			
Client Name:			

---

184 **2 of 2** **320.7** ***KITCHENER CITY***
STIRLING AVE/COURTLAND AVE.
KITCHENER CITY ON **CA**

Certificate #: 3-0687-96-
Application Year: 96
Issue Date: 7/16/1996
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

---

185 ***1 of 14*** ***321.5*** ***EFC TRADE***
248 STIRLING AVENUE UNIT #14
KITCHENER ON ***GEN***

Generator No: ON7255312
SIC Code: 611690
SIC Description: All Other Schools & Instruction
Approval Years: 03,04,05,06,07,08
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 312
Waste Class Name: PATHOLOGICAL WASTES

---

185 ***2 of 14*** ***321.5*** ***EFC TRADE***
248 STIRLING AVENUE UNIT #14
KITCHENER ON ***GEN***

Generator No: ON7255312
SIC Code: 611690
SIC Description: All Other Schools and Instruction
Approval Years: 2009
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 312
Waste Class Name: PATHOLOGICAL WASTES

---

185 ***3 of 14*** ***321.5*** ***EFC TRADE*** ***GEN***

Map Key	Number of Records	Elevation (m)	Site	DB
			248 STIRLING AVENUE UNIT #14 KITCHENER ON	

Generator No: ON7255312
SIC Code: 611690
SIC Description: All Other Schools and Instruction
Approval Years: 2010
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 312
Waste Class Name: PATHOLOGICAL WASTES

185	4 of 14	321.5	EFC TRADE 248 STIRLING AVENUE UNIT #14 KITCHENER ON	GEN

Generator No: ON7255312
SIC Code: 611690
SIC Description: All Other Schools and Instruction
Approval Years: 2011
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 312
Waste Class Name: PATHOLOGICAL WASTES

185	5 of 14	321.5	EFC TRADE 248 STIRLING AVENUE UNIT #14 KITCHENER ON	GEN

Generator No: ON7255312
SIC Code: 611690
SIC Description: All Other Schools and Instruction
Approval Years: 2012
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 312
Waste Class Name: PATHOLOGICAL WASTES

---

185 **6 of 14** **321.5** **EFC TRADE** **GEN**
248 STIRLING AVENUE UNIT #14
KITCHENER ON

Generator No: ON7255312
SIC Code: 611690
SIC Description: ALL OTHER SCHOOLS AND INSTRUCTION
Approval Years: 2013
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 312
Waste Class Name: PATHOLOGICAL WASTES

---

185 **7 of 14** **321.5** **EFC TRADE** **GEN**
248 STIRLING AVENUE UNIT #14
KITCHENER ON N2G 4L1

Generator No: ON7255312
SIC Code: 611690
SIC Description: ALL OTHER SCHOOLS AND INSTRUCTION
Approval Years: 2016
PO Box No:
Country: Canada
Status:
Co Admin: Janet M. Donald
Choice of Contact: CO_ADMIN
Phone No Admin: 1-519-659-4822 Ext.
Contaminated Facility: No
MHSW Facility: No

Detail(s)

Waste Class: 261
Waste Class Name: PHARMACEUTICALS

Waste Class: 264
Waste Class Name: PHOTOPROCESSING WASTES

Waste Class: 148
Waste Class Name: INORGANIC LABORATORY CHEMICALS

Waste Class: 312
Waste Class Name: PATHOLOGICAL WASTES

---

185 **8 of 14** **321.5** **EFC TRADE** **GEN**
248 STIRLING AVENUE UNIT #14
KITCHENER ON N2G 4L1

Generator No:	ON7255312
SIC Code:	611690
SIC Description:	ALL OTHER SCHOOLS AND INSTRUCTION
Approval Years:	2015
PO Box No:	
Country:	Canada
Status:	
Co Admin:	Janet M. Donald
Choice of Contact:	CO_ADMIN
Phone No Admin:	1-519-659-4822 Ext.
Contaminated Facility:	No
MHSW Facility:	No

Detail(s)

Waste Class:	264
Waste Class Name:	PHOTOPROCESSING WASTES
Waste Class:	312
Waste Class Name:	PATHOLOGICAL WASTES
Waste Class:	148
Waste Class Name:	INORGANIC LABORATORY CHEMICALS
Waste Class:	261
Waste Class Name:	PHARMACEUTICALS

---

185 | ***9 of 14*** | ***321.5*** | ***EFC TRADE***
248 STIRLING AVENUE UNIT #14
KITCHENER ON N2G 4L1 | ***GEN***

Generator No:	ON7255312
SIC Code:	611690
SIC Description:	ALL OTHER SCHOOLS AND INSTRUCTION
Approval Years:	2014
PO Box No:	
Country:	Canada
Status:	
Co Admin:	Janet M. Donald
Choice of Contact:	CO_ADMIN
Phone No Admin:	1-519-659-4822 Ext.
Contaminated Facility:	No
MHSW Facility:	No

Detail(s)

Waste Class:	312
Waste Class Name:	PATHOLOGICAL WASTES

---

185 | ***10 of 14*** | ***321.5*** | ***EFC TRADE***
248 STIRLING AVENUE UNIT #14
KITCHENER ON N2G 4L1 | ***GEN***

Generator No:	ON7255312
SIC Code:	
SIC Description:	
Approval Years:	As of Dec 2018
PO Box No:	
Country:	Canada
Status:	Registered
Co Admin:	
Choice of Contact:	

Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 148 B
Waste Class Name: Misc. wastes and inorganic chemicals

Waste Class: 148 C
Waste Class Name: Misc. wastes and inorganic chemicals

Waste Class: 261 A
Waste Class Name: Pharmaceuticals

Waste Class: 264 L
Waste Class Name: Photoprocessing wastes

Waste Class: 264 T
Waste Class Name: Photoprocessing wastes

Waste Class: 312 P
Waste Class Name: Pathological wastes

---

185 | ***11 of 14*** | ***321.5*** | ***Westervelt College Inc.***
248 STIRLING AVENUE UNIT #14
KITCHENER ON N2G 4L1 | ***GEN***

Generator No: ON7255312
SIC Code:
SIC Description:
Approval Years: As of Jul 2020
PO Box No:
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 312 P
Waste Class Name: Pathological wastes

Waste Class: 148 B
Waste Class Name: Misc. wastes and inorganic chemicals

Waste Class: 148 C
Waste Class Name: Misc. wastes and inorganic chemicals

Waste Class: 264 T
Waste Class Name: Photoprocessing wastes

Waste Class: 264 L
Waste Class Name: Photoprocessing wastes

Waste Class: 261 A
Waste Class Name: Pharmaceuticals

Map Key	Number of Records	Elevation (m)	Site	DB
185	12 of 14	321.5	Westervelt College Inc. 248 STIRLING AVENUE UNIT #14 KITCHENER ON N2G 4L1	GEN

Generator No: ON7255312
SIC Code:
SIC Description:
Approval Years: As of Nov 2021
PO Box No:
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 148 B
Waste Class Name: Misc. wastes and inorganic chemicals

Waste Class: 264 T
Waste Class Name: Photoprocessing wastes

Waste Class: 148 C
Waste Class Name: Misc. wastes and inorganic chemicals

Waste Class: 261 A
Waste Class Name: Pharmaceuticals

Waste Class: 264 L
Waste Class Name: Photoprocessing wastes

Waste Class: 312 P
Waste Class Name: Pathological wastes

Map Key	Number of Records	Elevation (m)	Site	DB
185	13 of 14	321.5	Westervelt College Inc. 248 STIRLING AVENUE UNIT #14 KITCHENER ON N2G 4L1	GEN

Generator No: ON7255312
SIC Code:
SIC Description:
Approval Years: As of Oct 2022
PO Box No:
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 148 C
Waste Class Name: INORGANIC LABORATORY CHEMICALS

Waste Class: 264 L
Waste Class Name: PHOTOPROCESSING WASTES

Waste Class: 264 T

Waste Class Name: PHOTOPROCESSING WASTES

Waste Class: 312 P
Waste Class Name: PATHOLOGICAL WASTES

Waste Class: 148 B
Waste Class Name: INORGANIC LABORATORY CHEMICALS

Waste Class: 261 A
Waste Class Name: PHARMACEUTICALS

---

185 | 14 of 14 | 321.5 | **J&K Pharmacy Inc.**
248 Stirling Ave. S. unit 15
Kitchener ON N2G 4L1 | GEN

Generator No: ON3469412
SIC Code:
SIC Description:
Approval Years: As of Oct 2022
PO Box No:
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 261 A
Waste Class Name: PHARMACEUTICALS

Waste Class: 312 P
Waste Class Name: PATHOLOGICAL WASTES

---

186 | 1 of 5 | 320.7 | **207 Madison Avenue South**
Kitchener ON N2G 3M7 | EHS

Order No: 20081017010
Status: C
Report Type: Standard Report
Report Date: 10/27/2008
Date Received: 10/17/2008
Previous Site Name:
Lot/Building Size:
Additional Info Ordered:
Nearest Intersection: Madison Avenue South and Hopp Street
Municipality:
Client Prov/State: ON
Search Radius (km): 0.25
X: -80.486902
Y: 43.440871

---

186 | 2 of 5 | 320.7 | **Woodhouse Contracting Ltd.**
207 Madison Avenue South
Kitchener ON N2G 3M7 | CA

Certificate #: 0323-6KRMJE
Application Year: 2006
Issue Date: 1/6/2006
Approval Type: Waste Management Systems
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:

Client Postal Code:
Project Description:
Contaminants:
Emission Control:

---

186 ***3 of 5*** ***320.7*** ***Woodhouse Contracting Ltd.*** ***ECA***
207 Madison Avenue South
Kitchener ON N2G 3M7

Approval No:	0323-6KRMJE	***MOE District:***	Guelph
Approval Date:	2006-01-06	***City:***	
Status:	Approved	***Longitude:***	-80.48672
Record Type:	ECA	***Latitude:***	43.44076
Link Source:	IDS	***Geometry X:***	
SWP Area Name:	Grand River	***Geometry Y:***	

Approval Type: ECA-WASTE MANAGEMENT SYSTEMS
Project Type: WASTE MANAGEMENT SYSTEMS
Business Name: Woodhouse Contracting Ltd.
Address: 207 Madison Avenue South
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/6608-6JTQW4-14.pdf
PDF Site Location:

---

186 ***4 of 5*** ***320.7*** ***Woodhouse Group Inc.*** ***GEN***
207 Madison Ave., S.
Kitchener ON N2G 3M7

Generator No: ON6797540
SIC Code:
SIC Description:
Approval Years: As of Nov 2021
PO Box No:
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 312 P
Waste Class Name: Pathological wastes

---

186 ***5 of 5*** ***320.7*** ***Woodhouse Group Inc.*** ***GEN***
207 Madison Ave., S.
Kitchener ON N2G 3M7

Generator No: ON6797540
SIC Code:
SIC Description:
Approval Years: As of Oct 2022
PO Box No:
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:

MHSW Facility:

Detail(s)

Waste Class:	312 P
Waste Class Name:	PATHOLOGICAL WASTES

Unplottable Summary

Total: 51 Unplottable sites

DB	Company Name/Site Name	Address	City	Postal
CA	The Corporation of the City of Kitchener	Kent Avenue - Schneider Creek to Charles Street East	Kitchener ON	
CA	The Corporation of the City of Kitchener	Kent Avenue - Schneider Creek to Charles Street East	Kitchener ON	
CA	The Regional Municipality of Waterloo	Courtland Avenue	Kitchener ON	
CA	KITCHENER CITY	BEDFORD RD./HURST AVE.	KITCHENER CITY ON	
CA	FREURE HOMES LIMITED PH. II	OTTAWA ST. S. ALPINE CENTRE	KITCHENER CITY ON	
CA	KITCHENER CITY	OTTAWA STREET	KITCHENER CITY ON	
CA	KITCHENER CITY	OTTAWA ST./S.W.M.	KITCHENER CITY ON	
CA	THE REGIONAL MUNICIPALLTY OF WATERLOO	KITCHENER LANDFILL, OTTAWA ST.	KITCHENER CITY ON	
CA	City of Kitchener	STIRLING AVE.	KITCHENER CITY ON	
CA	KITCHENER CITY	STIRLING AVE.	KITCHENER CITY ON	
CA	FREURE HOMES LIMITED PH. II	OTTAWA ST. S. ALPINE CENTRE	KITCHENER CITY ON	
CA	R.M. OF WATERLOO	OTTAWA STREET LANDFILL SITE	KITCHENER CITY ON	
CA	CITY	OTTAWA ST.	KITCHENER ON	
CA	Woolner Pit	Part of Lot 17, German Company Tract	Kitchener ON	
CA	CITY	OTTAWA ST.	KITCHENER CITY ON	
CA	REG.MUN.OF WATERLOO	OTTAWA ST.	KITCHENER ON	
CA		Ottawa Street	Kitchener ON	
EBR	Preston Sand & Gravel Co. Ltd.	Woolner Plt Part of Lot 17, German Company	ON	

		Tract Kitchener		
EBR	Dofasco Inc.	Ottawa Street Kitchener Ontario N2G 4J3 Kitchener	ON	
ECA	The Regional Municipality of Waterloo	Ottawa St	Kitchener ON	N2G 4J3
ECA	The Regional Municipality of Waterloo	Ottawa Street	Kitchener ON	
ECA	The Regional Municipality of Waterloo	Courtland Avenue	Kitchener ON	N2G 4J3
ECA	The Corporation of the City of Kitchener	Ottawa St S	Kitchener ON	N2G 4G7
ECA	The Corporation of the City of Kitchener	Kent Ave - Schneider Creek to Charles Street East	Kitchener ON	N2G 4G7
ECA	The Regional Municipality of Waterloo	Ottawa St S	Kitchener ON	N2G 4J3
ECA	The Corporation of the City of Kitchener	Kent Ave - Schneider Creek to Charles Street East	Kitchener ON	N2G 4G7
ECA	The Regional Municipality of Waterloo	Ottawa St S	Kitchener ON	N2H 6P4
ECA	The Corporation of the City of Kitchener	Kent Ave - Schneider Creek to Charles Street East	Kitchener ON	N2G 4G7
EHS		Kent Ave/Charles St/Bordan Ave	Kitchener ON	
EHS		Courtland Ave E	Kitchener ON	
GEN	Regional Municipality of Waterloo	Ottawa Street South	Kitchener ON	
GEN	Regional Municipality of Waterloo	Ottawa Street South	Kitchener ON	
GEN	Regional Municipality of Waterloo	Ottawa Street South	Kitchener ON	
GEN	SADDLERY HARDWARE	R.R. #1, LOT 1, G.C.T.	WATERLOO ON	N2J 4G8
GEN	SADDLERY HARDWARE 34-564	R.R. #1, LOT 1, G.C.T.	WATERLOO ON	N2J 4G8
GEN	CANADA CORDAGE INC.	BORDEN AVENUE SOUTH PLAN 404, PART LOT 25 ST&L	KITCHENER ON	
GEN	Regional Municipality of Waterloo	Ottawa Street South	Kitchener ON	N2E 1H7
LIMO	Unknown Site 3 - Kitchener (Rockway) Landfill	Lot 1 GERMAN COMPANY TRACT Waterloo; Kent Avenue, Stirling Avenue, Hurst Avenue and Palmer Avenue Waterloo	ON	
LIMO	Unknown Site 4 - Kitchener (Hurst Avenue) Landfill	Lot 18 GERMAN COMPANY TRACT Waterloo; Kitchener, end of Hurst Ave and Palmer Avenue	ON	

		Waterloo	
SPL	PUC	SEWER LINE ON BEDFORD RD SANITARY SEWER	KITCHENER CITY ON
SPL	GrandLinq Contractors		Kitchener ON
SPL	CONTRACTOR	SEWER LINE ON BEDFORD RD (N.O.S.)	KITCHENER CITY ON
SPL	Rideway Transportation Inc.	Courtland Avenue	Kitchener ON
SPL	end of Balzer Road (undeveloped area)<UNOFFICIAL>	off Courtland Ave	Kitchener ON
SPL		Courtland Ave, from Stirling Ave to David St<UNOFFICIAL>	Kitchener ON
SPL	GrandLinq Contractors		Waterloo ON
SPL	MOTOR VEHICLE	COURTLAND AVE. NEAR SCHNEIDER CREEK MOTOR VEHICLE (OPERATING FLUID)	KITCHENER CITY ON
SPL	SUNY'S GAS BAR	SUNY'S GAS BAR COURTLAND AVE SERVICE STATION	KITCHENER CITY ON
WWIS		lot 2	ON
WWIS		RM WATERLOO lot 2	KITCHENER ON
WWIS		RM WATERLOO lot 2	KITCHENER ON

Unplottable Report

Site: ***The Corporation of the City of Kitchener***
Kent Avenue - Schneider Creek to Charles Street East Kitchener ON

Database: ***CA***

Certificate #:	7232-8EDKD5
Application Year:	2011
Issue Date:	3/14/2011
Approval Type:	Municipal and Private Sewage Works
Status:	Approved
Application Type:	
Client Name:	
Client Address:	
Client City:	
Client Postal Code:	
Project Description:	
Contaminants:	
Emission Control:	

Site: ***The Corporation of the City of Kitchener***
Kent Avenue - Schneider Creek to Charles Street East Kitchener ON

Database: ***CA***

Certificate #:	5590-8FVLG5
Application Year:	2011
Issue Date:	5/24/2011
Approval Type:	Municipal and Private Sewage Works
Status:	Approved
Application Type:	
Client Name:	
Client Address:	
Client City:	
Client Postal Code:	
Project Description:	
Contaminants:	
Emission Control:	

Site: ***The Regional Municipality of Waterloo***
Courtland Avenue Kitchener ON

Database: ***CA***

Certificate #:	7883-8HCR6M
Application Year:	2011
Issue Date:	6/1/2011
Approval Type:	Municipal and Private Sewage Works
Status:	Approved
Application Type:	
Client Name:	
Client Address:	
Client City:	
Client Postal Code:	
Project Description:	
Contaminants:	
Emission Control:	

Site: ***KITCHENER CITY***
BEDFORD RD./HURST AVE. KITCHENER CITY ON

Database: ***CA***

Certificate #:	7-0456-93-

Application Year: 93
Issue Date: 6/3/1993
Approval Type: Municipal water
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***FREURE HOMES LIMITED PH. II***
OTTAWA ST. S. ALPINE CENTRE KITCHENER CITY ON

Database: ***CA***

Certificate #: 7-0254-89-
Application Year: 89
Issue Date: 3/7/1989
Approval Type: Municipal water
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***KITCHENER CITY***
OTTAWA STREET KITCHENER CITY ON

Database: ***CA***

Certificate #: 7-0136-88-
Application Year: 88
Issue Date: 2/19/1988
Approval Type: Municipal water
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***KITCHENER CITY***
OTTAWA ST./S.W.M. KITCHENER CITY ON

Database: ***CA***

Certificate #: 3-1423-92-
Application Year: 92
Issue Date: 11/5/1992
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***THE REGIONAL MUNICIPALLTY OF WATERLOO***
KITCHENER LANDFILL, OTTAWA ST. KITCHENER CITY ON

Database: ***CA***

Certificate #:	8-2236-91-
Application Year:	91
Issue Date:	12/10/1991
Approval Type:	Industrial air
Status:	Cancelled
Application Type:	
Client Name:	
Client Address:	
Client City:	
Client Postal Code:	
Project Description:	ACTIVATED CARBON ADSORPTION CANISTER
Contaminants:	
Emission Control:	

Site: ***City of Kitchener***
STIRLING AVE. KITCHENER CITY ON

Database: ***CA***

Certificate #:	3-1376-92-
Application Year:	92
Issue Date:	10/21/1992
Approval Type:	Municipal sewage
Status:	Approved
Application Type:	
Client Name:	
Client Address:	
Client City:	
Client Postal Code:	
Project Description:	
Contaminants:	
Emission Control:	

Site: ***KITCHENER CITY***
STIRLING AVE. KITCHENER CITY ON

Database: ***CA***

Certificate #:	3-1363-92-
Application Year:	92
Issue Date:	10/14/1992
Approval Type:	Municipal sewage
Status:	Approved
Application Type:	
Client Name:	
Client Address:	
Client City:	
Client Postal Code:	
Project Description:	
Contaminants:	
Emission Control:	

Site: ***FREURE HOMES LIMITED PH. II***
OTTAWA ST. S. ALPINE CENTRE KITCHENER CITY ON

Database: ***CA***

Certificate #:	3-0283-89-
Application Year:	89
Issue Date:	3/7/1989
Approval Type:	Municipal sewage
Status:	Approved
Application Type:	
Client Name:	
Client Address:	

Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***R.M. OF WATERLOO***
OTTAWA STREET LANDFILL SITE KITCHENER CITY ON

Database: ***CA***

Certificate #: 8-2014-92-
Application Year: 92
Issue Date: 6/1/1992
Approval Type: Industrial air
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description: GAS CONTROL AT CLOSED LANDFILL SITE
Contaminants: Methane, Methane (Incl. Hydrocarbons Expr. As Ch4
Emission Control: Act. Charcoal Filter

Site: ***CITY***
OTTAWA ST. KITCHENER ON

Database: ***CA***

Certificate #: 3-1043-85-006
Application Year: 85
Issue Date: 9/6/85
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***Woolner Pit***
Part of Lot 17, German Company Tract Kitchener ON

Database: ***CA***

Certificate #:
Application Year: 00
Issue Date: 9/29/00
Approval Type: Industrial air
Status: Cancelled
Application Type: New Certificate of Approval
Client Name: Preston Sand & Gravel Co. Ltd.
Client Address: 669 Charles St. East
Client City: Kitchener
Client Postal Code:
Project Description: At this facility various types of crusher feed material are screened, crushed, washed, classified, blended and conveyed in any order to process aggregate. This application is to operate an aggregate processing plant. Principle equipment includes those listed under the Certificate of Approval 8-2052-98-996. Modifications include the addition of one enclosed diesel engine powered 680kW electrical generator used to power the aggregate washing unit, and a 3.0m reduction in height of the vibratory wash screens. The principle equipment was approved under a Certificate of Approval 8-2052-98-996 to operate in the Bloomingdale Pit, Township of Woolwhich.
Contaminants:
Emission Control:

Site: ***CITY***
OTTAWA ST. KITCHENER CITY ON

Database: ***CA***

Certificate #: 3-0927-85-000
Application Year: 85
Issue Date: 1/8/87
Approval Type: Municipal sewage
Status: Application Cancelled
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***REG.MUN.OF WATERLOO***
OTTAWA ST. KITCHENER ON

Database: ***CA***

Certificate #: 3-0516-85-006
Application Year: 85
Issue Date: 5/27/85
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site:
Ottawa Street Kitchener ON

Database: ***CA***

Certificate #: 6315-4HUJUD
Application Year: 00
Issue Date: 3/31/00
Approval Type: Municipal & Private water
Status: Approved
Application Type: New Certificate of Approval
Client Name: Corporation of the Regional Municipality of Waterloo
Client Address: 150 Frederick Street
Client City: Kitchener
Client Postal Code: N2G 4J3
Project Description: Watermains
Contaminants:
Emission Control:

Site: ***Preston Sand & Gravel Co. Ltd.***
Woolner Plt Part of Lot 17, German Company Tract Kitchener ON

Database: ***EBR***

EBR Registry No: IA00E0632
Ministry Ref No: 5782-4GHK2E
Notice Type: Instrument Decision
Notice Stage:
Notice Date: September 15, 2005
Proposal Date: April 07, 2000
Year: 2000
Instrument Type: (EPA s. 9) - Approval for discharge into the natural environment other than water (i.e. Air)
Off Instrument Name:
Posted By:
Decision Posted:
Exception Posted:
Section:
Act 1:
Act 2:
Site Location Map:

Company Name: Preston Sand & Gravel Co. Ltd.
Site Address:
Location Other:
Proponent Name:
Proponent Address: 669 Charles Street East, P.O. Box 43100, Kitchener Ontario, N2H 6S9
Comment Period:
URL:

Site Location Details:

Woolner Plt Part of Lot 17, German Company Tract Kitchener

Site: ***Dofasco Inc.***
Ottawa Street Kitchener Ontario N2G 4J3 Kitchener ON

Database: ***EBR***

EBR Registry No: IA00E0993
Ministry Ref No: 3540-4LAMDE
Notice Type: Instrument Decision
Notice Stage:
Notice Date: December 18, 2000
Proposal Date: June 14, 2000
Year: 2000
Instrument Type: (EPA s. 9) - Approval for discharge into the natural environment other than water (i.e. Air)
Off Instrument Name:
Posted By:
Company Name: Dofasco Inc.
Site Address:
Location Other:
Proponent Name:
Proponent Address: 1330 Burlington Street East, Hamilton Ontario, L8N 3J5
Comment Period:
URL:

Decision Posted:
Exception Posted:
Section:
Act 1:
Act 2:
Site Location Map:

Site Location Details:

Ottawa Street Kitchener Ontario N2G 4J3 Kitchener

Site: ***The Regional Municipality of Waterloo***
Ottawa St Kitchener ON N2G 4J3

Database: ***ECA***

Approval No: 3287-7PLP9W
Approval Date: 2009-02-26
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name:
Approval Type: ECA-Municipal Drinking Water Systems
Project Type: Municipal Drinking Water Systems
Business Name: The Regional Municipality of Waterloo
Address: Ottawa St
Full Address:
Full PDF Link:
PDF Site Location:

MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:

Site: ***The Regional Municipality of Waterloo***
Ottawa Street Kitchener ON

Database: ***ECA***

Approval No: 6315-4HUJUD
Approval Date: 2000-03-31
Status: Approved
Record Type: ECA
Link Source: IDS

MOE District: Hamilton
City:
Longitude: -79.88238
Latitude: 43.265159999999995
Geometry X:

SWP Area Name: Hamilton
Approval Type: ECA-Municipal and Private Water Works
Project Type: Municipal and Private Water Works
Business Name: The Regional Municipality of Waterloo
Address: Ottawa Street
Full Address:
Full PDF Link:
PDF Site Location:
Geometry Y:

Site: ***The Regional Municipality of Waterloo***
Courtland Avenue Kitchener ON N2G 4J3

Database: ***ECA***

Approval No: 7883-8HCR6M
Approval Date: 2011-06-01
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Business Name: The Regional Municipality of Waterloo
Address: Courtland Avenue
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/0829-8GYQJ8-14.pdf
PDF Site Location:
MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:

Site: ***The Corporation of the City of Kitchener***
Ottawa St S Kitchener ON N2G 4G7

Database: ***ECA***

Approval No: 2916-B9XLHN
Approval Date: 2019-03-05
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Business Name: The Corporation of the City of Kitchener
Address: Ottawa St S
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/5738-B9JTLF-13.pdf
PDF Site Location:
MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:

Site: ***The Corporation of the City of Kitchener***
Kent Ave - Schneider Creek to Charles Street East Kitchener ON N2G 4G7

Database: ***ECA***

Approval No: 5590-8FVLG5
Approval Date: 2011-05-24
Status: Revoked and/or Replaced
Record Type: ECA
Link Source: IDS
SWP Area Name:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Business Name: The Corporation of the City of Kitchener
Address: Kent Ave - Schneider Creek to Charles Street East
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/8369-8DJLGE-14.pdf
PDF Site Location:
MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:

Site: ***The Regional Municipality of Waterloo***
Ottawa St S Kitchener ON N2G 4J3

Database: ***ECA***

Approval No: 9911-B9RN9C
Approval Date: 2019-03-05
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name:
MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Business Name: The Regional Municipality of Waterloo
Address: Ottawa St S
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/3801-B9KJFA-13.pdf
PDF Site Location:

Site: ***The Corporation of the City of Kitchener***
Kent Ave - Schneider Creek to Charles Street East Kitchener ON N2G 4G7
Database: ***ECA***

Approval No: 7232-8EDKD5
Approval Date: 2011-03-14
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name:
MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Business Name: The Corporation of the City of Kitchener
Address: Kent Ave - Schneider Creek to Charles Street East
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/7388-8ECJDW-14.pdf
PDF Site Location:

Site: ***The Regional Municipality of Waterloo***
Ottawa St S Kitchener ON N2H 6P4
Database: ***ECA***

Approval No: 8920-A4LSG3
Approval Date: 2015-12-04
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name:
MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Business Name: The Regional Municipality of Waterloo
Address: Ottawa St S
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/4112-A47K6N-14.pdf
PDF Site Location:

Site: ***The Corporation of the City of Kitchener***
Kent Ave - Schneider Creek to Charles Street East Kitchener ON N2G 4G7
Database: ***ECA***

Approval No: 1589-8MXKFK
Approval Date: 2011-12-19
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name:
MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Business Name: The Corporation of the City of Kitchener
Address: Kent Ave - Schneider Creek to Charles Street East
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/1559-8J5KFA-14.pdf

PDF Site Location:

Site: ***Database:*** ***EHS***

Kent Ave/Charles St/Bordan Ave Kitchener ON

Order No:	20101008007	***Nearest Intersection:***	
Status:	C	***Municipality:***	Region of Waterloo
Report Type:	Custom Report	***Client Prov/State:***	ON
Report Date:	10/19/2010	***Search Radius (km):***	0.25
Date Received:	10/8/2010 10:29:29 AM	***X:***	-80.476714
Previous Site Name:		***Y:***	1
Lot/Building Size:			
Additional Info Ordered:			

Site: ***Database:*** ***EHS***

Courtland Ave E Kitchener ON

Order No:	20000120001	***Nearest Intersection:***	Hillmount St / Courtland Ave E
Status:	C	***Municipality:***	Waterloo
Report Type:	Complete Report	***Client Prov/State:***	ON
Report Date:	1/24/00	***Search Radius (km):***	0.50
Date Received:	1/20/00	***X:***	-80.463999
Previous Site Name:	28,000 sq m	***Y:***	43.423258
Lot/Building Size:			
Additional Info Ordered:			

Site: ***Regional Municipality of Waterloo*** ***Database:*** ***GEN***

Ottawa Street South Kitchener ON

Generator No:	ON5303105
SIC Code:	913910
SIC Description:	Other Local Municipal and Regional Public Administration
Approval Years:	2009
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	149
Waste Class Name:	LANDFILL LEACHATES

Site: ***Regional Municipality of Waterloo*** ***Database:*** ***GEN***

Ottawa Street South Kitchener ON

Generator No:	ON5303105
SIC Code:	913910
SIC Description:	Other Local Municipal and Regional Public Administration
Approval Years:	2010
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class: 149
Waste Class Name: LANDFILL LEACHATES

Site: ***Regional Municipality of Waterloo***
Ottawa Street South Kitchener ON

Database: ***GEN***

Generator No: ON5303105
SIC Code: 913910
SIC Description: Other Local Municipal and Regional Public Administration
Approval Years: 2011
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 149
Waste Class Name: LANDFILL LEACHATES

Site: ***SADDLERY HARDWARE***
R.R. #1, LOT 1, G.C.T. WATERLOO ON N2J 4G8

Database: ***GEN***

Generator No: ON1183400
SIC Code: 3069
SIC Description: OTHER HARDWARE, ETC.
Approval Years: 89
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Site: ***SADDLERY HARDWARE 34-564***
R.R. #1, LOT 1, G.C.T. WATERLOO ON N2J 4G8

Database: ***GEN***

Generator No: ON1183400
SIC Code: 3069
SIC Description: OTHER HARDWARE, ETC.
Approval Years: 92,93,94,95,96,97,98
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 243
Waste Class Name: PCB'S

Site: ***CANADA CORDAGE INC.***

Database:

BORDEN AVENUE SOUTH PLAN 404, PART LOT 25 ST&L KITCHENER ON **GEN**

Generator No: ON1198901
SIC Code: 1911
SIC Description: NAT. FIBRES PROC.
Approval Years: 95,96,97,98,99,00,01
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 268
Waste Class Name: AMINES

Waste Class: 145
Waste Class Name: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 212
Waste Class Name: ALIPHATIC SOLVENTS

Waste Class: 222
Waste Class Name: HEAVY FUELS

Waste Class: 251
Waste Class Name: OIL SKIMMINGS & SLUDGES

Waste Class: 263
Waste Class Name: ORGANIC LABORATORY CHEMICALS

Site: ***Regional Municipality of Waterloo***
Ottawa Street South Kitchener ON N2E 1H7

Database: ***GEN***

Generator No: ON5303105
SIC Code: 913910
SIC Description: Other Local Municipal and Regional Public Administration
Approval Years: 04,05,06,07,08
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 148
Waste Class Name: INORGANIC LABORATORY CHEMICALS

Waste Class: 263
Waste Class Name: ORGANIC LABORATORY CHEMICALS

Waste Class: 149
Waste Class Name: LANDFILL LEACHATES

Site: ***Unknown Site 3 - Kitchener (Rockway) Landfill***
Lot 1 GERMAN COMPANY TRACT Waterloo; Kent Avenue, Stirling Avenue, Hurst Avenue and Palmer Avenue
Waterloo ON

Database: ***LIMO***

ECA/Instrument No:	X8086	***Natural Attenuation:***	
Operation Status:	Historic	***Liners:***	
C of A Issue Date:		***Cover Material:***	
C of A Issued to:		***Leachate Off-Site:***	
Lndfl Gas Mgmt (P):		***Leachate On Site:***	
Lndfl Gas Mgmt (F):		***Req Coll Lndfll Gas:***	
Lndfl Gas Mgmt (E):		***Lndfll Gas Coll:***	
Lndfl Gas Mgmt Sys:		***Total Waste Rec:***	
Landfill Gas Mntr:		***TWR Methodology:***	
Leachate Coll Sys:		***TWR Unit:***	
ERC Est Vol (m3):		***Tot Aprv Cap Unit:***	
ERC Volume Unit:		***Financial Assurance:***	
ERC Dt Last Det:		***Last Report Year:***	
Landfill Type:		***Region:***	
Source File Type:	Historic and Closed Landfills	***District Office:***	
Fill Rate:		***Site County:***	
Fill Rate Unit:		***Lot:***	
Tot Fill Area (ha):		***Concession:***	
Tot Site Area (ha):		***Latitude:***	
Footprint:		***Longitude:***	
Tot Apprv Cap (m3):		***Easting:***	
Contam Atten Zone:		***Northing:***	
Grndwtr Mntr:		***UTM Zone:***	
Surf Wtr Mntr:		***Data Source:***	
Air Emis Monitor:			
Approved Waste Type:			
Client Site Name:	Unknown Site 3 - Kitchener (Rockway) Landfill		
ERC Methodology:			
Site Name:			
Site Location Details:	Lot 1 GERMAN COMPANY TRACT Waterloo; Kent Avenue, Stirling Avenue, Hurst Avenue and Palmer Avenue Waterloo		
Service Area:			
Page URL:			

Site: ***Unknown Site 4 - Kitchener (Hurst Avenue) Landfill***
Lot 18 GERMAN COMPANY TRACT Waterloo; Kitchener, end of Hurst Ave and Palmer Avenue Waterloo ON

Database: ***LIMO***

ECA/Instrument No:	X8087	***Natural Attenuation:***	
Operation Status:	Historic	***Liners:***	
C of A Issue Date:		***Cover Material:***	
C of A Issued to:		***Leachate Off-Site:***	
Lndfl Gas Mgmt (P):		***Leachate On Site:***	
Lndfl Gas Mgmt (F):		***Req Coll Lndfll Gas:***	
Lndfl Gas Mgmt (E):		***Lndfll Gas Coll:***	
Lndfl Gas Mgmt Sys:		***Total Waste Rec:***	
Landfill Gas Mntr:		***TWR Methodology:***	
Leachate Coll Sys:		***TWR Unit:***	
ERC Est Vol (m3):		***Tot Aprv Cap Unit:***	
ERC Volume Unit:		***Financial Assurance:***	
ERC Dt Last Det:		***Last Report Year:***	
Landfill Type:		***Region:***	
Source File Type:	Historic and Closed Landfills	***District Office:***	
Fill Rate:		***Site County:***	
Fill Rate Unit:		***Lot:***	
Tot Fill Area (ha):		***Concession:***	
Tot Site Area (ha):		***Latitude:***	
Footprint:		***Longitude:***	
Tot Apprv Cap (m3):		***Easting:***	
Contam Atten Zone:		***Northing:***	
Grndwtr Mntr:		***UTM Zone:***	
Surf Wtr Mntr:		***Data Source:***	
Air Emis Monitor:			
Approved Waste Type:			
Client Site Name:	Unknown Site 4 - Kitchener (Hurst Avenue) Landfill		

ERC Methodology:
Site Name:
Site Location Details: Lot 18 GERMAN COMPANY TRACT Waterloo; Kitchener, end of Hurst Ave and Palmer Avenue

Waterloo
Service Area:
Page URL:

Site: ***PUC*** ***Database:*** ***SPL***
SEWER LINE ON BEDFORD RD SANITARY SEWER KITCHENER CITY ON

Ref No: 79506
Site No:
Incident Dt: 12/2/1992
Year:
Incident Cause: PIPE/HOSE LEAK
Incident Event:
Environment Impact: NOT ANTICIPATED
Nature of Impact:
MOE Response:
Dt MOE Arvl on Scn:
MOE Reported Dt: 12/2/1992
Dt Document Closed:
Municipality No: 25102
System Facility Address:
Client Type:
Call Report Location Geodata:
Contaminant Code:
Contaminant Name:
Contaminant Limit 1:
Contam Limit Freq 1:
Contaminant UN No 1:
Receiving Medium: LAND
Receiving Environment:
Incident Reason: WELD/SEAM FAILURE
Incident Summary: PUC -APPROX 10M3 SANITARYSEWAGE TO TRENCH FROM OLDLEAKING SEWER LINE.
Site Region:
Site Municipality: KITCHENER CITY
Activity Preceding Spill:
Property 2nd Watershed:
Property Tertiary Watershed:
Sector Type:
SAC Action Class:
Source Type:
Site County/District:
Site Geo Ref Meth:
Site District Office:
Nearest Watercourse:
Site Name:
Site Address:
Client Name:

Contaminant Qty:
Nature of Damage:
Discharger Report:
Material Group:
Health/Env Conseq:
Agency Involved:
Site Lot:
Site Conc:
Site Geo Ref Accu:
Site Map Datum:
Northing:
Easting:

Site: ***GrandLinq Contractors*** ***Database:*** ***SPL***
Kitchener ON

Ref No: 4455-A4RUM2
Site No: NA
Incident Dt: 11/30/2015
Year:
Incident Cause:
Incident Event:
Environment Impact:
Nature of Impact:
MOE Response: No
Dt MOE Arvl on Scn:
MOE Reported Dt: 11/30/2015

Contaminant Qty: 0 other - see incident description
Nature of Damage:
Discharger Report:
Material Group:
Health/Env Conseq:
Agency Involved:
Site Lot:
Site Conc:
Site Geo Ref Accu:
Site Map Datum:
Northing:

Dt Document Closed: 1/12/2016 ***Easting:***
Municipality No:
System Facility Address:
Client Type:
Call Report Location Geodata:
Contaminant Code: 43
Contaminant Name: SEDIMENT(SUSPENDED SOLIDS/ SAND/ SILT)
Contaminant Limit 1:
Contam Limit Freq 1:
Contaminant UN No 1:
Receiving Medium:
Receiving Environment:
Incident Reason: Operator/Human Error
Incident Summary: Region of Waterloo: Water main break, sediment to Schnieder's Creek
Site Region:
Site Municipality: Kitchener
Activity Preceding Spill:
Property 2nd Watershed:
Property Tertiary Watershed:
Sector Type: Miscellaneous Industrial
SAC Action Class: Watercourse Spills
Source Type:
Site County/District:
Site Geo Ref Meth:
Site District Office:
Nearest Watercourse:
Site Name: Water main by the intersection of Duke and Queen St.<UNOFFICIAL>
Site Address:
Client Name: GrandLinq Contractors

Site: ***CONTRACTOR***
SEWER LINE ON BEDFORD RD (N.O.S.) KITCHENER CITY ON

Database: ***SPL***

Ref No: 79692 ***Contaminant Qty:***
Site No: ***Nature of Damage:***
Incident Dt: 12/8/1992 ***Discharger Report:***
Year: ***Material Group:***
Incident Cause: PIPE/HOSE LEAK ***Health/Env Conseq:***
Incident Event: ***Agency Involved:***
Environment Impact: POSSIBLE ***Site Lot:***
Nature of Impact: Soil contamination ***Site Conc:***
MOE Response: ***Site Geo Ref Accu:***
Dt MOE Arvl on Scn: ***Site Map Datum:***
MOE Reported Dt: 12/8/1992 ***Northing:***
Dt Document Closed: ***Easting:***
Municipality No: 25102
System Facility Address:
Client Type:
Call Report Location Geodata:
Contaminant Code:
Contaminant Name:
Contaminant Limit 1:
Contam Limit Freq 1:
Contaminant UN No 1:
Receiving Medium: LAND
Receiving Environment:
Incident Reason: WELD/SEAM FAILURE
Incident Summary: MARDAVE CONT.- 10 M3 OF RAW SEWAGE TO GROUND FROMBROKEN PIPE
Site Region:
Site Municipality: KITCHENER CITY
Activity Preceding Spill:
Property 2nd Watershed:
Property Tertiary Watershed:
Sector Type:
SAC Action Class:
Source Type:
Site County/District:

Site Geo Ref Meth:
Site District Office:
Nearest Watercourse:
Site Name:
Site Address:
Client Name:

Site: ***Rideway Transportation Inc.***
Courtland Avenue Kitchener ON

Database: ***SPL***

Ref No:	3554-97CCSE	***Contaminant Qty:***	0 other - see incident description
Site No:		***Nature of Damage:***	
Incident Dt:	03-MAY-13	***Discharger Report:***	
Year:		***Material Group:***	
Incident Cause:	Leak/Break	***Health/Env Conseq:***	
Incident Event:		***Agency Involved:***	
Environment Impact:	Not Anticipated	***Site Lot:***	
Nature of Impact:	Surface Water Pollution	***Site Conc:***	
MOE Response:		***Site Geo Ref Accu:***	GIS Software
Dt MOE Arvl on Scn:		***Site Map Datum:***	Unknown
MOE Reported Dt:	03-MAY-13	***Northing:***	4809924
Dt Document Closed:		***Easting:***	541762

Municipality No:
System Facility Address:
Client Type:
Call Report Location Geodata:
Contaminant Code: 13
Contaminant Name: DIESEL FUEL
Contaminant Limit 1:
Contam Limit Freq 1:
Contaminant UN No 1:
Receiving Medium:
Receiving Environment:
Incident Reason: Other
Incident Summary: Rideway Transportation: Unkwn quantity dsl to yard
Site Region:
Site Municipality: Kitchener
Activity Preceding Spill:
Property 2nd Watershed:
Property Tertiary Watershed:
Sector Type: Truck - Only Saddle Tanks
SAC Action Class: Land Spills
Source Type:
Site County/District:
Site Geo Ref Meth: 10-30 metres eg. Medium Quality GPS
Site District Office:
Nearest Watercourse:
Site Name: Courtland Avenue
Site Address: Courtland Avenue
Client Name: Rideway Transportation Inc.

Site: ***end of Balzer Road (undeveloped area)<UNOFFICIAL>***
off Courtland Ave Kitchener ON

Database: ***SPL***

Ref No:	6880-6RLRZY	***Contaminant Qty:***	48 L
Site No:		***Nature of Damage:***	
Incident Dt:	7/11/2006	***Discharger Report:***	
Year:		***Material Group:***	
Incident Cause:		***Health/Env Conseq:***	
Incident Event:		***Agency Involved:***	
Environment Impact:	Confirmed	***Site Lot:***	
Nature of Impact:		***Site Conc:***	
MOE Response:		***Site Geo Ref Accu:***	
Dt MOE Arvl on Scn:		***Site Map Datum:***	
MOE Reported Dt:	7/11/2006	***Northing:***	
Dt Document Closed:		***Easting:***	

Municipality No:
System Facility Address:
Client Type:
Call Report Location Geodata:
Contaminant Code: 27
Contaminant Name: PAINT OR PAINT RELATED N.O.S.
Contaminant Limit 1:
Contam Limit Freq 1:
Contaminant UN No 1:
Receiving Medium:
Receiving Environment:
Incident Reason:
Incident Summary: Mixture of latex and oil based paints dumped, cleaning
Site Region:
Site Municipality: Kitchener
Activity Preceding Spill:
Property 2nd Watershed:
Property Tertiary Watershed:
Sector Type:
SAC Action Class:
Source Type: Other
Site County/District:
Site Geo Ref Meth:
Site District Office: Sudbury
Nearest Watercourse:
Site Name: end of Balzer Road (undeveloped area)<UNOFFICIAL>
Site Address: off Courtland Ave
Client Name:

Site: ***Database:*** ***SPL***

Courtland Ave, from Stirling Ave to David St<UNOFFICIAL> Kitchener ON

Ref No: 3163-7GMSP7
Site No:
Incident Dt:
Year:
Incident Cause: Container Leak (Fuel Tank Barrels)
Incident Event:
Environment Impact: Not Anticipated
Nature of Impact: Surface Water Pollution
MOE Response: Referral to others
Dt MOE Arvl on Scn:
MOE Reported Dt: 7/17/2008
Dt Document Closed: 1/22/2009
Municipality No:
System Facility Address:
Client Type:
Call Report Location Geodata:
Contaminant Code: 13
Contaminant Name: DIESEL FUEL
Contaminant Limit 1:
Contam Limit Freq 1:
Contaminant UN No 1:
Receiving Medium:
Receiving Environment:
Incident Reason: Unknown - Reason not determined
Incident Summary: Truck: diesel leak to roadway (stain trail), cleaned
Site Region:
Site Municipality: Kitchener
Activity Preceding Spill:
Property 2nd Watershed:
Property Tertiary Watershed:
Sector Type: Transport Truck
SAC Action Class: Land Spills
Source Type:
Site County/District:
Site Geo Ref Meth:

Contaminant Qty: 0 other - see incident description
Nature of Damage:
Discharger Report:
Material Group:
Health/Env Conseq:
Agency Involved:
Site Lot:
Site Conc:
Site Geo Ref Accu:
Site Map Datum:
Northing:
Easting:

Site District Office: Guelph
Nearest Watercourse:
Site Name: Courtland Ave, from Stirling Ave to David St<UNOFFICIAL>
Site Address:
Client Name:

Site: ***GrandLinq Contractors***
Waterloo ON

Database: ***SPL***

Ref No:	5101-9SZJW3	***Contaminant Qty:***	0 other - see incident description
Site No:	NA	***Nature of Damage:***	
Incident Dt:	1/21/2015	***Discharger Report:***	
Year:		***Material Group:***	
Incident Cause:	Leak/Break	***Health/Env Conseq:***	
Incident Event:		***Agency Involved:***	
Environment Impact:		***Site Lot:***	
Nature of Impact:	Land	***Site Conc:***	
MOE Response:	N	***Site Geo Ref Accu:***	
Dt MOE Arvl on Scn:		***Site Map Datum:***	
MOE Reported Dt:	1/22/2015	***Northing:***	4812484
Dt Document Closed:	2/10/2015	***Easting:***	538795

Municipality No:
System Facility Address:
Client Type:
Call Report Location Geodata:
Contaminant Code: 24
Contaminant Name: PROPYLENE GLYCOL
Contaminant Limit 1:
Contam Limit Freq 1:
Contaminant UN No 1:
Receiving Medium:
Receiving Environment:
Incident Reason: Deliberate Act
Incident Summary: Grand Linq: propylene glycol to ground and storm sewer
Site Region:
Site Municipality: Waterloo
Activity Preceding Spill:
Property 2nd Watershed:
Property Tertiary Watershed:
Sector Type:
SAC Action Class: Land Spills
Source Type:
Site County/District:
Site Geo Ref Meth:
Site District Office:
Nearest Watercourse:
Site Name: Caroline St. & Alexandria St.<UNOFFICIAL>
Site Address:
Client Name: GrandLinq Contractors

Site: ***MOTOR VEHICLE***
COURTLAND AVE. NEAR SCHNEIDER CREEK MOTOR VEHICLE (OPERATING FLUID) KITCHENER CITY ON

Database: ***SPL***

Ref No:	176115	***Contaminant Qty:***	
Site No:		***Nature of Damage:***	
Incident Dt:	12/24/1999	***Discharger Report:***	
Year:		***Material Group:***	
Incident Cause:	OTHER TRANSPORTATION ACCIDENT	***Health/Env Conseq:***	
Incident Event:		***Agency Involved:***	CITY OF KITCHENER, REGION OF WAT.
Environment Impact:	POSSIBLE	***Site Lot:***	
Nature of Impact:	Water course or lake	***Site Conc:***	
MOE Response:		***Site Geo Ref Accu:***	
Dt MOE Arvl on Scn:		***Site Map Datum:***	
MOE Reported Dt:	12/24/1999	***Northing:***	
Dt Document Closed:		***Easting:***	
Municipality No:	25102		

System Facility Address:
Client Type:
Call Report Location Geodata:
Contaminant Code:
Contaminant Name:
Contaminant Limit 1:
Contam Limit Freq 1:
Contaminant UN No 1:
Receiving Medium: LAND / WATER
Receiving Environment:
Incident Reason: UNKNOWN
Incident Summary: MOTOR VEHICLE: <20L SPILLTO SCHNEIDER CREEK.GASOL-INE.MVA.CITY OF KIT.
Site Region:
Site Municipality: KITCHENER CITY
Activity Preceding Spill:
Property 2nd Watershed:
Property Tertiary Watershed:
Sector Type:
SAC Action Class:
Source Type:
Site County/District:
Site Geo Ref Meth:
Site District Office:
Nearest Watercourse:
Site Name:
Site Address:
Client Name:

Site: ***SUNY'S GAS BAR***
SUNY'S GAS BAR COURTLAND AVE SERVICE STATION KITCHENER CITY ON

Database: ***SPL***

Ref No: 73142
Site No:
Incident Dt: 7/3/1992
Year:
Incident Cause: PIPE/HOSE LEAK
Incident Event:
Environment Impact: NOT ANTICIPATED
Nature of Impact:
MOE Response:
Dt MOE Arvl on Scn:
MOE Reported Dt: 7/3/1992
Dt Document Closed:
Municipality No: 25102
Contaminant Qty:
Nature of Damage:
Discharger Report:
Material Group:
Health/Env Conseq:
Agency Involved: MCCR.
Site Lot:
Site Conc:
Site Geo Ref Accu:
Site Map Datum:
Northing:
Easting:
System Facility Address:
Client Type:
Call Report Location Geodata:
Contaminant Code:
Contaminant Name:
Contaminant Limit 1:
Contam Limit Freq 1:
Contaminant UN No 1:
Receiving Medium: LAND
Receiving Environment:
Incident Reason: EQUIPMENT FAILURE
Incident Summary: SUNY'S GAS BAR - 10L GASOLINE TO GROUND, PUMP MALFUNCTION.
Site Region:
Site Municipality: KITCHENER CITY
Activity Preceding Spill:
Property 2nd Watershed:
Property Tertiary Watershed:
Sector Type:
SAC Action Class:
Source Type:
Site County/District:
Site Geo Ref Meth:
Site District Office:

Nearest Watercourse:
Site Name:
Site Address:
Client Name:

Site:
lot 2 ON

Database:
WWIS

Well ID:	6507521	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Domestic	***Data Entry Status:***	
Use 2nd:		***Data Src:***	1
Final Well Status:	Water Supply	***Date Received:***	22-Nov-1993 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	124236	***Contractor:***	4207
Tag:		***Form Version:***	1
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	002
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	BUT
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY (WATERLOO TWP)		
Site Info:			

Bore Hole Information

Bore Hole ID:	10458734	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	17
Code OB:		***East83:***	
Code OB Desc:		***North83:***	
Open Hole:		***Org CS:***	
Cluster Kind:		***UTMRC:***	9
Date Completed:	30-Jul-1993 00:00:00	***UTMRC Desc:***	unknown UTM
Remarks:		***Location Method:***	na
Loc Method Desc:	Not Applicable i.e. no UTM		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	932583720
Layer:	4
Color:	6
General Color:	BROWN
Mat1:	11
Most Common Material:	GRAVEL
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	114.0
Formation End Depth:	119.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID: 932583717
Layer: 1
Color: 6
General Color: BROWN
Mat1: 11
Most Common Material: GRAVEL
Mat2: 28
Mat2 Desc: SAND
Mat3: 06
Mat3 Desc: SILT
Formation Top Depth: 0.0
Formation End Depth: 52.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 932583718
Layer: 2
Color: 6
General Color: BROWN
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 52.0
Formation End Depth: 63.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 932583719
Layer: 3
Color: 6
General Color: BROWN
Mat1: 05
Most Common Material: CLAY
Mat2: 11
Mat2 Desc: GRAVEL
Mat3: 06
Mat3 Desc: SILT
Formation Top Depth: 63.0
Formation End Depth: 114.0
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 966507521
Method Construction Code: 4
Method Construction: Rotary (Air)
Other Method Construction:

Pipe Information

Pipe ID: 11007304
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID:	930743941
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	119.0
Casing Diameter:	6.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pumping Test Method Desc:	PUMP
Pump Test ID:	996507521
Pump Set At:	
Static Level:	55.0
Final Level After Pumping:	117.0
Recommended Pump Depth:	100.0
Pumping Rate:	20.0
Flowing Rate:	
Recommended Pump Rate:	15.0
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	1
Pumping Duration MIN:	0
Flowing:	No

Draw Down & Recovery

Pump Test Detail ID:	934858882
Test Type:	
Test Duration:	45
Test Level:	55.0
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934345070
Test Type:	
Test Duration:	15
Test Level:	60.0
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	935123648
Test Type:	
Test Duration:	60
Test Level:	55.0
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934604115
Test Type:	
Test Duration:	30
Test Level:	55.0
Test Level UOM:	ft

Water Details

Water ID:	933945969
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	119.0
Water Found Depth UOM:	ft

Site:

RM WATERLOO lot 2 KITCHENER ON

Database:
WWIS

Well ID:	7144801	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Not Used	***Data Entry Status:***	
Use 2nd:		***Data Src:***	
Final Well Status:	Abandoned-Other	***Date Received:***	12-May-2010 00:00:00
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	Yes
Audit No:	Z45067	***Contractor:***	7302
Tag:		***Form Version:***	3
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	WATERLOO
Elevatn Reliabilty:		***Lot:***	002
Depth to Bedrock:		***Concession:***	
Well Depth:		***Concession Name:***	
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	KITCHENER CITY		
Site Info:			

Bore Hole Information

Bore Hole ID:	1002979239	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	
Code OB:		***East83:***	
Code OB Desc:		***North83:***	
Open Hole:		***Org CS:***	UTM83
Cluster Kind:		***UTMRC:***	9
Date Completed:	10-Apr-2010 00:00:00	***UTMRC Desc:***	unknown UTM
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Annular Space/Abandonment Sealing Record

Plug ID:	1002979329
Layer:	1
Plug From:	
Plug To:	
Plug Depth UOM:	m

Method of Construction & Well Use

Method Construction ID: 1002979334
Method Construction Code:
Method Construction:
Other Method Construction:

Pipe Information

Pipe ID: 1002979326
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1002979331
Layer:
Material:
Open Hole or Material:
Depth From:
Depth To:
Casing Diameter:
Casing Diameter UOM: cm
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1002979332
Layer:
Slot:
Screen Top Depth:
Screen End Depth:
Screen Material:
Screen Depth UOM: m
Screen Diameter UOM: cm
Screen Diameter:

Water Details

Water ID: 1002979330
Layer:
Kind Code:
Kind:
Water Found Depth:
Water Found Depth UOM: m

Hole Diameter

Hole ID: 1002979328
Diameter:
Depth From: 0.0
Depth To: 4.800000190734863
Hole Depth UOM: m
Hole Diameter UOM: cm

Site:
RM WATERLOO lot 2 KITCHENER ON

Database: ***WWIS***

Well ID: 7144802
Construction Date:
Use 1st:
Use 2nd: Not Used
Final Well Status: Abandoned-Other
Water Type:
Casing Material:

Flowing (Y/N):
Flow Rate:
Data Entry Status:
Data Src:
Date Received: 13-May-2010 00:00:00
Selected Flag: TRUE
Abandonment Rec: Yes

Audit No: Z45066
Tag:
Constructn Method:
Elevation (m):
Elevatn Reliabilty:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Clear/Cloudy:
Municipality: KITCHENER CITY
Site Info:

Contractor: 7302
Form Version: 3
Owner:
County: WATERLOO
Lot: 002
Concession:
Concession Name:
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

Bore Hole Information

Bore Hole ID: 1002979241
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 10-Apr-2010 00:00:00
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone:
East83:
North83:
Org CS: UTM83
UTMRC: 9
UTMRC Desc: unknown UTM
Location Method: wwr

Annular Space/Abandonment Sealing Record

Plug ID: 1002979339
Layer: 1
Plug From:
Plug To:
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1002979344
Method Construction Code:
Method Construction:
Other Method Construction:

Pipe Information

Pipe ID: 1002979336
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1002979341
Layer:
Material:
Open Hole or Material:
Depth From:
Depth To:

Casing Diameter:
Casing Diameter UOM: cm
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1002979342
Layer:
Slot:
Screen Top Depth:
Screen End Depth:
Screen Material:
Screen Depth UOM: m
Screen Diameter UOM: cm
Screen Diameter:

Water Details

Water ID: 1002979340
Layer:
Kind Code:
Kind:
Water Found Depth:
Water Found Depth UOM: m

Hole Diameter

Hole ID: 1002979338
Diameter:
Depth From: 0.0
Depth To: 5.5
Hole Depth UOM: m
Hole Diameter UOM: cm

Appendix: Database Descriptions

Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. ***Note:*** *Databases denoted with " * " indicates that the database will no longer be updated. See the individual database description for more information.*

Abandoned Aggregate Inventory: Provincial AAGR

The MAAP Program maintains a database of abandoned pits and quarries. Please note that the database is only referenced by lot and concession and city/town location. The database provides information regarding the location, type, size, land use, status and general comments.*

Government Publication Date: Sept 2002*

Aggregate Inventory: Provincial AGR

The Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry (ONDMNRF) maintains this database of pits and quarries. The database provides information regarding the registered owner/operator, location name, operation type, approval type, and maximum annual tonnage.

Government Publication Date: Up to Oct 2022

Abandoned Mine Information System: Provincial AMIS

The Abandoned Mines Information System contains data on known abandoned and inactive mines located on both Crown and privately held lands. The information was provided by the Ministry of Northern Development and Mines (MNDM), with the following disclaimer: "the database provided has been compiled from various sources, and the Ministry of Northern Development and Mines makes no representation and takes no responsibility that such information is accurate, current or complete". Reported information includes official mine name, status, background information, mine start/end date, primary commodity, mine features, hazards and remediation.

Government Publication Date: 1800-Mar 2022

Anderson's Waste Disposal Sites: Private ANDR

The information provided in this database was collected by examining various historical documents which aimed to characterize the likely position of former waste disposal sites from 1860 to present. The research initiative behind the creation of this database was to identify those sites that are missing from the Ontario MOE Waste Disposal Site Inventory, as well as to provide revisions and corrections to the positions and descriptions of sites currently listed in the MOE inventory. In addition to historic waste disposal facilities, the database also identifies certain auto wreckers and scrap yards that have been extrapolated from documentary sources. Please note that the data is not warranted to be complete, exhaustive or authoritative. The information was collected for research purposes only.

Government Publication Date: 1860s-Present

Aboveground Storage Tanks: Provincial AST

Historical listing of aboveground storage tanks made available by the Department of Natural Resources and Forestry. Includes tanks used to hold water or petroleum. This dataset has been retired as of September 25, 2014 and will no longer be updated.

Government Publication Date: May 31, 2014

Automobile Wrecking & Supplies: Private AUWR

This database provides an inventory of known locations that are involved in the scrap metal, automobile wrecking/recycling, and automobile parts & supplies industry. Information is provided on the company name, location and business type.

Government Publication Date: 1999-Feb 28, 2022

Borehole: Provincial BORE

A borehole is the generalized term for any narrow shaft drilled in the ground, either vertically or horizontally. The information here includes geotechnical investigations or environmental site assessments, mineral exploration, or as a pilot hole for installing piers or underground utilities. Information is from many sources such as the Ministry of Transportation (MTO) boreholes from engineering reports and projects from the 1950 to 1990's in Southern Ontario. Boreholes from the Ontario Geological Survey (OGS) including The Urban Geology Analysis Information System (UGAIS) and the York Peel Durham Toronto (YPDT) database of the Conservation Authority Moraine Coalition. This database will include fields such as location, stratigraphy, depth, elevation, year drilled, etc. For all water well data or oil and gas well data for Ontario please refer to WWIS and OOGW.

Government Publication Date: 1875-Jul 2018

Certificates of Approval: Provincial CA

This database contains the following types of approvals: Air & Noise, Industrial Sewage, Municipal & Private Sewage, Waste Management Systems and Renewable Energy Approvals. The MOE in Ontario states that any facility that releases emissions to the atmosphere, discharges contaminants to ground or surface water, provides potable water supplies, or stores, transports or disposes of waste, must have a Certificate of Approval before it can operate lawfully. Fields include approval number, business name, address, approval date, approval type and status. This database will no longer be updated, as CofA's have been replaced by either Environmental Activity and Sector Registry (EASR) or Environmental Compliance Approval (ECA). Please refer to those individual databases for any information after Oct.31, 2011.

Government Publication Date: 1985-Oct 30, 2011*

Dry Cleaning Facilities: Federal CDRY

List of dry cleaning facilities made available by Environment and Climate Change Canada. Environment and Climate Change Canada's Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements) Regulations (SOR/2003-79) are intended to reduce releases of tetrachloroethylene to the environment from dry cleaning facilities.

Government Publication Date: Jan 2004-Dec 2021

Commercial Fuel Oil Tanks: Provincial CFOT

Locations of commercial underground fuel oil tanks. This is not a comprehensive or complete inventory of commercial fuel tanks in the province; this listing is a copy of records of registered commercial underground fuel oil tanks obtained under Access to Public Information.
Note that the following types of tanks do not require registration: waste oil tanks in apartments, office buildings, residences, etc.; aboveground gas or diesel tanks. Records are not verified for accuracy or completeness.

Government Publication Date: Feb 28, 2022

Chemical Manufacturers and Distributors: Private CHEM

This database includes information from both a one time study conducted in 1992 and private source and is a listing of facilities that manufacture or distribute chemicals. The production of these chemical substances may involve one or more chemical reactions and/or chemical separation processes (i.e. fractionation, solvent extraction, crystallization, etc.).

Government Publication Date: 1999-Jan 31, 2020

Chemical Register: Private CHM

This database includes a listing of locations of facilities within the Province or Territory that either manufacture and/or distributes chemicals.

Government Publication Date: 1999-Feb 28, 2023

Compressed Natural Gas Stations: Private CNG

Canada has a network of public access compressed natural gas (CNG) refuelling stations. These stations dispense natural gas in compressed form at 3,000 pounds per square inch (psi), the pressure which is allowed within the current Canadian codes and standards. The majority of natural gas refuelling is located at existing retail gasoline that have a separate refuelling island for natural gas. This list of stations is made available by the Canadian Natural Gas Vehicle Alliance.

Government Publication Date: Dec 2012 -Feb 2023

Inventory of Coal Gasification Plants and Coal Tar Sites: Provincial COAL

This inventory includes both the "Inventory of Coal Gasification Plant Waste Sites in Ontario-April 1987" and the Inventory of Industrial Sites Producing or Using Coal Tar and Related Tars in Ontario-November 1988) collected by the MOE. It identifies industrial sites that produced and continue to produce or use coal tar and other related tars. Detailed information is available and includes: facility type, size, land use, information on adjoining properties, soil condition, site operators/occupants, site description, potential environmental impacts and historic maps available. This was a one-time inventory.*

Government Publication Date: Apr 1987 and Nov 1988*

Compliance and Convictions: Provincial CONV

This database summarizes the fines and convictions handed down by the Ontario courts beginning in 1989. Companies and individuals named here have been found guilty of environmental offenses in Ontario courts of law.

Government Publication Date: 1989-Feb 2023

Certificates of Property Use: Provincial CPU

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include CPU's on the registry such as (EPA s. 168.6) - Certificate of Property Use.

Government Publication Date: 1994 - Mar 31, 2023

Drill Hole Database: Provincial DRL

The Ontario Drill Hole Database contains information on more than 113,000 percussion, overburden, sonic and diamond drill holes from assessment files on record with the department of Mines and Minerals. Please note that limited data is available for southern Ontario, as it was the last area to be completed. The database was created when surveys submitted to the Ministry were converted in the Assessment File Research Image Database (AFRI) project. However, the degree of accuracy (coordinates) as to the exact location of drill holes is dependent upon the source document submitted to the MNDM. Levels of accuracy used to locate holes are: centering on the mining claim; a sketch of the mining claim; a 1:50,000 map; a detailed company map; or from submitted a "Report of Work".

Government Publication Date: 1886 - Oct 2022

Delisted Fuel Tanks: Provincial DTNK

List of fuel storage tank sites that were once found in - and have since been removed from - the list of fuel storage tanks made available by the regulatory agency under Access to Public Information.

Government Publication Date: Feb 28, 2022

Environmental Activity and Sector Registry: Provincial EASR

On October 31, 2011, a smarter, faster environmental approvals system came into effect in Ontario. The EASR allows businesses to register certain activities with the ministry, rather than apply for an approval. The registry is available for common systems and processes, to which preset rules of operation can be applied. The EASR is currently available for: heating systems, standby power systems and automotive refinishing. Businesses whose activities aren't subject to the EASR may apply for an ECA (Environmental Compliance Approval), Please see our ECA database.

Government Publication Date: Oct 2011- Mar 31, 2023

Environmental Registry: Provincial EBR

The Environmental Registry lists proposals, decisions and exceptions regarding policies, Acts, instruments, or regulations that could significantly affect the environment. Through the Registry, thirteen provincial ministries notify the public of upcoming proposals and invite their comments. For example, if a local business is requesting a permit, license, or certificate of approval to release substances into the air or water; these are notified on the registry. Data includes: Approval for discharge into the natural environment other than water (i.e. Air) - EPA s. 9, Approval for sewage works - OWRA s. 53(1), and EPA s. 27 - Approval for a waste disposal site. For information regarding Permit to Take Water (PTTW), Certificate of Property Use (CPU) and (ORD) Orders please refer to those individual databases.

Government Publication Date: 1994 - Mar 31, 2023

Environmental Compliance Approval: Provincial ECA

On October 31, 2011, a smarter, faster environmental approvals system came into effect in Ontario. In the past, a business had to apply for multiple approvals (known as certificates of approval) for individual processes and pieces of equipment. Today, a business either registers itself, or applies for a single approval, depending on the types of activities it conducts. Businesses whose activities aren't subject to the EASR may apply for an ECA. A single ECA addresses all of a business's emissions, discharges and wastes. Separate approvals for air, noise and waste are no longer required. This database will also include Renewable Energy Approvals. For certificates of approval prior to Nov 1st, 2011, please refer to the CA database. For all Waste Disposal Sites please refer to the WDS database.

Government Publication Date: Oct 2011- Mar 31, 2023

Environmental Effects Monitoring: Federal EEM

The Environmental Effects Monitoring program assesses the effects of effluent from industrial or other sources on fish, fish habitat and human usage of fisheries resources. Since 1992, pulp and paper mills have been required to conduct EEM studies under the Pulp and Paper Effluent Regulations. This database provides information on the mill name, geographical location and sub-lethal toxicity data.

Government Publication Date: 1992-2007*

ERIS Historical Searches: Private EHS

ERIS has compiled a database of all environmental risk reports completed since March 1999. Available fields for this database include: site location, date of report, type of report, and search radius. As per all other databases, the ERIS database can be referenced on both the map and "Statistical Profile" page.

Government Publication Date: 1999-Dec 31, 2022

Environmental Issues Inventory System: Federal EIIS

The Environmental Issues Inventory System was developed through the implementation of the Environmental Issues and Remediation Plan. This plan was established to determine the location and severity of contaminated sites on inhabited First Nation reserves, and where necessary, to remediate those that posed a risk to health and safety; and to prevent future environmental problems. The EIIS provides information on the reserve under investigation, inventory number, name of site, environmental issue, site action (Remediation, Site Assessment), and date investigation completed.

Government Publication Date: 1992-2001*

Emergency Management Historical Event: Provincial EMHE

List of locations of historical occurrences of emergency events, including those assigned to the Ministry of Natural Resources by Order-In-Council (OIC) under the Emergency Management and Civil Protection Act, as well as events where MNR provided requested emergency response assistance. Many of these events will have involved community evacuations, significant structural loss, and/or involvement of MNR emergency response staff. These events fall into one of ten (10) type categories: Dam Failure; Drought / Low Water; Erosion; Flood; Forest Fire; Soil and Bedrock Instability; Petroleum Resource Center Event, EMO Requested Assistance, Continuity of Operations Event, Other Requested Assistance. EMHE record details are reproduced by ERIS under License with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2017.

Government Publication Date: Apr 30, 2022

Environmental Penalty Annual Report: Provincial EPAR

This database contains data from Ontario's annual environmental penalty report published by the Ministry of the Environment and Climate Change. These reports provide information on environmental penalties for land or water violations issued to companies in one of the nine industrial sectors covered by the Municipal Industrial Strategy for Abatement (MISA) regulations.

Government Publication Date: Jan 1, 2011 - Dec 31, 2022

List of Expired Fuels Safety Facilities: Provincial EXP

List of facilities and tanks for which there was once a fuel registration. This is not a comprehensive or complete inventory of expired tanks/tank facilities in the province; this listing is a copy of previously registered tanks and facilities obtained under Access to Public Information. Includes private fuel outlets, bulk plants, fuel oil tanks, gasoline stations, marinas, propane filling stations, liquid fuel tanks, piping systems, etc; includes tanks which have been removed from the ground.
Notes: registration was not required for private fuel underground/aboveground storage tanks prior to January 1990, nor for furnace oil tanks prior to May 1, 2002; registration is not required for waste oil tanks in apartments, office buildings, residences, etc., or aboveground gas or diesel tanks. Records are not verified for accuracy or completeness.

Government Publication Date: Feb 28, 2022

Federal Convictions: Federal FCON

Environment Canada maintains a database referred to as the "Environmental Registry" that details prosecutions under the Canadian Environmental Protection Act (CEPA) and the Fisheries Act (FA). Information is provided on the company name, location, charge date, offence and penalty.

Government Publication Date: 1988-Jun 2007*

Contaminated Sites on Federal Land: Federal FCS

The Federal Contaminated Sites Inventory includes information on known federal contaminated sites under the custodianship of departments, agencies and consolidated Crown corporations as well as those that are being or have been investigated to determine whether they have contamination arising from past use that could pose a risk to human health or the environment. The inventory also includes non-federal contaminated sites for which the Government of Canada has accepted some or all financial responsibility. It does not include sites where contamination has been caused by, and which are under the control of, enterprise Crown corporations, private individuals, firms or other levels of government. Includes fire training sites and sites at which Per- and Polyfluoroalkyl Substances (PFAS) are a concern.

Government Publication Date: Jun 2000-Mar 2023

Fisheries & Oceans Fuel Tanks: Federal FOFT

Fisheries & Oceans Canada maintains an inventory of aboveground & underground fuel storage tanks located on Fisheries & Oceans property or controlled by DFO. Our inventory provides information on the site name, location, tank owner, tank operator, facility type, storage tank location, tank contents & capacity, and date of tank installation.

Government Publication Date: 1964-Sep 2019

Federal Identification Registry for Storage Tank Systems (FIRSTS): Federal FRST

A list of federally regulated Storage tanks from the Federal Identification Registry for Storage Tank Systems (FIRSTS). FIRSTS is Environment and Climate Change Canada's database of storage tank systems subject to the Storage Tank for Petroleum Products and Allied Petroleum Products Regulations. The main objective of the Regulations is to prevent soil and groundwater contamination from storage tank systems located on federal and aboriginal lands. Storage tank systems that do not have a valid identification number displayed in a readily visible location on or near the storage tank system may be refused product delivery.

Government Publication Date: May 31, 2018

Fuel Storage Tank: Provincial FST

List of registered private and retail fuel storage tanks. This is not a comprehensive or complete inventory of private and retail fuel storage tanks in the province; this listing is a copy of registered private and retail fuel storage tanks, obtained under Access to Public Information.
Notes: registration was not required for private fuel underground/aboveground storage tanks prior to January 1990, nor for furnace oil tanks prior to May 1, 2002; registration is not required for waste oil tanks in apartments, office buildings, residences, etc., or aboveground gas or diesel tanks. Records are not verified for accuracy or completeness.

Government Publication Date: Feb 28, 2022

Fuel Storage Tank - Historic: Provincial FSTH

The Fuels Safety Branch of the Ontario Ministry of Consumer and Commercial Relations maintained a database of all registered private fuel storage tanks. Public records of private fuel storage tanks are only available since the registration became effective in September 1989. This information is now collected by the Technical Standards and Safety Authority.

Government Publication Date: Pre-Jan 2010*

Ontario Regulation 347 Waste Generators Summary: Provincial GEN

Regulation 347 of the Ontario EPA defines a waste generation site as any site, equipment and/or operation involved in the production, collection, handling and/or storage of regulated wastes. A generator of regulated waste is required to register the waste generation site and each waste produced, collected, handled, or stored at the site. This database contains the registration number, company name and address of registered generators including the types of hazardous wastes generated. It includes data on waste generating facilities such as: drycleaners, waste treatment and disposal facilities, machine shops, electric power distribution etc. This information is a summary of all years from 1986 including the most currently available data. Some records may contain, within the company name, the phrase "See & Use..." followed by a series of letters and numbers. This occurs when one company is amalgamated with or taken over by another registered company. The number listed as "See & Use", refers to the new ownership and the other identification number refers to the original ownership. This phrase serves as a link between the 2 companies until operations have been fully transferred.

Government Publication Date: 1986-Oct 31, 2022

Greenhouse Gas Emissions from Large Facilities: Federal GHG

List of greenhouse gas emissions from large facilities made available by Environment Canada. Greenhouse gas emissions in kilotonnes of carbon dioxide equivalents (kt CO2 eq).

Government Publication Date: 2013-Dec 2019

TSSA Historic Incidents: Provincial HINC

List of historic incidences of spills and leaks of diesel, fuel oil, gasoline, natural gas, propane, and hydrogen recorded by the TSSA in their previous incident tracking system. The TSSA's Fuels Safety Program administers the Technical Standards & Safety Act 2000, providing fuel-related safety services associated with the safe transportation, storage, handling and use of fuels such as gasoline, diesel, propane, natural gas and hydrogen. Under this Act, the TSSA regulates fuel suppliers, storage facilities, transport trucks, pipelines, contractors and equipment or appliances that use fuels. Records are not verified for accuracy or completeness. This is not a comprehensive or complete inventory of historical fuel spills and leaks in the province. This listing is a copy of the data captured at one moment in time and is hence limited by the record date provided here.

Government Publication Date: 2006-June 2009*

Indian & Northern Affairs Fuel Tanks: Federal IAFT

The Department of Indian & Northern Affairs Canada (INAC) maintains an inventory of aboveground & underground fuel storage tanks located on both federal and crown land. Our inventory provides information on the reserve name, location, facility type, site/facility name, tank type, material & ID number, tank contents & capacity, and date of tank installation.

Government Publication Date: 1950-Aug 2003*

Fuel Oil Spills and Leaks: Provincial INC

Listing of spills and leaks of diesel, fuel oil, gasoline, natural gas, propane, and hydrogen reported to the Spills Action Centre (SAC). This is not a comprehensive or complete inventory of fuel-related leaks, spills, and incidents in the province; this listing in a copy of incidents reported to the SAC, obtained under Access to Public Information. Includes incidents from fuel-related hazards such as spills, fires, and explosions. Records are not verified for accuracy or completeness.

Government Publication Date: Feb 28, 2022

Landfill Inventory Management Ontario: Provincial LIMO

The Landfill Inventory Management Ontario (LIMO) database is updated every year, as the Ministry of the Environment, Conservation and Parks compiles new and updated information. Includes small and large landfills currently operating as well as those which are closed and historic. Operators of larger landfills provide landfill information for the previous operating year to the ministry for LIMO including: estimated amount of total waste received, landfill capacity, estimated total remaining landfill capacity, fill rates, engineering designs, reporting and monitoring details, size of location, service area, approved waste types, leachate of site treatment, contaminant attenuation zone and more. The small landfills include information such as site owner, site location and certificate of approval # and status.

Government Publication Date: Mar 21, 2022

Canadian Mine Locations: Private MINE

This information is collected from the Canadian & American Mines Handbook. The Mines database is a national database that provides over 290 listings on mines (listed as public companies) dealing primarily with precious metals and hard rocks. Listed are mines that are currently in operation, closed, suspended, or are still being developed (advanced projects). Their locations are provided as geographic coordinates (x, y and/or longitude, latitude). As of 2002, data pertaining to Canadian smelters and refineries has been appended to this database.

Government Publication Date: 1998-2009*

Mineral Occurrences: Provincial MNR

In the early 70's, the Ministry of Northern Development and Mines created an inventory of approximately 19,000 mineral occurrences in Ontario, in regard to metallic and industrial minerals, as well as some information on building stones and aggregate deposits. Please note that the "Horizontal Positional Accuracy" is approximately +/- 200 m. Many reference elements for each record were derived from field sketches using pace or chain/tape measurements against claim posts or topographic features in the area. The primary limiting factor for the level of positional accuracy is the scale of the source material. The testing of horizontal accuracy of the source materials was accomplished by comparing the plan metric (X and Y) coordinates of that point with the coordinates of the same point as defined from a source of higher accuracy.

Government Publication Date: 1846-Feb 2023

National Analysis of Trends in Emergencies System (NATES): Federal NATE

In 1974 Environment Canada established the National Analysis of Trends in Emergencies System (NATES) database, for the voluntary reporting of significant spill incidents. The data was to be used to assist in directing the work of the emergencies program. NATES ran from 1974 to 1994. Extensive information is available within this database including company names, place where the spill occurred, date of spill, cause, reason and source of spill, damage incurred, and amount, concentration, and volume of materials released.

Government Publication Date: 1974-1994*

Non-Compliance Reports: Provincial NCPL

The Ministry of the Environment provides information about non-compliant discharges of contaminants to air and water that exceed legal allowable limits, from regulated industrial and municipal facilities. A reported non-compliance failure may be in regard to a Control Order, Certificate of Approval, Sectoral Regulation or specific regulation/act.

Government Publication Date: Dec 31, 2021

National Defense & Canadian Forces Fuel Tanks: Federal NDFT

The Department of National Defense and the Canadian Forces maintains an inventory of all aboveground & underground fuel storage tanks located on DND lands. Our inventory provides information on the base name, location, tank type & capacity, tank contents, tank class, date of tank installation, date tank last used, and status of tank as of May 2001. This database will no longer be updated due to the new National Security protocols which have prohibited any release of this database.

Government Publication Date: Up to May 2001*

National Defense & Canadian Forces Spills: Federal NDSP

The Department of National Defense and the Canadian Forces maintains an inventory of spills to land and water. All spill sites have been classified under the "Transportation of Dangerous Goods Act - 1992". Our inventory provides information on the facility name, location, spill ID #, spill date, type of spill, as well as the quantity of substance spilled & recovered.

Government Publication Date: Mar 1999-Apr 2018

National Defence & Canadian Forces Waste Disposal Sites: Federal NDWD

The Department of National Defence and the Canadian Forces maintains an inventory of waste disposal sites located on DND lands. Where available, our inventory provides information on the base name, location, type of waste received, area of site, depth of site, year site opened/closed and status.

Government Publication Date: 2001-Apr 2007*

National Energy Board Pipeline Incidents: Federal NEBI

Locations of pipeline incidents from 2008 to present, made available by the Canada Energy Regulator (CER) - previously the National Energy Board (NEB). Includes incidents reported under the Onshore Pipeline Regulations and the Processing Plant Regulations related to pipelines under federal jurisdiction, does not include incident data related to pipelines under provincial or territorial jurisdiction.

Government Publication Date: 2008-Jun 30, 2021

National Energy Board Wells: Federal NEBP

The NEBW database contains information on onshore & offshore oil and gas wells that are outside provincial jurisdiction(s) and are thereby regulated by the National Energy Board. Data is provided regarding the operator, well name, well ID No./UWI, status, classification, well depth, spud and release date.

Government Publication Date: 1920-Feb 2003*

National Environmental Emergencies System (NEES): Federal NEES

In 2000, the Emergencies program implemented NEES, a reporting system for spills of hazardous substances. For the most part, this system only captured data from the Atlantic Provinces, some from Quebec and Ontario and a portion from British Columbia. Data for Alberta, Saskatchewan, Manitoba and the Territories was not captured. However, NEES is also a repository for previous Environment Canada spill datasets. NEES is composed of the historic datasets ' or Trends ' which dates from approximately 1974 to present. NEES Trends is a compilation of historic databases, which were merged and includes data from NATES (National Analysis of Trends in Emergencies System), ARTS (Atlantic Regional Trends System), and NEES. In 2001, the Emergencies Program determined that variations in reporting regimes and requirements between federal and provincial agencies made national spill reporting and trend analysis difficult to achieve. As a consequence, the department has focused efforts on capturing data on spills of substances which fall under its legislative authority only (CEPA and FA). As such, the NEES database will be decommissioned in December 2004.

Government Publication Date: 1974-2003*

National PCB Inventory: Federal NPCB

Environment Canada's National PCB inventory includes information on in-use PCB containing equipment in Canada including federal, provincial and private facilities. Federal out-of-service PCB containing equipment and PCB waste owned by the federal government or by federally regulated industries such as airlines, railway companies, broadcasting companies, telephone and telecommunications companies, pipeline companies, etc. are also listed. Although it is not Environment Canada's mandate to collect data on non-federal PCB waste, the National PCB inventory includes some information on provincial and private PCB waste and storage sites. Some addresses provided may be Head Office addresses and are not necessarily the location of where the waste is being used or stored.

Government Publication Date: 1988-2008*

National Pollutant Release Inventory: Federal NPRI

Environment Canada has defined the National Pollutant Release Inventory ("NPRI") as a federal government initiative designed to collect comprehensive national data regarding releases to air, water, or land, and waste transfers for recycling for more than 300 listed substances.

Government Publication Date: 1993-May 2017

Oil and Gas Wells: Private OGWE

The Nickle's Energy Group (publisher of the Daily Oil Bulletin) collects information on drilling activity including operator and well statistics. The well information database includes name, location, class, status and depth. The main Nickle's database is updated on a daily basis, however, this database is updated on a monthly basis. More information is available at www.nickles.com.

Government Publication Date: 1988-Nov 30, 2022

Ontario Oil and Gas Wells: Provincial OOGW

In 1998, the MNR handed over to the Ontario Oil, Gas and Salt Resources Corporation, the responsibility of maintaining a database of oil and gas wells drilled in Ontario. The OGSR Library has over 20,000+ wells in their database. Information available for all wells in the ERIS database include well owner/operator, location, permit issue date, and well cap date, license No., status, depth and the primary target (rock unit) of the well being drilled. All geology/stratigraphy table information, plus all water table information is also provide for each well record.

Government Publication Date: 1800-Aug 2021

Inventory of PCB Storage Sites: Provincial OPCB

The Ontario Ministry of Environment, Waste Management Branch, maintains an inventory of PCB storage sites within the province. Ontario Regulation 11/82 (Waste Management - PCB) and Regulation 347 (Generator Waste Management) under the Ontario EPA requires the registration of inactive PCB storage equipment and/or disposal sites of PCB waste with the Ontario Ministry of Environment. This database contains information on: 1) waste quantities; 2) major and minor sites storing liquid or solid waste; and 3) a waste storage inventory.

Government Publication Date: 1987-Oct 2004; 2012-Dec 2013

Orders: Provincial ORD

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include Orders on the registry such as (EPA s. 17) - Order for remedial work, (EPA s. 18) - Order for preventative measures, (EPA s. 43) - Order for removal of waste and restoration of site, (EPA s. 44) - Order for conformity with Act for waste disposal sites, (EPA s. 136) - Order for performance of environmental measures.

Government Publication Date: 1994 - Mar 31, 2023

Canadian Pulp and Paper: Private PAP

This information is part of the Pulp and Paper Canada Directory. The Directory provides a comprehensive listing of the locations of pulp and paper mills and the products that they produce.

Government Publication Date: 1999, 2002, 2004, 2005, 2009-2014

Parks Canada Fuel Storage Tanks: Federal PCFT

Canadian Heritage maintains an inventory of known fuel storage tanks operated by Parks Canada, in both National Parks and at National Historic Sites. The database details information on site name, location, tank install/removal date, capacity, fuel type, facility type, tank design and owner/operator.

Government Publication Date: 1920-Jan 2005*

Pesticide Register: Provincial PES

The Ontario Ministry of the Environment and Climate Change maintains a database of licensed operators and vendors of registered pesticides.

Government Publication Date: Oct 2011- Mar 31, 2023

Pipeline Incidents: Provincial PINC

List of pipeline incidents (strikes, leaks, spills). This is not a comprehensive or complete inventory of pipeline incidents in the province; this listing in an historical copy of records previously obtained under Access to Public Information. Records are not verified for accuracy or completeness.

Government Publication Date: Feb 28, 2021

Private and Retail Fuel Storage Tanks: Provincial PRT

The Fuels Safety Branch of the Ontario Ministry of Consumer and Commercial Relations maintained a database of all registered private fuel storage tanks and licensed retail fuel outlets. This database includes an inventory of locations that have gasoline, oil, waste oil, natural gas and/or propane storage tanks on their property. The MCCR no longer collects this information. This information is now collected by the Technical Standards and Safety Authority (TSSA).

Government Publication Date: 1989-1996*

Permit to Take Water: Provincial PTTW

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include PTTW's on the registry such as OWRA s. 34 - Permit to take water.

Government Publication Date: 1994 - Mar 31, 2023

Ontario Regulation 347 Waste Receivers Summary: Provincial REC

Part V of the Ontario Environmental Protection Act ("EPA") regulates the disposal of regulated waste through an operating waste management system or a waste disposal site operated or used pursuant to the terms and conditions of a Certificate of Approval or a Provisional Certificate of Approval. Regulation 347 of the Ontario EPA defines a waste receiving site as any site or facility to which waste is transferred by a waste carrier. A receiver of regulated waste is required to register the waste receiving facility. This database represents registered receivers of regulated wastes, identified by registration number, company name and address, and includes receivers of waste such as: landfills, incinerators, transfer stations, PCB storage sites, sludge farms and water pollution control plants. This information is a summary of all years from 1986 including the most currently available data.

Government Publication Date: 1986-1990, 1992-2020

Record of Site Condition: Provincial RSC

The Record of Site Condition (RSC) is part of the Ministry of the Environment's Brownfields Environmental Site Registry. Protection from environmental cleanup orders for property owners is contingent upon documentation known as a record of site condition (RSC) being filed in the Environmental Site Registry. In order to file an RSC, the property must have been properly assessed and shown to meet the soil, sediment and groundwater standards appropriate for the use (such as residential) proposed to take place on the property. The Record of Site Condition Regulation (O. Reg. 153/04) details requirements related to site assessment and clean up.
RSCs filed after July 1, 2011 will also be included as part of the new (O.Reg. 511/09).

Government Publication Date: 1997-Sept 2001, Oct 2004-Mar 2023

Retail Fuel Storage Tanks: Private RST

This database includes an inventory of retail fuel outlet locations (including marinas) that have on their property gasoline, oil, waste oil, natural gas and / or propane storage tanks.

Government Publication Date: 1999-Feb 28, 2023

Scott's Manufacturing Directory: Private SCT

Scott's Directories is a data bank containing information on over 200,000 manufacturers across Canada. Even though Scott's listings are voluntary, it is the most comprehensive database of Canadian manufacturers available. Information concerning a company's address, plant size, and main products are included in this database.

Government Publication Date: 1992-Mar 2011*

Ontario Spills: Provincial SPL

List of spills and incidents made available the Ministry of the Environment, Conservation and Parks. This database identifies information such as location (approximate), type and quantity of contaminant, date of spill, environmental impact, cause, nature of impact, etc. Information from 1988-2002 was part of the ORIS (Occurrence Reporting Information System). The SAC (Spills Action Centre) handles all spills reported in Ontario. Regulations for spills in Ontario are part of the MOE's Environmental Protection Act, Part X. The Ministry of the Environment, Conservation and Parks cites the coronavirus pandemic as an explanation for delays in releasing data pursuant to requests.

Government Publication Date: 1988-Mar 2021; May 2021-Nov 2021

Wastewater Discharger Registration Database: Provincial SRDS

Facilities that report either municipal treated wastewater effluent or industrial wastewater discharges under the Effluent Monitoring and Effluent Limits (EMEL) and Municipal/Industrial Strategy for Abatement Regulations. The Municipal/Industrial Strategy for Abatement (MISA) division of the Ontario Ministry of Environment keeps record of direct dischargers of toxic pollutants within nine sectors including: Electric Power Generation, Mining, Petroleum Refining, Organic Chemicals, Inorganic Chemicals, Pulp & Paper, Metal Casting, Iron & Steel, and Quarries.

Government Publication Date: 1990-Dec 31, 2020

Anderson's Storage Tanks: Private TANK

The information provided in this database was collected by examining various historical documents, which identified the location of former storage tanks, containing substances such as fuel, water, gas, oil, and other various types of miscellaneous products. Information is available in regard to business operating at tank site, tank location, permit year, permit & installation type, no. of tanks installed & configuration and tank capacity. Data contained within this database pertains only to the city of Toronto and is not warranted to be complete, exhaustive or authoritative. The information was collected for research purposes only.

Government Publication Date: 1915-1953*

Transport Canada Fuel Storage Tanks: Federal TCFT

List of fuel storage tanks currently or previously owned or operated by Transport Canada. This inventory also includes tanks on The Pickering Lands, which refers to 7,530 hectares (18,600 acres) of land in Pickering, Markham, and Uxbridge owned by the Government of Canada since 1972; properties on this land has been leased by the government since 1975, and falls under the Site Management Policy of Transport Canada, but is administered by Public Works and Government Services Canada. This inventory provides information on the site name, location, tank age, capacity and fuel type.

Government Publication Date: 1970 - Apr 2020

Variances for Abandonment of Underground Storage Tanks: Provincial VAR

Listing of variances granted for storage tank abandonment. This is not a comprehensive or complete inventory of tank abandonment variances in the province; this listing is a copy of tank abandonment variance records previously obtained under Access to Public Information. In Ontario, registered underground storage tanks must be removed within two years of disuse; if removal of a tank is not feasible, an application may be sought for a variance from this code requirement.
Records are not verified for accuracy or completeness.

Government Publication Date: Feb 28, 2022

Waste Disposal Sites - MOE CA Inventory: Provincial WDS

The Ontario Ministry of Environment, Waste Management Branch, maintains an inventory of known open (active or inactive) and closed disposal sites in the Province of Ontario. Active sites maintain a Certificate of Approval, are approved to receive and are receiving waste. Inactive sites maintain Certificate(s) of Approval but are not receiving waste. Closed sites are not receiving waste. The data contained within this database was compiled from the MOE's Certificate of Approval database. Locations of these sites may be cross-referenced to the Anderson database described under ERIS's Private Source Database section, by the CA number. All new Environmental Compliance Approvals handed out after Oct 31, 2011 for Waste Disposal Sites will still be found in this database.

Government Publication Date: Oct 2011- Mar 31, 2023

Waste Disposal Sites - MOE 1991 Historical Approval Inventory: Provincial WDSH

In June 1991, the Ontario Ministry of Environment, Waste Management Branch, published the "June 1991 Waste Disposal Site Inventory", of all known active and closed waste disposal sites as of October 30st, 1990. For each "active" site as of October 31st 1990, information is provided on site location, site/CA number, waste type, site status and site classification. For each "closed" site as of October 31st 1990, information is provided on site location, site/CA number, closure date and site classification. Locations of these sites may be cross-referenced to the Anderson database described under ERIS's Private Source Database section, by the CA number.

Government Publication Date: Up to Oct 1990*

Water Well Information System: Provincial WWIS

This database describes locations and characteristics of water wells found within Ontario in accordance with Regulation 903. It includes such information as coordinates, construction date, well depth, primary and secondary use, pump rate, static water level, well status, etc. Also included are detailed stratigraphy information, approximate depth to bedrock and the approximate depth to the water table.

Government Publication Date: Jun 30 2022

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.

Ministry of the Environment, Conservation and Parks

Access and Privacy Office

12th Floor
40 St. Clair Avenue West
Toronto ON M4V 1M2
Tel: (416) 314-4075
Fax: (416) 314-4285

Ministère de l'Environnement, de la Protection de la nature et des Parcs

Bureau de l'accès à l'information et de la protection de la vie privée

12e étage
40, avenue St. Clair ouest
Toronto ON M4V 1M2
Tél. : (416) 314-4075
Téléc.: (416) 314-4285

Ontario

December 9, 2021

Henry Hecky
Stantec Consulting Ltd
300-100 Hagey Bvld
Waterloo, ON N2L 0A4

Dear Henry Hecky:

RE: *Freedom of Information and Protection of Privacy Act* Request
Our File #: A-2020-03057, Your Reference #: 122140194

This letter is in response to your request made pursuant to the *Freedom of Information and Protection of Privacy Act* relating to 405 Nyberg Street, Kitchener.

After a thorough search of the Ministry's Guelph District Office, Investigations and Enforcement Branch, Environmental Assessment and Permissions Branch, Environmental Monitoring and Reporting Branch, Sector Compliance Branch and Safe Drinking Water Branch, records were located in response to your request. It is my decision to provide full access to the attached information.

In accordance with Section 57 of the *Freedom of Information and Protection of Privacy Act*, detailed below are our charges:

• Search Time 1 hour @ $30/hour	$30.00
• **Total**	**$ 30.00**
• Deposit Received	- 30.00
• **BALANCE (Zero)**	**$0.00**

To conduct a search through the files of the Environmental Assessment and Permissions Branch requires an additional 8 hours. If you would like us to search for Environmental Compliance Approvals/Certificates of Approval at the Environmental Assessment and Permissions Branch (EAPB), please forward to me at the above address payment by money order or cheque (made payable to the "Minister of Finance (FOI)") or by credit card in the amount of $240.00. **[As EAPB may have filed approval records by the proponent of the approval (current/former property owner/tenants of the property) rather than the site address, you will be required to provide all current/former property owner/tenant names for the search years you requested in your application when submitting payment for this search].** Please note that there is no guarantee any records will be located responsive to your request. Credit card forms are available on the Ministry's website http://www.ontario.ca/environment-and-energy/freedom-information-request-form. Please note, a request for records must usually be answered within 30 calendar days, however Section 27 allows for time extensions under certain circumstances.

You may request a review of my decision by contacting the Information and Privacy Commissioner/Ontario, 2 Bloor Street East, Suite 1400, Toronto, ON M4W 1A8 (800-387-0073 or 416-326-3333). Please note that there is a $25.00 fee and you only have 30 days from receipt of

this letter to request a review.

If you have any questions regarding this matter, please contact Sabrina Rampersad at (416) 451-8295.

Yours truly,

Sabrina Rampersad for

Noel Kent
Manager, Access and Privacy

Attachments

Ontario

Ministry of the Environment
Conservation and Parks

hwin

Co

Environmental Registration Number

Legal Company Name

Mailing Address

Site Description

Active Waste Classes

Appendix G Phase 2 Evaluation of Alternatives

Schneider and Shoemaker Creek Naturalization

Municipal Class Environmental Assessment – Phase 2: Evaluation of Alternative Solutions

March 1, 2024

Prepared for:
City of Kitchener
200 King Street West
Kitchener ON N2G 4G7

Prepared by:
Stantec Consulting Ltd.
100-300 Hagey Boulevard
Waterloo ON N2L 0A4

Project Number:
161414319

Limitations and Sign-off

The conclusions in the Report titled Schneider and Shoemaker Creek Naturalization: Municipal Class Environmental Assessment – Phase 2: Evaluation of Alternative Solutions are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from the City of Kitchener (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided to applicable authorities having jurisdiction and others for whom the Client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.

Prepared by: Digitally signed by Doherty, Andrew Date: 2024.03.01 16:01:42 -05'00'

Signature

Andrew Doherty, P.Eng.
Water Resources Engineer

Printed Name and Title

Prepared by: Digitally signed by Raheem, Ferenaz Date: 2024.03.05 20:43:04 -05'00'

Signature

Ferenaz Raheem, M.E.S. RPP MCIP
Senior Environmental Planner

Printed Name and Title

Reviewed by: Digitally signed by Heather Amirault Date: 2024.03.01 13:35:04 -05'00'

Signature

Heather Amirault, P.Eng.
Surface Water Engineer

Printed Name and Title

Approved by: Brown, Steve (Waterloo) Digitally signed by Brown, Steve (Waterloo) Date: 2024.03.01 13:19:59 -05'00'

Signature

Steve Brown, P.Eng.
Surface Water Lead

Printed Name and Title

Table of Contents

List of Tables

List of Figures

1 Introduction

The area surrounding the junction of Schneider Creek and Shoemaker Creek (herein referred to as the Study Area) are lined with concrete. The Study Area includes approximately 900 m of Schneider Creek from Sydney Street at the downstream study area boundary upstream to Sterling Avenue and approximately 300 m of Shoemaker Creek from its confluence with Schneider Creek upstream to Courtland Avenue. The alternative solutions being developed and evaluated as part of Phase 2 of Municipal Class Environmental Assessment (Class EA) process, each propose a unique approach for removing all or a portion of the concrete channel.

Phase 1 of the Class EA process identified the following Needs and Opportunity Statement:

> *The City of Kitchener, with funding from the DMAF, has secured an opportunity to build climate change resilience and adaptability into Schneider and Shoemaker Creeks. In the study area, Schneider and Shoemaker Creeks are heavily lined with concrete urban creeks, that have floodplains which spill onto adjacent lands and pose a public safety risk. As the Rockway Station Area of the City of Kitchener redevelops as part of the City's PARTS program, there is an opportunity to improve public safety through floodplain improvements, and also improve access, the natural heritage system and its interdependence with surrounding development.*

The purpose of this Class EA is to develop a long-term management strategy and preliminary design solution that focuses on the expansion and naturalization of the creek corridors.

2 Alternatives Evaluation Criteria & Rating System

The criteria for the evaluation of the alternatives fall into three (3) main categories:

- Natural Environment
- Socio-Economic and Cultural Environment
- Technical Environment

Table 2.1 presents the criteria and the related key considerations and impacts to assess. Each alternative is then qualitatively assessed against each criteria using a reasoned argument approach, according to the following 4-point scale:

- Preferred
- Moderately preferred
- Partially preferred
- Least preferred

Table 2.1: Alternatives Evaluation Criteria

Natural Environment	**Aquatic Environment** • Potential to impact fish and fish habitat • Potential to impact water quality • Potential to impact groundwater quality and quantity
	Terrestrial Environment • Potential to impact wildlife/habitat (i.e., Species-at-Risk, significant ecological areas, etc.) • Potential to affect vegetation (i.e., wooded areas, wetlands, conservation areas, etc.) • Potential to impact individual trees or landscape features
Socio-Economic and Cultural Environment	**Noise/Vibration** • Potential to impact noise/vibration sensitive areas (i.e., residential dwellings, commercial operations, adjacent infrastructure, etc.)
	Air Quality • Potential to affect local air quality
	Aesthetics • Potential to impact visual aesthetics of study area • Educational (signage) opportunities
	Land Use • Potential to impact existing and future designated land use • Satisfies the goals and objectives of municipal planning policies • Potential to impact greenspace within the community • Potential to require acquisition of private property • Potential to impact recreational opportunities within the study area

	Health & Safety • Potential to impact health and safety of users (including all modes of transportation) • Potential to impact health and safety of employees • Potential to encounter contaminated subsurface conditions
	Community Access • Disruption to existing traffic, private property and business access during construction or operation
	Archaeological Resources • Potential to impact undisturbed lands
	Built Heritage Resources / Cultural Landscape • Potential to impact known built heritage resources or cultural landscapes / features
	Socio Economic • Impact to costs associated with flooding damage • Impact to business • Potential for property value cost impacts
Technical Environment	**Functionality** • Potential to impact flooding • Potential to be flexible to meet future needs
	Constructability & Feasibility • Potential to disrupt existing traffic (extent and duration), property access or functionality of existing channel during construction and operation • Potential to satisfy agency requirements/conditions (permitting) • Potential to impact existing infrastructure/utilities • Potential constraints to constructability (e.g., location, depth of excavation, soil conditions, rock removal, groundwater control, in-water works, workable construction area, construction duration, etc.)
	Cost • Relative capital, operational and maintenance costs
	Climate Change • Ability to increase resilience to climate change (i.e., severe weather events, reduce flooding) within the study area (including Indigenous Knowledge shared on historical weather patterns) • Impacts to known climate change contributors

3 Alternative Solutions

3.1 Alternative 1 – Do Nothing

Alternative 1 maintains the existing concrete-lined channel in both Schneider Creek and Shoemaker Creek throughout the Study Area. The cross-section of the Schneider Creek channel is trapezoidal (**Photo 3.1**) with a bottom width that typically ranges between 5 m to 9 m, channel depths that range from typically 3 m to 4 m, and top widths that range from typically 20 m to 25 m. The sides of the channel are sloped at 2H:1V from the channel bottom to the adjacent ground above the channel.

At the lower 75 m of Schneider Creek with the Study Area, the concrete-lined channel transitions from having a trapezoidal cross-section to a rectangular cross-section with vertical side slopes from the channel bottom to the adjacent ground above the channel. The width of the top and bottom of this rectangular section is approximately 13 m.

This retaining structure provides near-vertical slopes along the valley walls compared to the flatter 3-horizontal:1-vertical slopes for Alternative 4. The existing profile includes drop structures.

With this option, flood risk to the Study Area and beyond will remain unchanged. Opportunities to improve the biophysical nature of the Study Area and aesthetics for trail users would be missed.

Figure 3.1: Looking Upstream at Schneider Creek towards Borden Avenue

3.2 Alternative 2 – Concrete Channel with Naturalized Valley Bottom

Alternative 2 removes a portion of the existing concrete channel to provide a naturalized, widened valley bottom. The combined concrete removal and widened valley bottom is on only one side of the channel. As a result, one side of the valley corridor will consist of a portion of the current concrete channel, and the other side will include a vegetated valley bottom and wall graded at a 3H:1V slope.

Unlike Alternatives 3 and 4, Alternative 2 does not provide a naturalized low flow channel. Instead, low flows will be conveyed within the modified concrete channel. The existing channel profile will be maintained as part of the modifications. The existing profile includes drop structures. A conceptual cross-section for Alternative 2 is illustrated on **Figure 3.2**.

Similar to both Alternative 3 and Alternative 4, Alternative 2 will incorporate a multi-use trail. However, maintaining the concrete channel on one side of the valley provides a potential opportunity to maintain portions of the existing multi-use trail along Schneider Creek in the study area.

As seen in **Figure 3.3**, Alternative 2 has a narrower footprint than Alternative 3 while providing equivalent conveyance.

Figure 3.2: Alternative 2 Conceptual Cross-Section

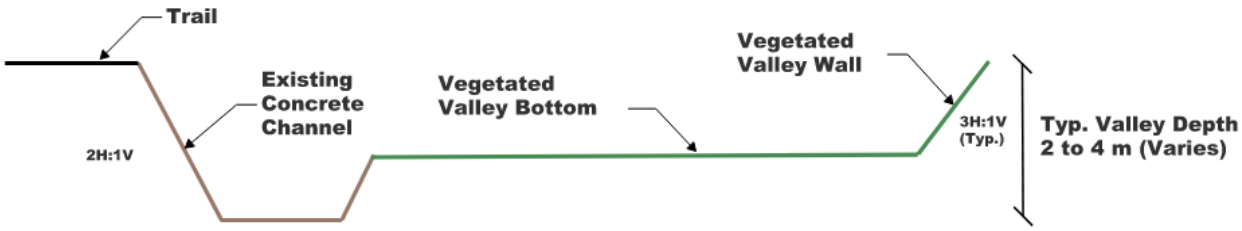


Figure 3.3: Alternative 2 Potential Footprint of Channel and Trail Limits (yellow)

3.3 Alternative 3 – Natural Channel with Retaining Structure at One or Both Valley Walls

Alternative 3 will provide a naturalized channel and valley bottom and incorporate a trail similar to Alternative 2. However, unlike Alternative 2, Alternative 3 provides a retaining structure along one or both of the valley walls. The low flow channel will meander within the bottom of valley and will be constructed to mimic the form of natural watercourses. This form will include riffle and pool bed features, a variety of woody channel structures, and vegetated channel banks and riparian areas. **Figure 3.4** shows an example of a retaining structure constructed using armourstone. This retaining structure would provide near-vertical slopes along the valley walls compared to the flatter 3-horizontal:1-vertical slopes for Alternative 4, (see **Figure 3.5** for conceptual cross-section). As a result, Alternative 3 benefits from a narrower footprint than Alternative 4 while providing equivalent conveyance as seen in **Figure 3.6**.

Figure 3.4: Example of a Retaining Structure, Laurel Creek in Waterloo

Figure 3.5: Alternative 3 Conceptual Cross-Section

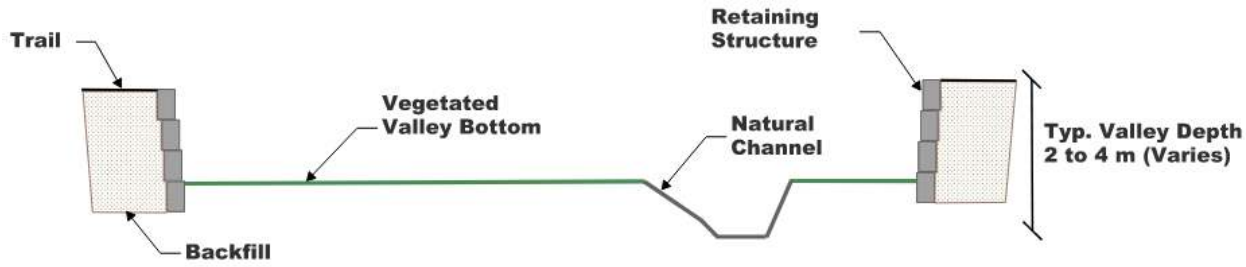


Figure 3.6: Alternative 3 Potential Footprint of Channel (purple) and Disturbance and Trail (beige)

3.4 Alternative 4 – Natural Channel and Valley

Alternative 4 removes the concrete channel and replaces it with a naturalized low flow channel and valley corridor (**Figure 3.7**). The corridor will be naturalized by planting native vegetation along the valley wall and bottom. The low flow channel will meander within the bottom of valley and will be constructed to mimic the form of natural watercourses. This form will include riffle and pool bed features, a variety of woody channel structures, and vegetated channel banks and riparian areas. The valley walls along the edges of the corridor are graded at a 3-horizontal:1-vertical slope from the valley bottom to the adjacent ground above the channel. A multi-use trail will be incorporated into this alternative. The trail is expected to be positioned along the top of the valley.

Figure 3.7 provides a conceptual rending of a naturalized low flow channel and valley corridor for Schneider Creek. The naturalization rendered for Schneider Creek would similarly be applied to Shoemaker Creek. A conceptual cross-section for Alternative 4 is illustrated in **Figure 3.8** and the potential footprint is reflected in **Figure 3.9**.

Figure 3.7: Conceptual Rendering of a Natural Channel and Valley at Schneider Creek

Figure 3.8: Alternative 4 Conceptual Cross-Section

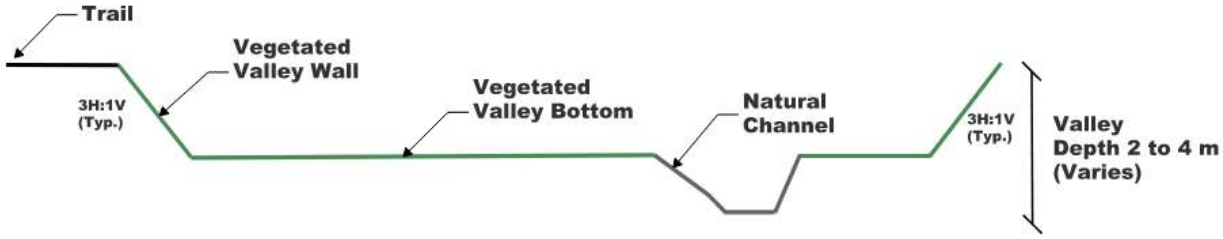


Figure 3.9: Alternative 4 Potential Footprint of Channel and Trail Limits (green)

4 Climate Change Considerations

The impacts of climate change and extreme weather events on the creeks include:

- Increased impact on water quality due to increased precipitation and/or erosion.
- Flooding during higher river flows due to increased precipitation.
- Low flows impact on water quality due to decreased precipitation/prolonged droughts.
- Water quality issues linked to temperature increases.

To address potential climate change impacts and increase resilience to climate change, different measures could be integrated in the selected alternative. Opportunities for climate change mitigation and adaptation include:

Table 4.1: Climate Change Mitigation and Adaptation Opportunities

Mitigation / Adaptation	Opportunity
Adaptation to flooding risk	• Build new structures to accommodate future floods • Verify and update emergency response measures for flooding
Adaptation to increased precipitation	• Provide additional storage to accommodate increased flood volume and mitigate downstream impacts • Increase opportunities for infiltration in floodplain areas to reduce runoff volume and absorb flood flows
Adaptation to low water levels and degraded water quality due to drought	• Natural channels may intercept groundwater and therefore increase flows and decrease temperatures during low flow conditions • Natural channels may be narrower and deeper, reducing evaporation volume • Overhanging vegetation can mitigate water temperature increases due to solar warming
Adaptation to impacts of severe storms	• Design floodplain and channel structures to withstand erosive forces • Vegetated floodplain areas trap and stabilize sediment during floods
Mitigating future flood risk	• Naturalization of channel provides a resilient system that strengthens over time (engineered structures tend to weaken over time)

5 Alternatives Evaluation

Table 5.1: Evaluation of Alternatives Table

Measures	Alternative 1: Do Nothing	Alternative 2: Concrete Channel with Naturalized Valley Bottom	Alternative 3: Natural Channel w/ Retaining Structure	Alternative 4: Natural Channel and Valley
Natural Environment				
Aquatic Environment Potential to impact fish and fish habitat (consideration for species and Indigenous Nations)	• Existing channel is concrete lined • No to low fish habitat, multiple barriers • No natural substrate or overhanging vegetation	• Water will remain in existing channel during construction with no anticipated impacts to flow conveyance downstream. • Low positive impact. Improved riparian zone due to additional cover from vegetated floodplain. • No habitat banking possible • No impact to erosion • No opportunity to incorporate Indigenous Knowledge for aquatic habitat.	• Water will be managed to maintain flow to downstream creek channel during construction with no anticipated impacts to flow conveyance downstream. • High positive impact to aquatic habitat – removal of barriers to passage, naturalized substrate, inclusion of pools and riffles, diversity of fish habitat, potential for spawning, rearing, and adult life cycle elements. • Full naturalized channel can be included in habitat bank. • Opportunity to incorporate Indigenous Knowledge for aquatic habitat. • Bank stabilization structures and stable riffle substrate will be sized to remain stable and limit erosion, some natural movement of sediment through the system is expected.	• Water will be managed to maintain flow to downstream creek channel during construction with no anticipated impacts to flow conveyance downstream. • High positive impact to aquatic habitat – removal of barriers to passage, naturalized substrate, inclusion of pools and riffles, diversity of fish habitat, potential for spawning, rearing, and adult life cycle elements. • Full naturalized channel can be included in habitat bank • Opportunity to incorporate Indigenous Knowledge for aquatic habitat. • Bank stabilization structures and stable riffle substrate will be sized to remain stable and limit erosion, some natural movement of sediment through the system is expected.
Aquatic Environment Potential to impact water quality (consideration for species and Indigenous Nations)	• Will remain low quality	• Low negative impact to WQ during construction. Removal of a portion of concrete channel will disturb area exposing sediment. • After construction, no improved water quality • No opportunity to incorporate Indigenous Knowledge for water quality. • Low positive impact on WQ after construction due to vegetated floodplain.	• Low potential for negative effects during construction – water management and open excavations will require robust ESC and water management plans • Potential to include SWM outfall energy dissipation, settling wetlands within the low floodplain at certain stormwater outfalls. • Opportunity to incorporate Indigenous Knowledge for water quality. • Positive post construction (floodplain – filtration, GW interaction)	• Low potential for negative effects during construction – water management and open excavations will require robust ESC and water management plans • Potential to include SWM outfall energy dissipation, settling wetlands within the low floodplain at certain stormwater outfalls. • Opportunity to incorporate Indigenous Knowledge for water quality. • Positive after construction (floodplain – filtration, interaction w GW)
Aquatic Environment Potential to impact groundwater (quality and quantity)	• No impact to groundwater	• Low negative impact to GW during construction. • Minor volumes of groundwater pumping may be required to construct pedestrian crossing structure. • Low positive impact to GW long-term – increased infiltration on floodplain • No increased interaction of groundwater and surface water in channel due to retention of concrete channel bottom	• Low negative impact to GW during construction. • Minor volumes of groundwater pumping may be required to construct pedestrian crossing structure. • Moderate positive impact to GW long-term – increased infiltration on floodplain due to removal of concrete, • Naturalized channel bottom will allow groundwater / surface water interaction within the channel / valley	• Low negative impact to GW during construction. • Minor volumes of groundwater pumping may be required to construct pedestrian crossing structure. • Highest positive impact to GW long-term – increased infiltration on floodplain and valley walls • Naturalized channel bottom and valley walls will allow groundwater / surface water interaction within the channel / valley.
Terrestrial Environment Potential to impact wildlife/habitat (i.e., Species-at-Risk, significant ecological areas, etc., consideration for species and Indigenous Nations)	• No impact to wildlife or habitat	• Low negative impact during construction. Construction introduces new hazards to area for wildlife that currently reside there. Minor loss of habitat in the short term. • Low positive impact long-term. vegetated floodplain will attract wildlife to surrounding land. it will provide a suitable habitat for a variety of terrestrial species. • Concrete valley walls / creek channel limit wildlife accessibility to valley bottom and creek. • Low / moderate increase to green space wildlife space. • Low opportunity to incorporate Indigenous Knowledge for wildlife / habitat. • Lowest opportunity to include targeted habitat (e.g., monarch, bats, barn swallows)	• Low negative impact during construction. Construction introduces new hazards to area for wildlife that currently reside there. Minor loss of habitat in the short term. • Moderate positive impact long-term. vegetated floodplain will attract wildlife to surrounding land. it will provide a suitable habitat for a variety of terrestrial species. • Vertical valley walls limit wildlife accessibility to valley bottom and creek. • Low / moderate increase to green space wildlife corridor. • Moderate opportunity to incorporate Indigenous Knowledge for wildlife / habitat. • Moderate opportunity to include targeted habitat (e.g., monarch, bats, barn swallows, turtles, amphibians)	• Low negative impact during construction. Construction introduces new hazards to area for wildlife that currently reside there. Minor loss of habitat in the short term. • High positive impact long-term. vegetated floodplain and valley walls will attract wildlife to surrounding land. it will provide a suitable habitat for a variety of terrestrial species. • Sloped valley walls increase accessibility for wildlife to valley bottom and creek. • Low / moderate increase to green space wildlife corridor. • Largest opportunity to incorporate Indigenous Knowledge for wildlife / habitat. • Largest Opportunity to include targeted habitat (e.g., monarch, bats, barn swallows, turtles, amphibians)

Measures	Alternative 1: Do Nothing	Alternative 2: Concrete Channel with Naturalized Valley Bottom	Alternative 3: Natural Channel w/ Retaining Structure	Alternative 4: Natural Channel and Valley
Terrestrial Environment Potential to affect vegetation (i.e., wooded areas, wetlands, conservation areas, etc., consideration for species and Indigenous Nations, including spiritual uses)	• No impact to vegetation	• Low negative short-term impact. Must remove most vegetation currently in area (one side of channel to remove portions of existing concrete channel.) Lower opportunity to remove / control invasive species. • Low positive impact long-term. The lowest amount of floodplain will be vegetated long-term. • Lowest opportunity to incorporate Indigenous Knowledge for planting plan. • Native species planting plan can be implemented in new floodplain / valley wall area (smallest planting footprint). Native species can include plants suited to environmental / moisture conditions and incorporate Indigenous Knowledge when selecting traditional medicinal and foodplants as well as plants to provide food to terrestrial and bird species.	• Low negative short-term impact. Must remove vegetation currently in area. Good opportunity to remove / control invasive species. • Moderate positive impact long-term. Moderate amount of floodplain will be vegetated long-term. • Moderate opportunity to incorporate Indigenous Knowledge for planting plan. • Native species planting plan can be implemented in new floodplain (moderate planting footprint). Native species can include plants suited to environmental / moisture conditions and incorporate Indigenous Knowledge when selecting traditional medicinal and foodplants as well as plants to provide food to terrestrial and bird species.	• Low negative short-term impact. Must remove vegetation currently in area. Good opportunity to remove / control invasive species. • Highest positive impact long-term, largest vegetation naturalization area proposed. • Highest opportunity to incorporate Indigenous Knowledge for planting plan. • Native species planting plan can be implemented in new floodplain (largest planting footprint). Native species can include plants suited to environmental / moisture conditions, and incorporate Indigenous Knowledge when selecting traditional medicinal and foodplants as well as plants to provide food to terrestrial and bird species.
Terrestrial Environment Potential to impact individual trees or landscaped features (consideration for species and Indigenous Nations)	• No impact to trees	• Low negative short-term impact. Some existing trees will need be removed during construction. • Low positive long-term impact. trees planted in floodplain (smallest revegetation footprint). • Lowest opportunity to incorporate Indigenous Knowledge for planting plan. • Net positive impact long-term. More trees will be planted than initially removed. Final habitat will better support trees.	• Low negative short-term impact. Most existing trees will need be removed during construction. • Low positive long-term impact. trees planted in floodplain (moderate revegetation footprint). • Moderate opportunity to incorporate Indigenous Knowledge for planting plan. • Net positive impact long-term. More trees will be planted than initially removed. Final habitat will better support trees.	• Low negative short-term impact. Most existing trees will need be removed during construction. • Low positive long-term impact. trees planted in floodplain (largest revegetation footprint). • Highest opportunity to incorporate Indigenous Knowledge for planting plan. • Net positive impact long-term. More trees will be planted than initially removed. Final habitat will better support trees.
NATURAL HERITAGE SUMMARY	**LEAST PREFERRED**	**PARTIALLY PREFERRED**	**MODERATELY PREFERRED**	**PREFERRED**
Social and Cultural Environment				
Noise/Vibration Potential to impact noise/vibration sensitive areas (i.e., residential dwellings, commercial operations, adjacent infrastructure, etc.,)	• No impact to noise or vibration	• Low negative impact during construction. Construction may cause temporary noise/vibration impacts. Shortest duration • Neutral long-term impact. No noise or vibration during operation	• Moderate negative impact during construction • Construction may cause temporary noise/vibration impacts. Longest duration • Neutral long-term impact. No noise or vibration during operation	• Moderate negative impact during construction • Construction may cause temporary noise/vibration impacts. Longest duration • Neutral long-term impact. No noise or vibration during operation
Air Quality Potential to affect local air quality	• No impact to air quality	• Low negative impact to air quality during construction. Shortest duration • Low positive impact to air quality long-term. In the long-term the air quality of the area will improve because of the added vegetation.	• Moderate negative impact to air quality during construction. Longest duration • Moderate positive impact to air quality long-term. In the long-term the air quality of the area will improve because of the added vegetation.	• Moderate negative impact to air quality during construction. Longest duration • Highest positive impact to air quality long-term. In the long-term the air quality of the area will improve because of the added vegetation (highest amount of planting area).

Measures	Alternative 1: Do Nothing	Alternative 2: Concrete Channel with Naturalized Valley Bottom	Alternative 3: Natural Channel w/ Retaining Structure	Alternative 4: Natural Channel and Valley
Aesthetics Potential to impact visual aesthetics of study area Educational (signage) opportunities	• No change to aesthetics	• Low negative impact during construction. Shortest duration. • Low positive long-term impact. Added vegetation in floodplain will positively impact visual aesthetics of study area. Portions of concrete channel will still be in place. • Limited opportunity to adjust trail configuration for improved viewscapes. • Lowest Positive long-term impact.	• Low negative impact during construction. Longest duration • Moderate positive long-term impact. Added vegetation in floodplain will positively impact visual aesthetics of study area. Full removal of concrete channel engineered retaining wall structures will be visible. • Opportunity to adjust trail configuration for improved viewscapes. • Moderate Positive long-term impact.	• Low negative impact during construction. Longest duration • Highest positive long-term impact. Added vegetation in floodplain will positively impact visual aesthetics of study area. Full removal of concrete channel, full valley will be naturalized with no views of concrete or retaining walls. • Opportunity to adjust trail configuration for improved viewscapes. • Highest Positive long-term impact.
	• Currently no educational signage or facilities in the area	• No impact during construction. • Low positive impact long-term. the implementation of a floodplain and native species planting plan provides the opportunity to educate the public on terrestrial rehabilitation projects and plant and animal species native to the area. Opportunity to educate on flooding and Climate Change.	• No impact during construction. • Moderate positive impact long-term. The implementation of a natural channel design, creation of a floodplain and implementation of a native species planting plan provides the opportunity to educate the public on terrestrial and aquatic rehabilitation projects and plant and animal species native to the area. Opportunity to educate on flooding and Climate Change.	• No impact during construction. • Moderate positive impact long-term. The implementation of a natural channel design, creation of a floodplain and implementation of a native species planting plan provides the opportunity to educate the public on terrestrial and aquatic rehabilitation projects and plant and animal species native to the area. Opportunity to educate on flooding and Climate Change.
Land Use Potential to impact existing and future designated land use (consideration for community and Indigenous access)	• No change	• Least amount of private land converted to valley lands. • Similar floodway area converted to flood fringe. • Limited opportunities for community and Indigenous access (safety of concrete channel and position of trail in existing configuration)	• Medium amount of private land converted to valley lands. • Similar floodway area converted to flood fringe. • Limited opportunities for community and Indigenous access (safety around retaining walls and position of trail at top of retaining wall)	• Highest amount of private land converted to valley lands. • Similar floodway area converted to flood fringe. • Highest opportunities for community and Indigenous access.
Land Use Satisfies the goals and objectives of municipal planning policies	• High negative as flood risk will remain	• Least conformance with municipal planning objectives	• Moderate conformance with municipal planning objectives	• Highest conformance with municipal planning objectives
Land Use Potential to impact greenspace within the community	• High negative due to lack of improvement	• Low negative impact during construction. Currently the multiuse trail provides a small amount of greenspace to users and will be inaccessible during construction. • Low / moderate positive impact long-term. The addition of a vegetated floodplain will add a considerable amount of greenspace to the downtown core. • Positive net long-term impact to greenspace in community.	• Low negative impact during construction. Currently the multiuse trail provides a small amount of greenspace to users and will be inaccessible during construction. • Moderate positive impact long-term. The addition of a vegetated floodplain will add a considerable amount of greenspace to the downtown core. • Positive net long-term impact to greenspace in community.	• Low negative impact during construction. Currently the multiuse trail provides a small amount of greenspace to users and will be inaccessible during construction. • Highest positive impact long-term. The addition of a vegetated floodplain will add a considerable amount of greenspace to the downtown core. • Positive net long-term impact to greenspace in community.
Land Use Potential property acquisition	• Not needed	• Lowest needs	• Moderate needs	• Highest needs
Land Use Potential to impact recreational opportunities	• High negative as no improvements	• Low negative impact during construction. Portions of the existing multiuse trail may be temporarily closed and/or have restricted access during construction (detour will be identified). • Low positive impact long-term. • The existing trail will mostly likely remain in place following construction. • Some improvements to creek crossings are proposed. • No improved access to the floodplain or water is proposed (safety).	• Low negative impact during construction. Portions of the existing multiuse trail may be temporarily closed and/or have restricted access during construction (detour will be identified). • Moderate positive impact long-term. • The existing trail will mostly likely remain in a similar location following construction. • Some improvements to creek crossings are proposed. • Improved access to the floodplain and water may be possible.	• Low negative impact during construction. Portions of the existing multiuse trail may be temporarily closed and/or have restricted access during construction (detour will be identified). • Highest positive impact long-term. • The existing trail will mostly likely remain in a similar location following construction. • Some improvements to creek crossings are proposed. • Improved access to the floodplain and water will be possible.

Measures	Alternative 1: Do Nothing	Alternative 2: Concrete Channel with Naturalized Valley Bottom	Alternative 3: Natural Channel w/ Retaining Structure	Alternative 4: Natural Channel and Valley
Health & Safety Potential to impact health and safety of users (including users of all modes of transportation)	• Low potential to improve health and safety of employees	• Low negative impact during construction (construction traffic, temporary trail closure may require a detour onto roads). • Low positive impact long-term • Minor improvements to concrete channel safety (egress easier via vegetated floodplain) • No proposed changes to trail network, road network or LRT. • Reduced flood risk in study area.	• Low negative impact during construction. (Construction traffic, temporary trail closure may require a detour onto roads). • Moderate positive impact long-term • Concrete removed, but retaining walls added (no significant change to safety) • Low positive impact to trail safety with improved sightlines, new trail bridge crossing. • Reduced flood risk in study area.	• Low negative impact during construction. (Construction traffic, temporary trail closure may require a detour onto roads). • High positive impact long-term • Safest due to lack of retaining wall. Concrete removed, sloped valley walls improve egress (safer) • Low positive impact to trail safety with improved sightlines, new trail bridge crossing. • Reduced flood risk in study area.
Health & Safety Potential to impact health and safety of employees		• Low positive impact long-term • Minor improvements to concrete channel safety (egress easier via vegetated floodplain) • No proposed changes to trail network, road network or LRT. • Reduced flood risk in study area.	• Moderate positive impact long-term • Concrete removed, but retaining walls added (no significant change to safety) • Low positive impact to trail safety with improved sightlines, new trail bridge crossing. • Reduced flood risk in study area.	• High positive impact • Safest. Concrete removed, sloped valley walls improve egress (safer) • Low positive impact to trail safety with improved sightlines, new trail bridge crossing. • Reduced flood risk in study area.
Health & Safety Potential to encounter contaminated subsurface conditions		• Low negative impact during construction. Removing portions of the concrete channel may result in encountering contaminated soils. • Smallest footprint = lowest risk.	• Low negative impact during construction. Removing the concrete channel may result in encountering contaminated soils. • Moderate footprint = moderate risk	• Low negative impact during construction. Removing the concrete channel may result in encountering contaminated soils. • Largest footprint = highest risk
Community Access Disruption to existing traffic, private property and business access during construction or operation		• Low negative impact during construction. Possible temporary lane closures due to construction • Temporary trail closures may deter users from travelling through the area. • Low positive long-term impact. The addition of green space to the area is anticipated to draw more people to the area.	• Low negative impact during construction. Possible temporary lane closures due to construction • Temporary trail closures may deter users from travelling through the area. • Low positive long-term impact. The addition of green space to the area is anticipated to draw more people to the area.	• Low negative impact during construction. Possible temporary lane closures due to construction • Temporary trail closures may deter users from travelling through the area. • Low positive long-term impact. The addition of green space to the area is anticipated to draw more people to the area.
Archaeological Resources Potential to impact undisturbed lands (historical and Indigenous artifacts)		• Site area is fully disturbed from historical conditions, low likelihood of encountering archaeological resources.	• Site area is fully disturbed from historical conditions, low likelihood of encountering archaeological resources.	• Site area is fully disturbed from historical conditions, low likelihood of encountering archaeological resources.
Heritage Potential to impact known built heritage resources or cultural landscapes / features	• Least impactful to IHT	• Known heritage resources: IHT, Rockway Gardens. • Possible minor impacts to IHT, no impact to Rockway Gardens.	• Known heritage resources: IHT, Rockway Gardens. • Possible minor impacts to IHT, no impact to Rockway Gardens.	• Known heritage resources: IHT, Rockway Gardens. • Possible minor impacts to IHT, no impact to Rockway Gardens.
Socio-Economic Impact to costs associated with flooding damage	• Highest impact to flood damage costs	• All options reduce flood damage costs equally •	• All options reduce flood damage costs equally •	• All options reduce flood damage costs equally •
Socio-Economic Impact to business	• Highest long-term impact to businesses due to flooding • No temporary impact	• The addition of green space to the area is anticipated to draw more people to the area and therefore to the businesses in the area. • Relocation of business(es) due to project land needs may be required	• The addition of green space to the area is anticipated to draw more people to the area and therefore to the businesses in the area. • Relocation of business(es) due to project land needs may be required	• The addition of green space to the area is anticipated to draw more people to the area and therefore to the businesses in the area. • Relocation of business(es) due to project land needs may be required
Socio-Economic Potential for property value cost impacts	• No change	• All options impact floodway / flood fringe equally • Potential for increased property values associated with improved greenspace.	• All options impact floodway / flood fringe equally • Potential for increased property values associated with improved greenspace.	• All options impact floodway / flood fringe equally • Potential for increased property values associated with improved greenspace.
SOCIO-ECONOMIC & CULTURAL SUMMARY	**LEAST PREFERRED**	**PARTIALLY PREFERRED**	**MODERATELY PREFERRED**	**PREFERRED**

Measures	Alternative 1: Do Nothing	Alternative 2: Concrete Channel with Naturalized Valley Bottom	Alternative 3: Natural Channel w/ Retaining Structure	Alternative 4: Natural Channel and Valley
Technical Environment				
Functionality Potential to impact flooding	• Highest negative impact	• All options have been developed to provide an equivalent reduction to flood risk within the study area • Option has lowest potential to store water in the floodplain to improve flooding conditions downstream.	• All options have been developed to provide an equivalent reduction to flood risk within the study area • Option has moderate potential to store water in the floodplain to improve flooding conditions downstream	• All options have been developed to provide an equivalent reduction to flood risk within the study area • Option has highest potential to store water in the floodplain to improve flooding conditions downstream.
Functionality Potential to be flexible to meet future needs	• Does not meet future needs	• Limited flexibility because concrete channel is retained • Least flexibility for providing stormwater controls • Fewest opportunities for future greenspace or habitat improvements	• Most flexibility for future road crossing improvements (to further reduce flood risk) • Moderate flexibility for providing stormwater controls • Moderate flexibility to enhance access to the channel/valley floor area • Moderate opportunities for future greenspace or habitat improvements	• Most flexibility for future road crossing improvements (to further reduce flood risk) • Most flexibility for providing stormwater controls • Most flexibility to enhance access to the channel/valley floor area • Most opportunities for future greenspace or habitat improvements
Constructability & Feasibility Potential to disrupt existing traffic (extent and duration), property access or functionality of existing channel during construction and operation	• No disruption	• Construction disruption (low negative): • Intermittent (minor) delays to allow during material delivery; shortest duration • Property access will be maintained during construction. • During operation: No impacts	• Construction disruption (moderately negative) • Intermittent (minor) delays to allow during material delivery.; longest duration • Property access will be maintained during construction. • Water management plan will be implemented to manage risk to conveyance capacity. • During operation: No impacts	• Construction disruption (moderately negative) • Intermittent (minor) delays to allow during material delivery; longest duration • Property access will be maintained during construction. • Water management plan will be implemented to manage risk to conveyance capacity. • During operation: No impacts
Constructability & Feasibility Potential to satisfy agency requirements/conditions (permitting)	• No permits required	• Fewest number of agencies involved • Permits required • High likelihood that conditions would be easy to satisfy	• Multiple agencies involved • Permits required • High likelihood that conditions would be easy to satisfy	• Permits required • Multiple agencies involved • High likelihood that conditions would be easy to satisfy
Constructability & Feasibility Potential to impact existing infrastructure/utilities	• No impacts	• Fewer conflicts compared to Alternatives 3 and 4 • SWM outfalls on side of concrete channel that is being removed will need to be accommodated. • Potential to impact SAN sewer runs parallel to channel between Borden Ave S. and Ottawa St S. • Most other utilities are within the road crossing rights of way and are unlikely to be impacted by construction. • Gas lines – currently unknown.	• SWM outfalls will need to be accommodated in new valley. • Potential to impact SAN sewer runs parallel to channel between Borden Ave S. and Ottawa St S. • Most other utilities are within the road crossing rights of way and are unlikely to be impacted by construction. • Gas lines – currently unknown.	• SWM outfalls will need to be accommodated in new valley. • Potential to impact SAN sewer runs parallel to channel between Borden Ave S. and Ottawa St S. • Most other utilities are within the road crossing rights of way and are unlikely to be impacted by construction. • Gas lines – currently unknown.
Constructability & Feasibility Potential constraints to constructability (e.g., location, depth of excavation, soil conditions, rock removal, groundwater control, in-water works, workable construction area, construction duration, etc.)	• No impacts	• No expected material availability constraints • Lowest amount of concrete removal • Lowest depth of excavation • Least likelihood of encountering groundwater • No in-water work required • Shortest construction duration • Similar construction access zones	• No expected material availability constraints • Highest amount of concrete removal • Least preferred as retaining walls and tie-backs required • Highest depth of excavation • Most likelihood of encountering groundwater • In-water work required • Longest construction duration • Similar construction access zones	• No expected material availability constraints • Highest amount of concrete removal • Highest depth of excavation • Most likelihood of encountering groundwater • In-water work required • Longest construction duration • Similar construction access zones

Measures	Alternative 1: Do Nothing	Alternative 2: Concrete Channel with Naturalized Valley Bottom	Alternative 3: Natural Channel w/ Retaining Structure	Alternative 4: Natural Channel and Valley
Cost Relative capital, operational and maintenance costs ($)	• No capital cost • Operational: same for all alts (lighting / plowing) • Maintenance: minor landscaping / concrete repair	• Low capital costs vs. Alt 3 and 4 • Operational costs: trail costs same for all alts (lighting and snow plowing) • Maintenance costs: minor landscaping costs, minor concrete repair costs	• High capital costs similar to Alt 4 (highest) • Operational costs: trail costs same for all alts (lighting and snow plowing) • Maintenance costs: minor landscaping/channel repair costs; minor retaining wall maintenance	• High capital costs similar to Alt 3 (highest) • Operational costs: trail costs same for all alts (lighting and snow plowing) • Maintenance costs: minor landscaping/channel repair costs
Climate Change Ability to increase resilience to climate change (i.e., severe weather events, reduce flooding) within the study area	• Least improvement	• Low positive impact long-term. Widening valley. Vegetating floodplain helps with infiltration/attenuation. • Option has lowest potential to store water in the floodplain and reduce flooding impacts downstream.	• Moderate positive impact long-term. Widening valley. Vegetating floodplain helps with infiltration/attenuation. • Option has moderate potential to store water in the floodplain and reduce flooding impacts downstream.	• Highest positive impact long-term. Widening valley. Vegetating floodplain helps with infiltration/attenuation. • Option has highest potential to store water in the floodplain and reduce flooding impacts downstream.
Climate Change Impacts to known climate change contributors	• Least improvement	• During construction: Low negative: • Temporary GHG emissions during construction. • Long-term: Low positive • Carbon sequestration in vegetated areas. • Minor increase in trail usage (reduce GHG from alternate modes of transportation)	• During construction: Low negative: • Temporary GHG emissions during construction. • Long-term: Low positive • Carbon sequestration in vegetated areas (more than alt2). • Minor increase in trail usage (reduce GHG from alternate modes of transportation)	• During construction: Low negative: • Temporary GHG emissions during construction. • Long-term: Moderate positive • Carbon sequestration in vegetated areas (more than alt3). • Minor increase in trail usage (reduce GHG from alternate modes of transportation)
TECHNICAL SUMMARY	**MODERATELY PREFERRED**	**PARTIALLY PREFERRED**	**LEAST PREFERRED**	**PREFERRED**
OVERALL CONCLUSION	**Not Recommended**	**Not Recommended**	**Not Recommended**	**Recommended Solution**

LEGEND
PREFERRED
MODERATELY PREFERRED
PARTIALLY PREFERRED
LEAST PREFERRED

6 Conclusions and Next Steps

This report presents the alternatives for the City of Kitchener's naturalization of Schneider and Shoemaker Creeks Environmental Assessment study. These alternatives have been evaluated against environmental factors and specific criteria to propose a preferred alternative.

The preferred alternative of full naturalization of the channels allows the Study Area to reduce the flood risk of these creeks. Further, the biodiversity of the surrounding area will be vastly improved. Although this option occupies the largest footprint and increased property acquisitions will be required, the social benefits of the trails and creek as well as support by Indigenous and Municipal Policies outweigh the other alternatives. While from a technical perspective, the Do Nothing approach is a strong contender, understanding the original purpose behind the funding for this project and the notion of reducing climate risk, the naturalization alternative out-weighed the Do Nothing alternative.

The need for alternative design concepts at the approaches of each bridge will be evaluated in the next steps of this study. Progressing into Phase 3 of the Municipal Class EA process will lead to the development of an implementation strategy for the preferred alternative. This implementation strategy will investigate phasing options for the project, focusing on immediate needs and grant funding opportunities.

Appendix H Phase 3 Evaluation of Alternatives

Schneider and Shoemaker Creek Naturalization

Municipal Class Environmental Assessment – Phase 3: Evaluation of Alternative Design Concepts

December 4, 2023

Prepared for:
City of Kitchener
200 King Street West
Kitchener ON N2G 4G7

Prepared by:
Stantec Consulting Ltd.
100-300 Hagey Boulevard
Waterloo ON N2L 0A4

Project Number:
161414319

Limitations and Sign-off

The conclusions in the Report titled Schneider and Shoemaker Creek Naturalization: Municipal Class Environmental Assessment – Phase 3: Evaluation of Alternative Design Concepts are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from the City of Kitchener (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided to applicable authorities having jurisdiction and others for whom the Client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.

Prepared by: Digitally signed by Doherty, Andrew Date: 2023.12.04 14:05:28 -05'00'

Signature

Andrew Doherty, P.Eng.
Water Resources Engineer

Printed Name and Title

Prepared by: Digitally signed by Katie Murray Date: 2023.12.04 13:49:54 -05'00'

Signature

Katie Murray, BA.
Environmental Consultant

Printed Name and Title

Reviewed by: Digitally signed by Heather Amirault Date: 2023.12.04 14:18:15 -05'00'

Signature

Heather Amirault, P.Eng.
Surface Water Engineer

Printed Name and Title

Approved by: Digitally signed by Brown, Steve (Waterloo) Date: 2023.12.04 14:51:23 -05'00'

Signature

Steve Brown, P.Eng.
Surface Water Lead

Printed Name and Title

Table of Contents

List of Tables

List of Figures

List of Photos

1 Introduction

From the results of Phase 2 of the Municipal Class Environmental Assessment (Class EA) process, the preferred solution for the Schneider and Shoemaker Creeks Naturalization proposes to remove the concrete channel and replace it with a naturalized low-flow channel and valley corridor. In Phase 3 of the Class EA process, once a preferred solution is identified, alternative design concepts are developed for the preferred solution, to further expand on the preferred approach. The alternative design concepts developed for the preferred solution provide varying approaches on incorporating the Iron Horse Trail into both naturalized channel corridors.

With the naturalized channel, while the footprint remains similar for each alternative design concept, the trail variations dictate the alignment of the creek. The Iron Horse Trail is an important component of Kitchener's transportation and recreational infrastructure. It reflects the City's industrial heritage as it is built along a former rail corridor and incorporates several artifacts of historical interest. The trail is used by more than 250,000 people every year, connecting its users to the iON Light Rail Transit system, cycling routes, parks and open spaces, downtown Kitchener, and many neighbourhoods.[1]

At the study area, the existing Iron Horse Trail runs along the south side of Schneider Creek from Stirling Ave to Kent Ave. It then crosses over to the north side of Schneider Creek until it ends at Ottawa Street at a gap in the multi-use trail network. Between Ottawa St and Sydney St, there is an on-road cycling route designated along Nyberg St. At the downstream end of the study area, the multi-use trail picks up and continues north along Sydney St.

In order to expand opportunities for access to the Iron Horse Trail, consideration for incorporating a trail along Shoemaker Creek has been included.

The following alternatives consider two creek and trail alignment options, Alternative 1 considers a naturalized creek where the entirety of the trail is proposed on the south side of Schneider Creek and east side of Shoemaker Creek, whereas Alternative 2 proposes the trail to be split between the north and south sides of Schneider Creek and connect on the west side of Shoemaker Creek.

[1] https://www.kitchener.ca/en/parks-and-trails/iron-horse-trail.aspx

2 Alternatives Evaluation Criteria & Rating System

The criteria for the evaluation of the alternatives fall into three (3) main categories that were also used in Phase 2 of the EA process:

- Natural Environment
- Socio-Economic and Cultural Environment
- Technical Environment

Table 2.1 presents the criteria and the related key considerations and impacts to assess. Each alternative is then qualitatively assessed against each criteria using a reasoned argument approach, according to the following 4-point scale:

- Preferred
- Moderately preferred
- Partially preferred
- Least preferred

Table 2.1: Alternatives Evaluation Criteria

Natural Environment	**Aquatic Environment** • Potential to impact fish and fish habitat • Potential to impact water quality • Potential to impact groundwater quality and quantity
	Terrestrial Environment • Potential to impact wildlife/habitat (i.e., Species-at-Risk, significant ecological areas, etc.) • Potential to affect vegetation (i.e., wooded areas, wetlands, conservation areas, etc.) • Potential to impact individual trees or landscape features
Socio-Economic and Cultural Environment	**Noise/Vibration** • Potential to impact noise/vibration sensitive areas (i.e., residential dwellings, commercial operations, adjacent infrastructure, etc.)
	Air Quality • Potential to affect local air quality
	Aesthetics • Potential to impact visual aesthetics of study area • Educational (signage) opportunities
	Land Use • Potential to impact existing and future designated land use • Satisfies the goals and objectives of municipal planning policies • Potential to impact greenspace within the community • Potential to require acquisition of private property

	• Potential to impact recreational opportunities within the study area
	Health & Safety • Potential to impact health and safety of users (including all modes of transportation) • Potential to impact health and safety of employees • Potential to encounter contaminated subsurface conditions
	Community Access • Disruption to existing traffic, private property and business access during construction or operation
	Archaeological Resources • Potential to impact undisturbed lands
	Built Heritage Resources / Cultural Landscape • Potential to impact known built heritage resources or cultural landscapes / features
	Socio Economic • Impact to costs associated with flooding damage • Impact to business • Potential for property value cost impacts
Technical Environment	**Functionality** • Potential to impact flooding • Potential to be flexible to meet future needs
	Constructability & Feasibility • Potential to disrupt existing traffic (extent and duration), property access or functionality of existing channel during construction and operation • Potential to satisfy agency requirements/conditions (permitting) • Potential to impact existing infrastructure/utilities • Potential constraints to constructability (e.g., location, depth of excavation, soil conditions, rock removal, groundwater control, in-water works, workable construction area, construction duration, etc.)
	Cost • Relative capital, operational and maintenance costs
	Climate Change • Ability to increase resilience to climate change (i.e., severe weather events, reduce flooding) within the study area (including Indigenous Knowledge shared on historical weather patterns) • Impacts to known climate change contributors

3 Alternative Solutions

3.1 Alternative 1a – Naturalized Creeks with Multi-Use Trail along the South side of Schneider Creek and East side of Shoemaker Creek

Alternative 1a positions the trail along the top of the valley on the south side of the naturalized Schneider Creek (Figure 3.1). The alignment incorporates two pedestrian creek crossings: one crossing Schneider Creek between Stirling Ave and Kent St, which would replace a current culvert crossing at this location, and the other crossing Shoemaker Creek. Similar to the existing alignment, there would be no multi-use trail between Ottawa St and Sydney St because there is limited space available south of the creek (i.e., due to the location of the bridges at Ottawa and Sydney). The existing on-road cycling route would be maintained on Nyberg St.

Additionally, Alternative 1a incorporates a new section of trail along the east side of Shoemaker Creek. This trail along Shoemaker Creek would extend the existing Iron Horse Trail network south by connecting the study area to Courtland Ave.

The pros and cons of Alternative 1a are highlighted as follows:

- Pros:
  - Provides a more direct route through the study area compared to Alternative 2a
- Cons
  - The existing trail along the north side of Schneider Creek would be removed between Kent Ave and Bordon Ave; impacted soils at this section of the existing trail would need to be disturbed during construction activities
  - Removes and replaces a significant portion of the existing Iron Horse Trail at the study area compared to Alternative 2; adds cost compared to maintaining the existing trail and introduces a potential loss of the existing trail's heritage value
  - The on-road cycling route (gap in existing multi-use trail) on Nyberg St. between Ottawa St and Sydney St would be retained
  - Additional costs for trail replacement and added pedestrian crossing required at Shoemaker Creek compared to Alternative 2

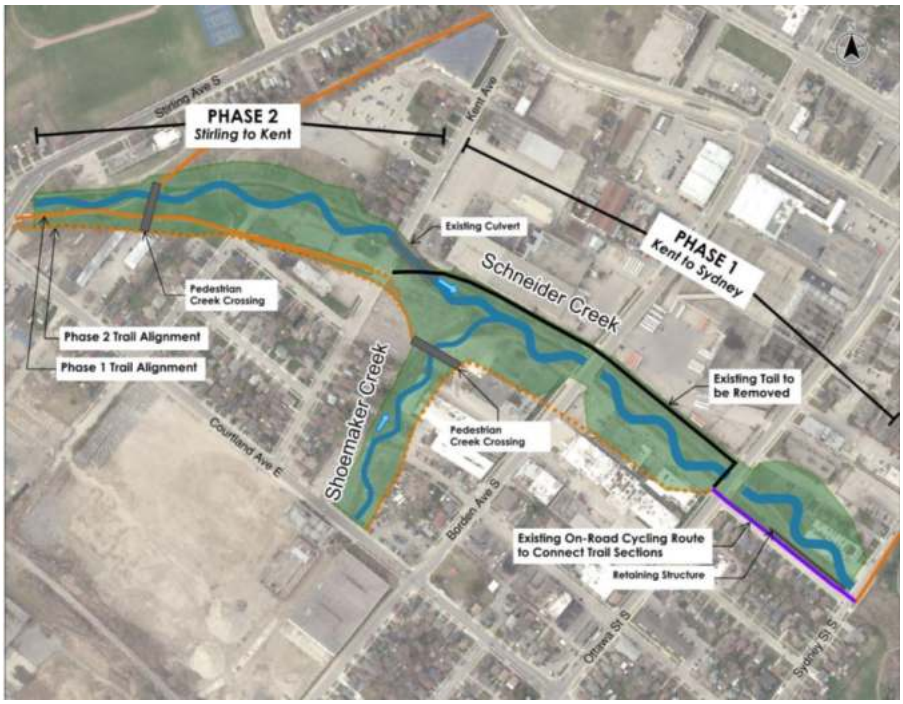


Figure 3.1: Alternative 1a – Multi-Use Trail along the South side of Schneider Creek and East side of Shoemaker Creek

3.2 Alternative 1b – Naturalized Creeks with Multi-Use Trail along the South side of Schneider Creek with Trail Amenity Features (Up to Three) and Trail East side of Shoemaker Creek

Alternative 1b incorporates additional amenity features to the Alternative 1a Schneider Creek trail alignment (Figure 3.2). These amenity features could include seating areas that provide lookout views of the naturalized channel valley and step-down features that provide public access from the trail down towards Schneider Creek. The trail for Shoemaker Creek would remain the same as Alternative 1a and not include any amenity features.

Photographs 3.1 and 3.2 provide examples of the amenity features incorporated into previous Schneider Creek naturalization projects in Kitchener. The conceptual illustration of Alternative 1b (Figure 3.2) identifies potential locations for incorporating amenity features. Up to three amenity features would be incorporated into the Schneider Creek trail and naturalization.

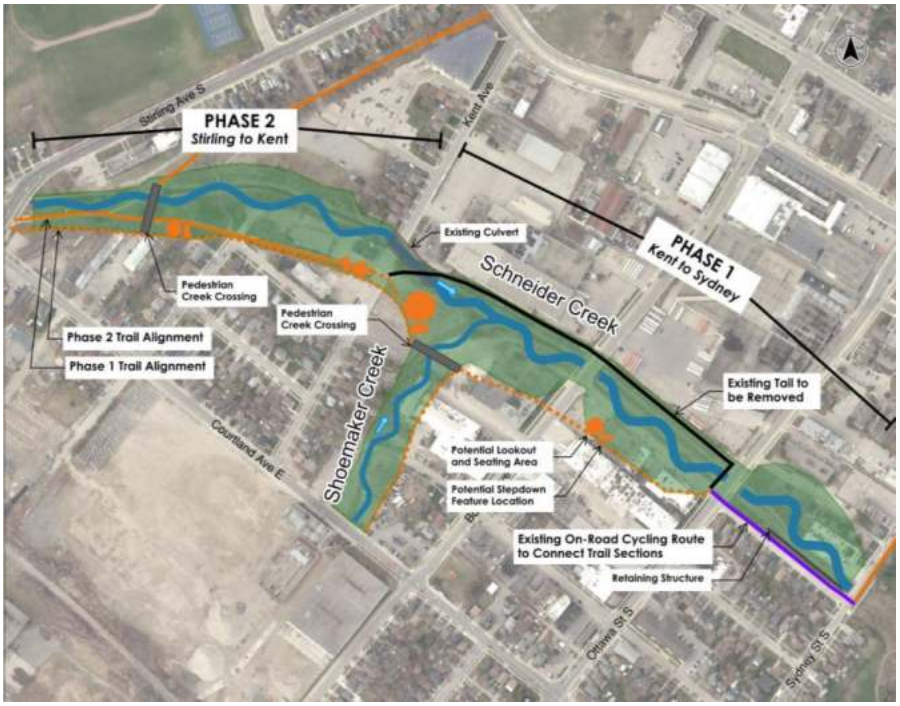


Figure 3.2: Alternative 1b – Multi-Use Trail along the South side of Schneider Creek with Trail Amenity Features and Trail along East side of Shoemaker Creek

Photo 3.1: Lookout and Seating Area at Idlewood Creek

Photo 3.2: Boulder Step-Down Feature at Montgomery Creek

The pros and cons of Alternative 1b are highlighted as follows:

- Pros:
  - Enhances the recreational value of Iron Horse Trail by providing opportunities to enjoy and interact with the naturalized areas
- Cons
  - Added costs for amenity features compared to Alternative 1a
  - Introduces safety considerations related to access into the naturalized valley (e.g., high flows during floods, ticks) for step-down features

3.3 Alternative 2a - Naturalized Creeks with Multi-Use Trail along a Combination of the North and South Side of Schneider Creek and West side of Shoemaker Creek

Alternative 2a (Figure 3.3) positions the trail along the top of the valley on the south side of the naturalized Schneider Creek corridor between Stirling Ave and Kent Ave, matching the trail alignment of Alternative 1a at the upstream portion of the study area. Positioning a trail along the north side of the naturalized channel corridor upstream of Kent Ave is not feasible due to the limited space immediately north of the Kent Ave bridge and the adjacent home. Also similar to Alternative 1a, the trail alignment at the upstream portion of the study area includes a pedestrian crossing of Schneider Creek, which would replace an existing culvert crossing.

Downstream of Kent Ave, the trail alignment switches to the north side of the valley corridor, maintaining the current Iron Horse Trail between Kent Ave and Ottawa Street. A new section of trail would be constructed along the north side of the corridor between Ottawa Street and Sydney Street. This new trail would replace the on-road cycling route along Nyberg Street and eliminate the existing gap in the trail network.

Additionally, Alternative 2a incorporates a new section of trail along the west side of Shoemaker Creek. This trail along Shoemaker Creek would extend the existing Iron Horse Trail network south by connecting the study area to Courtland Ave.

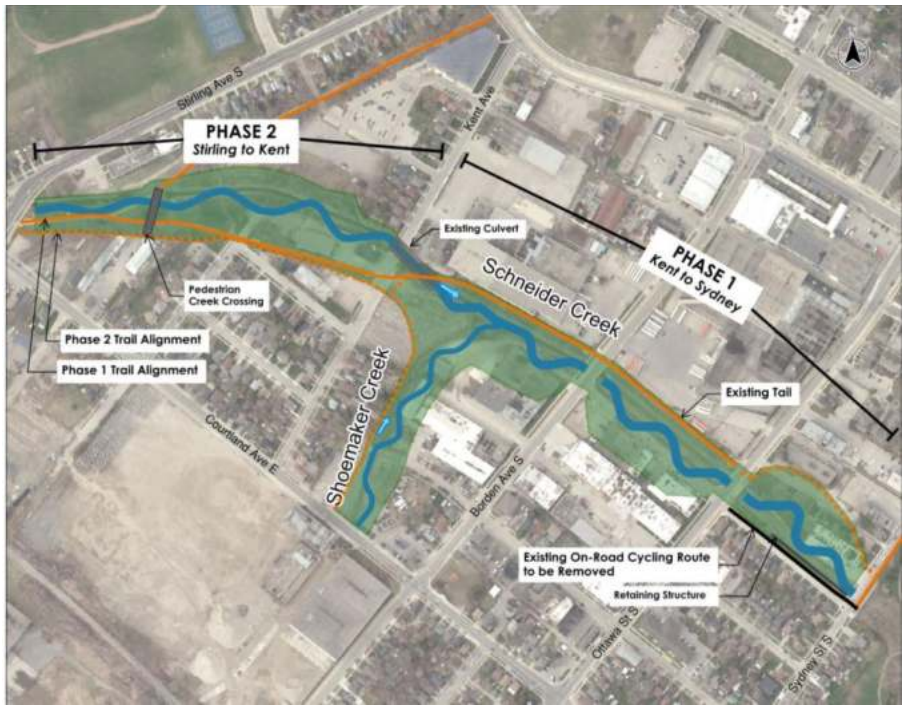


Figure 3.3: Muli-Use Trail along a Combination of the North and South side of Schneider Creek and West side of Shoemaker Creek

The pros and cons of Alternative 2a are highlighted as follows:

- Pros:
  - Largely maintains the existing Iron Horse Trail through the study area.
  - Requires one less pedestrian crossing compared to Alternative 1 (no crossing of Shoemaker Creek required)
  - Improves trail connection to Sydney Ave by replacing the existing on-road cycling route along Nyberg St with a multi-use trail
- Cons
  - Provides a slightly less direct route through the study area between Stirling Ave and Sydney

3.4 Alternative 2b – Naturalized Creeks with Multi-Use Trail along a Combination of the North and South Side of Schneider Creek with Trail Amenity Features (Up to Three) and West side of Shoemaker Creek

Alternative 2b incorporates additional amenity features to the Alternative 2a trail alignment (Figure 3.4) for Schneider Creek. These amenity features could include seating areas that provide lookout views of the naturalized channel valley and step-down features that provide public access from the trail down towards Schneider Creek. The trail for Shoemaker Creek would remain the same as Alternative 2a and not include any amenity features.

Photographs 3.3 and 3.4 provide additional examples of the amenity features incorporated into previous creek naturalization projects. The conceptual illustration of Alternative 1b (Figure 4) identifies potential locations for incorporating amenity features along the trail. Up to three amenity features would be incorporated into the Schneider Creek trail and naturalization.

The pros and cons of Alternative 2b are highlighted as follows:

- Pros:
  - Enhances the recreational value of Iron Horse Trail by providing opportunities to enjoy and interact with naturalized areas
- Cons
  - Added costs for trail amenity features compared to Alternative 2a
  - Introduces safety considerations related to access into the naturalized valley (e.g., high flows during floods, ticks) for step-down features

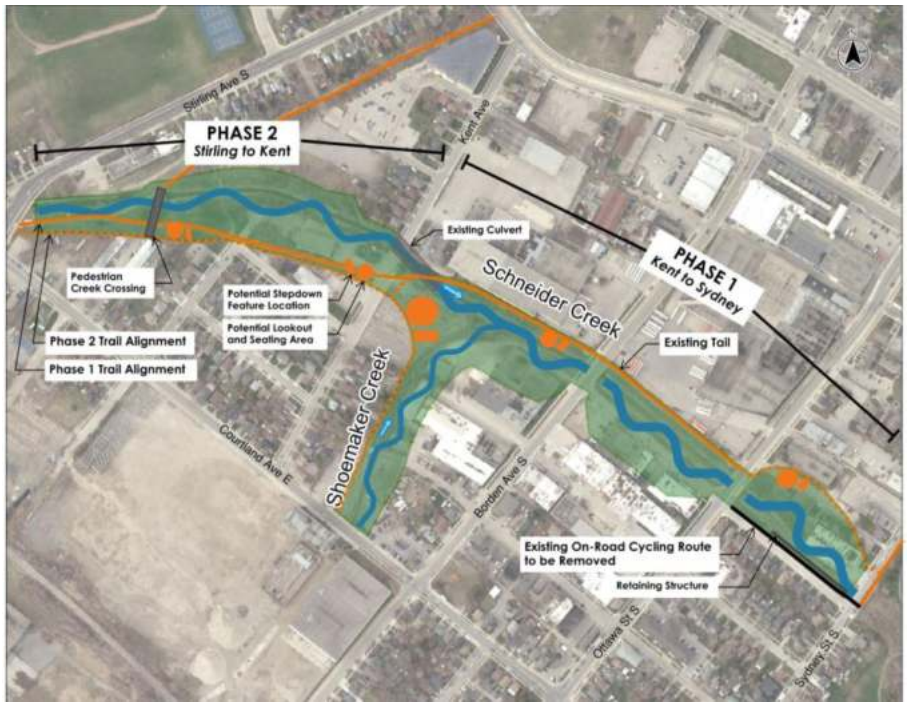


Figure 3.4: Multi-Use Trail along a Combination of the North and South Side of Schneider Creek with Trail Amenity Features and Trail along West side of Shoemaker Creek

Photo 3.3: Lookout and Seating Area at Montgomery Creek

Photo 3.4: An Indiana stream restoration project incorporating several amenity features [2]

[2] Grand Junction Is the Rust Belt's First Climate-Resilient Park (metropolismag.com)

4 Climate Change Considerations

The impacts of climate change and extreme weather events on the creeks include:

- Increased impact on water quality due to increased precipitation and/or erosion.
- Flooding during higher river flows due to increased precipitation.
- Low flows impact on water quality due to decreased precipitation/prolonged droughts.
- Water quality issues linked to temperature increases.

To address potential climate change impacts and increase resilience to climate change, different measures could be integrated in the selected alternative. Opportunities for climate change mitigation and adaptation include:

Table 4.1: Climate Change Mitigation and Adaptation Opportunities

Mitigation / Adaptation	Opportunity
Adaptation to flooding risk	• Build new structures (bridges) to accommodate future floods • Verify and update emergency response measures for flooding
Adaptation to increased precipitation	• Provide additional storage to accommodate increased flood volume and mitigate downstream impacts • Increase opportunities for infiltration in floodplain and non-floodplain areas to reduce runoff volume and absorb flood flows
Adaptation to low water levels and degraded water quality due to drought	• Natural channels may intercept groundwater and therefore increase flows and decrease temperatures during low flow conditions • Natural channels may be narrower and deeper, reducing evaporation volume • Overhanging vegetation can mitigate water temperature increases due to solar warming
Adaptation to impacts of severe storms	• Design floodplain and channel structures to withstand erosive forces • Vegetated floodplain areas trap and stabilize sediment during floods
Mitigating future flood risk	• Naturalization of channel provides a resilient system that strengthens over time (engineered structures tend to weaken over time)

5 Alternatives Evaluation

Table 5.1: Evaluation of Alternatives Table

Measures	Alternative 1a: Naturalized Creek with Multi-Use Trail along South Side of Schneider Creek	Alternative 1b- Naturalized Creek with Multi-Ise Trail along the South Side of Schneider Creek with Trail Amenity Features (up to Three)	Alternative 2a – Naturalized Creek with Multi-Use Trail along a Combination of the North and South Side of Schneider Creek	Alternative 2b- Naturalized Creek with Multi-Use Trail along a Combination of the North and South Side of Schneider Creek (Up to Three)
Natural Environment				
Aquatic Environment Potential to impact fish and fish habitat (consideration for species and Indigenous Nations)	• No significant difference in Aquatic Environment impact between alternatives. • Water will be managed to maintain flow to downstream creek channel during construction with no anticipated impacts to flow conveyance downstream. • High positive impact to aquatic habitat – removal of barriers to fish passage, naturalized substrate, inclusion of pools and riffles, diversity of fish habitat, potential for spawning, rearing, and adult life cycle elements. • Full naturalized channel can be included in habitat bank • Opportunity to incorporate Indigenous Knowledge for aquatic habitat. • Bank stabilization structures and riffle substrate will be designed and sized to remain stable and limit erosion, some natural movement of sediment through the system is expected.			
Aquatic Environment Potential to impact water quality (consideration for species and Indigenous Nations)	• No significant difference in Aquatic Environment impact between alternatives. • Low potential for negative effects during construction – water management and open excavations will require robust ESC and water management plans • Potential to include stormwater outfall energy dissipation, settling wetlands within the low floodplain at certain stormwater outfalls. • Opportunity to incorporate Indigenous Knowledge for water quality. • Positive after construction (floodplain will provide filtration and allow interaction with groundwater)			
Aquatic Environment Potential to impact groundwater (quality and quantity)	• No significant difference in Aquatic Environment impact between alternatives. • Low negative impact to ground water during construction. • Minor volumes of groundwater pumping may be required to construct pedestrian crossing structure. • High positive impact to GW long-term – increased infiltration on floodplain and valley walls • Naturalized channel bottom and valley walls will allow groundwater / surface water interaction within the channel / valley.			
Terrestrial Environment Potential to impact wildlife/habitat (i.e., Species-at-Risk, significant ecological areas, etc., consideration for species and Indigenous Nations)	• No significant difference in Terrestrial Environment between alternatives. • Low negative impact during construction. Construction introduces new hazards to area for wildlife that currently reside there. Minor loss of habitat in the short term. • High positive impact long-term. Vegetated floodplain and valley walls will attract wildlife to surrounding land. Project will provide a suitable habitat for a variety of terrestrial species. • Sloped valley walls increase accessibility for wildlife to valley bottom and creek. • Moderate increase to green space wildlife corridor. • Large opportunity to incorporate Indigenous Knowledge for wildlife / habitat. • Large Opportunity to include targeted habitat (e.g., monarch, bats, barn swallows, turtles, amphibians)			
Terrestrial Environment Potential to affect vegetation (i.e., wooded areas, wetlands, conservation areas, etc., consideration for species and Indigenous Nations, including spiritual uses)	• No significant difference in Terrestrial Environment between alternatives • Low negative short-term impact. Must remove vegetation currently in area. Good opportunity to remove / control invasive species. • High positive impact long-term, largest vegetation naturalization area proposed. • Moderate opportunity to incorporate Indigenous Knowledge for planting plan. • Native species planting plan can be implemented in new floodplain (largest planting footprint). Native species can include plants suited to environmental / moisture conditions, and incorporate Indigenous Knowledge when selecting traditional medicinal and foodplants as well as plants to provide food to terrestrial and bird species.			
Terrestrial Environment Potential to impact individual trees or landscaped features (consideration for species and Indigenous Nations)	• No significant difference in Terrestrial Environment between alternatives • Low negative short-term impact. Most existing trees will need be removed during construction. • Low positive long-term impact. trees planted in floodplain (largest revegetation footprint). • Moderate opportunity to incorporate Indigenous Knowledge for planting plan. • Net positive impact long-term. More trees will be planted than initially removed. Final habitat will better support trees.			

Measures	Alternative 1a: Naturalized Creek with Multi-Use Trail along South Side of Schneider Creek	Alternative 1b- Naturalized Creek with Multi-Ise Trail along the South Side of Schneider Creek with Trail Amenity Features (up to Three)	Alternative 2a – Naturalized Creek with Multi-Use Trail along a Combination of the North and South Side of Schneider Creek	Alternative 2b- Naturalized Creek with Multi-Use Trail along a Combination of the North and South Side of Schneider Creek (Up to Three)
Natural Heritage Summary	**PREFERRED**	**PREFERRED**	**PREFERRED**	**PREFERRED**
Social and Cultural Environment				
Noise/Vibration Potential to impact noise/vibration sensitive areas (i.e., residential dwellings, commercial operations, adjacent infrastructure, etc.,)	• No significant difference in impact for construction or long-term impacts. No noise or vibration during operations.			
Air Quality Potential to affect local air quality	• No significant difference in impact for construction or long-term air quality (high positive impact)			
Aesthetics Potential to impact visual aesthetics of study area	• Low negative impact during construction. • High positive long-term impact. Added vegetation in floodplain will positively impact visual aesthetics of study area. Full removal of concrete channel, some retaining wall will be retained near Sydney and full valley will be naturalized with no views of concrete. • Moderate positive impact long-term. The implementation of a natural channel design, creation of a floodplain and implementation of a native species planting plan provides the opportunity to educate the public on terrestrial and aquatic rehabilitation projects and plant and animal species native to the area. Opportunity to educate on flooding and Climate Change.	• Low negative impact during construction. • Highest positive long-term impact. Added access to view and the creek vegetation in floodplain will positively impact visual aesthetics of study area. Full removal of concrete channel, some retaining wall will be retained near Sydney and full valley will be naturalized with no views of concrete. Up to three amenity features including seating areas that provide lookout views and step-downs features to provide public access from the trail down towards the creek. • Moderate positive impact long-term. The implementation of a natural channel design, creation of a floodplain and implementation of a native species planting plan provides the opportunity to educate the public on terrestrial and aquatic rehabilitation projects and plant and animal species native to the area. Opportunity to educate on flooding and Climate Change.	• Low negative impact during construction. • High positive long-term impact. Added vegetation in floodplain will positively impact visual aesthetics of study area. Full removal of concrete channel, some retaining wall will be retained near Sydney and full valley will be naturalized with no views of concrete. • Moderate positive impact long-term. The implementation of a natural channel design, creation of a floodplain and implementation of a native species planting plan provides the opportunity to educate the public on terrestrial and aquatic rehabilitation projects and plant and animal species native to the area. Opportunity to educate on flooding and Climate Change.	• Low negative impact during construction. • Highest positive long-term impact. Added vegetation in floodplain will positively impact visual aesthetics of study area. Full removal of concrete channel, some retaining wall will be retained near Sydney and full valley will be naturalized with no views of concrete. Up to three amenity features including seating areas that provide lookout views and step-downs features to provide public access from the trail down towards the creek. • Moderate positive impact long-term. The implementation of a natural channel design, creation of a floodplain and implementation of a native species planting plan provides the opportunity to educate the public on terrestrial and aquatic rehabilitation projects and plant and animal species native to the area. Opportunity to educate on flooding and Climate Change.
Land Use Potential to impact existing and future designated land use (consideration for community and Indigenous access)	• Same amount of private land converted to valley lands for each alternative. • Similar floodway area converted to flood fringe. • Moderate opportunities for community and Indigenous access.	• Same amount of private land converted to valley lands for each alternative. • Similar floodway area converted to flood fringe. • High opportunities for community and Indigenous access.	• Same amount of private land converted to valley lands for each alternative. • Similar floodway area converted to flood fringe. • Moderate opportunities for community and Indigenous access.	• Same amount of private land converted to valley lands for each alternative. • Similar floodway area converted to flood fringe. • High opportunities for community and Indigenous access.
Land Use Satisfies the goals and objectives of municipal planning policies	• High conformance with municipal planning objective with no significant difference between alternatives.			
Land Use Potential to impact greenspace within the community	• No significant difference in impact for construction, long-term impacts for vegetated floodplain which will add a considerable amount of greenspace to the downtown core and the net long-term impact to greenspace in the community.			
Land Use Potential property acquisition	• Similar needs for all alternatives.			

Measures	Alternative 1a: Naturalized Creek with Multi-Use Trail along South Side of Schneider Creek	Alternative 1b- Naturalized Creek with Multi-lse Trail along the South Side of Schneider Creek with Trail Amenity Features (up to Three)	Alternative 2a – Naturalized Creek with Multi-Use Trail along a Combination of the North and South Side of Schneider Creek	Alternative 2b- Naturalized Creek with Multi-Use Trail along a Combination of the North and South Side of Schneider Creek (Up to Three)
Land Use Potential to impact recreational opportunities	• Low negative impact during construction. Portions of the existing multiuse trail may be temporarily closed and/or have restricted access during construction (detour will be identified). • High positive impact long-term. • The existing trail location will change following construction. • Some improvements to creek crossings are proposed.	• Low negative impact during construction. Portions of the existing multiuse trail may be temporarily closed and/or have restricted access during construction (detour will be identified). • High positive impact long-term. • The existing trail will change in location following construction. • Some improvements to creek crossings are proposed. • Improved access to the floodplain and water will be possible. • Enhance recreational value of Iron Horse Trail by providing opportunities to enjoy and interact with naturalized areas.	• Low negative impact during construction. Portions of the existing multiuse trail may be temporarily closed and/or have restricted access during construction (detour will be identified). • High positive impact long-term. • The existing trail will mostly likely remain in a similar location following construction. • Some improvements to creek crossings are proposed.	• Low negative impact during construction. Portions of the existing multiuse trail may be temporarily closed and/or have restricted access during construction (detour will be identified). • High positive impact long-term. • The existing trail will mostly likely remain in a similar location following construction. • Some improvements to creek crossings are proposed. • Improved access to the floodplain and water will be possible. • Enhance recreational value of Iron Horse Trail by providing opportunities to enjoy and interact with naturalized areas.
Health & Safety Potential to impact health and safety of employees	• No significant difference in impact for construction, flood risk, formalized valley bottom, access into the naturalized valley via step-down features and safety due to limited use of retaining wall			
	• No impact	• High positive impact to trail safety with improved access into the naturalized valley with step-down features. • Increased risk related to access into the naturalized valley (high flows during floods, ticks) for step-down features.	• Improve trail connection to Sydney Ave by replacing the existing on-road cycling route along Nyberg St with a multi-use trail	• Improve trail connection to Sydney Ave by replacing the existing on-road cycling route along Nyberg St with a multi-use trail • High positive impact to trail safety with improved access into the naturalized valley with step-down features. • Increased risk related to access into the naturalized valley (high flows during floods, ticks) for step-down features.
Health & Safety Potential to impact health and safety of users (including users of all modes of transportation)	• No impact	• High positive impact to trail safety with improved access into the naturalized valley with step-down features. • Increased risk related to access into the naturalized valley (high flows during floods, ticks) for step-down features.	• Improve trail connection to Sydney Ave by replacing the existing on-road cycling route along Nyberg St with a multi-use trail	• Improve trail connection to Sydney Ave by replacing the existing on-road cycling route along Nyberg St with a multi-use trail • High positive impact to trail safety with improved access into the naturalized valley with step-down features. • Increased risk related to access into the naturalized valley (high flows during floods, ticks) for step-down features.
	• No significant difference in impact, safety due to concrete being removed and the reduce flood risk in study area. • No significant difference in impact for construction, flood risk, formalized valley bottom, sightlines with access into the naturalized valley via step-down features and safety due to limited use of retaining wall			
Health & Safety Potential to encounter contaminated subsurface conditions	• Moderate negative impact during construction. The existing trail along the north side of Schneider Creek would be removed between Kent Ave and Bordon Ave; impacted soils at this section of the existing trail would need to be disturbed during construction activities. Removing portions of the concrete channel may result in encountering contaminated soils.		• Low negative impact during construction. Removing the concrete channel may result in encountering contaminated soils.	
Community Access Disruption to existing traffic, private property and business access during construction or operation	• No significant difference in impacts during construction, possible temporary lane and trail closures and high positive long-term impacts.			
Archaeological Resources Potential to impact undisturbed lands (historical and Indigenous artifacts)	• Site area is fully disturbed from historical conditions, low likelihood of encountering archaeological resources.			

Measures	Alternative 1a: Naturalized Creek with Multi-Use Trail along South Side of Schneider Creek	Alternative 1b- Naturalized Creek with Multi-Ise Trail along the South Side of Schneider Creek with Trail Amenity Features (up to Three)	Alternative 2a – Naturalized Creek with Multi-Use Trail along a Combination of the North and South Side of Schneider Creek	Alternative 2b- Naturalized Creek with Multi-Use Trail along a Combination of the North and South Side of Schneider Creek (Up to Three)
Heritage Potential to impact known built heritage resources or cultural landscapes / features	• Highest impacts to Iron Horse Trail (remove and replaces a significant portion of the existing Iron Horse Trail), no impact to Rockway Gardens.		• Largely maintains the existing Iron Horse Trail, no impact to Rockway Gardens	
	• Known heritage resources: Iron Horse Trail, Rockway Gardens.			
Socio-Economic Impact to costs associated with flooding damage	• All options reduce flood damage costs equally			
Socio-Economic Impact to business	• The addition of green space to the area is anticipated to draw more people to the area and therefore to the businesses in the area. • Relocation of business(es) due to project land needs may be require.			
Socio-Economic Potential for property value cost impacts	• All options impact floodway / flood fringe equally • Potential for increased property values associated with improved greenspace.			
SOCIO-ECONOMIC & CULTURAL SUMMARY	**LEAST PREFERRED**	**PARTIALLY PREFERRED**	**MODERATELY PREFERRED**	**PREFERRED**
Technical Environment				
Functionality Potential to impact flooding	• All options have been developed to provide an equivalent reduction to flood risk within the study area.			
Functionality Potential to be flexible to meet future needs	• Moderate flexibility for providing stormwater controls • Moderate flexibility to enhance access to the channel/valley floor area • Moderate opportunities for future greenspace or habitat improvements.			
Constructability & Feasibility Potential to disrupt existing traffic (extent and duration), property access or functionality of existing channel during construction and operation	• No significant difference in impacts for construction disruption, intermittent delays to traffic during material delivery and property access that will be maintained during construction. • Water management plan will be implemented to manage risk to conveyance capacity. • During operation: No impacts			
Constructability & Feasibility Potential to satisfy agency requirements/conditions (permitting)	• No significant difference in permits that are required, agencies involvement and the likelihood that conditions would be easy to satisfy.			
Constructability & Feasibility Potential to impact existing infrastructure/utilities	• Stormwater management outfalls will need to be accommodated in new valley. • Potential to impact SAN sewer that runs parallel to channel between Borden Ave S. and Ottawa St S. • Most other utilities are within the road crossing rights of way and are unlikely to be impacted by construction. • Gas lines – currently unknown.			
Constructability & Feasibility Potential constraints to constructability (e.g., location, depth of excavation, soil conditions, rock removal, groundwater control, in-water works, workable construction area, construction duration, etc.)	• No Significant difference between impacts with the expected material availability, amount of concrete being removed, the depth of excavation, the likelihood of encountering groundwater, in-water work required and construction access zones.			
Cost Relative capital, operational and maintenance costs ($)	• Highest capital costs due to additional trail construction because IHT will have to be replaced between Kent and Ottawa and two pedestrian bridge crossings are required.		• Moderate capital costs as the existing trail will be maintained and only one pedestrian bridge crossing is required.	
	• Operational costs: trail costs same for all alternatives (lighting and snow plowing) • Maintenance costs: minor landscaping/channel repair costs			
Climate Change Ability to increase resilience to climate change (i.e., severe weather events, reduce flooding) within the study area	• High positive impact long-term. Widening valley. Vegetating floodplain helps with infiltration/attenuation. • Has high potential to store water in the floodplain and reduce flooding impacts downstream.			

Measures	Alternative 1a: Naturalized Creek with Multi-Use Trail along South Side of Schneider Creek	Alternative 1b- Naturalized Creek with Multi-lse Trail along the South Side of Schneider Creek with Trail Amenity Features (up to Three)	Alternative 2a – Naturalized Creek with Multi-Use Trail along a Combination of the North and South Side of Schneider Creek	Alternative 2b- Naturalized Creek with Multi-Use Trail along a Combination of the North and South Side of Schneider Creek (Up to Three)
Climate Change Impacts to known climate change contributors	• No significant difference for impacts with construction, greenhouse gas emissions during construction, long-term affects, carbon sequestration in vegetated areas and trail usage.			
TECHNICAL SUMMARY	**MODERATELY PREFFERED**	**MODERATELY PREFERRED**	**PREFERRED**	**PREFERRED**
OVERALL CONCLUSION	**LEAST PREFFERED**	**PARTIALLY PREFERRED**	**MODERATELY PREFERRED**	**RECOMMENDED SOLUTION**

6 Conclusions and Next Steps

In support of the City of Kitchener's naturalization of Schneider and Shoemaker Creeks Environmental Assessment study, this report presents and evaluates feasible alternative design concepts for the naturalization of both creeks. These alternative design concepts have been evaluated against environmental factors and specific criteria to recommend a preferred alternative.

The recommended preferred design criteria, which includes integrating a multi-use trail along a combination of the north and south side of Schneider Creek with up to three amenities, allows the Study Area to reduce the flood risk of these creeks while enhancing the recreational value of the Iron Horse Trail. This alternative largely maintains the existing Iron Horse Trail and provides opportunities to enjoy and interact with naturalized areas with step-down features. Although this option occupies potential risk related to improving access into the naturalized valley with the step-down features (high flows during floods, ticks), the safety risk can be mitigated with the integration of signage (i.e., slippery when wet, avoid during high flows, etc.).

A Public Information Centre (PIC) will present the above noted Design Concepts, evaluation criteria, evaluation and recommended Preferred Design Concept with the purpose of allowing the public, Agency and Indigenous Nations to comment. The PIC will allow all to share perspectives and confirm if the recommended alternative is the design criteria by which this project should move forward.

Following confirmation of the Preferred Design Concept, the project will move into Phase 4 of the Class EA process, which includes the Environmental Study Report to be available for a 30-day review.

Appendix I Consultation Materials

I.1 Study Contact List

First Name	Last Name	Title	Representing	Address	Town	Province	Postal Code	Phone	Email	Type
Key City of Kitchener Stakeholders										
Project Advisory Team										
Samantha	Brickman	Design and Construction Project Manager	COK-INS	131 Goodrich Drive	Kitchener	ON	N2C 2E8	519-741-2200	Samantha.Brickman@kitchener.ca	Municipal
Bu	Lum	Director of Sanitary and Stormwater Utilities	COK-INS	131 Goodrich Drive	Kitchener	ON	N2C 2E8	519-741-2200	Bu.Lum@kitchener.ca	Municipal
Nick	Gollan	Manager, Planning and Programs, Sanitary and Stormwater Utilities	COK-INS	131 Goodrich Drive	Kitchener	ON	N2C 2E8	519-741-2200, ext. 7355	Nick.Gollan@kitchener.ca	Municipal
Trisha	Bradshaw	Director, Parks and Cemeteries	COK-DSD	200 King St W.	Kitchener	ON	N2G 4G7	519-741-2200	Trisha.Bradshaw@kitchener.ca	Municipal
Natalie	Goss	Manager, Policy and Development	COK-DSD	200 King St W.	Kitchener	ON	N2G 4G7		Natalie.Goss@kitchener.ca	Municipal
Rosa	Bustamante	Director, Planning	COK-DSD	200 King St W.	Kitchener	ON	N2G 4G7		Rosa.Bustamante@kitchener.ca	
Garett	Stevenson	Interim Director of Planning	COK-DSD	200 King St W.	Kitchener	ON	N2G 4G7	519-741-2200	Garett.Stevenson@kitchener.ca	Municipal
Bethany	Rowland	Director, Corporate Communications	COK-CSD	200 King St W.	Kitchener	ON	N2G 4G7			
Denise	McGoldrick	General Manager, Infrastructure Services	COK-INS	131 Goodrich Drive	Kitchener	ON	N2C 2E8			
Justin	Readman	General Manager, Development Services	COK-DSD	200 King St W.	Kitchener	ON	N2G 4G7	519-741-2200, ext. 7646	Justin.Readman@kitchener.ca	Municipal
Tactical Working Group										
Bethany	Rowland	Director, Corporate Communications	COK-CSD	200 King St W.	Kitchener	ON	N2G 4G7			
Shawn	Falcao	Manager, Corporate Communications and Marketing	COK-CSD	200 King St W.	Kitchener	ON	N2G 4G7	519-741-2200	Shawn.Falcao@kitchener.ca	Municipal
Katherine	Hughes	Assistant City Solicitor, Legal	COK-CSD	200 King St W.	Kitchener	ON	N2G 4G7			
Danielle	Sbeiti	Realty Service Manager	COK-DSD	200 King St W.	Kitchener	ON	N2G 4G7	519-741-2200	Danielle.Sbeiti@kitchener.ca	Municipal
Rob	Morgan		COK-DSD	200 King St W.	Kitchener	ON	N2G 4G7	519-741-2200	robert.morgan@kitchener.ca	Municipal
Ryan	Scott	Manager, Procurement	COK-FSD	200 King St W.	Kitchener	ON	N2G 4G7			
Trisha	Bradshaw	Director, Parks and Cemeteries	COK-DSD	200 King St W.	Kitchener	ON	N2G 4G7	519-741-2200	Trisha.Bradshaw@kitchener.ca	Municipal
John	Zunic		City of Kitchener	200 King St W.	Kitchener	ON	N2G 4G7	519-741-2200	John.Zunic@kitchener.ca	Municipal
Barbara	Steiner		City of Kitchener	200 King St W.	Kitchener	ON	N2G 4G7	519-741-2200	Barbara.Steiner@kitchener.ca	Municipal
Diana Lupsa	DSD	Engineering	Design and Approvals	200 King St W.	Kitchener	ON	N2G 4G7			
Sarah	Anderson		City of Kitchener	131 Goodrich Drive	Kitchener	ON	N2C 2E8	519-741-2200	Sarah.Anderson@kitchener.ca	Municipal
Other City Stakeholders										
Ashley	Visneski	Parks and Open Space Design and Development Manager	City of Kitchener	131 Goodrich Drive	Kitchener	ON	N2C 2E8	519-741-2200	Ashley.Visneski@kitchener.ca	Municipal
Joel	Hussey		City of Kitchener	131 Goodrich Drive	Kitchener	ON	N2C 2E8	519-741-2200	Joel.Hussey@kitchener.ca	Municipal
Darren	Kropf	Active Transportation Planning Project Manger	City of Kitchener	200 King St W.	Kitchener	ON	N2G 4G7	519-741-2200	Darren.Kropf@kitchener.ca	Municipal
Liz	Christensen	Multi-Use Pathways Trails and Development Manager	City of Kitchener	131 Goodrich Drive	Kitchener	ON	N2C 2E8	519-741-2200	Liz.Christensen@kitchener.ca	Municipal
Philip	Price	Communications and Marketing Associate	City of Kitchener	200 King St W.	Kitchener	ON	N2G 4G7	519-741-2200	Philip.Price@kitchener.ca	Municipal
Mirko	Petrisevic	Senior Communications Strategist		200 King St W.	Kitchener	ON	N2G 4G7			
Sue	Weare	Community Engagement Consultant		200 King St W.	Kitchener	ON	N2G 4G7			
Stephanie	Brasseur	Traffic Project Coordinator	City of Kitchener	200 King St W.	Kitchener	ON	N2G 4G7	519-741-2200, ext. 7373	Stephanie.Brasseur@kitchener.ca	Municipal
		Heritage planning staff	City of Kitchener	200 King St W.	Kitchener	ON	N2G 4G7		Heritage@kitchener.ca	Municipal
Barry	Cronkite	Director Transportation Services	City of Kitchener	200 King St W.	Kitchener	ON	N2G 4G7	519-741-2200, ext. 7738	Barry.Cronkite@kitchener.ca	Municipal
Sylvie	Eastman	Utilities Engineer	COK-GWU	131 Goodrich Drive	Kitchener	ON	N2C 2E8	519-741-2600, ext. 4178	Sylvie.Eastman@kitchener.ca	
Kathryn	Dever	Director, Strategy and Corporate Performance	City of Kitchener	200 King St W.	Kitchener	ON	N2G 4G7	519-741-2200, ext. 7370	Kathryn.Dever@kichener.ca	Municipal
Lenore	Ross	Senior Urban Designer	City of Kitchener	131 Goodrich Drive	Kitchener	ON	N2C 2E8	519-741-2200, ext. 7427	Lenore.Ross@kitchener.ca	Municipal
Lou	Slijepcevic	Traffic Project Coordinator	City of Kitchener	200 King St W.	Kitchener	ON	N2G 4G7	519-741-2200, ext. 7153	Lou.Slijepcevic@kitchener.ca	Municipal
Aaron	McCrimmom-Jones	Transportation Planning Project Manager	City of Kitchener	200 King St W.	Kitchener	ON	N2G 4G7	519-741-2200, ext. 7374	Aaron.McCrimmon-Jones@kitchener.ca	Municipal
		Engineering Division	City of Kitchener	200 King St W.	Kitchener	ON	N2G 4G7	519-741-2406		Municipal
Jon	Rehill	Fire Chief	City of Kitchener Fire Services	270 Strasburg Rd	Kitchener	ON	N2E 3M6	519 741-2499	Jon.Rehill@kitchener.ca	Municipal
Jenna	Quinn	President	Waterloo Region Nature	5-420 Erb Street West	Waterloo	ON	N2L 6K6	519 208 8442	president@waterlooregionnature.ca	Municipal
Agency Stakeholders										
Trevor	Heywood	Resource Planner (North Kitchener)	Grand Region Conservation Authority	400 Clyde Road, PO Box 729	Cambridge	ON	N1R 5W6	519-621-2763, ext. 2319	theywood@grandriver.ca	Provincial
Tony	Zammit	Watershed Ecologist	Grand Region Conservation Authority	400 Clyde Road, PO Box 729	Cambridge	ON	N1R 5W6	519-621-2763, ext. 2319	tzammit@grandriver.ca	Provincial
Anindita	Datta	Water Resources Engineer	Grand Region Conservation Authority	400 Clyde Road, PO Box 729	Cambridge	ON	N1R 5W6	519-621-2763, ext. 2319	adatta@grandriver.ca	Provincial
Lise	Chabot	Manager, Ministry Partnerships Unit	Ministry of Indigenous Affairs	160 Bloor Street East, 4th Floor	Toronto	ON	M7A 2E6	416-325-7032	lise.chabot@ontario.ca	Provincial
Karla	Barboza	Team Lead	Ministry of Citizenship and Multiculturalism	400 University Avenue 5th Floor	Toronto	ON	M7A 2R9	416-660-1027	karla.barboza@ontario.ca	Provincial
Joseph	Harvey	Heritage Planner	Ministry of Citizenship and Multiculturalism	400 University Avenue 5th Floor	Toronto	ON	M7A 2R9	613-242-3743	Joseph.Harvey@ontario.ca	Provincial
Province-wide EA Notification			Ministry of the Environment Conservation and Parks						eanotification.wcregion@ontario.ca	Provincial
David	Marriott	Rural Planner	Ontario Ministry of Agriculture, Food & Rural Affairs	3rd Floor North, 1 Stone Road	Guelph	ON	N1G 4Y2	519-766-5990	David.Marriott@ontario.ca	Provincial
Province-wide EA Notification			Ontario Ministry of Agriculture, Food & Rural Affairs							Provincial
Chris	Foster-Pengelly	Resource Planner (South Kitchener)	Grand Region Conservation Authority	400 Clyde Road, PO Box 729	Cambridge	ON	N1R 5W6	519-621-2763, ext. 2292	cfosterpengelly@grandriver.ca	Provincial
Elected Officials										
Berry	Vrbanovic	Mayor	City of Kitchener	200 King St., W., 2nd floor	Kitchener	ON	N2G 4G7	519-741-2300	mayor@kitchener.ca	Municipal
Jason	Deneault	Councillor – Ward 3	City of Kitchener	200 King St. W.	Kitchener	ON	N2G 4G7	519-741-2790		Municipal
Aislinn	Clancy	Councillor - Ward 10		200 King St. W.	Kitchener	ON	N2G 4G7			
Debbie	Chapman	Councillor – Ward 9	City of Kitchener	200 King St. W.	Kitchener	ON	N2G 4G7	519-741-2798	Online Forum	Municipal
Rights Holders										

First Name	Last Name	Title	Representing	Address	Town	Province	Postal Code	Phone	Email	Type
R. Stacey	LaForme	Chief	Mississaugas of the Credit First Nation	2789 Mississauga Road, RR#6	Hagersville	ON	N0A 1H0	905-768-1133	stacey.laforme@mncfn.ca	
Abby	LaForme	Consultation Coordinator	Mississaugas of the Credit First Nation						Abby.LaForme@mncfn.ca	
Peter	Graham	Land and Resources Consultation Supervisor	Six Nations Grand River Elected Council	1721 Chiefswood Road, N0A 1M0					LRCS@sixnations.ca	
Ms. Dawn	Russell	Consultation Administrative Assistant	Six Nations Grand River Elected Council					519-753-0665	dawnrussell@sixnations.ca	
Tanya	Hill-Montour	SNGREC Archaeology Supervisor	Six Nations Grand River Elected Council	: Six Nations Lands & Resources 2498 Chiefswood Road				(226) 388-0665	tanyahill-montour@sixnations.ca	
Mark B.	Hill	Chief	Six Nations of the Grand River	1695 Chiefswood Rd, PO Box 5000	Ohsweken	ON	N0A 1M0	519-455-2201	markhill@sixnations.ca	
Dominic	Ste-Marie	Conseiller en gestion du territoire	Huron-Wendat Nation	255, Place Chef Michel-Laveau				418-843-3767	Dominic.Sainte-Marie@wendake.ca	
Thiéfaine	Terrier	Analyste Archéologue (Archaeology Coordinator)	Huron-Wendat Nation	255, Place Chef Michel-Laveau Wendake, Qc, G0A 4V0				418-843-3767	Thiefaine.Terrier@wendake.ca	
		Administration	Huron-Wendat Nation	255 Place Chef Michel Laveau"	Wendake (Quebec)	QC	G0A 4VO	418-843-3767	administration@cnhw.qc.ca	
		Lands, Resources and Consultations	Métis Nation of Ontario						consultations@metisnation.org	
Residents										
CONFIDENTIAL	CONFIDENTIAL	Kitchener Resident	Kitchener Resident	471 Nyburg St, Kitchener	Kitchener	ON				
Ellen	Jones	Kitchener Resident	Kitchener Resident		Kitchener	ON			bejoneson@yahoo.com	
Mike	Claydon	Kitchener Resident	Kitchener Resident		Kitchener	ON			MC@caldercompanies.com	
Dennis	Moor	Kitchener Resident	Kitchener Resident						dmoorpersonal@gmail.com	
Businesses and Organizations										
			Hydro One Networks Inc.						SecondaryLandUse@HydroOne.com	
			Rogers Communications Canada Inc.	333 Bloor Street East	Toronto	ON	M4W 1G9	(416) 935-7777	mob.permits@rci.rogers.com	
			Bell Canada	1 Carrefour Alexander-Graham-E	Verdun	QC	H3E 3B3		bcecomms@bce.ca	
			Kitchener Utilities	131 Goderich Dr	Kitchener	ON	N2C 2E8	18669699994	Online form for email	
			Enova Power Corp.	301 Victoria Street South	Kitchener	ON	N2G 4L2	226-896-1010		
Victor	Rocha		Camino					2263388265	vrocha@caminowellbeing.ca	

I.2 Notices

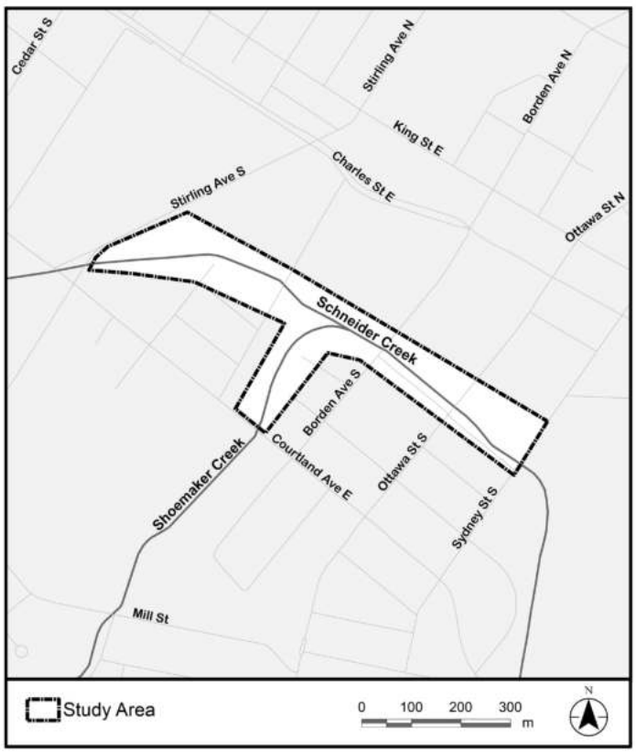
NOTICE OF COMMENCEMENT AND PUBLIC INFORMATION CENTRE

Schneider and Shoemaker Creeks Naturalization Environmental Assessment

Schneider and Shoemaker Creeks are currently lined with concrete where they meet, and the floodplain at this location has expanded past the creek boundaries. This affects adjacent properties and presents a potential risk to public safety.

The City of Kitchener is planning to commence a Class Environmental Assessment (EA), to fully review the environmental risks of this area, and present design options to mitigate those risks. Expanding and naturalizing the creek boundaries to accommodate the flows would provide greater protection, and environmental benefits such as flood mitigation and natural habitat. In addition, this project will look at options for the replacement of the concrete channel with a wider natural channel, which would improve the floodplain by reducing its limits, thereby minimizing potential damage as a result of flooding from larger storm events.

Stantec Consulting Ltd. will be acting as the City of Kitchener's engineering consultant for the project.



Planning Process

Reducing the environmental effects of our projects and operations is important to us. The planning of this project will follow a Schedule "C" Municipal Class EA, established in accordance with the Ontario *Environmental Assessment Act* and is a result of previous studies in the area.

This project is funded in part by the Government of Canada through the Disaster Mitigation and Adaptation Fund.

We'd like to hear from you

Your input is important to us. We invite you to join our upcoming Public Information Centre to learn more about the project, ask our team questions, and provide feedback. Listening to, and learning from, Indigenous Nations and organizations, residents, businesses, government agencies, and interest groups is part of the process.

Please join us:

Public Information Centre
April 13, 2023, 6:00pm – 8:00pm.
Rockway Golf Course
625 Rockway Dr, Kitchener, ON N2G 3B5
Project website: www.engagewr.ca/SchneiderCreekEA

Contact us if you would like to learn more about the project, be added to the project mailing list, provide comments, or have any accessibility requests:

Chris Nechacov, C.E.T.
Design & Construction Project Manager
City of Kitchener
Tel: 519-741-2200
Email: schneidercreekea@kitchener.ca

Steve Brown, MBA, P.Eng.
Project Manager
Stantec Consulting Ltd.
Tel: 519-585-7446
Email: schneidercreekea@stantec.com

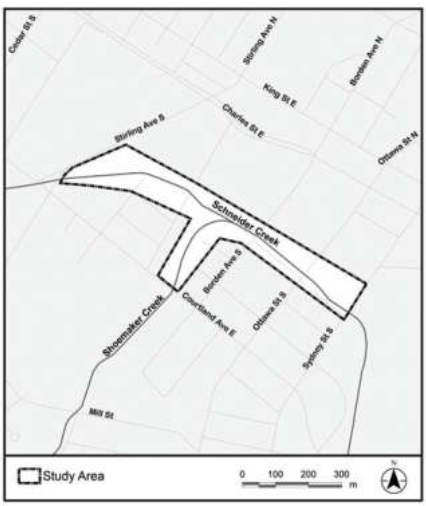
All personal information included in your request – such as name, address, telephone number and property location – is collected, under the authority of section 30 of the *Environmental Assessment Act* and is collected and maintained for the purpose of creating a record that is available to the general public. As this information is collected for the purpose of a public record, the protection of personal information provided in the *Freedom of Information and Protection of Privacy Act* (FIPPA) does not apply (s.37). Personal information you submit will become part of the available public record unless you request that your personal information remain confidential.

This Notice was issued on March 31, 2023.

NOTICE OF PUBLIC INFORMATION CENTRE #2

Schneider and Shoemaker Creeks Naturalization Environmental Assessment

Schneider and Shoemaker creeks are currently lined with concrete where they meet. The floodplain at this location extends past the creek boundaries. This affects adjacent properties and presents a potential risk to public safety.



The City of Kitchener has initiated a *Municipal Class Environmental Assessment*, Schedule "C", to fully review the environmental risks of this area, and present alternative solutions to mitigate those risks. Expanding and naturalizing the creek boundaries to accommodate the flows would provide greater protection for residents and properties, and environmental benefits such as flood mitigation and natural habitat. This project will look at options for replacing the concrete channel with a wider natural channel, which would reduce the potential damage due to flooding from larger storm events.

Public Information Centre #2

As part of this study, consultation is being undertaken, and your participation is encouraged. A second Public Information Centre (PIC) is planned to share the study background; explain the Environmental Assessment process; outline existing conditions; evaluation criteria; evaluation of alternatives; and recommended solution.

Public Information Centre #2
June 28, 2023, 5 – 8 p.m.
Rockway Mennonite Collegiate
110 Doon Rd. Kitchener
Project website: www.engagewr.ca/SchneiderCreekEA

We'd like to hear from you!

Your input is important to us and can shape the project decision. We invite you to join our upcoming PIC to learn more about the alternative solutions, ask our team questions, and provide feedback. Listening to, and learning from, Indigenous Nations, residents and stakeholders is part of the process.

The PIC will offer children's activities and light refreshments. Please visit the project website above to register for the PIC and provide questions about the project. If you are unable to attend the PIC, the presentation boards will be made available on the project website, as well ways that you can provide feedback and shape the evaluation criteria.

Contact us if you would like to learn more about the project, be added to the project mailing list, provide comments, or have any accessibility requests:

Chris Nechacov, C.E.T.
Design & Construction Project Manager
City of Kitchener
Tel: 519-741-2200
Email: schneidercreekea@kitchener.ca

Steve Brown, MBA, P.Eng.
Project Manger
Stantec Consulting Ltd.
Tel: 519-585-7446
Email: schneidercreekea@stantec.com

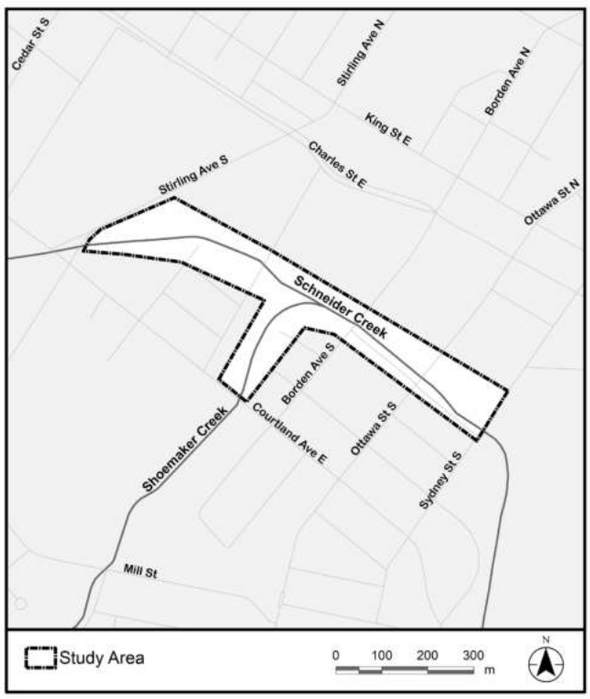
This notice was issued on **June 16, 2023**.

NOTICE PUBLIC INFORMATION CENTRE #3

Schneider and Shoemaker Creeks Naturalization Environmental Assessment

Schneider and Shoemaker Creeks are currently lined with concrete where they meet and the floodplain at this location extends past the creek boundaries. This affects adjacent properties and presents a potential risk to public safety.

The City of Kitchener has initiated a *Municipal Class Environmental Assessment*, Schedule "C", to fully review the environmental risks of this area, and present alternative solutions to mitigate those risks. At the Public Information Centre #2, the recommended Alternative Solution for full naturalization had the highest support. Expanding and naturalizing the creek boundaries to accommodate the flows will provide greater protection, and environmental benefits such as flood mitigation and natural habitat. In addition to the replacement of the concrete channel with a wider natural channel, this project will reduce potential flood risks to adjacent properties from larger storm events.



Public Information Centre #3 (Final)

As part of this study, consultation is being undertaken and your participation is encouraged. A third and final Public Information Centre (PIC) is being planned to share the different alignment options of the naturalized creeks, alignment of the Iron Horse Trail, the evaluation criteria and the evaluation of the alternative designs that will guide the remainder of the project. The results of the evaluation of environmental effects for each alternative along with the recommended solution will be presented.

Public Information Centre #3
December 12, 2023, 5:00pm – 8:00pm
(December 13, 2023, in case of inclement weather)
Rockway Golf Course, 625 Rockway Drive, Kitchener
Project website: www.engagewr.ca/SchneiderCreekEA

We'd like to hear from you!

Your input is important to us and can help shape the Project decision. We invite you to join our upcoming PIC to learn more about the alternative solutions, ask our team questions, and provide feedback. Listening to, and learning from, Indigenous Nations, residents, and stakeholders is part of the process.

The PIC will offer activities for children with childminding services available and light refreshments and snacks. Please visit the project website link above to R.S.V.P. to the PIC where you may indicate dietary restrictions and the number of children attending. If you are unable to attend the PIC, the presentation boards will be made available on the Project website.

Contact us if you would like to learn more about the Project, be added to the Project mailing list, provide comments, or have any accessibility requests:

Chris Nechacov, C.E.T.
Design & Construction Project Manager
City of Kitchener
Tel: 519-741-2200
Email: schneidercreekea@kitchener.ca

Steve Brown, MBA, P.Eng.
Project Manger
Stantec Consulting Ltd.
Tel: 519-585-7446
Email: schneidercreekea@stantec.com

This notice was issued on **December 1, 2023.**

I.3 PIC Summary Reports

Public Information Centre 1 Summary Report

Schneider and Shoemaker Creek Naturalization Environmental Assessment

March 1, 2024

Prepared for:
City of Kitchener

Prepared by:
Stantec Consulting Ltd.
100-300 Hagey Boulevard
Waterloo, ON
N2L 0A4

Project Number:
161414319

Limitations and Sign-off

The conclusions in the Report titled Public Information Centre 1 Summary Report are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from City of Kitchener (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided to applicable authorities having jurisdiction and others for whom the Client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.

Prepared by: Digitally signed by Murray, Katie Date: 2024.03.01 15:09:19 -05'00'

Signature

Katie Murray, B.A.
Environmental Consultant

Printed Name and Title

Prepared by: Digitally signed by Raheem, Ferenaz Date: 2024.03.01 16:32:32 -05'00'

Signature

Ferenaz Raheem, M.E.S. RPP MCIP
Senior Environmental Planner

Printed Name and Title

Reviewed by: Digitally signed by Hill, Laura Date: 2024.03.01 15:56:20 -05'00'

Signature

Laura Hill, M.Env.Sc.
Environmental Scientist

Printed Name and Title

Approved by: Knight, Mark 2024.03.01 15:25:11 -05'00'

Signature

Mark Knight, MA, MCIP, RPP
Principal, Environmental Planner
Practice Lead Environmental Services

Printed Name and Title

Table of Contents

List of Tables

List of Figures

List of Appendices

1 Introduction

The City of Kitchener is undertaking a Class Environmental Assessment (EA) to review the environmental risks of Schneider and Shoemaker Creeks and present design options to mitigate those risks. Schneider and Shoemaker Creeks are currently lined with concrete at their confluence, and the floodplain at this location has expanded past the concrete boundaries; this affects adjacent properties and presents a potential risk to public safety. Naturalizing the creek systems to accommodate flows can reduce risk to public safety and provide environmental benefits such as flood mitigation and natural habitat. In addition to the replacement of the concrete channel with a wider, naturalized channel, this project will endeavor to improve public safety by managing flood risks and reducing potential damage as a result of flooding from larger storm events.

The study area for the Schneider and Shoemaker Creeks Naturalization EA is shown below in Error! R eference source not found..

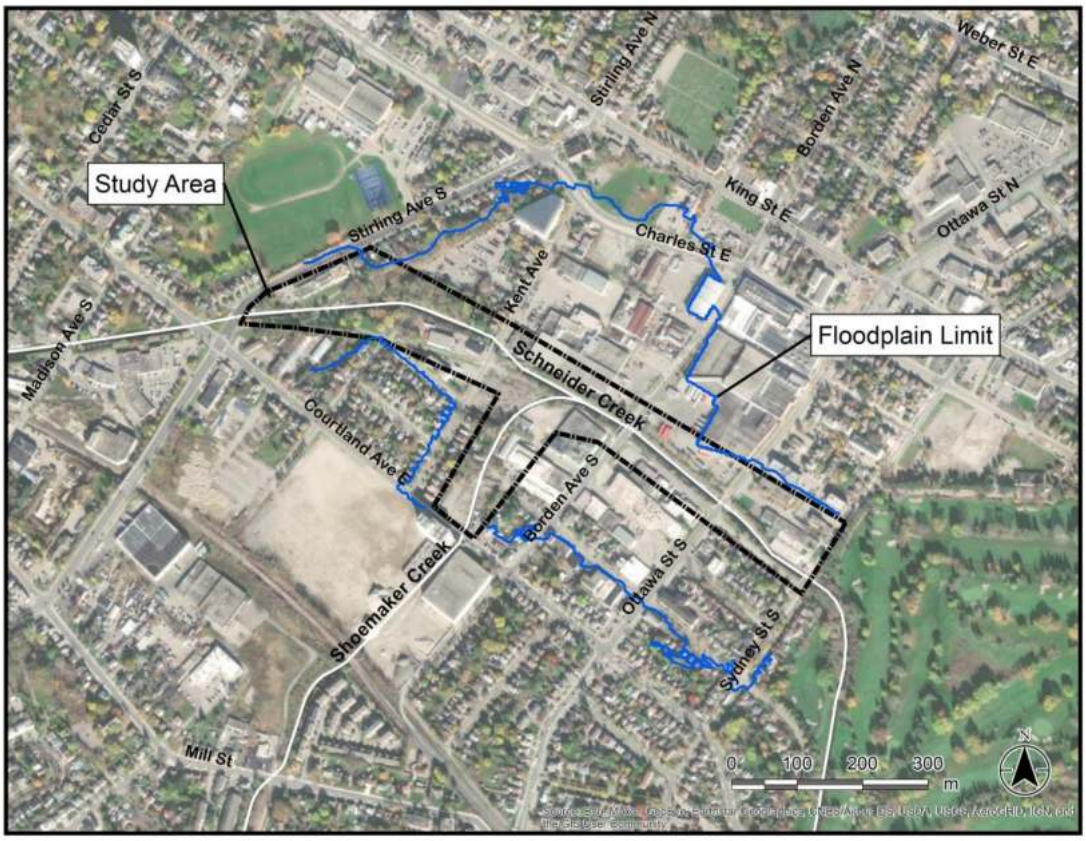


Figure 1: Study Area

2 Public information Centre #1

2.1 Purpose

The purpose of this first Public Information Centre (PIC) was to introduce the project to the public, identify opportunities for naturalizing the creeks, share information related to the study background and the existing study area conditions, and share upcoming steps. The PIC is a requirement of the regulatory process for the Municipal Engineer's Association Class EA (MCEA). The MCEA process was also shared and discussed at the PIC.

2.2 Notice of Commencement

The Notice of Commencement and Public Information Centre #1 (Notice) for the EA was issued on March 31st, 2023. The intent of the Notice was to announce the project, to inform readers about the purpose and format of the PIC, and to outline how to attend the PIC in person. Project team member contact information was provided in the Notice along with the project website address (www.engagewr.ca/SchneiderCreekEA). The website also served as a method to notify the public of the PIC.

Interested persons were encouraged to attend the PIC, view the project website, and/or to contact the project team directly should they have any comments, questions, concerns, or wished to be added to the study mailing list.

The Notice was distributed to the public, agencies, municipal staff, elected officials, and Indigenous communities through the three methods outlined in **Table 1** below.

Table 1: Notice #1 Distribution

Method of Distribution	Date of Distribution
Notice mailed via Canada Post to the study contact list	March 27th, 2023
Notice emailed to the study contact list	March 31st, 2023
Advertisement in the local newspaper (Kitchener Record)	April 3rd, 2023, and April 10th, 2023

A copy of the Notice is included in **Appendix A**.

2.3 Format

The PIC was an in-person event held at the Rockway Golf Course in Kitchener, Ontario on April 13, 2023, from 6:00pm to 8:00pm. There was an opportunity for attendees to view display boards (**Appendix B**) throughout the meeting room. There were a total of ten (10) display boards throughout the room describing the project background, purpose of the PIC, concerns, opportunities, the MCEA process, ongoing work, and next steps. The project team, which included members of the City of Kitchener and Stantec Consulting, were on hand to discuss the information with the attendees and to answer questions. An information sheet (**Appendix C**) for the project was offered to each attendee, comment sheets were available for attendees to write down their comments to be submitted, and a handout of the display boards was also available in Spanish, Portuguese, and Arabic.

Midway through the PIC there was a presentation by the project managers from the City of Kitchener and Stantec Consulting, introducing the project and providing an explanation of the information on the display boards. Becca Robinson, a representative from REEP Green Solutions, spoke about basic drainage principles to mitigate flooding and their Rain Smart Neighbourhoods program. The presentation was followed with a short video developed by the City of Kitchener describing the Disaster Mitigation and Adaptation Fund projects. The PIC concluded with a Question-and-Answers period. It was announced that the display boards and presentation boards would be made available on the project website.

2.4 Attendance

Attendees were encouraged to sign in before proceeding to view the display boards with an option to be added to the email distribution list. A total of 73 attendees signed in with 42 attendees requesting to be added to the email distribution list.

3 Comments Received

There were 19 questions verbally asked during the Question-and-Answer portion of the presentation and two (2) written comments were submitted at the PIC. The comments received from the Question-and-Answer period, comment sheets, general conversation throughout the PIC, and any communications received prior to the PIC are summarized below:

- Questions and concerns around designs of the creeks (e.g., will all the concrete will be removed, what will the concrete be replaced with, presence of invasive species, excluding certain invasive species during naturalization, planting only native species and retaining as many existing trees as possible)
  - Response: there will be alternative design concepts presented at the next PIC, a team of environmental engineers and biologists will be involved with the designs and will consider appropriate naturalization species
- Project timing (e.g., why naturalize the creeks now)
  - Response: concerns for safety is top priority and the main reason for naturalizing the creeks
- Questions around the alternatives assessment (e.g., who will choose the alternative design, what input from the residents will be considered, why did residents outside the floodplain limit receive a Notice)
  - Response: input from residents throughout the EA process will be considered and a team of engineers and biologists will decide on alternatives based on feasibility and those will be evaluated to determine the preferred option. The evaluation methodology and results will be presented at the next PIC and the team will be looking for comments and input before the final selection of a preferred option.
  - Response: input was requested not only from adjacent property owners but also people that might be using the trails to commute to work or for recreational activities
- Concerns around waste (e.g., existing waste/garbage in the area, how will the City protect the new naturalization from further littering)
  - Response: there is a known issue with waste in the area and the City will look at options to manage that in the future
- Concerns around costs
  - Response: the City is receiving federal funding support, with 40% of funding coming from the federal government
- Next steps (e.g., how residents will be notified of the alternative design concepts, what further environmental investigations will happen, timeline of the project)
  - Response: the next step is to develop the alternative design concepts, which will be available on the project website and be presented at the next PIC
  - Response: environmental investigations will continue into the spring and summer of 2023

- Suggestions to expand the project area and scope (e.g., to consider additional recreational areas, cycling trails, to consider the upstream and downstream areas, remove the culvert under an adjacent private property)
  - Response: the City will consider the suggestions made
  - Response: upstream and downstream areas, and culvert removal, are outside the scope of the project
- Questions about land impacts (e.g., if, when and where that would occur)
  - Response: it is too early in the project to know about land impacts – this will be discussed further at the next PIC
- Questions around the extent of temporary impacts as a result of construction
  - Response: the EA process will identify impacts and will confirm avoidance and mitigation measures; the public will have an opportunity to review and comment

4 Next Steps

All comments received since the commencement of the EA have been reviewed and considered by the project team and will be considered as the EA progresses. As a next step, the project team will develop alternative designs for naturalizing the creeks, taking into consideration comments received thus far. The alternatives will be presented at the next PIC (#2) which is planned for summer 2023; the presentation boards from PIC#2 will also be available for viewing on the project website. Field work will be occurring throughout the spring and summer of 2023.

Appendices

Appendix A Notice of Online PIC 1

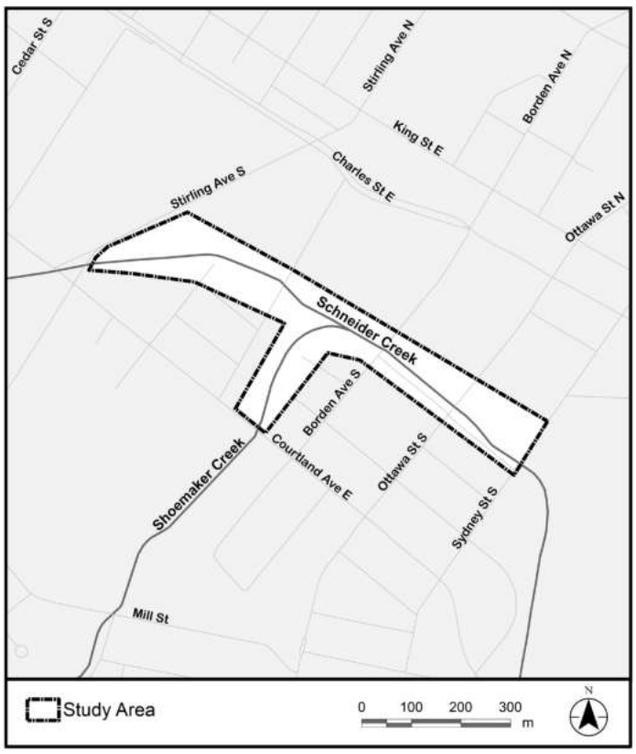
NOTICE OF COMMENCEMENT AND PUBLIC INFORMATION CENTRE

Schneider and Shoemaker Creeks Naturalization Environmental Assessment

Schneider and Shoemaker Creeks are currently lined with concrete where they meet, and the floodplain at this location has expanded past the creek boundaries. This affects adjacent properties and presents a potential risk to public safety.

The City of Kitchener is planning to commence a Class Environmental Assessment (EA), to fully review the environmental risks of this area, and present design options to mitigate those risks. Expanding and naturalizing the creek boundaries to accommodate the flows would provide greater protection, and environmental benefits such as flood mitigation and natural habitat. In addition, this project will look at options for the replacement of the concrete channel with a wider natural channel, which would improve the floodplain by reducing its limits, thereby minimizing potential damage as a result of flooding from larger storm events.

Stantec Consulting Ltd. will be acting as the City of Kitchener's engineering consultant for the project.



Planning Process

Reducing the environmental effects of our projects and operations is important to us. The planning of this project will follow a Schedule "C" Municipal Class EA, established in accordance with the Ontario *Environmental Assessment Act* and is a result of previous studies in the area.

This project is funded in part by the Government of Canada through the Disaster Mitigation and Adaptation Fund.

We'd like to hear from you

Your input is important to us. We invite you to join our upcoming Public Information Centre to learn more about the project, ask our team questions, and provide feedback. Listening to, and learning from, Indigenous Nations and organizations, residents, businesses, government agencies, and interest groups is part of the process.

Please join us:

Public Information Centre
April 13, 2023, 6:00pm – 8:00pm.
Rockway Golf Course
625 Rockway Dr, Kitchener, ON N2G 3B5
Project website: www.engagewr.ca/SchneiderCreekEA

Contact us if you would like to learn more about the project, be added to the project mailing list, provide comments, or have any accessibility requests:

Chris Nechacov, C.E.T.
Design & Construction Project Manager
City of Kitchener
Tel: 519-741-2200
Email: schneidercreekea@kitchener.ca

Steve Brown, MBA, P.Eng.
Project Manager
Stantec Consulting Ltd.
Tel: 519-585-7446
Email: schneidercreekea@stantec.com

All personal information included in your request – such as name, address, telephone number and property location – is collected, under the authority of section 30 of the *Environmental Assessment Act* and is collected and maintained for the purpose of creating a record that is available to the general public. As this information is collected for the purpose of a public record, the protection of personal information provided in the *Freedom of Information and Protection of Privacy Act* (FIPPA) does not apply (s.37). Personal information you submit will become part of the available public record unless you request that your personal information remain confidential.

This Notice was issued on March 31, 2023.

Appendix B Display Boards

WELCOME

PUBLIC INFORMATION CENTRE #1

Schneider and Shoemaker Creek Naturalization Environmental Assessment

April 13, 2023

Rockway Golf Course

625 Rockway Drive Kitchener, Ontario

6pm – 8pm

Please pick up an information sheet
See staff for slide package in Portuguese, Spanish and Arabic
Project website: www.engagewr.ca/SchneiderCreekEA

KITCHENER

Stantec

Study Background



(Stantec 2021)

- Schneider Creek Floodplain Mapping & Two-Zone Policies update (MMM Group, January 2016)
  - Modeled possible scenarios to evaluate reduction in flood risk
  - Study demonstrated flood risk can be reduced through modification of the channel corridor
- Planning around Rapid Transit Stations (PARTS) Program Rockway Plan (City of Kitchener 2017)
  - Schneider and Shoemaker Creeks identified as natural heritage assets
  - Opportunity to create signature greenspace
    - Reduces flooding impacts to nearby properties
    - Contributes to the restoration of the ecosystem
    - Provide better greenspace connection

KITCHENER

Stantec

Purpose of this PIC

- Introducing the project to the public
- Identifying opportunities for naturalizing the Schneider and Shoemaker Creeks
- Listening to your questions and receiving feedback

KITCHENER

Stantec

(Stantec 2021)

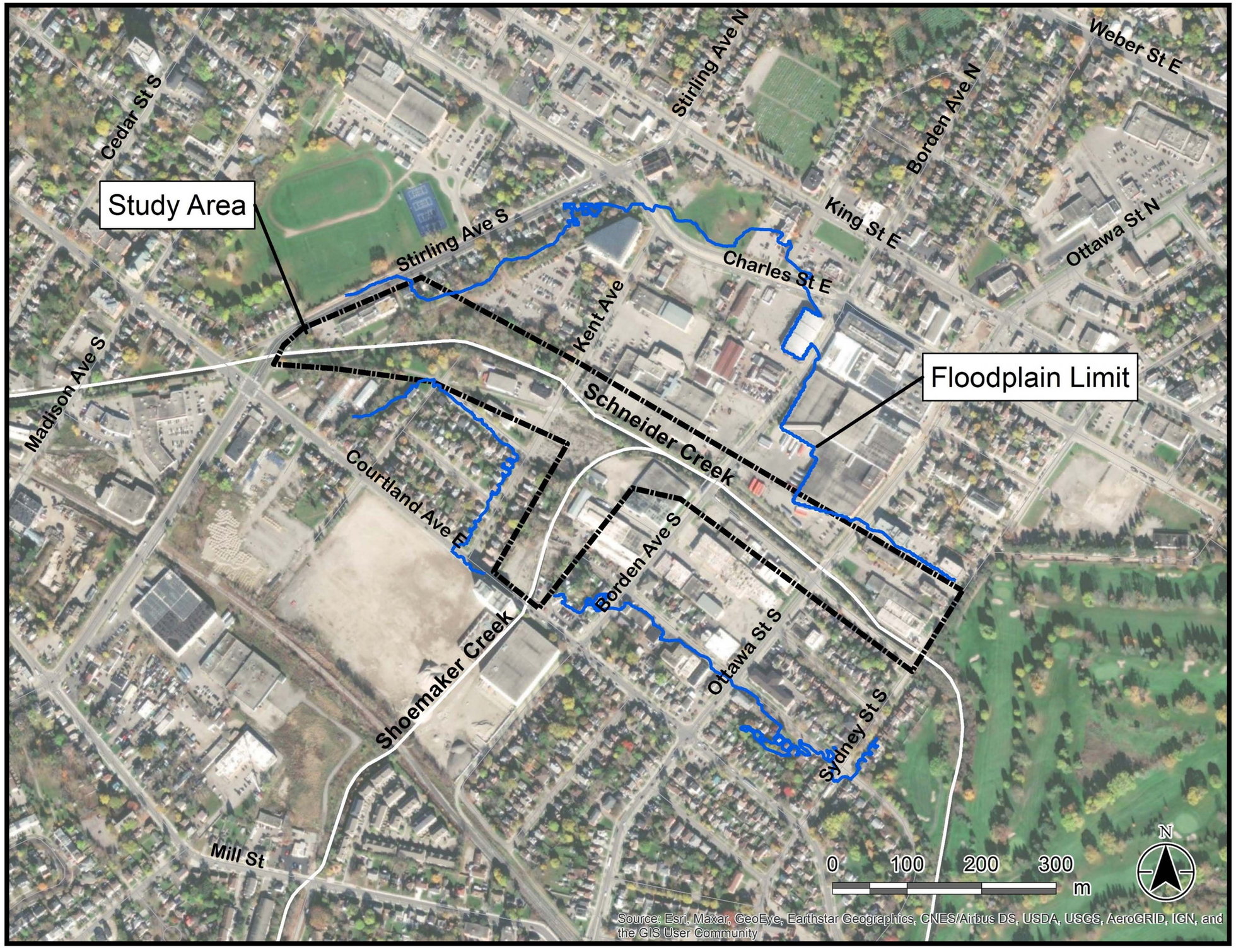
Concern

- Schneider and Shoemaker Creeks floodplains currently create a potential public safety concern
- The existing concrete channels have poor water quality and natural habitats
- The neighbourhood lacks limited greenspace connectivity and trails needed to be considered a “complete community”

KITCHENER

Stantec

(Stantec 2021)


Study Area
Floodplain Limit
Cedar St S
Stirling Ave N
Weber St E
Borden Ave N
King St E
Ottawa St N
Stirling Ave S
Charles St E
Kent Ave
Madison Ave S
Schneider Creek
Courtland Ave E
Borden Ave S
Ottawa St S
Sydney St S
Shoemaker Creek
Mill St
0
100
200
300
m
N
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Opportunity

- The purpose of this environmental assessment is to develop a long-term management strategy and preliminary design solution that focuses on the expansion and naturalization of the creek corridors in the study area with the goals of:
- Reducing flood risk and improving public safety
- Improving water quality
- Establishing potential wildlife and aquatic habitat
- Improving the aesthetics and increase urban greenspace connectivity

KITCHENER

Stantec

(Stantec 2021)

Municipal Class Environmental Assessment Process

★ **We are here** **Phase 1:** Problem or Opportunity	**Phase 2:** Alternative Solutions	**Phase 3:** Alternative Design Concepts for Preferred Solution	**Phase 4:** Environmental Study Report	**Phase 5:** Implementation

Consultation Throughout

Notice of Study Commencement First Public Information Centre – April 2023	Second Public Information Centre – Summer 2023	Third Public Information Centre – Fall 2023	30-Day Public Review – Winter 2024	Notice of Construction – (2025-2026)

Ongoing Work (Spring/ Summer 2023)

- Flooding and erosion studies
- Natural environment studies including fish, wildlife, vegetation, habitat
- Arborist report/tree inventory
- Soil (geotechnical, hydrogeologic) investigations
- Cultural heritage review
- Archaeology study

KITCHENER

Stantec

(Stantec 2021)

Next Steps

- Field work (Spring / Summer 2023)
- Phase 2: Alternatives Solutions & Public Information Centre # 2 (Summer 2023)
- Phase 3: Alternative Designs & Public Information Centre # 3 (Fall 2023)
- Phase 4: Environmental Study Report (Winter 2024)
- Detail design and permitting (2024-2025)
- Construction (2025-2026)

KITCHENER

Stantec

(under.thesun 2020)

Thank you!

Chris Nechacov, C.E.T.
Project Manager
City of Kitchener
519-741-2200
SchneiderCreekEA@kitchener.ca

Steve Brown, MBA, P.Eng.
Project Manager
Stantec Consulting Ltd.
519-585-7446|
SchneiderCreekEA@stantec.com

KITCHENER

Stantec

Appendix C Information Sheet

Schneider and Shoemaker Creek Naturalization Environmental Assessment Public Information Centre

Welcome and thank you for attending the first public information centre (PIC) for Schneider and Shoemaker Creek Naturalization Environmental Assessment. The purpose of the PIC is to introduce the project to the public, to be able to identify the opportunities for naturalizing the creeks and listen to the public questions and feedback.

For further information and to review the materials from tonight's PIC please visit the project website provided below:

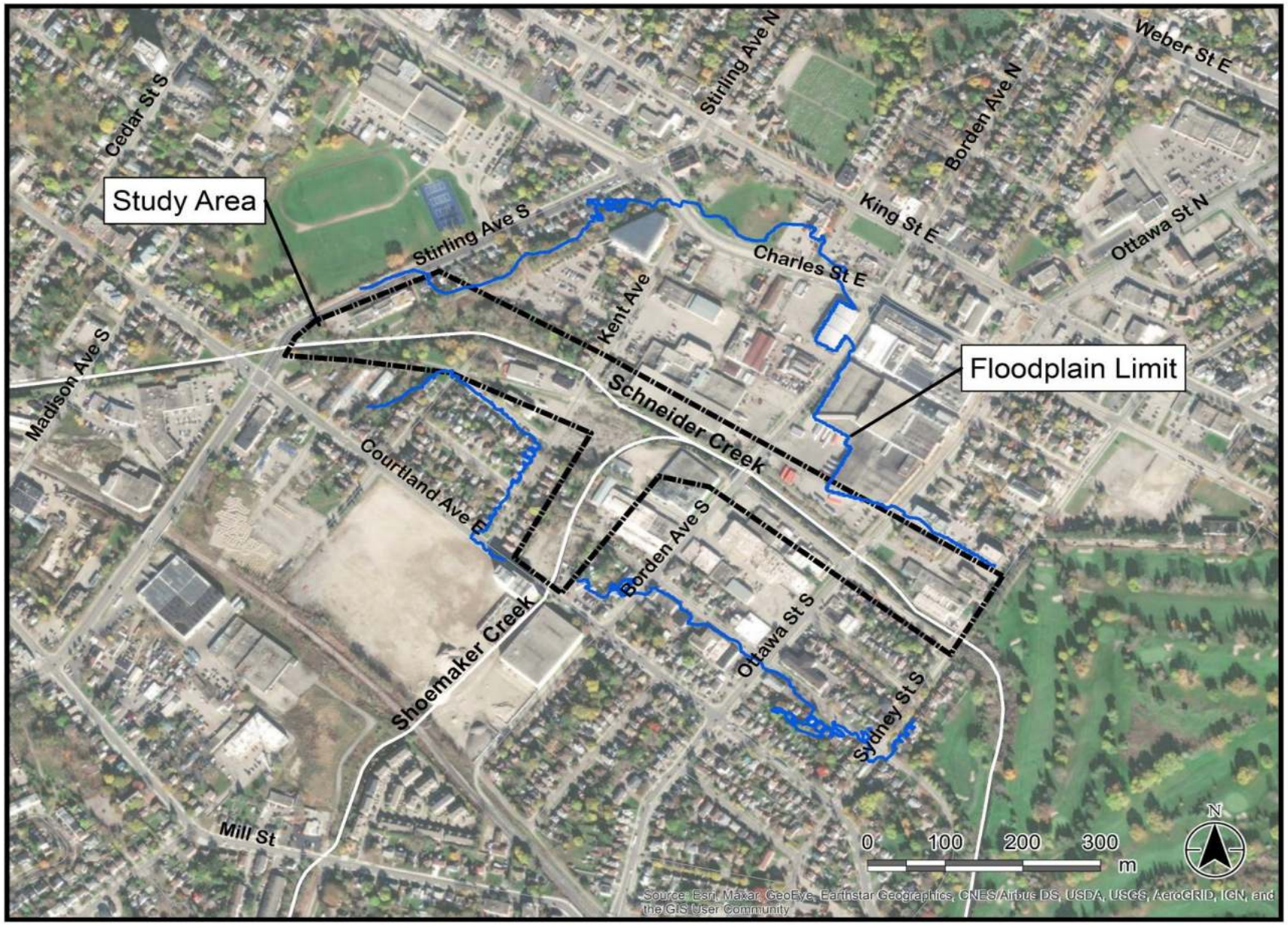
www.engagewr.ca/SchneiderCreekEA

For additional comments or question please reach out to the project team:

Chris Nechacov, C.E.T.
Design & Construction Project Manager
City of Kitchener
Tel: 519-741-2200
Email: schneidercreekea@kitchener.ca

Steve Brown, MBA, P.Eng.
Project Manger
Stantec Consulting Ltd.
Tel: 519-585-7446
Email: schneidercreekea@stantec.com

Please see reverse side for study area map


Study Area
Floodplain Limit
Cedar St S
Stirling Ave N
Weber St E
Borden Ave N
King St E
Ottawa St N
Stirling Ave S
Charles St E
Kent Ave
Madison Ave S
Schneider Creek
Courtland Ave E
Borden Ave S
Ottawa St S
Shoemaker Creek
Sydney St S
Mill St
0
100
200
300
m
N
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Public Information Centre 2 Summary Report

Schneider and Shoemaker Creek Naturalization Environmental Assessment

September 20, 2023

Prepared for:
City of Kitchener

Prepared by:
Stantec Consulting Ltd.
100-300 Hagey Boulevard
Waterloo, ON
N2L 0A4

Project Number:
161414319

Limitations and Sign-off

The conclusions in the Report titled Public Information Centre 2 Summary Report are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from City of Kitchener (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided to applicable authorities having jurisdiction and others for whom the Client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.

Prepared by: Digitally signed by Katie Murray Date: 2023.09.20 13:08:16 -04'00'

Signature

Katie Murray, B.A.
Environmental Consultant

Printed Name and Title

Reviewed by: Digitally signed by Raheem, Ferenaz Date: 2023.09.20 13:16:32 -04'00'

Signature

Ferenaz Raheem, MES RPP MCIP
Senior Environmental Planner

Printed Name and Title

Reviewed by: Digitally signed by Hill, Laura Date: 2023.09.20 16:43:15 -04'00'

Signature

Laura Hill, M.Env.Sc.
Environmental Scientist

Printed Name and Title

Approved by: 2023.09.20 13:28:52 -04'00'

Signature

Mark Knight, MA, MCIP, RPP
Principal, Environmental Planner
Practice Lead Environmental Services

Printed Name and Title

Table of Contents

List of Tables

List of Figures

List of Appendices

1 Introduction

The City of Kitchener is undertaking a Class Environmental Assessment (EA) to review the environmental risks of Schneider and Shoemaker Creeks and present design options to mitigate those risks. Schneider and Shoemaker Creeks are currently lined with concrete at their confluence, and the floodplain at this location has expanded past the concrete boundaries; this affects adjacent properties and presents a potential risk to public safety. Naturalizing the creek systems to accommodate flows can reduce risk to public safety and provide environmental benefits such as flood mitigation and natural habitat. In addition to the replacement of the concrete channel with a wider, naturalized channel, this project will endeavor to improve public safety by managing flood risks and reducing potential damage as a result of flooding from larger storm events.

The study area for the Schneider and Shoemaker Creeks (the Creeks) Naturalization EA is shown below in Figure 1

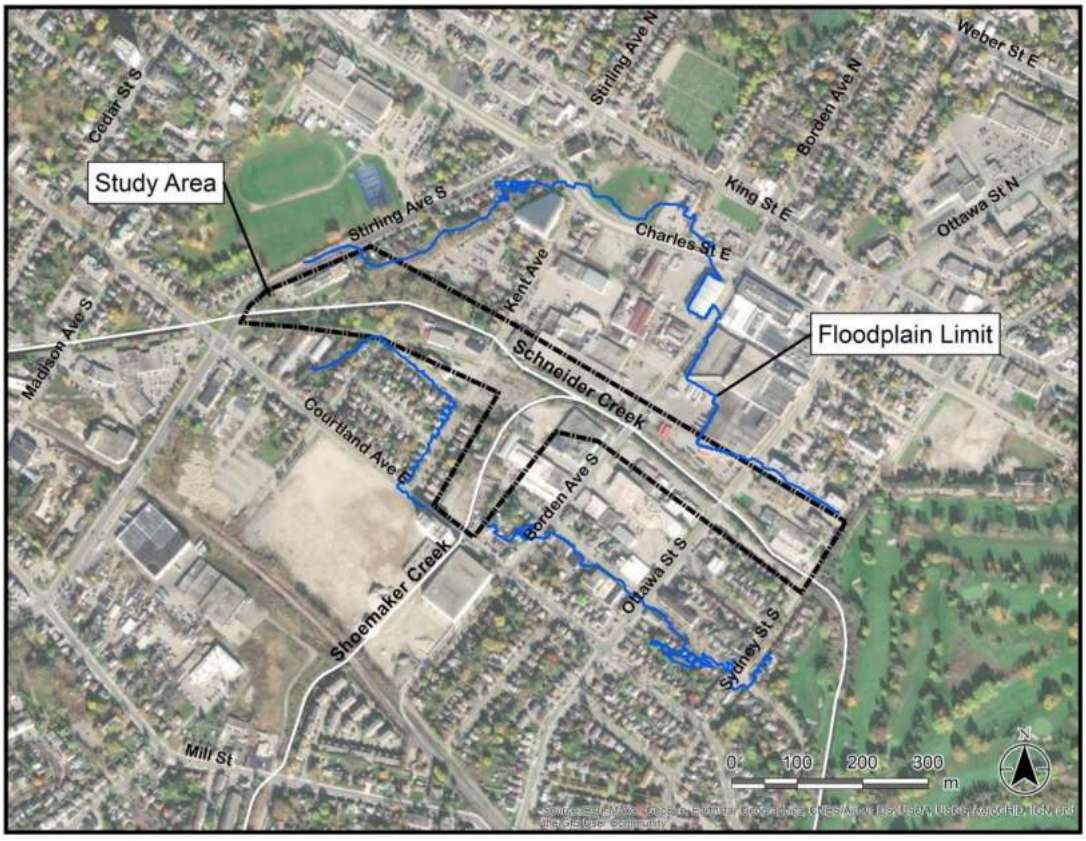


Figure 1: Study Area

2 Public information Centre #2

2.1 Purpose

The purpose of this second Public Information Centre (PIC) was to identify alternatives for naturalizing the Creeks, present the evaluation of alternatives, and gather input to confirm the preliminary preferred alternative. The PIC is a requirement of the regulatory process for the Municipal Engineer's Association Class EA (MCEA). The MCEA process was also shared and discussed at the PIC.

2.2 City of Kitchener Engage Page

The City of Kitchener Engage Page (www.engagewr.ca/SchneiderCreekEA) is a central location where all PIC materials are available for the public to view and provide feedback in the event they were not able to attend the meeting or wanted to revisit the information presented. The Notice of PIC #2 (Notice) was posted on the website on June 16, 2023, along with the registration form and further details about the PIC. A copy of the Notice is included in **Appendix A**. The materials that were presented at the PIC were included on the Engage Page on June 28, 2023, including the display boards (**Appendix B**) and comments on the Idea Boards that were available in-person at the PIC. The Engage Page also includes the Project's team contact information and the current status of the timeline of the project. Details and summary of comments can be found in Section 3 of this report.

2.3 Notice of Public Information Centre #2

The Notice for the EA was issued on June 16, 2023. The intent of the Notice was to inform readers about the purpose and format of the PIC, and to outline how to attend the PIC in person. Project team member contact information was provided in the Notice along with the project website address (provided above).

Interested persons were encouraged to attend the PIC in-person, view the project website, and/or to contact the Project Team directly should they have any comments, questions, concerns, or wish to be added to the study mailing list.

The Notice was distributed to the residents within a 1 km radius of the project site, agencies, municipal staff, elected officials, and Indigenous communities through the three methods outlined in **Table 1** below.

Table 1: Notice #2 Distribution

Method of Distribution	Date of Distribution
Notice mailed via Canada Post to the study contact list	June 19, 2023
Notice emailed to the study contact list	June 19, 2023
Advertisement in the local newspaper (Kitchener Record)	June 16, 2023, and June 23, 2023
Posted on City of Kitchener Engage Page	June 16, 2023

2.4 Format

The PIC was an in-person event held at the Rockway Mennonite Collegiate in Kitchener, Ontario on June 28th, 2023, from 5:00pm to 8:00pm including two (2) formal presentations at the beginning and midway through the PIC. There was an opportunity for attendees to view display boards (**Appendix B**) throughout the meeting room. There was a total of 18 display boards throughout the room describing the project background, purpose of the PIC, the MCEA process, the evaluation criteria, the four alternatives, the preliminary preference, and next steps. Also included within the display boards were two idea boards (one for Evaluation Criteria and one for Preferred Alternative) and a 6-foot-long map of the Iron Horse Trail (IHT) where attendees could comment on the evaluation criteria, choose their preferred alternative, and provide insight into their use of the IHT. The Project Team, which included members of the City of Kitchener and Stantec Consulting Ltd. (Stantec), were on hand to discuss the information with the attendees and to answer questions. An information sheet (**Appendix C**) for the project was offered to each attendee, comment sheets were available for attendees to write down their comments to be submitted, and a handout of the display boards was available in Spanish, Portuguese, and Arabic. There was no request for any of the translation handouts.

At the beginning and midway through the PIC there was a formal presentation by the Project Managers from the City of Kitchener and Stantec, sharing information about stormwater management, project overview, evaluation criteria, alternative solutions, the room layout and introducing each of the staff. REEP Green Solutions had a display table, and a representative was present to discuss basic drainage principles to mitigate flooding and their Rain Smart Neighbourhoods program. It was announced that the display boards and presentation boards would be made available on the project website.

2.5 Attendance

Attendees were encouraged to sign in before proceeding to view the display boards with an option to be added to the email distribution list. A total of 41 attendees signed in with 33 attendees requesting to be added to the email distribution list. Councillor Debbie Chapman from Ward 9 and Councillor Jason Deneault from Ward 3 were in attendance as well.

3 Summary of Comments Received

The comments received from attendees, feedback from the “Idea Boards”, comments on the IHT map and any communications via project email and the Engage Page received prior to the PIC are summarized below. The City of Kitchener and Stantec representatives heard:

- Inquiries around which properties will be impacted, including how property impacts will be addressed and what the process will be
  - Final alignment has not been decided and will inform the next steps regarding property impacts
- Inquiries regarding if current road crossings and infrastructure will be retained
  - Current road crossings will not be changed
- Request to leave the area as is, stating there is no flooding in the areas around the creek where the resident lives and visits
  - Modifications will include mitigation to existing flood risk
- Inquired if the existing vegetation could remain and be maintained
  - Existing vegetation will be considered at detailed design
- Requests to have public access to the creek
  - This will be incorporated into detailed design
- Concerns regarding the stability of the natural channel to be implemented and inquiries regarding the materials that would be used and how it would contribute to the channels stability
  - Engineering design will incorporate structures to maintain the stability of the natural channel. This will be incorporated into detailed design
- Inquiries around timeline of the Project (when will it start, construction phases and completion)
  - Field work continuing throughout summer 2023, Phase 3: Alternative Design and PIC #3 (Fall 2023), Phase 4: Environmental Study Report (Winter 2024), Detailed design and permitting (2024-2025), construction (2025-2026)
- Overall impacts to the IHT or Light Rail Transit
  - IHT and Light Rail Transit routes will be maintained
- On the Evaluation Criteria idea board:
  - Social Environment and Cultural Environment criteria were identified as very important including climate change concerns,
  - Suggestion of a hybrid approach if it eliminates expropriation
  - To improve the area between Kent and Palmer by removing gravel and adding shade in order to host events in the area

  - Concerns around the use of salt in the area
  - There were no digital comments added from the Engage Page
- On the Preferred Alternative idea board:
  - Removing narrow bike lanes on the trail and adding water bottle refill station along the IHT
  - Suggestions on having access to water as it is beneficial for overall wellbeing and help generations to come
  - Adding in spaces for fire pits
- A strong representation of support for Alternative 4 (Natural Channel and Valley) with 21 people voting for this alternative and a small amount of support for Alternative 2 (Concrete Channel with Naturalized Valley Bottom) with three (3) votes.
  - Suggestion for naturalizing the concrete wasteland to the right of the IHT south of Kent St.
  - Suggestion to replace concrete along Nyberg St with amour stone
  - Concerns about flooding for houses along Nyberg St.
- No feedback or representation of support for Alternative 1 (Do Nothing – Repair) and Alternative 3 (Natural Channel with Retaining Structure at one or Both Valley Walls)
- For the IHT the feedback was:
  - To add water bottle refill station
  - Add a signaled crossing at Ottawa Street (currently too dangerous)
  - Remove narrow bike lane from Nyberg Street
  - To provide more shade along the IHT
  - Smooth out the street intersections
  - To add more greenery
  - A strong representation of attendees use the IHT for cycling and commuting
    - All suggestions will be considered at detailed design regarding the IHT feedback

Below is a representation (Figure 2) of what methods the comments were received by.

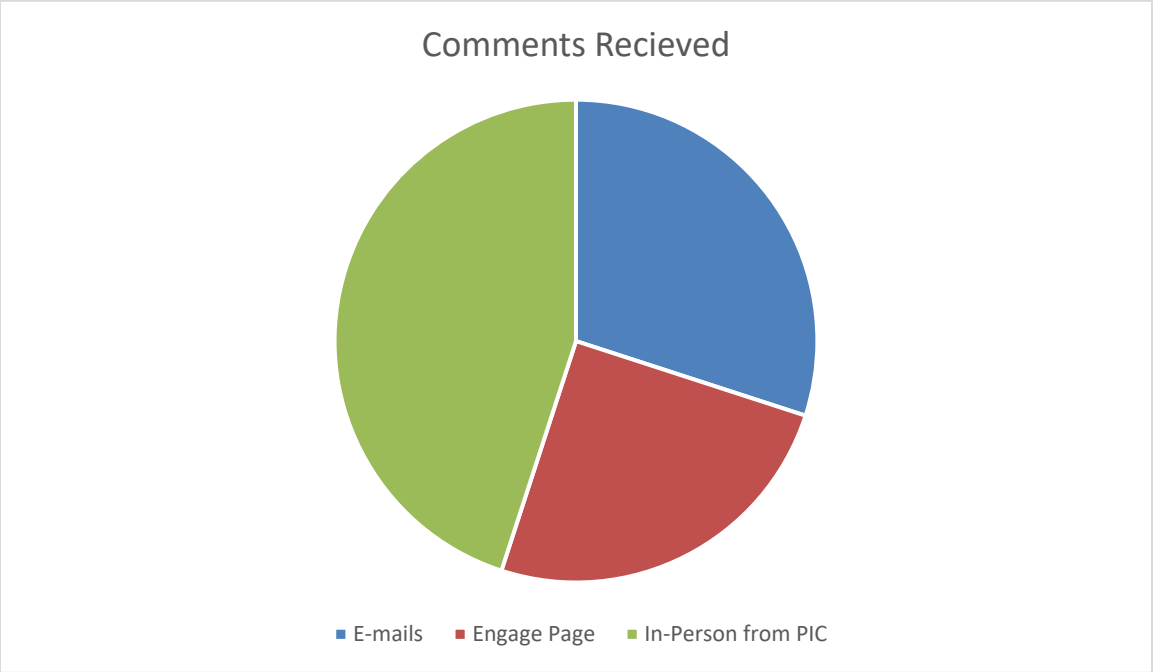


Figure 2: Comment Received

4 Next Steps

All comments received since the commencement of the EA have been reviewed and considered by the Project Team and will be considered as the EA progresses. As a result of the input received, the Project Team can confirm the Preferred Alternative is Alternative 4. The design alternatives options for implementing the Preferred Alternative will be presented at the next PIC (#3), which is planned for fall 2023. The presentation boards from PIC#2 will be available for viewing on the project website. Field work will be occurring throughout the summer and fall of 2023.

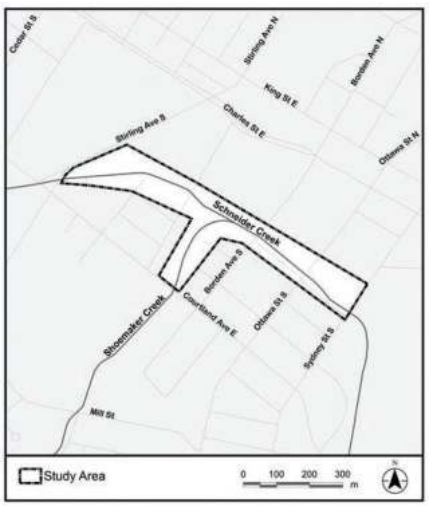
Appendices

Appendix A Notice of PIC 2

NOTICE OF PUBLIC INFORMATION CENTRE #2

Schneider and Shoemaker Creeks Naturalization Environmental Assessment

Schneider and Shoemaker creeks are currently lined with concrete where they meet. The floodplain at this location extends past the creek boundaries. This affects adjacent properties and presents a potential risk to public safety.



The City of Kitchener has initiated a *Municipal Class Environmental Assessment*, Schedule "C", to fully review the environmental risks of this area, and present alternative solutions to mitigate those risks. Expanding and naturalizing the creek boundaries to accommodate the flows would provide greater protection for residents and properties, and environmental benefits such as flood mitigation and natural habitat. This project will look at options for replacing the concrete channel with a wider natural channel, which would reduce the potential damage due to flooding from larger storm events.

Public Information Centre #2

As part of this study, consultation is being undertaken, and your participation is encouraged. A second Public Information Centre (PIC) is planned to share the study background; explain the Environmental Assessment process; outline existing conditions; evaluation criteria; evaluation of alternatives; and recommended solution.

Public Information Centre #2
June 28, 2023, 5 – 8 p.m.
Rockway Mennonite Collegiate
110 Doon Rd. Kitchener
Project website: www.engagewr.ca/SchneiderCreekEA

We'd like to hear from you!

Your input is important to us and can shape the project decision. We invite you to join our upcoming PIC to learn more about the alternative solutions, ask our team questions, and provide feedback. Listening to, and learning from, Indigenous Nations, residents and stakeholders is part of the process.

The PIC will offer children's activities and light refreshments. Please visit the project website above to register for the PIC and provide questions about the project. If you are unable to attend the PIC, the presentation boards will be made available on the project website, as well ways that you can provide feedback and shape the evaluation criteria.

Contact us if you would like to learn more about the project, be added to the project mailing list, provide comments, or have any accessibility requests:

Chris Nechacov, C.E.T.
Design & Construction Project Manager
City of Kitchener
Tel: 519-741-2200
Email: schneidercreekea@kitchener.ca

Steve Brown, MBA, P.Eng.
Project Manger
Stantec Consulting Ltd.
Tel: 519-585-7446
Email: schneidercreekea@stantec.com

This notice was issued on **June 16, 2023**.

Appendix B Display Boards

WELCOME

PUBLIC INFORMATION CENTRE #2
Schneider and Shoemaker Creek Naturalization Environmental Assessment

June 28 2023
Rockway Mennonite Collegiate
110 Doon Road, Kitchener, Ontario
5pm – 8pm

Please pick up an information sheet
See staff for slide package in Portuguese, Spanish and Arabic
Project website: www.engagewr.ca/SchneiderCreekEA

KITCHENER

Stantec

Purpose of this PIC, Background, Concerns & Opportunities

Purpose of PIC:

- Identifying alternatives for naturalizing the Creeks, present evaluation of alternatives, gather input on preliminary recommended solution and listening to your questions and receiving feedback to confirm preliminary Preferred Alternative

Background Studies Determined:

- Schneider Creek and Shoemaker Creek floodplains currently create a potential safety concern
- Existing concrete channels have poor water quality & natural habitat
- Neighbourhood lacks greenspace connectivity and trails

Opportunity:

- Develop a long-term management strategy and design a solution to naturalize the creek corridors
  - Reduce flooding
  - Improve natural environment
  - Create recreational spaces to enjoy the natural elements of the creek

Stantec

Municipal Class Environmental Assessment Process

Phase 1:	Phase 2:	Phase 3:	Phase 4:	Phase 5:
Problem or Opportunity	Alternative Solutions **We are here**	Alternative Design Concepts for Preferred Solution	Environmental Study Report	Implementation

Consultation Throughout

Notice of Study Commencement First Public Information Centre – April 2023	Second Public Information Centre – Summer 2023	Third Public Information Centre – Fall 2023	30-Day Public Review – Winter 2024	Notice of Construction – (2025-2026)

Study Area

1. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023. 2. Orthoimagery © First Base Solutions, 2023. Date of Imagery 2022.

City of Kitchener
Disaster Mitigation and Adaptation Project

Project Elements

- Bridgeport Dyke
- Critical Infrastructure Erosion (Stream Restoration)
- Creek Naturalization (Schneider/Shoemaker)
- Natural Areas and Trails (Walter Bean Trail)
- New Facility Network Expansion (Park Retrofits)
- Water Infrastructure Program (Road Reconstruction)

Existing Storm Stream Reach

Existing Storm Pipe Network

Existing Storm Facility

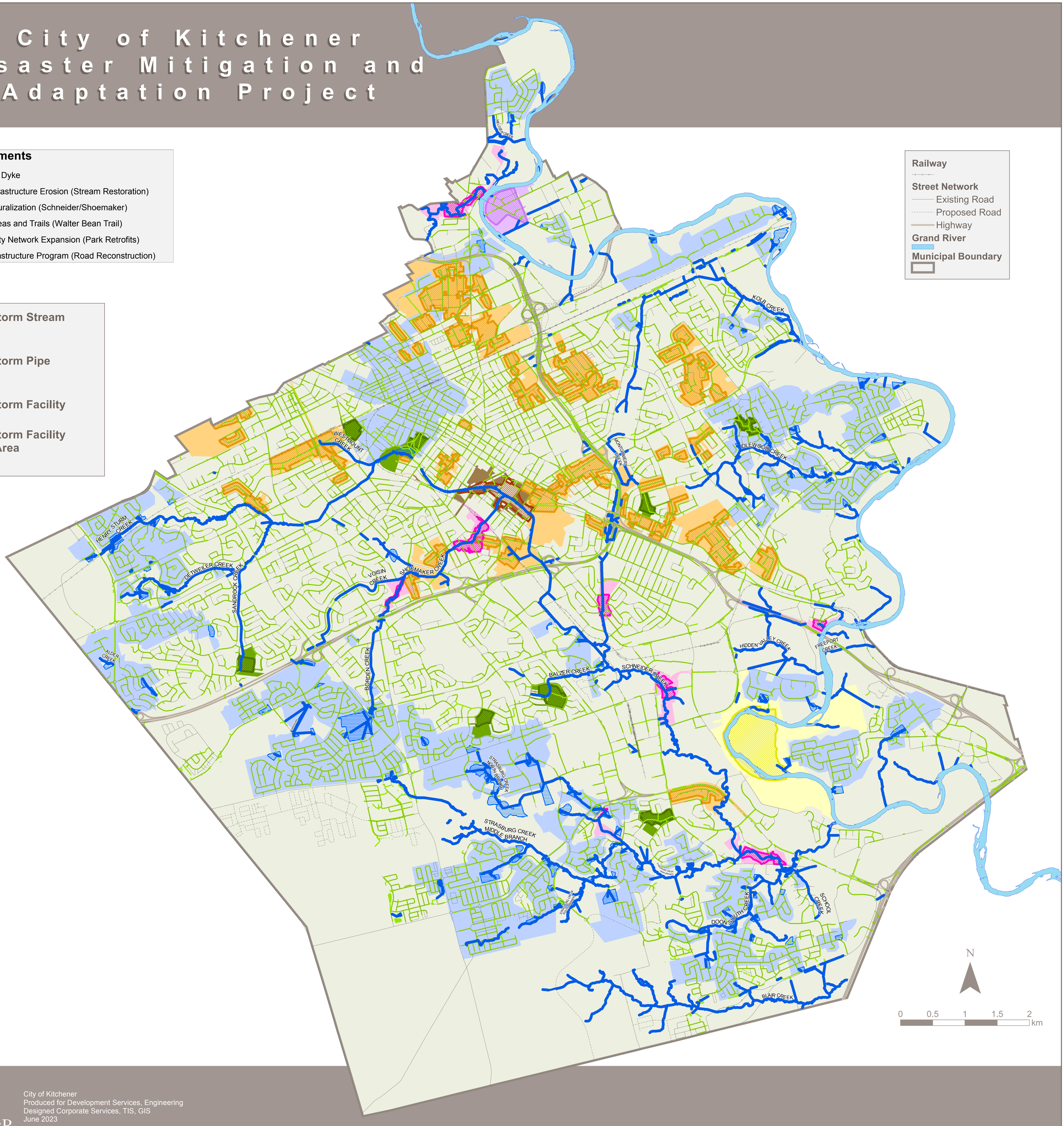
Existing Storm Facility Drainage Area

Railway

Street Network
- Existing Road
- Proposed Road
- Highway

Grand River

Municipal Boundary



City of Kitchener
Produced for Development Services, Engineering
Designed Corporate Services, TIS, GIS
June 2023

Existing Conditions

STIRLING AVENUE SOUTH
Schneider Creek
KENT AVENUE
PALMER AVENUE
COURTLAND AVENUE EAST
Goderich-Exeter Railway
Shoemaker Creek
BORDEN AVENUE SOUTH
BEDFORD ROAD
NYBERG STREET
OTTAWA STREET SOUTH
CHARLES STREET EAST
SYDNEY STREET SOUTH
Rockway Golf Course

Legend

- Study Area
- Potential Bat Habitat
- Floodplain Limit
- Railway
- Iron Horse Trail
- Watercourse
- Stage 2 Archaeological Assessment Required

Tree Quality (by area)

- High Quality
- Medium Quality
- Low Quality

0 100 200 metres

Existing Conditions - Ecosystems

Evaluation Criteria

NATURAL ENVIRONMENT

SOCIO-ECONOMIC & CULTURAL ENVIRONMENT

TECHNICAL ENVIRONMENT

KITCHENER

Stantec

Aquatic Environment

- Fish and fish habitat
- Potential to impact water quality
- Potential to impact groundwater quality and quantity

Terrestrial Environment

- Wildlife/habitat
- Vegetation
- Trees or landscape

Social Environment

- Noise to sensitive areas
- Local air quality
- Existing / Future designated land use
- Municipal Planning Policies
- Greenspace
- Property impacts
- Recreational opportunities
- Safety of pedestrians, cyclists, trail users
- Disruption to traffic, businesses, residents during / post- construction

KITCHENER

Ideas Board: Evaluation Criteria

You can help by telling us:

- What three evaluation criteria are most important to you?
- What social and cultural impacts, both negative and positive, did we miss?

Comments from PIC:

- Green, Orange, Blue
- Social/Cultural Impacts: Transformation of environmental space that will encourage more casual use increasing health and sense of community
- As an environmentalist in Eritrea and now living in Kitchener. I am concerned about climate change. I have seen the impacts already - drought
- Social/Cultural impact: market along Schneider Creek and Iron Horse Trail between Kent and Palmer - its gravel and has no shade, so an area would help make events there more approaching.
- I support the preliminary preference but would appreciate a hybrid approach if it avoids any expropriation.
- Upstream measures are even more important ---> how can the municipality reduce salt use?

Cultural Environment

- Archaeological impacts
- Built heritage
- Cultural landscapes & features

Economic Environment

- Cost of flood damage
- Businesses
- Property impacts

Functionality

- Flood risk
- Flexibility to meet future needs

Constructability / Feasibility

- Construction duration
- Channel functionality during construction
- Agency & Utility permits
- Soil conditions
- Groundwater control

Cost

- Relative Capital
- Operational / maintenance

Climate Change

- Resilience to severe weather, flooding
- Known climate change contributors

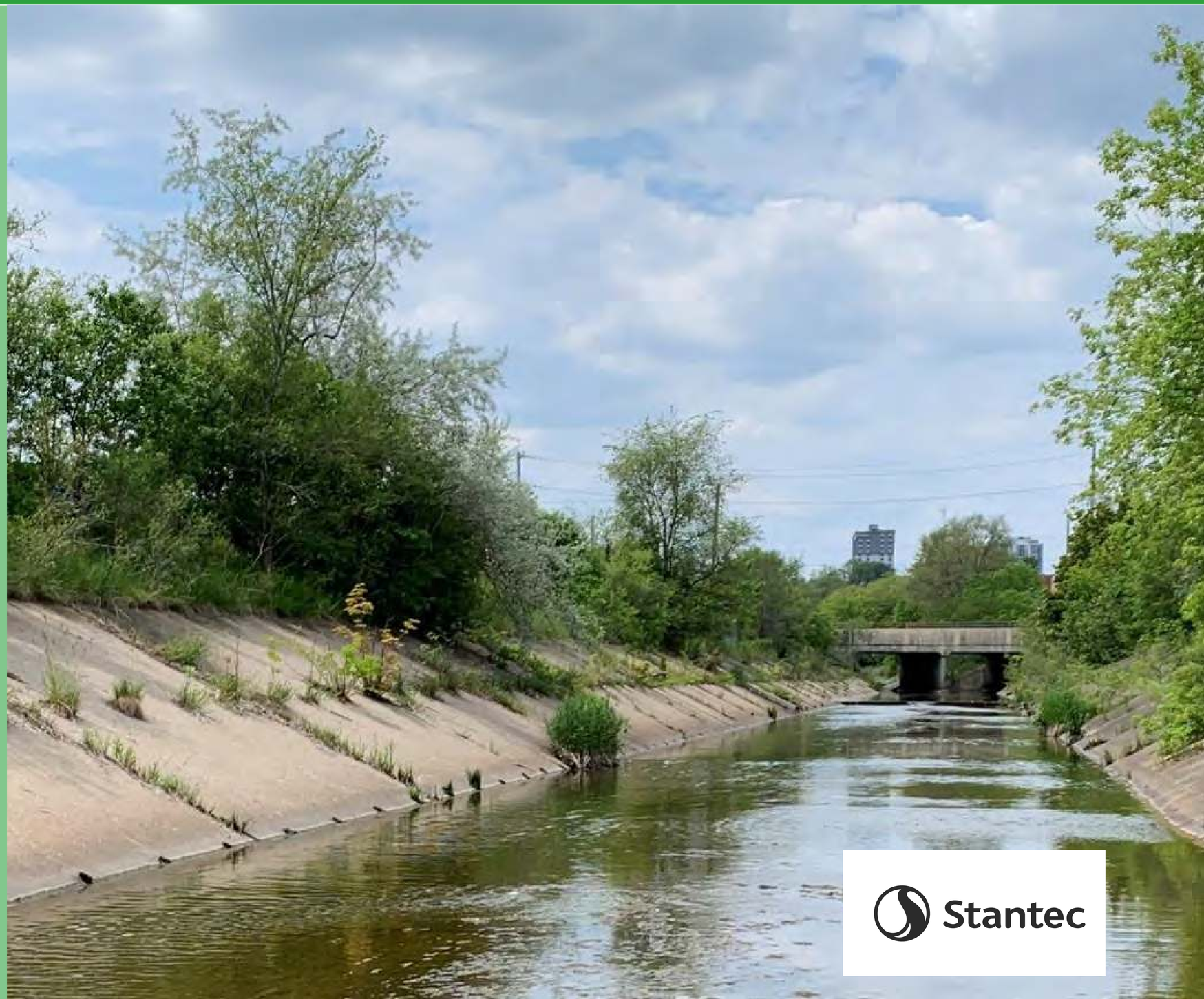
Stantec

Alternative 1: Do Nothing (Repair)

- Maintain existing concrete channel in Schneider Creek and Shoemaker Creek
- Requires repair of segments of channel
- Loss of Federal Disaster Mitigation and Adaptation Funding

Is this your preference?

KITCHENER



Stantec

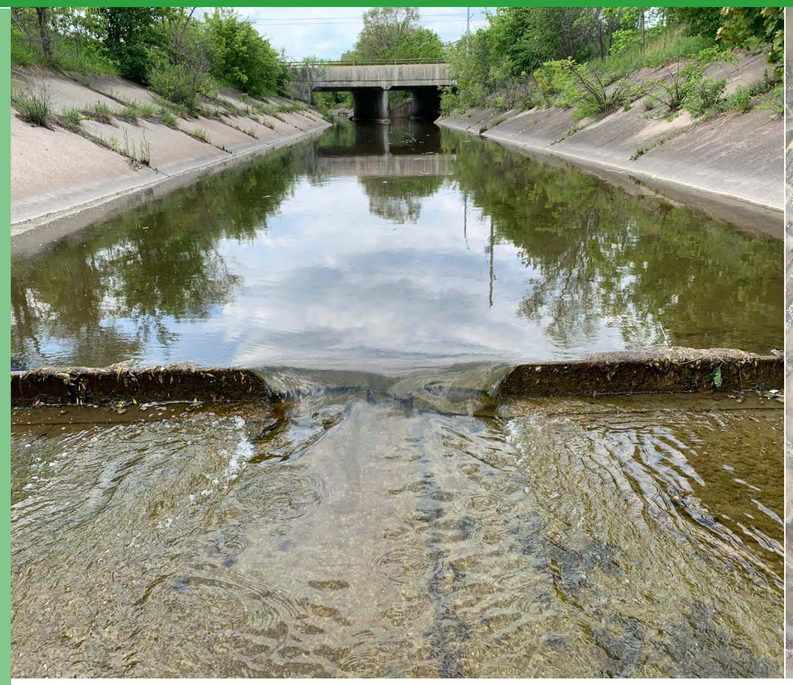
Alternative 2: Concrete Channel with Naturalized Valley Bottom

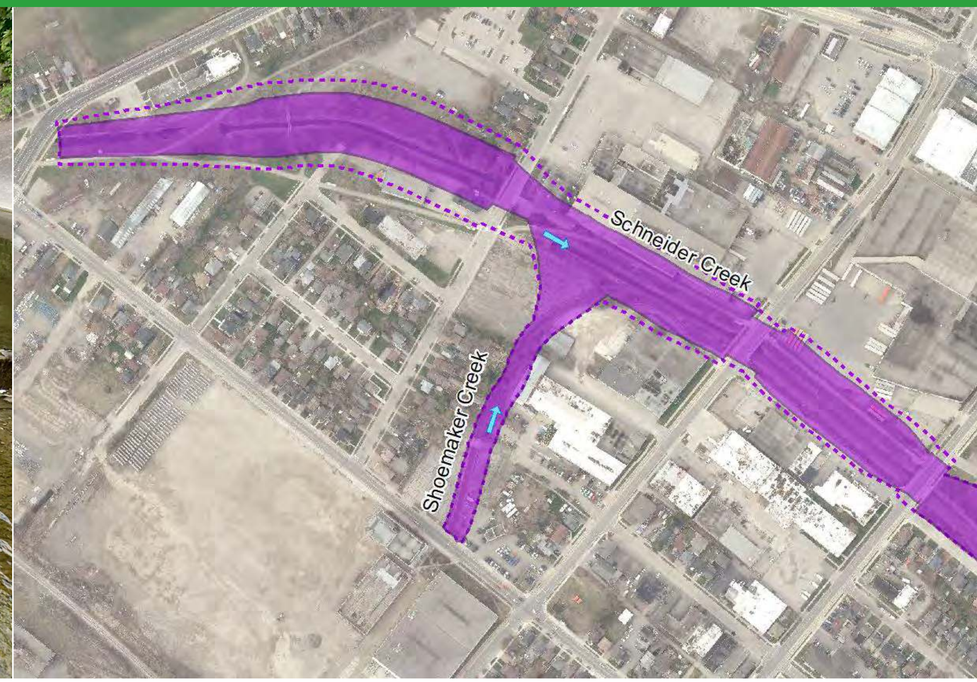
- Remove portion of existing concrete channel
- Convey low flow within modified concrete channel
- Naturalize and widen valley bottom
- Maintain the multi-use Iron Horse Trail

Is this your preference?

X X X

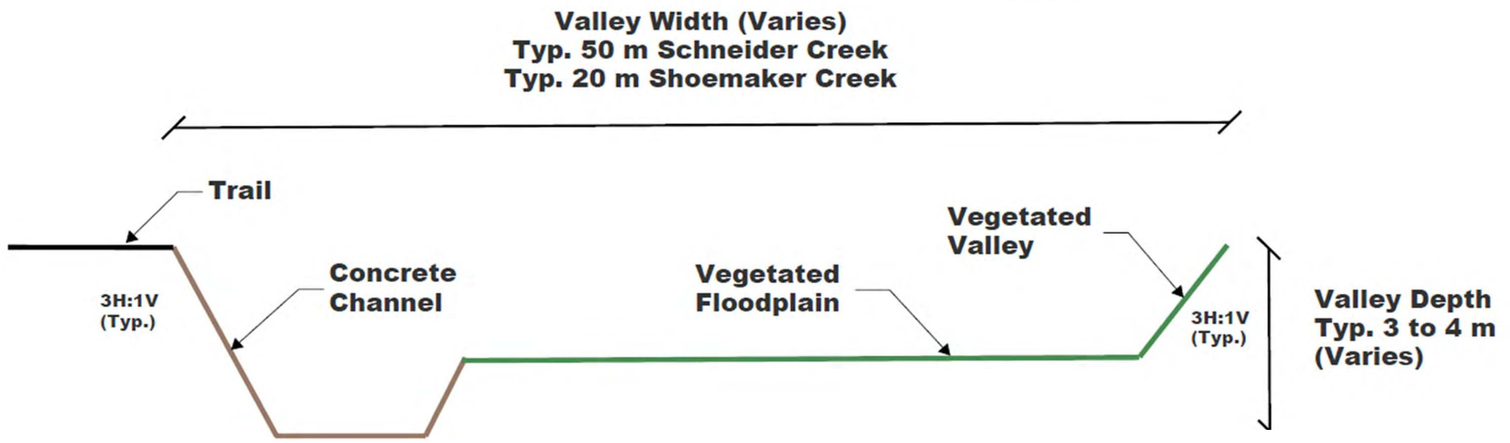
KITCHENER





Channel and Trail Limit

Possible Project Footprint Extents



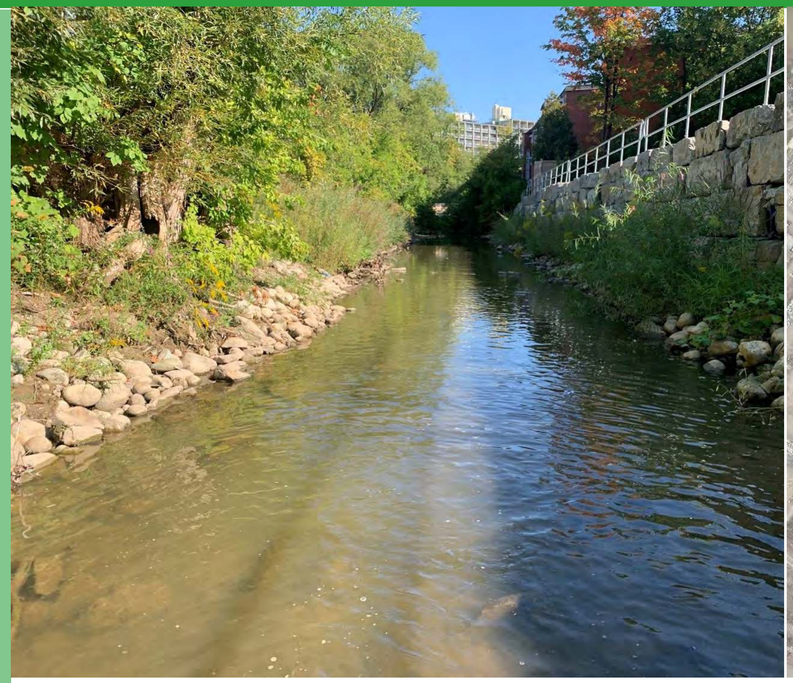
Stantec

Alternative 3: Natural Channel with Retaining Structure at one or Both Valley Walls

- Remove existing concrete channel
- Naturalize channel & valley bottom
- Retaining structure at one or both valley walls
- Maintain the multi-use Iron Horse Trail

Is this your preference?

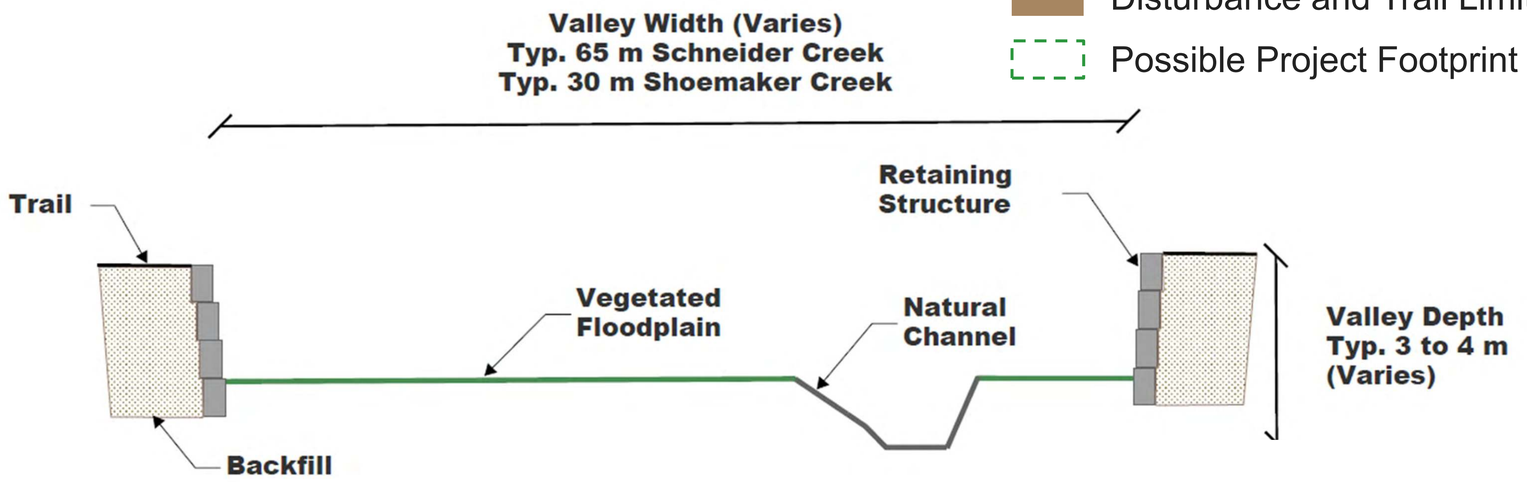
KITCHENER



Channel Limit

Disturbance and Trail Limit

Possible Project Footprint Extents



Stantec

Alternative 4: Natural Channel and Valley

- Remove existing concretechannel
- Grade & vegetate valley walls
- Naturalize low flow channel & valley corridor
- Maintain the multi-use Iron Horse Trail

Is this your preference?

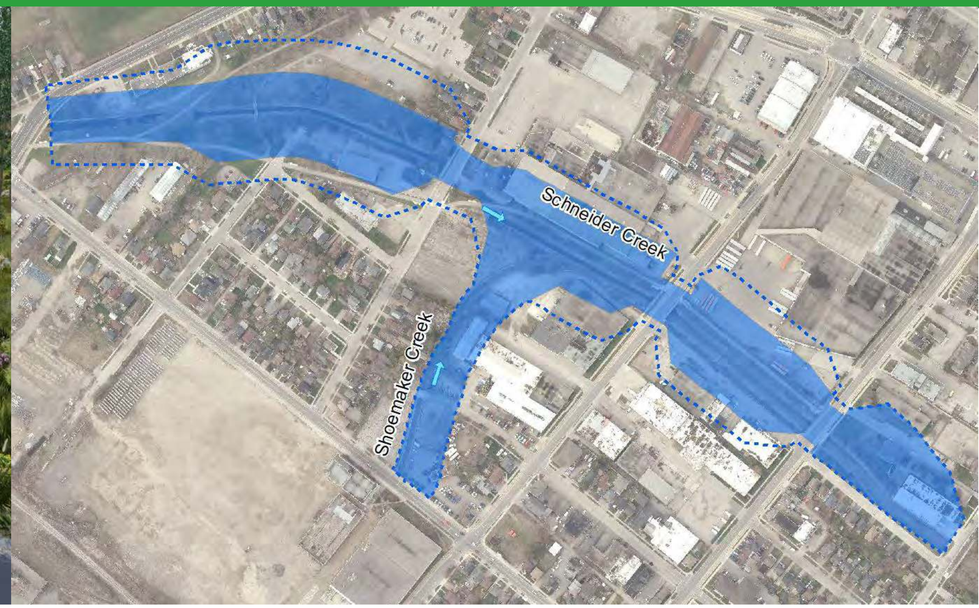
X X X X X X X X X X X X X

X X X X X X X X X

Comments:

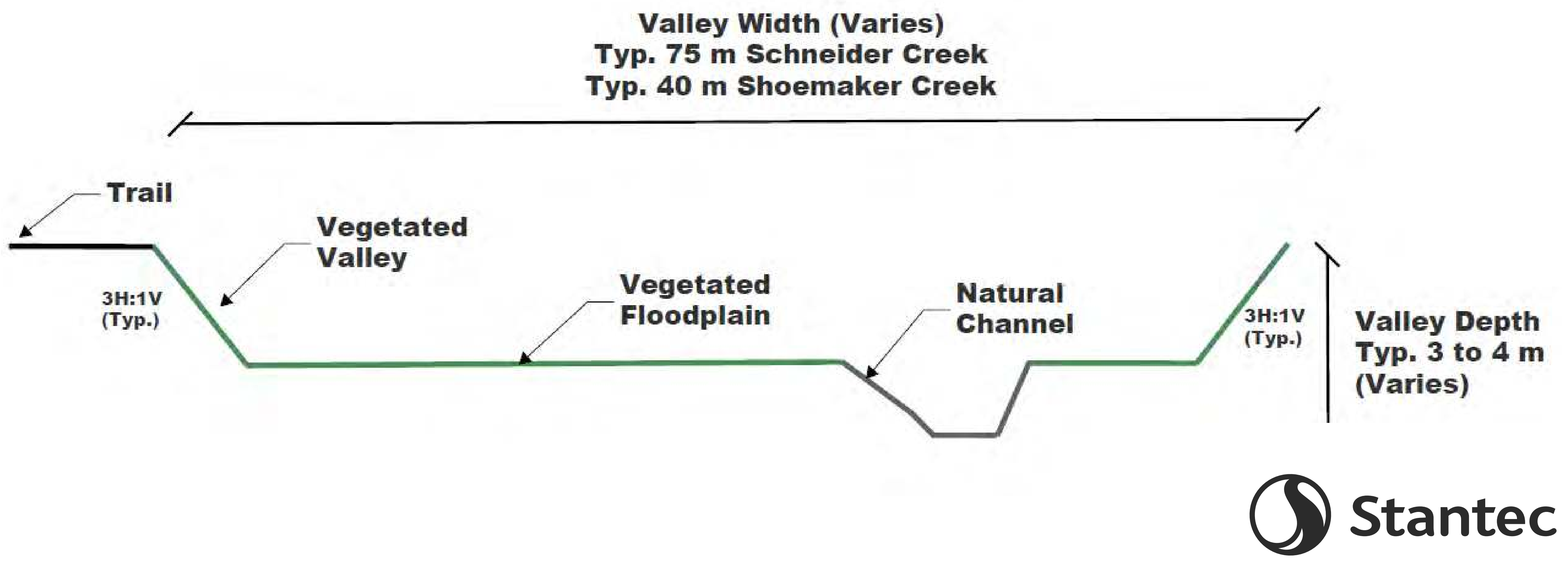
- Please naturalize the concrete wasteland to the right of the IHT south of Kent. It's an eyesore, doing nothing.
- Please replace concrete wall along Nyberg with armour stone. Concerned about spill over onto houses along Nyberg.
- How can you leave the existing bridge/choke points for flow on all the plans?

KITCHENER



Channel and Trail Limit

Possible Project Footprint Extents



Stantec

Evaluation of Alternative Solution Table

	Alternative 1 "Do Nothing"	**Alternative 2** Concrete Channel with Naturalization Valley Bottom	**Alternative 3** Natural channel with Retaining Structure at One or Both Valley Walls	**Alternative 4** Natural Channel Valley
Natural Environment	●	◐	◐	○
Socio-Economic & Cultural Environment	●	◐	◐	○
Technical Environment	◐	◐	●	○
Conclusion				**Preliminary Preference**

Least Net Benefit ● → ◐ → ○ **Most Net Benefit**

KITCHENER

Stantec

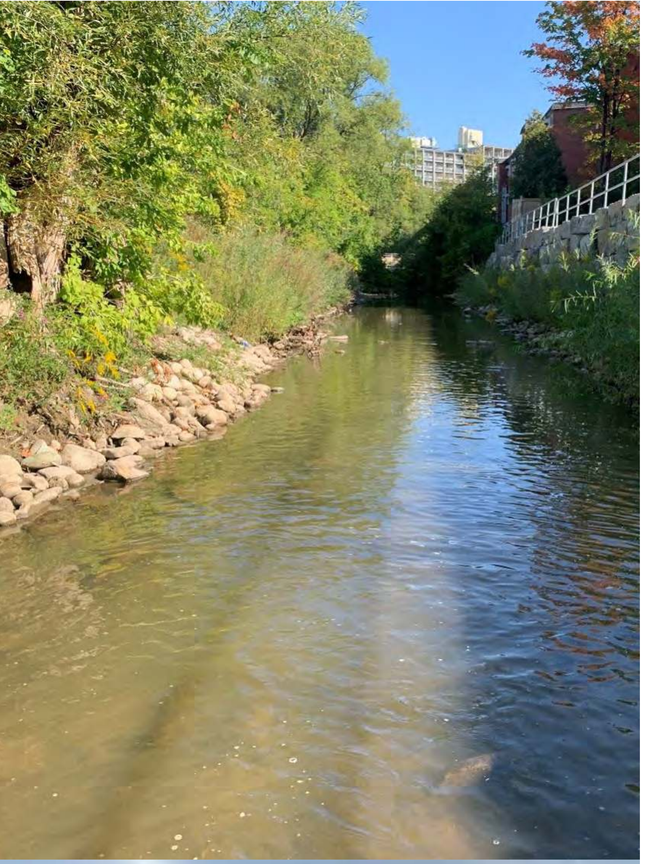
Preliminary Preference: Natural Channel and Valley

Do you agree?

- Highest potential to reduce the flood risk and adapt to climate change
- Highest improvement to biodiversity
- Largest social benefit resulting from the improved trails and creek
- Supported by First Nations and Municipal priorities

KITCHENER

Stantec



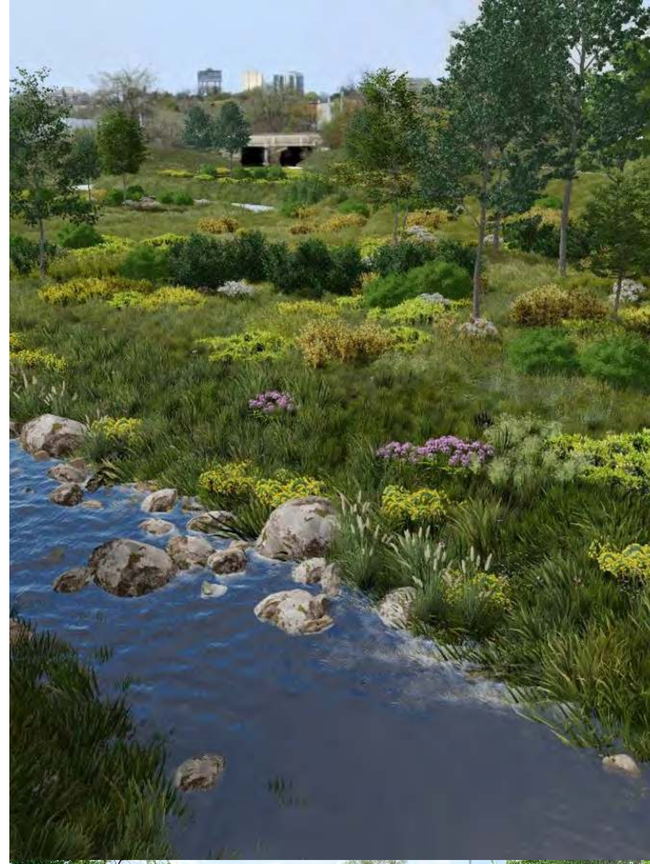
Ideas Board: What's your Preferred Alternative?

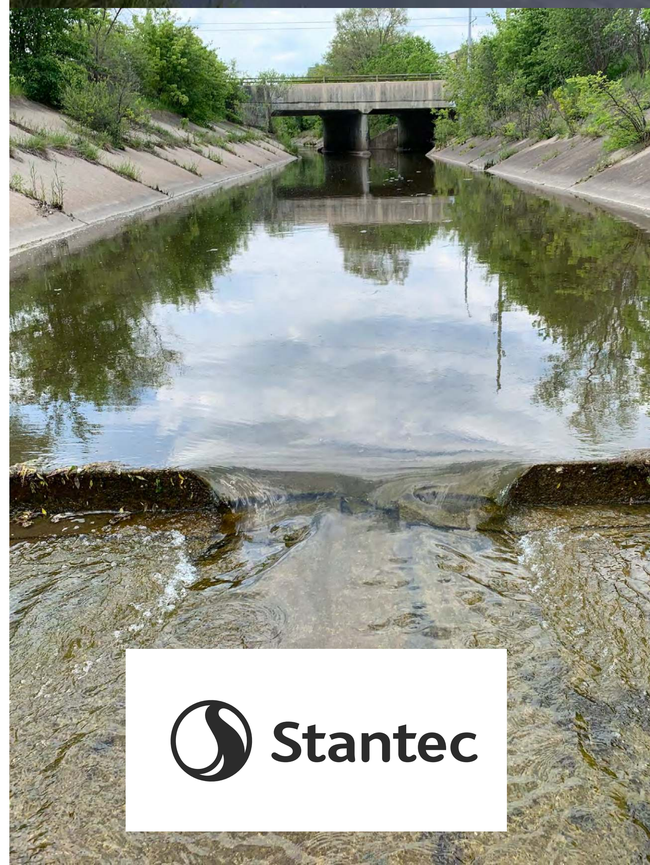
You can help by telling us:

- How would your preferred design alternative impact the local community and trail users?
- In ten or twenty years, what would be the impact of your preferred design alternative?

Comments from PIC:

- Remove narrow bike lane from Nyberg, reduce the street width, and move the IHT across the creek to be in line.
- Add IHT crossing on Ottawa St.
- Add water bottle refill stations along the IHT.
- Access to water is priceless for overall wellbeing - this would help generations to come.
- Fire pit, Access to water





Environmental Considerations for Preliminary Preference

Biophysical Considerations:

- Increase habitat and species diversity
- Removal of barriers to upstream fish passage, providing access to species currently located downstream of Sydney St. S.
- Availability of natural substrates to support invertebrates
- Increase riparian vegetation to provide habitat for birds while providing shade and organic debris to the creeks
- Re-connect Rockway Golf Course green space to Schneider Creek
- Re-connect creek to flood plain, which can provide improved water quality

Archaeological Considerations:

- Stage 2 Archaeological Assessment will be required for impacts to previously undisturbed land

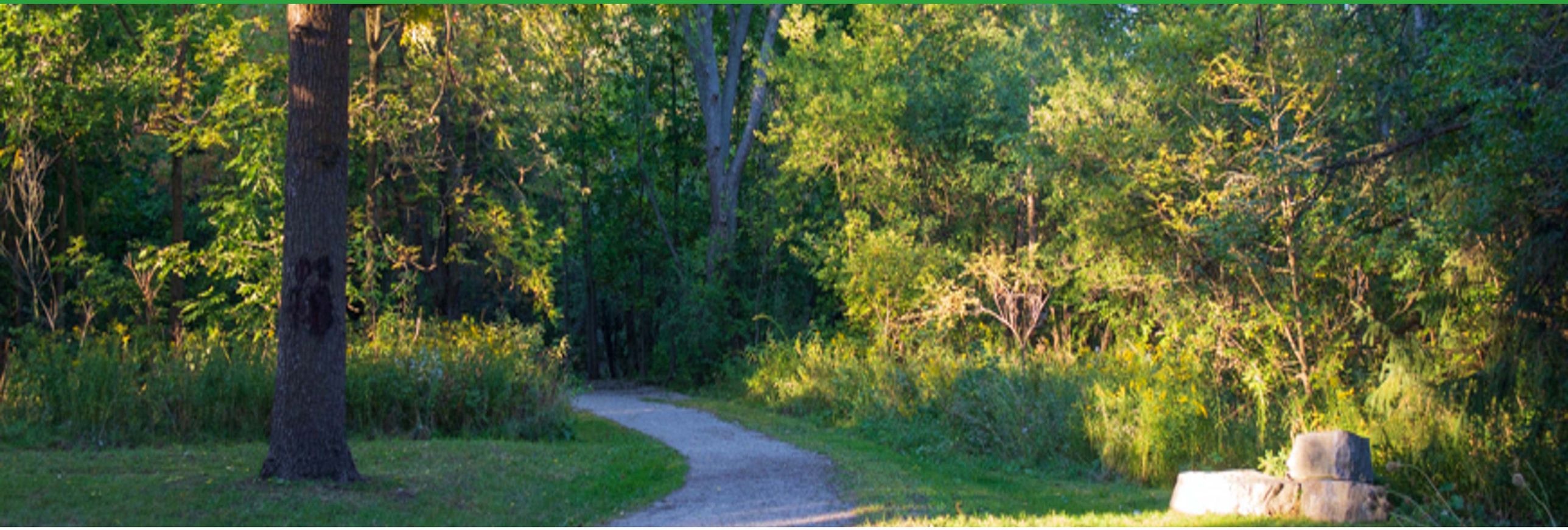
Construction Phasing:

- Project is proposed to be completed in phases: downstream of Kent is proposed to be completed in Phase 1 and upstream of Kent is proposed to be done as part of Phase 2

KITCHENER

Stantec

Next Steps



- Field work Continuing (Summer 2023)
- Incorporate PIC2 feedback and finalize preferred alternative solution
- Phase 3: Alternative Designs & Public Information Centre # 3 (Fall 2023)
- Phase 4: Environmental Study Report (Winter 2024)
- Detailed design and permitting (2024-2025)
- Construction (2025-2026)

KITCHENER

Stantec

Thank you!

Chris Nechacov, C.E.T.
Project Manager
City of Kitchener
519-741-2200
SchneiderCreekEA@kitchener.ca

Steve Brown, MBA, P.Eng.
Project Manager
Stantec Consulting Ltd.
519-585-7446|
SchneiderCreekEA@stantec.com

KITCHENER

Stantec

Appendix C Information Sheet

Schneider and Shoemaker Creek Naturalization Environmental Assessment
Public Information Centre #2

Welcome and thank you for attending the second Public Information Centre (PIC) for the Schneider and Shoemaker Creek Naturalization Environmental Assessment. The purpose of this PIC is to share alternatives for naturalizing the Creeks, to present the evaluation of alternatives, gather input on the solution identified as the preliminary preference, answer public questions and obtain feedback.

For further information and to review the materials from tonight's PIC please visit the project website provided below:

www.engagewr.ca/SchneiderCreekEA

For additional comments or question please reach out to the project team:

Chris Nechacov, C.E.T.
Design & Construction Project Manager
City of Kitchener
Tel: 519-741-2200
Email: schneidercreekea@kitchener.ca

Steve Brown, MBA, P.Eng.
Project Manger
Stantec Consulting Ltd.
Tel: 519-585-7446
Email: schneidercreekea@stantec.com

Please see reverse side for study area map


Floodplain Limit
Study Area
STIRLING AVENUE SOUTH
KING STREET EAST
KENT AVENUE
Schneider Creek
CHARLES STREET EAST
PALMER AVENUE
COURTLAND AVENUE EAST
BORDEN AVENUE SOUTH
NYBERG STREET
SYDNEY STREET SOUTH
Shoemaker Creek
BEDFORD ROAD
Rockway Golf Course
0
100
200
metres

Public Information Centre 3 Summary Report

Schneider and Shoemaker Creek Naturalization Environmental Assessment

January 26, 2024

Prepared for:
City of Kitchener

Prepared by:
Stantec Consulting Ltd.
100-300 Hagey Boulevard
Waterloo, ON
N2L 0A4

Project Number:
161414319

Limitations and Sign-off

The conclusions in the Report titled Public Information Centre 3 Summary Report are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from City of Kitchener (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided to applicable authorities having jurisdiction and others for whom the Client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.

Prepared by: Digitally signed by Katie Murray Date: 2024.01.25 14:50:25 -05'00'

Signature

Katie Murray, B.A.
Environmental Consultant

Printed Name and Title

Reviewed by: Digitally signed by Raheem, Ferenaz Date: 2024.01.25 15:06:00 -05'00'

Signature

Ferenaz Raheem, MES RPP MCIP
Senior Environmental Planner

Printed Name and Title

Reviewed by: Digitally signed by Heather Amirault Date: 2024.01.25 17:48:28 -05'00'

Signature

Heather Amirault, P.Eng.
Stream Restoration Engineer

Printed Name and Title

Approved by: Digitally signed by Brown, Steve (Waterloo) Date: 2024.01.25 14:55:25 -05'00'

Signature

Steve Brown MBA, P.Eng.
Surface Water Lead, Canada East

Printed Name and Title

Executive Summary

The City of Kitchener has undertaken Phase 3 of the MCEA process which involves the identification and evaluation of the alternative designs for the proposed Schneider and Shoemaker creek naturalization. The alternatives were narrowed down to four (4) alternative design concepts and presented at the Public Information Centre and published on the Engage Page. The evaluation of alternative design concepts included consideration of potential natural environmental, socio-economic and cultural environment and technical environment. Consultation with the public, stakeholders, Indigenous communities, and government agencies was conducted as per the requirements of the MCEA process. Various consultation activities were undertaken through Phase 3 including sending a Notice of Public Information Centre to stakeholders and residents who have signed up to receive correspondence through the website, posting of the Notice on the City's Engage Website and in the local newspaper, updating the Engage page with consultation materials and hosting a public information centre. The work undertaken in this phase will be used to confirm the recommended alternative design concept and move forward with the Phase 4 of the MCEA process.

Table of Contents

List of Tables

List of Figures

List of Appendices

1 Introduction

The City of Kitchener is undertaking a Class Environmental Assessment (EA) to review the environmental risks of Schneider and Shoemaker Creeks and present design options to mitigate those risks. Schneider and Shoemaker Creeks are currently lined with concrete at their confluence, and the floodplain at this location is past the concrete boundaries; this floodplain extent affects adjacent properties and presents a risk to public safety during flood events. Naturalizing the creek systems to accommodate increased flows can reduce risk to public safety and provide environmental benefits such as flood mitigation and natural habitat. In addition to the replacement of the concrete channel with a wider, naturalized channel, this project will endeavor to improve public safety by managing flood risks and reducing potential damage as a result of flooding from larger storm events.

The study area for the Schneider and Shoemaker Creeks (the Creeks) Naturalization EA is shown below in Figure 1.

Figure 1: Study Area

2 Public information Centre #3

2.1 Purpose

The purpose of the third Public Information Centre (PIC) was to identify alternative design concepts for naturalizing the Creeks, present the evaluation of alternative design concepts, and gather input to confirm the preferred alternative design. The PIC is a requirement of the regulatory process for the Municipal Engineer's Association Class EA (Class EA). The Class EA process was also shared and discussed at the PIC.

2.2 City of Kitchener Engage Page

The City of Kitchener Engage Page (www.engagewr.ca/SchneiderCreekEA) is a central location where all PIC materials are available for the public to view and provide feedback in the event they were not able to attend the meeting or wanted to revisit the information presented. The Notice of PIC #3 (Notice) was posted on the website on December 1, 2023, along with the registration form and further details about the PIC. A copy of the Notice is included in **Appendix A**. The materials that were presented at the PIC were included on the Engage Page on December 15, 2023, including the display boards (**Appendix B**) and photos of the comments on the Alternative Boards that were provided in-person at the PIC. The Engage Page also includes the Project's team contact information and the current status of the timeline of the project. Details and summary of comments can be found in Section 3 of this report.

2.3 Notice of Public Information Centre #3

The Notice for the EA was issued on December 1, 2023. The intent of the Notice was to inform readers about the purpose and format of the PIC, and to outline how to attend the PIC in person. Project team member contact information was provided in the Notice along with the project website address (provided in Section 2.2).

Interested persons were encouraged to attend the PIC in-person, view the project website, and/or to contact the Project Team directly should they have any comments, questions, concerns, or wish to be added to the study mailing list.

The Notice was distributed to the residents within a 1 km radius of the project site, agencies, municipal staff, elected officials, and Indigenous communities through the 4 (four) methods outlined in **Table 1** below.

Table 1: Notice #3 Distribution

Method of Distribution	Date of Distribution
Notice mailed via Canada Post to the study contact list	December 1, 2023
Notice emailed to the study contact list	December 1, 2023
Advertisement in the local newspaper (Kitchener Record)	December 1, 2023, and December 8, 2023
Posted on City of Kitchener Engage Page	December 1, 2023
Posted on Project site via Neighbourhood sign	December 1, 2023

2.4 Format

The PIC was an in-person event held at the Rockway Golf Club in Kitchener, Ontario on December 12, 2023, from 5:00pm to 8:00pm including a short presentation introducing the project team and describing the layout of the room, how to ask questions, and how to provide feedback. It was announced that the display boards would be made available on the project website. There was an opportunity for attendees to view display boards (**Appendix B**) throughout the meeting room. There was a total of 18 display boards throughout the room describing the project background, purpose of the PIC, the Class EA process, the evaluation criteria, the four (4) alternative design concepts, the preliminary preference, and next steps. The Project Team, which included members of the City of Kitchener and Stantec Consulting Ltd. (Stantec), were on hand to discuss the information with the attendees and to answer questions. An information sheet (**Appendix C**) for the project was offered to each attendee, comment sheets were available for attendees to write down their comments to be submitted, and a handout of the display boards was available in Spanish, Portuguese, and Arabic. There were no requests received for translated materials.

REEP Green Solutions had a display table, and a representative was present to discuss basic drainage principles to mitigate flooding and their Rain Smart Neighbourhoods program.

Alternatively, there was an option to participate online by reviewing the presentation materials from the PIC and completing the Alternative Design Options Survey on the Engage page. The survey was open from December 23rd, 2023 until January 2nd, 2024.

2.5 Attendance

Attendees were encouraged to sign in at the PIC before proceeding to view the display boards with an option to be added to the email distribution list. A total of 67 attendees signed in with 32 attendees requesting to be added to the email distribution list. Councillor Debbie Chapman from Ward 9 was in attendance . For the Engage page between December 12th, 2023 until January 2nd, 2024 there were a total of 212 visits with a maximum of 32 visitors per day. There were 11 engaged visitors and 10 of those participated in the survey. There were a total of 67 informed visitors with 54 downloaded documents, 1 video viewed, 1 key dates page was visited, 7 visited the FAQ list page and 39 visited multiple project pages. There were 119 aware visitors which includes participants visiting at least one page. There were zero (0) new registrations.

3 Summary of Comments Received

The comments received from attendees, feedback written on the Alternative Boards and any communications via project email, the Engage Page and the Alternative Design Options Survey that were received up to December 31 2023, are summarized below. The City of Kitchener and Stantec representatives heard:

- Inquiries around property loss impacts, specifically the properties on Nyberg St.
  - **Response:** There will not be any property loss impacts for residential properties, including those on Nyberg St.
- Inquiries regarding if current road crossings and infrastructure will be retained
  - **Response:** Current road crossings will not be changed
- Request to leave the area as is, stating there is no flooding in the areas around the creek where the resident lives and visits
  - **Response:** One of the main project goals is mitigation of existing flood risk and mitigation against future flood risks that could be associated with climate change. The City is being proactive to mitigate risks before they occur. The proposed approach will also create additional benefits, including enhancing aquatic and terrestrial environments, improving recreational amenities (Iron Horse Trail (IHT)), and providing additional greenspace in the neighbourhood.
  - **Response:** There have also been numerous residents who have confirmed recent storm events that have completely filled up the channel in the project area
- Inquired if the existing vegetation could remain and be maintained
  - **Response:** Existing vegetation has been mapped as part of the background investigations and will be considered at detailed design. Design plans will incorporate revegetation plans.
- Concerns regarding the stability of the natural channel to be implemented and inquiries regarding the materials that would be used and how it would contribute to the channel's stability
  - **Response:** Engineering design will incorporate structures to maintain the stability of the natural channel. This will be determined during detailed design, but it is expected that the structures will consist of natural materials (rock, wood/logs)
- Inquiries around timeline of the Project (when will it start, construction phases and completion)

  - **Response:** Field work continuing throughout fall 2023, Phase 4: Environmental Study Report (Winter 2024), Detailed design and permitting (2024-2025), construction (2025-2026)

- Overall impacts to the IHT or Light Rail Transit
  - **Response:** IHT and Light Rail Transit routes will be maintained however temporary detours to the IHT may be required during construction.
- Inquiries around how the project will reduce flood risks to various nearby properties
  - **Response:** T The highest-risk areas for flooding are called floodways. Reducing the extent of the floodway around Schneider Creek requires more room for the creek to flow unimpeded during storms. We do this by increasing the channel width and removing the buildings in the channel. Flood risk will be reduced throughout the study area as we begin to do this.

The Boards which presented each Alternative Design Concept included spaces for visitors to respond directly to the details presented. Visitors also had a chance to place a dot to represent their vote for which alternative they preferred. Below is a summary of comments and votes received from the PIC and Alternative Design Options survey on Engage:

- Alternative 1a: Multi-Use Trail along the south Side of Schneider Creek and East Side of Shoemaker Creek
  - Zero votes (0) votes
  - Concerns that no trail connection is being maintained and about the on-road biking and walking section
  - Prefer not to have a pedestrian crossing over Shoemaker Creek and lack of trail connection to Sydney Street
  - A straight-forward path route is appreciated
  - Maximize re-naturalized areas
  - Makes use of roads running parallel and perpendicular to the creek to provide regions of interaction
  - Opens up future re-naturalization of regions north of the existing trail, where the floodplain exists
  - No access to the creek limits interaction with nature
  - Concerns around cost due to removing the existing trail
- Suggestions for safety measures. Please use heavily marked signage for single-line cycling and speed limits. Alternative 1b: Naturalized Creek with Multi-Use Trail along the South side of Schneider Creek with Trail Amenity Features (up to three) and Trail East side of Shoemaker Creek

  - Three (3) votes
  - Suggestion to extend the trail south of Shoemaker Creek
  - Appreciation for the opportunity to interact with nature
  - Makes use of roads running parallel and perpendicular to the creek to provide areas for interaction
  - Maximizes area of restored vegetation
  - Suggestion to have the section between Sydney and Ottawa a part of the trail
  - Concerns around cost due to removing the existing trail
  - Suggestions regarding safety measures (single file cycling, heavily marked signage, speed limits)
- Alternative 2a: Naturalized Creek with Multi-Use Trail along a Combination of the North and South side of Schneider Creek and West side of Shoemaker Creek
  - Two (2) votes
  - Preference for off road trails
  - Request to retain all houses that are close to the creek
  - Extend the trail along Shoemaker Creek during future developments
  - Appreciation for the trail continuing along Sydney Street and relatively straight lines of the trail system
  - Appreciation for maintaining existing trail and providing naturalized connection to Sydney Street and new trail along the golf course
  - Request to include park space for children to play
  - Concerns around the net benefit of the floodplain due to the region north of the creek that is unaltered
  - Request to include Delta Street as part of the bike pathway
- Alternative 2b: Naturalized Creek with Multi-Use Trail along combination of the North and South side of Schneider Creek and West side of Shoemaker Creek and added Trail Amenity Features (up to three)
  - Five (5) votes
  - Support of the new trail alignment compared to the other alternatives
  - Strong support of amenities as long as social safety (i.e., lighting, accessibility for all) can be addressed
  - To resize the culvert on Kent Ave
  - A natural connection to Sydney St. S and new trail to Rockway
  - Suggestion of adding playground structure to the amenity spaces

- Evenly-spaced seating area
- Suggestion of not removing the existing trail
- Request to widen the trail
- Appreciates the culverts being kept as it will reduce costs
- Using existing trail reduces costs but concerns about the net impact of floodplain management
- Appreciate the lower cost compared to Alternative 1a and the attraction to more users
- Request for a trail connection between Sydney Street and Delta Street
- Concerns around the ‘look out’ infrastructure as it could increase water velocity and increase maintenance costs. Suggestion to replace this amenity with a step-down feature
- Suggestion of adding ‘tofu rocks’ to assist with erosion control
- Suggestion to move the lookout feature to above the existing culvert
- Request for a walking tour with project team of the features
- Add additional signage to show the height of the floodplain water during a storm
- Concerns for the lack of washroom amenities

Below is a representation (Figure 2) of what methods the comments were received by.

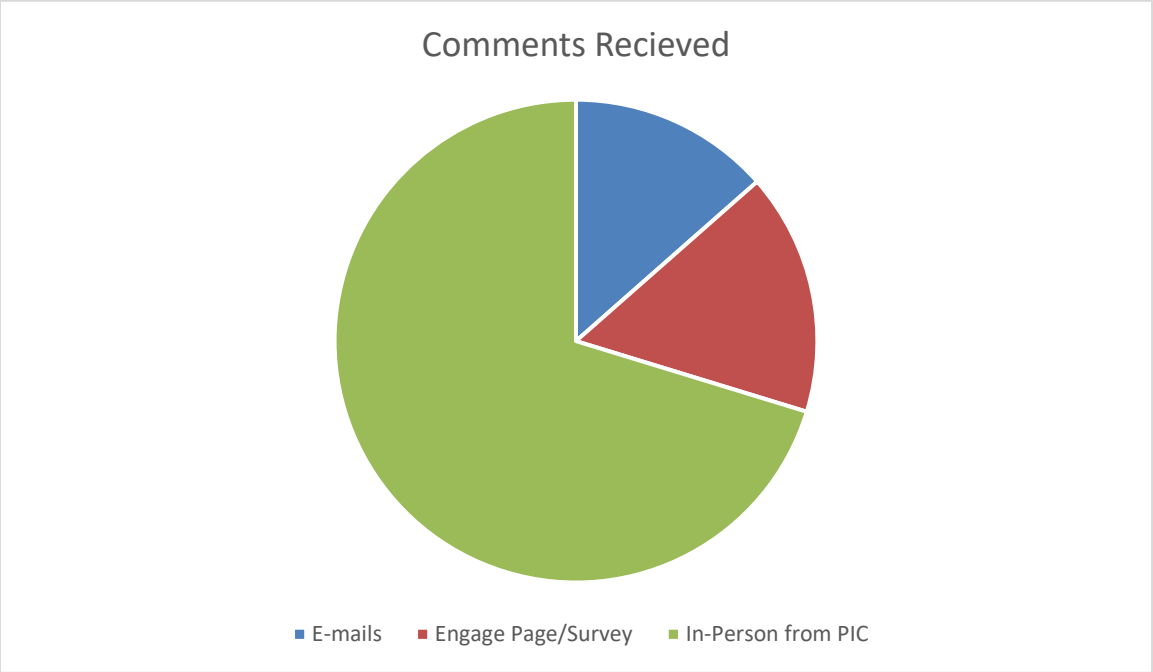


Figure 2: Comment Received

4 Next Steps

All comments received since the start of the EA have been reviewed and considered by the Project Team and will be considered as the EA process continues. The Project Team can confirm the Preferred Alternative Design Concept is Alternative 2b with the input received and the completed analysis. The next step in the Class EA process is Phase 5: Environmental Study Report. The presentation boards from PIC#3 are available on the project website. Updates to the website will continue as the project progresses. Field work which includes topographic survey, subsurface utility exploration, geotechnical assessment, hydrogeological assessment and soil assessment will be occurring throughout 2024.

Appendices

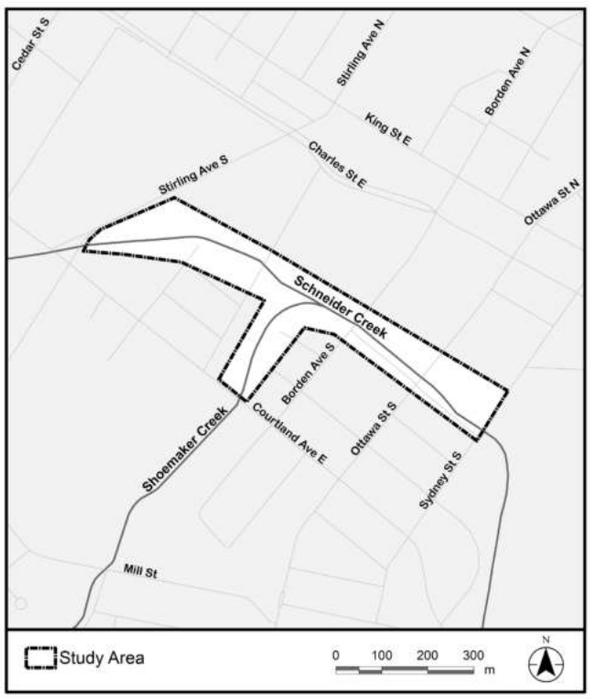
Appendix A Notice of PIC 3

NOTICE PUBLIC INFORMATION CENTRE #3

Schneider and Shoemaker Creeks Naturalization Environmental Assessment

Schneider and Shoemaker Creeks are currently lined with concrete where they meet and the floodplain at this location extends past the creek boundaries. This affects adjacent properties and presents a potential risk to public safety.

The City of Kitchener has initiated a *Municipal Class Environmental Assessment*, Schedule "C", to fully review the environmental risks of this area, and present alternative solutions to mitigate those risks. At the Public Information Centre #2, the recommended Alternative Solution for full naturalization had the highest support. Expanding and naturalizing the creek boundaries to accommodate the flows will provide greater protection, and environmental benefits such as flood mitigation and natural habitat. In addition to the replacement of the concrete channel with a wider natural channel, this project will reduce potential flood risks to adjacent properties from larger storm events.



Public Information Centre #3 (Final)

As part of this study, consultation is being undertaken and your participation is encouraged. A third and final Public Information Centre (PIC) is being planned to share the different alignment options of the naturalized creeks, alignment of the Iron Horse Trail, the evaluation criteria and the evaluation of the alternative designs that will guide the remainder of the project. The results of the evaluation of environmental effects for each alternative along with the recommended solution will be presented.

Public Information Centre #3
December 12, 2023, 5:00pm – 8:00pm
(December 13, 2023, in case of inclement weather)
Rockway Golf Course, 625 Rockway Drive, Kitchener
Project website: www.engagewr.ca/SchneiderCreekEA

We'd like to hear from you!

Your input is important to us and can help shape the Project decision. We invite you to join our upcoming PIC to learn more about the alternative solutions, ask our team questions, and provide feedback. Listening to, and learning from, Indigenous Nations, residents, and stakeholders is part of the process.

The PIC will offer activities for children with childminding services available and light refreshments and snacks. Please visit the project website link above to R.S.V.P. to the PIC where you may indicate dietary restrictions and the number of children attending. If you are unable to attend the PIC, the presentation boards will be made available on the Project website.

Contact us if you would like to learn more about the Project, be added to the Project mailing list, provide comments, or have any accessibility requests:

Chris Nechacov, C.E.T.
Design & Construction Project Manager
City of Kitchener
Tel: 519-741-2200
Email: schneidercreekea@kitchener.ca

Steve Brown, MBA, P.Eng.
Project Manger
Stantec Consulting Ltd.
Tel: 519-585-7446
Email: schneidercreekea@stantec.com

This notice was issued on **December 1, 2023.**

Appendix B Display Boards

WELCOME

PUBLIC INFORMATION CENTRE #3
Schneider and Shoemaker Creek Naturalization Environmental Assessment

December 12, 2023
Rockway Golf Club
625 Rockway Dr. Kitchener, ON
5pm – 8pm

Please pick up an information sheet
See staff for slide package in Portuguese, Spanish and Arabic
Project website: www.engagewr.ca/SchneiderCreekEA

KITCHENER

Stantec

Purpose of this Public Information Centre (PIC) and Background Studies

The purpose of this PIC is to:

- Present alternative design concepts
- Evaluate the alternative designs and share our preferred design
- Seek feedback from the community on each design concept

Background Studies results:

- There are significant flood risks at both creeks
- There is poor water quality and natural habitat at both creeks
- There is a need for more green space and trail connections in the neighbourhood

Stantec

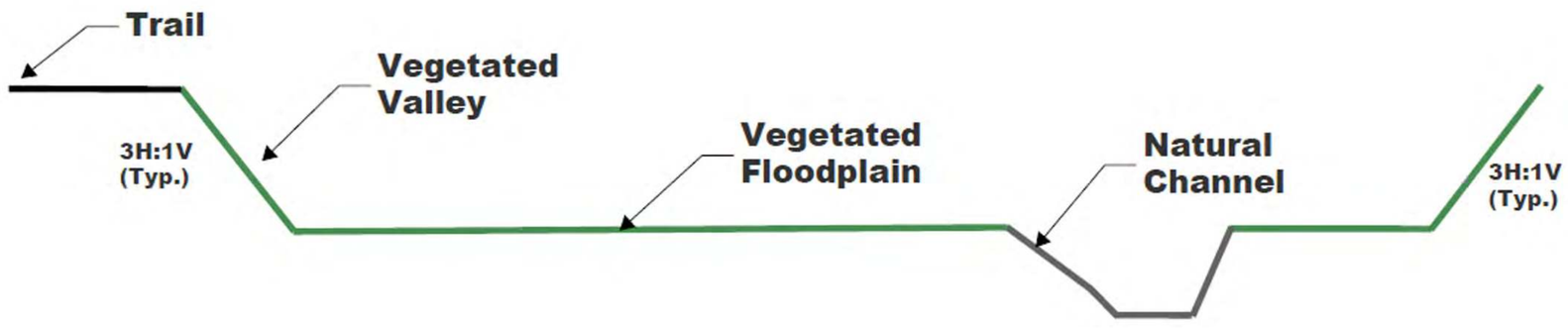
Recap of Public Information Centre #2

Opportunity for Naturalization:

- Design a solution to naturalize the creek corridors which achieve the following objectives:
- Reduce flooding impacts
- Improve natural environment
- Create recreational spaces to enjoy the natural elements of the creek

PIC 2 presented 4 Alternative Solutions:

- Alternative 1: “Do Nothing”
- Alternative 2: Concrete Channel with Naturalized Valley Bottom
- Alternative 3: Natural Channel with Retaining Structure at One or Both Valley Walls
- Alternative 4: Natural Channel and Valley – **PREFERRED**



KITCHENER

Stantec

Municipal Class Environmental Assessment Process

Phase 1:	Phase 2:	Phase 3:	Phase 4:	Phase 5:
Problem or Opportunity	Alternative Solutions	Alternative Design Concepts for Preferred Solution **We are here**	Environmental Study Report	Implementation

Consultation Throughout

Notice of Study Commencement First Public Information Centre – April 2023	Second Public Information Centre – Summer 2023	Third Public Information Centre – Fall 2023	30-Day Public Review – Winter 2024	Notice of Construction – (2025-2026)

City of Kitchener Stormwater Management Work

DMAF Project Elements
- Bridgeport Dyke
- Stream Restoration Projects
- Creek Naturalization (Schneider and Shoemaker Creeks)
- Natural Areas and Trails (Walter Bean Trail)
- New Facility Park Retrofits
- Road Reconstruction (WIP)

Non-DMAF
- Creek Restoration
- SWM Facility

Existing Storm Infrastructure
- Pipe Network
- Facility
- Facility Drainage Area

Other
- Grand River
- Stream reach and related watershed

MELTZER CREEK
UNNAMED CATCHMENT 1
Grand River
LAUREL CREEK
KOLB CREEK
MANCHESTER RD SWM FACILITY
WESTMOUNT CREEK
VICTORIA PARK LAKE SWM FACILITY
UPPER SCHNEIDER CREEK
IDLEWOOD CREEK
MONTGOMERY CREEK
HENRY STURM CREEK
SHOEMAKER CREEK
DETWEILER CREEK
SANDROCK CREEK
MIDDLE SCHNEIDER CREEK
EAST SIDE
VOISIN CREEK
BORDEN CREEK
BALZER CREEK
UNNAMED CATCHMENT 2
STRASBURG RD SWM FACILITY @ AT MCINTYRE DR
NORTH STRASBURG CREEK
TRILLIUM DR SWM FACILITY D
LOWER SCHNEIDER CREEK
UNNAMED CATCHMENT 3
FUTURE
MIDDLE STRASBURG CREEK
STRASBURG CREEK
SCHOOL CREEK
DOON SOUTH CREEK
BLAIR CREEK

N

0 1 2 km

KITCHENER

Produced for Development Services, Engineering
by Corporate Services, TIS, GIS
October 2023

Study Area

1. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023. 2. Orthoimagery © First Base Solutions, 2023. Date of Imagery 2022.

Existing Conditions

STIRLING AVENUE SOUTH
Schneider Creek
KENT AVENUE
PALMER AVENUE
COURTLAND AVENUE EAST
Goderich-Exeter Railway
Shoemaker Creek
BORDEN AVENUE SOUTH
BEDFORD ROAD
NYBERG STREET
OTTAWA STREET SOUTH
CHARLES STREET EAST
SYDNEY STREET SOUTH
Rockway Golf Course

Legend

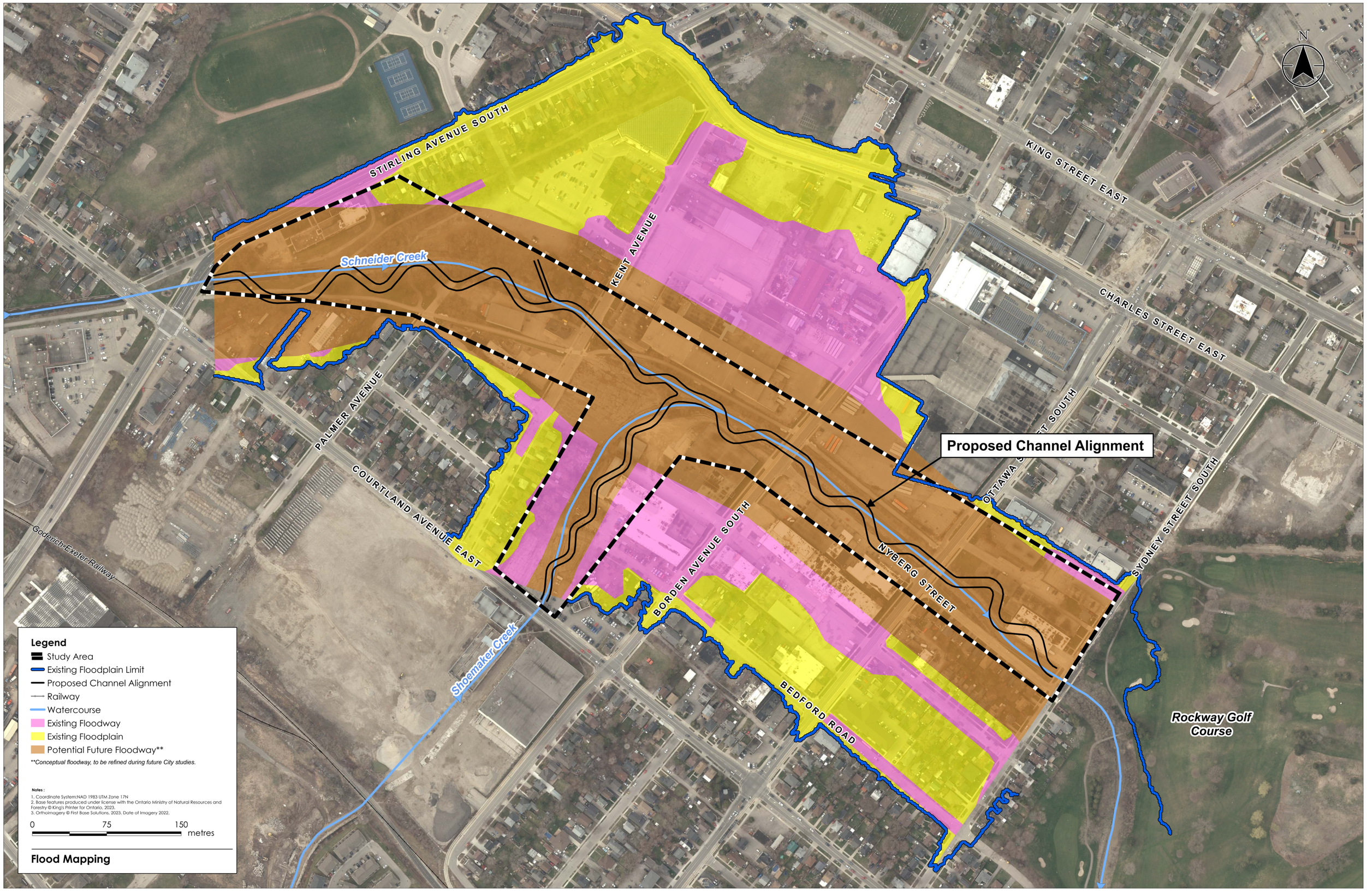
- Study Area
- Potential Bat Habitat
- Floodplain Limit
- Railway
- Iron Horse Trail
- Watercourse
- Stage 2 Archaeological Assessment Required

Tree Quality (by area)

- High Quality
- Medium Quality
- Low Quality

0 100 200 metres

Existing Conditions - Ecosystems


STIRLING AVENUE SOUTH
KENT AVENUE
KING STREET EAST
CHARLES STREET EAST
Schneider Creek
PALMER AVENUE
COURTLAND AVENUE EAST
Goderich-Exeter Railway
Shoemaker Creek
BORDEN AVENUE SOUTH
NYBERG STREET
BEDFORD ROAD
SYDNEY STREET SOUTH
Rockway Golf Course
Proposed Channel Alignment
N
Legend
Study Area
Existing Floodplain Limit
Proposed Channel Alignment
Railway
Watercourse
Existing Floodway
Existing Floodplain
Potential Future Floodway**
**Conceptual floodway, to be refined during future City studies.
Notes :
1. Coordinate System:NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © King's Printer for Ontario, 2023.
3. Orthoimagery © First Base Solutions, 2023. Date of Imagery 2022.
0
75
150
metres
Flood Mapping

Evaluation Criteria

NATURAL ENVIRONMENT

SOCIO-ECONOMIC & CULTURAL ENVIRONMENT

TECHNICAL ENVIRONMENT

KITCHENER

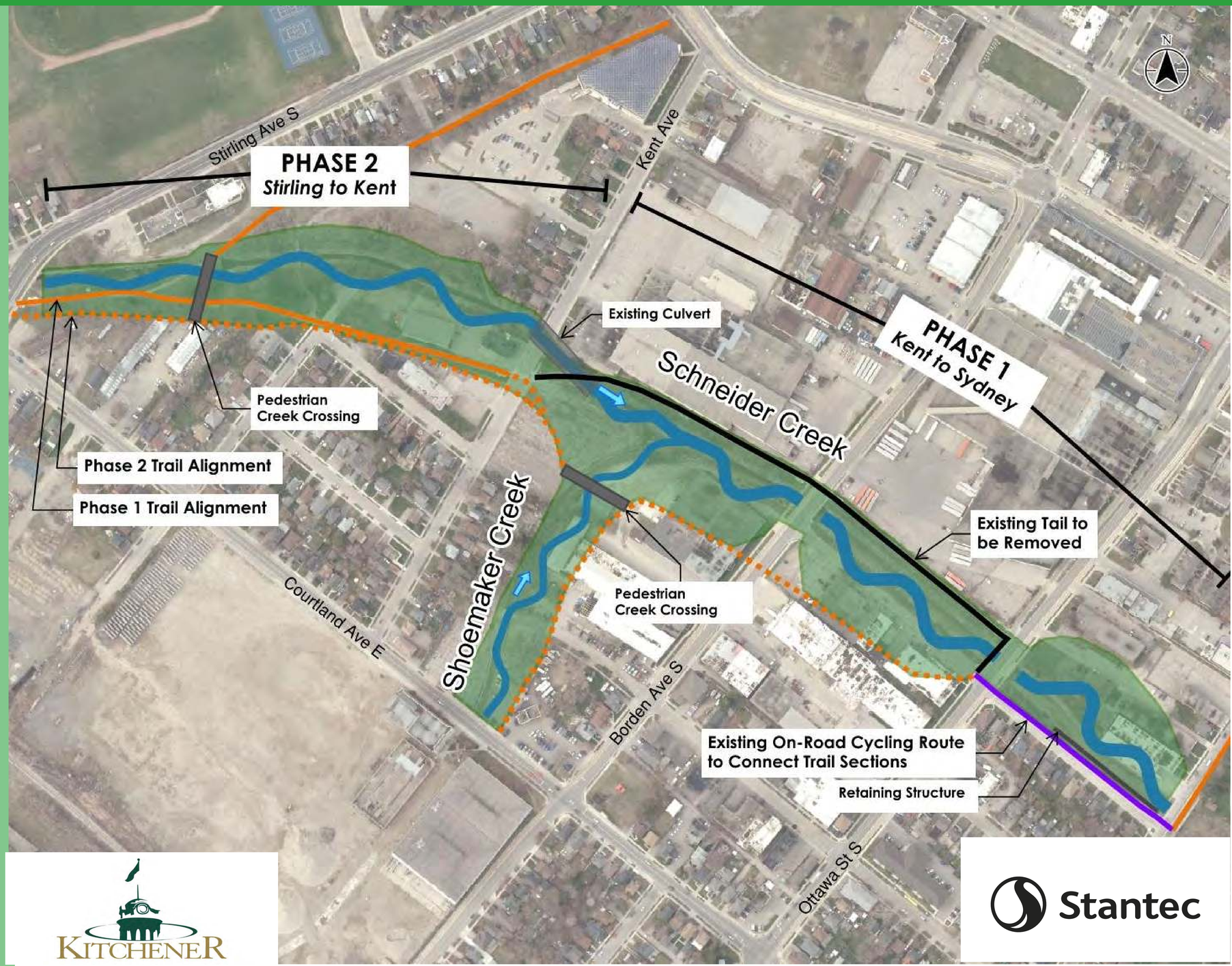
Stantec

Alternative 1a: Multi-Use Trail along the South Side of Schneider Creek and East Side of Shoemaker Creek

- This option has 2 pedestrian creek crossings:
  - Schneider Creek between Stirling Ave and Kent St
  - Shoemaker Creek
- No multi-use trail between Ottawa St. and Sydney St.
- Maintain existing on-road cycling route on Nyberg St.
- Remove existing trail along the north side of Schneider Creek between Kent Ave. and Bordon Ave.
- Added cost for pedestrian creek crossings

What do you like about this alternative?

What don't you like about this alternative



KITCHENER

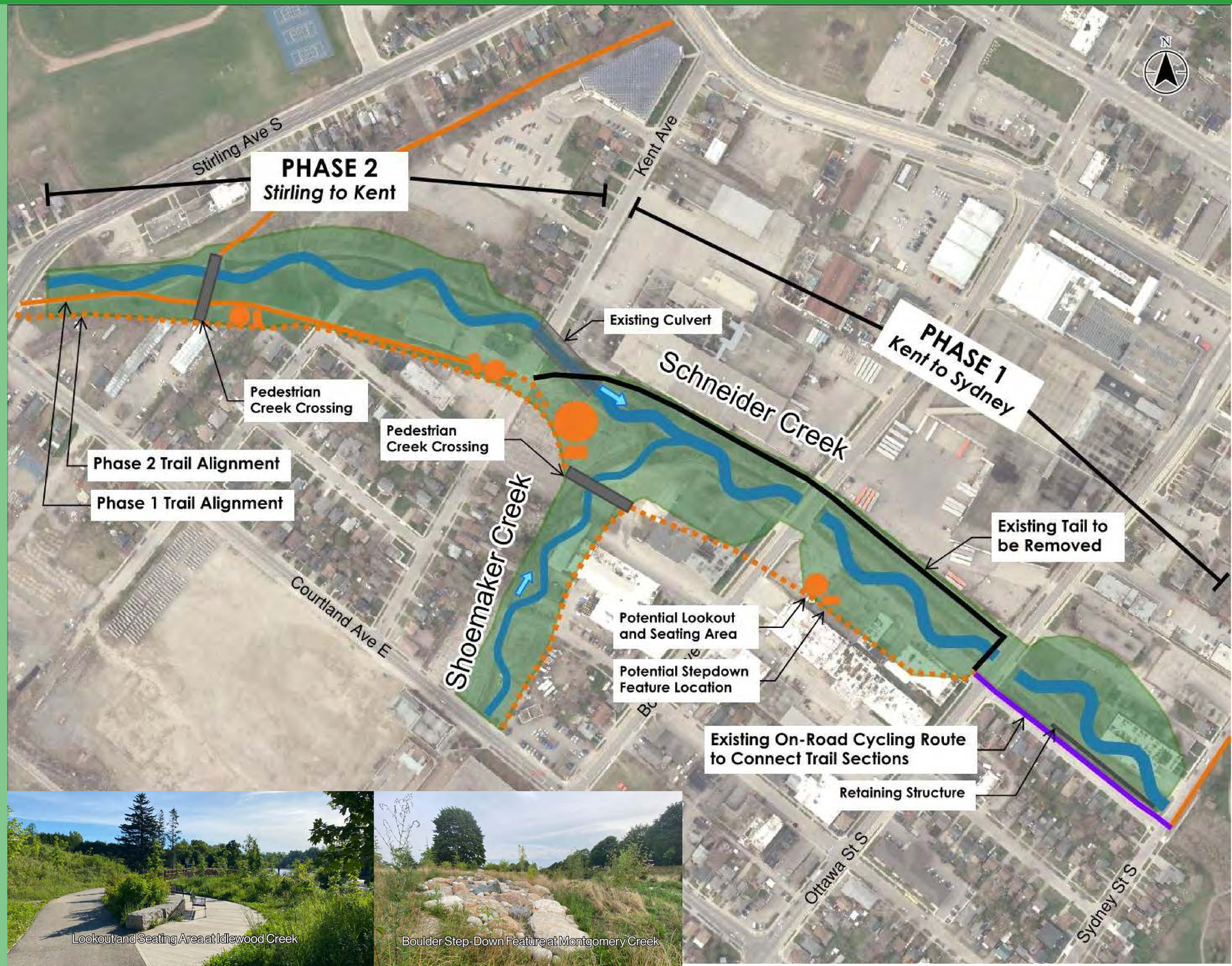
Stantec

Alternative 1b: Naturalized Creek with Multi-Use Trail along the South side of Schneider Creek with Trail Amenity Features (Up to Three) and Trail East side of Shoemaker Creek

- Adds amenity features to the Alternative 1a alignment
- Amenity could include seating and step-down area for public access to greater connect with nature
- Costs more than Alternative 1a because of amenities
- Will consider safety because of access into the valley (example: high flow, ticks)

What do you like about this alternative?

What don't you like about this alternative?



Lookout and Seating Area at Idlewood Creek

Boulder Step-Down Feature at Montgomery Creek

KITCHENER

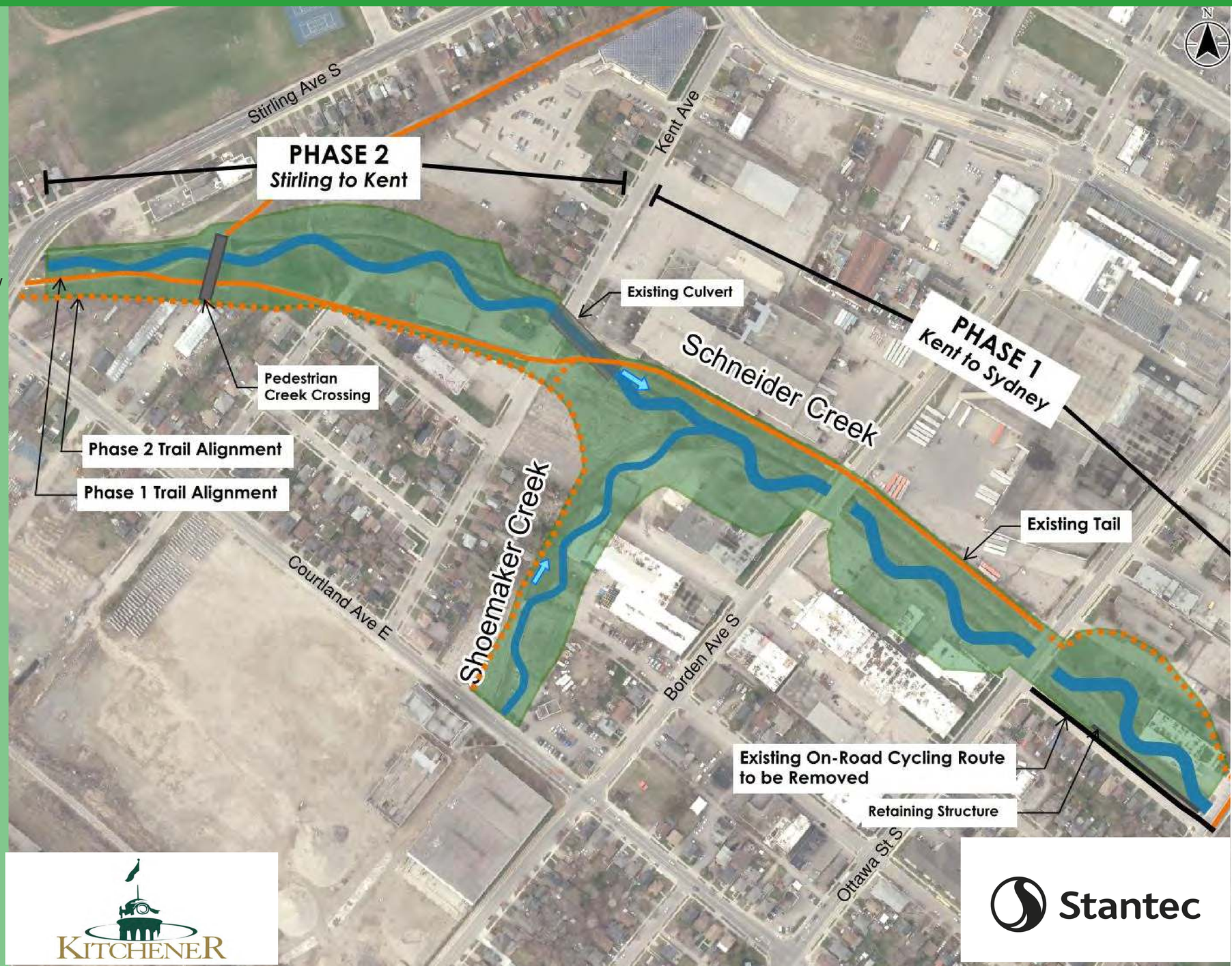
Stantec

Alternative 2a: Naturalized Creek with Multi-Use Trail along a Combination of the North and South Side of Schneider Creek and West side of Shoemaker Creek

- Matches the trail alignment of Alternative 1a at the upstream part of the study area
- Pedestrian creek crossing of Schneider Creek will replace an existing culvert crossing
- Maintains the current Iron Horse Trail between Kent Ave. and Ottawa St.
- Remove the on-road cycling route along Nyberg St. and fill in the existing gap with a new section of trail

What do you like about this alternative?

What don't you like about this alternative



KITCHENER

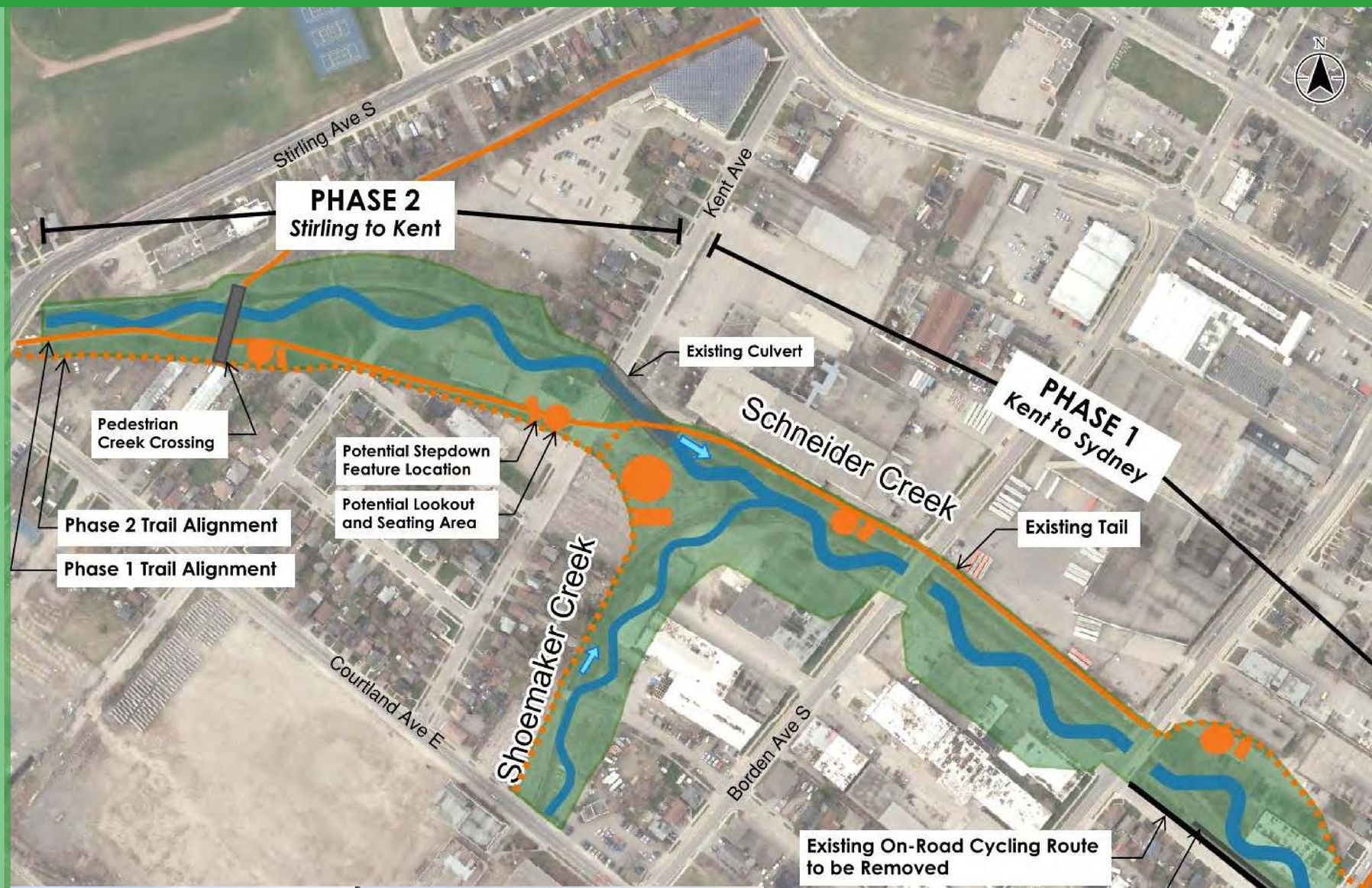
Stantec

Alternative 2b: Naturalized Creek with Multi-Use Trail along a combination of the North and South side of Schneider Creek and West side of Shoemaker Creek. Added Trail Amenity Features up to three)

- Adds amenity features to the Alternative 2a alignment
- Amenity could include seating and step-down area for public access to greater connect with nature
- Costs more than Alternative 2a for amenities. Costs less than 1a due to maintenance of Iron Horse Trail segment.
- Will consider safety because of access into the valley (example: high flow, ticks)

What do you like about this alternative?

What don't you like about this alternative?




Boulder Step-Down Feature at Montgomery Creek


Lookout and Seating Area at Idlewood Creek

KITCHENER

Stantec

Evaluation of Alternative Solution Table

	Alternative 1a Multi-Use Trail along the South side of Schneider Creek and East Side of Shoemaker Creek	Alternative 1b Multi-Use Trail along the South side of Schneider Creek with Trail Amenity Features and Trail East side of Shoemaker Creek	Alternative 2a Multi-Use Trail along a combination of the North and South side of Schneider Creek and West side of Shoemaker Creek	Alternative 2b Multi-Use Trail along combination of the North and South side of Schneider Creek and West side of Shoemaker Creek. Added Amenity Features (up to three)
Natural Environment	○	○	○	○
Socio-Economic & Cultural Environment	●	◐	◐	○
Technical Environment	◐	◐	○	○
Conclusion				Preliminary Preference

Least Net Benefit ● → ◐ → ○ **Most Net Benefit**

KITCHENER

Stantec

Preliminary Preference: 2B) Naturalized Creek with Multi-Use Trail along a Combination of the North and South Side of Schneider Creek with Trail Amenity Features (up to Three) and West side of Shoemaker Creek

- Added amenities enhance the recreational value of IHT
- Provides opportunities to enjoy and interact with naturalized areas
- Largely maintains the existing IHT through the study area
- New section of trail along the north side between Ottawa St. & Sydney St.
- Remove the on-road cycling route along Nyberg St.
- Requires one less pedestrian creek crossing than Alternative 1

KITCHENER

Stantec

Environmental Considerations for Preliminary Preference

Biophysical Considerations:

- Potential bat habitat within the Project Limits
- Increase to other habitat and species diversity
- Reduce construction disturbance footprint by maintaining portion of existing Iron Horse Trail
- Removal of barriers to upstream fish passage, providing access to species currently located downstream of Sydney St. S.
- Availability of natural substrates to support invertebrates
- Increase riparian vegetation to provide habitat for birds while providing shade and organic debris to the creeks
- Re-connect Rockway Golf Course green space to Schneider Creek
- Re-connect creek to flood plain, which can provide improved water quality

Archaeological Considerations:

- Stage 2 Archaeological Assessment has been completed with no findings

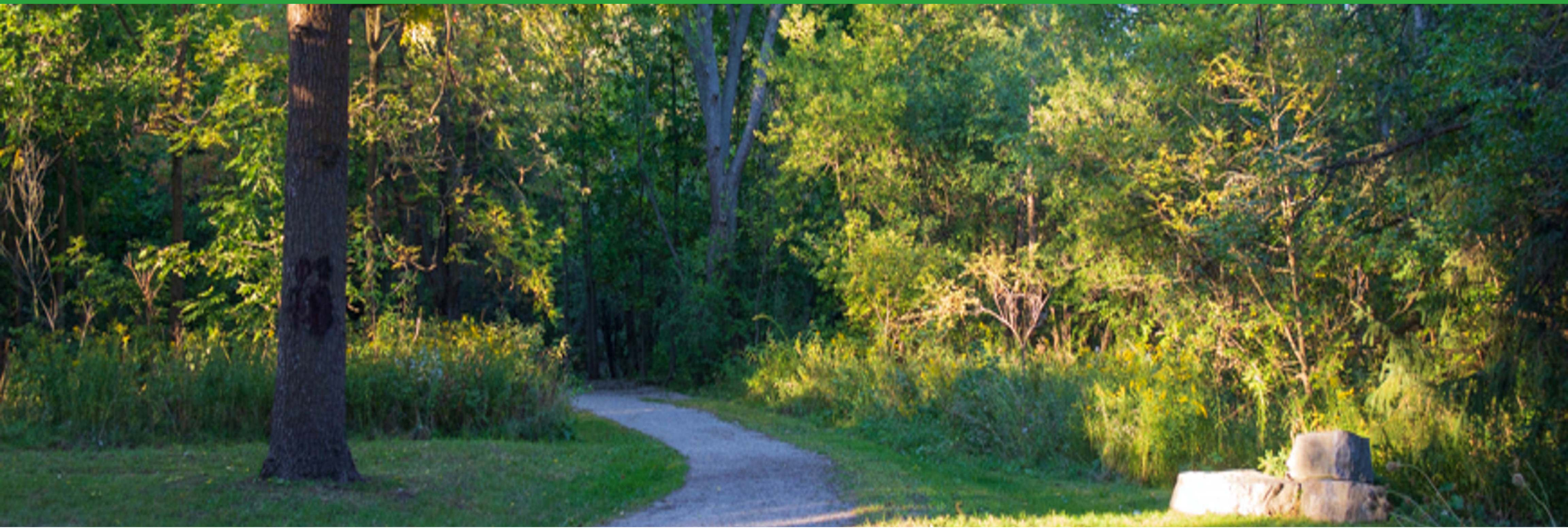
Construction Phasing:

- Project is proposed to be completed in phases: downstream of Kent is proposed to be completed in Phase 1 and upstream of Kent is proposed to be done as part of Phase 2

KITCHENER

Stantec

Next Steps



- Incorporate PIC3 feedback and finalize preferred design concept
- Phase 4: Environmental Study Report (Winter 2024) – 30-day public review
- Field work continuing (Spring 2024)
- Detailed design and permitting including further consultation (2024-2025)
- Phase 1 Construction (2025-2026)
- Phase 2 Construction (TBD)

KITCHENER

Stantec

Thank you!

Chris Nechacov, C.E.T.
Project Manager
City of Kitchener
519-741-2200
SchneiderCreekEA@kitchener.ca

Steve Brown, MBA, P.Eng.
Project Manager
Stantec Consulting Ltd.
519-585-7446
SchneiderCreekEA@stantec.com

KITCHENER

Stantec

Appendix C Information Sheet

Schneider and Shoemaker Creek Naturalization Environmental Assessment
Public Information Centre #3

Welcome and thank you for attending the second Public Information Centre (PIC) for the Schneider and Shoemaker Creek Naturalization Environmental Assessment. The purpose of this PIC is to present alternative design concepts, evaluate the alternative designs and share the preferred designed, answer public questions and obtain feedback.

For further information and to review the materials from tonight's PIC please visit the project website provided below:

www.engagewr.ca/SchneiderCreekEA

For additional comments or question please reach out to the project team:

Chris Nechacov, C.E.T.
Design & Construction Project Manager
City of Kitchener
Tel: 519-741-2200
Email: schneidercreekea@kitchener.ca

Steve Brown, MBA, P.Eng.
Project Manger
Stantec Consulting Ltd.
Tel: 519-585-7446
Email: schneidercreekea@stantec.com

Please see reverse side for study area map


Floodplain Limit
Study Area
STIRLING AVENUE SOUTH
KING STREET EAST
KENT AVENUE
Schneider Creek
CHARLES STREET EAST
PALMER AVENUE
COURTLAND AVENUE EAST
BORDEN AVENUE SOUTH
NYBERG STREET
SYDNEY STREET SOUTH
Shoemaker Creek
BEDFORD ROAD
Rockway Golf Course
0
100
200
metres

Schneider and Shoemaker Creek Naturalization Environmental Assessment
Public Information Centre #3

Welcome and thank you for attending the second Public Information Centre (PIC) for the Schneider and Shoemaker Creek Naturalization Environmental Assessment. The purpose of this PIC is to present alternative design concepts, evaluate the alternative designs and share the preferred designed, answer public questions and obtain feedback.

For further information and to review the materials from tonight's PIC please visit the project website provided below:

www.engagewr.ca/SchneiderCreekEA

For additional comments or question please reach out to the project team:

Chris Nechacov, C.E.T.
Design & Construction Project Manager
City of Kitchener
Tel: 519-741-2200
Email: schneidercreekea@kitchener.ca

Steve Brown, MBA, P.Eng.
Project Manger
Stantec Consulting Ltd.
Tel: 519-585-7446
Email: schneidercreekea@stantec.com

Please see reverse side for study area map


Floodplain Limit
Study Area
STIRLING AVENUE SOUTH
KING STREET EAST
KENT AVENUE
Schneider Creek
CHARLES STREET EAST
PALMER AVENUE
COURTLAND AVENUE EAST
BORDEN AVENUE SOUTH
NYBERG STREET
SYDNEY STREET SOUTH
Shoemaker Creek
BEDFORD ROAD
Rockway Golf Course
0
100
200
metres

I.4 Comments Received

From: EA Notices to WCRegion (MECP)
To: Murray, Katie
Subject: Automatic reply: West Central, MEA Class EA, Schneider and Shoemaker Creeks Naturalization Environmental Assessment
Date: Friday, March 31, 2023 9:26:08 AM

This is to acknowledge your email has been delivered to the Regional email account. An Environmental Resource Planner & EA Coordinator will contact you if additional information is needed. To speak directly to a, go to the INFO-GO website and under our ministry, select: 1) Environmental Assessment and Permissions Division 2) Environmental Assessment Branch 3) Environmental Assessment Services 4) Project review 5) Environmental Resource Planner & EA Coordinator.

From: noreply@kitchener.ca on behalf of Kitchener Utilities
To: SchneiderCreekEA
Subject: (Automatic Reply) Thank you for contacting Kitchener Utilities
Date: Monday, April 3, 2023 8:01:07 AM
Attachments: Q22-136-Notice of Commencement-finaleb4cc468-e2bc-4e25-9de9-baf73e7bdb8e.pdf

---

This message is to confirm receipt of your recent email to the Kitchener Utilities.

Thank you,

Kitchener Utilities

Your Name:

Katie Murray

Subject:

Notice of Commencement and Public Information Cent

Your Message:

Good morning,

Please see attached the Notice of Commencement and Notice of Public Information Centre (April 13th) for the Schneider and Shoemaker Creeks Naturalization Environmental Assessment Study. For more information, please visit the project website: www.engagewr.ca/SchneiderCreekEA.

Should you have any questions or comments regarding the above-mentioned project, please do not hesitate to contact the Project Team per the attached Notice.

Thank you.

From: SchneiderCreekEA (SM)
To: "Mike Arnold"
Cc: SchneiderCreekEA (SM); SchneiderCreekEA
Subject: RE: road closures
Date: Wednesday, April 12, 2023 3:14:21 PM
Attachments: image001.png
image002.png
image003.png
image004.png
image005.png
image006.png
image007.png
image008.png
image009.png

Hello Mike,

Thanks for reaching out. The Environmental Assessment is a study that will review the existing conditions of the creek, and provide design alternatives for the creek naturalization. There will not be any road closures as part of this study which is estimated to be completed by 2024.

Depending on the result of the EA, the design alternative that may be selected as the preferred option may temporarily impact the road at the creek locations around the bridges during the creek construction which may happen in 2025. However, the plaza on Ottawa St is quite a ways away and should not be affected.

That being said, I will add your concern to the project log.
Thank you,
Chris Nechacov, C.E.T.

Design and Construction Project Manager | Sanitary & Stormwater Utilities | City of Kitchener
519-741-2200 x 7148 | TTY 1-866-969-9994 | Chris.Nechacov@kitchener.ca

---

From: Mike Arnold <mikea4932@gmail.com>
Sent: Tuesday, April 4, 2023 10:08 AM
To: SchneiderCreekEA (SM) <SchneiderCreekEA@kitchener.ca>
Subject: road closures

Hello Chris. My name is Mike Arnold. I own Little Short Stop Stores. Ottawa street has been closed every summer for the past 6 + years. Will this reconstruction effect the roadway???? It must not be closed again.

Mike Arnold

precauciones adicionales.

From: SchneiderCreekEA (SM)
To: "dave.h@zpplan.com"
Cc: SchneiderCreekEA (SM); SchneiderCreekEA
Subject: RE: REQUEST: Schneider and Shoemaker Creek Naturalization EA - RE: [redacted], Kitchener
Date: Wednesday, April 12, 2023 11:16:01 AM

Hello Dave,

Sorry for the late reply.

While this property is quite far from the study area, we cannot know the impacts of the Class EA as of yet. Currently we are in the Phase 1: Problem or Opportunity phase of the EA, however once we begin looking at the alternative design concepts for the preferred solution in Phase 3 which will be in the fall of 2023, we will better understand the impacts to this property if any. Please stay tuned at https://www.engagewr.ca/SchneiderCreekEA to follow the EA as it progresses.

Thanks,
Chris

From: Dave Hannam - Zelinka Priamo Ltd. <dave.h@zpplan.com>
Sent: Tuesday, April 11, 2023 3:49 PM
To: SchneiderCreekEA (SM) <SchneiderCreekEA@kitchener.ca>; schneidercreekea@stantec.com
Subject: RE: REQUEST: Schneider and Shoemaker Creek Naturalization EA - RE: [redacted], Kitchener

Can someone get back to me on this query please.

Thanks and regards

_____

Dave Hannam
Zelinka Priamo Ltd. – Land Use Planners
(416) 312-1412 cell
dave.h@zpplan.com

From: Dave Hannam - Zelinka Priamo Ltd. <dave.h@zpplan.com>
Sent: April 5, 2023 5:48 PM
To: 'schneidercreekea@kitchener.ca' <schneidercreekea@kitchener.ca>; 'schneidercreekea@stantec.com' <schneidercreekea@stantec.com>
Subject: REQUEST: Schneider and Shoemaker Creek Naturalization EA - RE: [redacted], Kitchener

Hello Chris and Steve, we are the planning consultants for the owners of the lands known municipally as [redacted], in Kitchener (see the attached aerial sketch).

Our client recently received the Notice of Commencement for the Schneider and Shoemaker Creek Naturalization EA. While our clients lands fall outside of the EA study area, they do abut Shoemaker Creek approx. 300m to the south west. While the lands are predominantly vacant at present, there are

plans in the works to redevelop them for medium/high-density mixed use in the future.

Initially, we would be interested to hear your general thoughts on what, if any, potential implications could arise for our clients lands as a result of this Class EA.

Please confirm receipt of this request by return email, and if you have any questions or require anything further please let me know.

Thanks and regards

Dave Hannam MCIP, RPP
Partner

Zelinka Priamo Ltd. – Land Use Planners
London Office
318 Wellington Road
London, ON N6C 4P4
(519) 474-7137 office
(416) 312-1412 cell
dave.h@zpplan.com
www.zpplan.com

For the best experience, open this PDF portfolio in Acrobat X or Adobe Reader X, or later.

Get Adobe Reader Now!

Administration Centre: 400 Clyde Road, P.O. Box 729 Cambridge, ON N1R 5W6
Phone: 519-621-2761 Toll free: 1-866-900-4722 Fax: 519-621-4844 www.grandriver.ca

April 11, 2023

Chris Nechacov
City of Kitchener
200 King Street West
Kitchener ON N2G 4V6
schneidercreekea@kitchener.ca

Steve Brown
Stantec
100-300 Hagey Boulevard
Waterloo ON N2L 0A4
schneidercreekea@stantec.com

Re: Schneider and Shoemaker Creeks Naturalization Municipal Class Environmental Assessment
Stirling Avenue South, Courtland Avenue East and Sydney Street South, Kitchener

Dear Mr. Nechacov and Mr. Brown,

Grand River Conservation Authority (GRCA) staff have received the Notice of Commencement for the above-noted class environmental assessment (Class EA).

As the project team is aware, the subject lands contain Schneider and Shoemaker Creeks as well as their associated floodplain. The floodplain in the project area is a Two-Zone Floodplain Policy Area. Given the presence of the regulated features, our role in previous studies, as well as the proximity of people / properties to the Regional Storm flooding hazard, the GRCA requests to be directly involved in the Class EA process from a policy and technical oversight perspective.

The current floodplain was revised as part of the Rockway Planning Around Rapid Transit Stations (PARTS) Plan (City of Kitchener, December 2017). Through that study, a "candidate flood fringe" was identified, in addition to defining a floodway and flood fringe. These candidate areas are treated as the floodway, but have the potential to become flood fringe if certain conditions are met. Those conditions vary between 15 separate "development blocks", but generally, a change to flood fringe would be unlocked by removing buildings from the floodway. The GRCA had in-depth involvement in the hydraulic modelling and policy drafting in that previous study.

From a policy perspective, please refer to the GRCA's general Two-Zone Criteria (attached), GRCA Policies 7.2.1 and 8.1.30-8.1.32, as well as section 6.C.2 of the City Official Plan. The GRCA will only permit redevelopment outside of the floodway, and any redevelopment involving residential or overnight accommodation uses (including additional dwelling units inside existing buildings) must achieve floodproofing and safe access criteria. If the Class EA evaluates alternatives on the basis of improved redevelopment potential, we would suggest these requirements are used as criteria.

Two of the stated objectives of this Class EA are to expand / naturalize the creek boundaries, and explore opportunities to reduce the flooding hazard in the study area. Understanding that, proposed changes to the channel (and consequently the floodplain) must be reflected in a revised hydraulic model. The model must demonstrate that floodplain elevations upstream, downstream and through the study area are the same or less than existing. We recommend referring to the Technical Guidelines for Flood Hazard Mapping (Environmental Water Resources Group, March 2017) for data, analysis, modelling and mapping requirements. We also ask that the GRCA is engaged early to discuss certain aspects of the modelling, such as:

- Use of existing hydrology, and any calibration / validation
- Proposed approach for modifying existing HEC-RAS model
- Changes to general parameters such as roughness coefficients, cross-section spacing, and boundary conditions

Please be advised that amendments to the floodplain and the floodway-flood fringe boundaries, which form the basis of GRCA's regulatory mapping, must be approved by GRCA's Board. This Class EA and supporting technical documentation with respect to the floodplain must also be endorsed by GRCA's Board for use as the guiding document when dealing with planning matters and permit applications in the study area.

We trust this information is of assistance. If you have any questions or require additional information, please contact me at 519-621-2763 ext. 2292 or theywood@grandriver.ca.

Sincerely,

Trevor Heywood
Resource Planner
Grand River Conservation Authority

Encl. Resource Mapping
GRCA General Two-Zone Criteria
Technical Guidelines for Flood Hazard Mapping

Resource Mapping

Map Centre (UTM NAD83 z17): 542,210.84 4,809,838.47

This map is not to be used for navigation | 2020 Ortho (ON)

Grand River Conservation Authority

Date: Dec 14, 2022

Author: TH

Schneider and Shoemaker Creek, Rockway, Kitchener

Legend

- Regulation Limit (GRCA)
- Regulated Watercourse (GRCA)
- Regulated Waterbody (GRCA)
- Wetland (GRCA)
- Floodplain (GRCA)
  - Engineered
  - Estimated
  - Approximate
  - Special Policy Area
- Slope Valley (GRCA)
  - Steep
  - Oversteep
  - Steep
- Slope Erosion (GRCA)
  - Oversteep
  - Toe
- Lake Erie Flood (GRCA)
- Lake Erie Shoreline Reach (GRCA)
- Lake Erie Dynamic Beach (GRCA)
- Lake Erie Erosion (GRCA)
- Parcel - Assessment (MPAC/MNRF)

This legend is static and may not fully reflect the layers shown on the map. The text of Ontario Regulation 150/06 supercedes the mapping as represented by these layers.

The source for each data layer is shown in parentheses in the map legend. For a complete listing of sources and citations go to: https://maps.grandriver.ca/Sources-and-Citations.pdf

0 50 100 200 300 Metres

N

NAD 1983 UTM Zone 17N

Scale: 8,284

Map Centre (UTM NAD83 z17): 542,210.84 4,809,808.55

This map is not to be used for navigation | 2020 Ortho (ON)

Grand River Conservation Authority

Date: Dec 14, 2022

Author: TH

Schneider and Shoemaker Creek, Rockway, Kitchener

Legend

- Municipal Boundary (GRCA)
- Watercourse - Local (GRCA)
- Parcel - Assessment
- CA Boundary - Local (GRCA)
- Waterbody - Local (GRCA)

0 50 100 200 300 Metres

N

NAD 1983 UTM Zone 17N

Scale: 8,284

Two Zone Criteria

The general approach to developing a two-zone floodplain policy is to identify floodplain lands where development will not create an unacceptable risk to life or property, or increase flood risks upstream or downstream of the proposed two-zone policy areas.

These lands would be identified as the flood fringe. The criteria are as follows:

- Regulatory storm velocity is ≤ 1.0 metres / second;
- Regulatory storm depth-velocity product is ≤ 0.4 metres² / second;
- Flood depths along access routes to:
    - Residential units is ≤ 0.8 metres;
    - Commercial or industrial structures is ≤ 1.2 metres;
- Flood depths adjacent to:
    - Residential units is ≤ 1.2 metres;
    - Commercial or industrial structures is ≤ 2.0 metres;
- Upstream flood elevation increase due to floodplain storage loss is ≤ 0.1 metres;
- Downstream flow rates don't increase due to floodplain storage loss;
- Not frequently flooded (1:25 year floodplain);
- > 15 metres of the banks of the watercourse.

Technical Guidelines for Flood Hazard Mapping

(under separate cover)

MARCH 2017

TECHNICAL GUIDELINES FOR FLOOD HAZARD MAPPING

Central Lake Ontario Conservation

Credit Valley Conservation

Grand River Conservation Authority

Ganaraska Conservation

Toronto and Region Conservation Authority

Nottawasaga Valley Conservation Authority

Environmental Water Resources Group Ltd.

Dr. B. Adams & D. Haley

TECHNICAL GUIDELINES FOR

FLOOD HAZARD MAPPING

MARCH, 2017

prepared for:

Central Lake Ontario Conservation

CVC Credit Valley Conservation

Ganaraska Conservation

Grand River Conservation Authority

Nottawasaga Valley Conservation Authority

Toronto and Region Conservation for The Living City

prepared by:

EWRG Environmental Water Resources Group Ltd.

in association with Dr. B. Adams, and D. Haley

Acknowledgements

The development of the Technical Guidelines was guided by a Steering Committee composed of the following:

Toronto and Region Conservation for The Living City S. Dhalla, P.Eng. D. Hipple, P.Eng. W. Ho D. Chekol, Ph.D. N. Lorrain	Nottawasaga Valley Conservation Authority G. Switzer, P.Eng. T. Reeve, P.Eng.	Ganaraska Conservation M. Peacock, P.Eng. I. Jeffrey
Grand River Conservation Authority G. Rungis, P.Eng.	CVC Credit Valley Conservation Dr. N. Gupta, P.Eng. R. Ul-Haq, P.Eng.	Central Lake Ontario Conservation P. Sisson, P.Eng. A. Langmuir, P.Eng.

The Consultant Team that developed the Technical Guidelines included the following:

EWRG Environmental Water Resources Group Ltd. C. Doherty, P.Eng.	University of Toronto Dr. B. Adams, P.Eng.	D. Haley, P.Eng.

Limitations of use

The Technical Guidelines for Flood Hazard Mapping is intended for the use of the Steering Committee agencies270 (Toronto and Region Conservation, Nottawasaga Valley Conservation Authority, Ganaraska Conservation, Grand River Conservation Authority, Credit Valley Conservation, and the Central Lake Ontario Conservation).

Other users of the Technical Guidelines should independently verify the applicability of the Technical Guidelines to their practices. The Steering Committee agencies and EWRG Environmental Water Resources Group Ltd. (EWRG) will not be responsible for any damages or loss for which other users make of the Technical Guidelines.

Any use or reliance that other agencies or individuals make of the Technical Guidelines is the sole responsibility of those agencies and individuals. The Steering Committee agencies and EWRG disclaim responsibility for the fitness of the Technical Guidelines, and the validity of information in the Guidelines for any particular purpose. The Steering Committee agencies and EWRG disclaim responsibility for any inaccuracy or error that the Technical Guidelines may contain.

Publication Information

Comments on the Technical Guidelines should be directed to the following:

Sameer Dhalla, P.Eng.
Associate Director | Engineering Services | Restoration and Infrastructure
Toronto and Region Conservation Authority
5 Shoreham Drive, Downsview, Ontario, M3N 1S4
e-mail: sdhalla@trca.on.ca

Table of Contents

1.0 INTRODUCTION

1.1 Background

The need for flood plain management has been emphasized over the last six (6) decades after major floods have taken numerous lives and generated hundreds of millions of dollars in damages. Some of the major Ontario floods that have occurred over the last six decades have been located in Toronto (1954), Cambridge (1974), Dover Township (1979), Field Township (1979), Nipissing French River (1979), Port Hope (1980), Windsor (1981), Chatham, Dover, Dresden, Huntsville, and Fort Albany (1985), Winisk (1986), Harrow (1990), Peterborough (2002-2004), Toronto (2005), Mississauga (2009), Toronto and Mississauga (2013), and Burlington (2014).

The objectives of flood plain management in Ontario are to:

(i) Prevent the loss of life;
(ii) Minimize property damage and social disruption; and
(iii) Encourage a coordinated approach to the use of land and the management of water in reducing flood risk.

The three (3) basic components of flood plain management to achieve a reduction in flood risk include the following:

- PREVENTION through land use planning and regulation of development;
- PROTECTION through structural and land acquisition measures; and
- EMERGENCY PLANNING and RESPONSE through flood warning and disaster relief.

Flood hazard maps are used to support all of the three (3) basic components of flood plain management. Flood hazard maps are used in identifying the following:

- Undeveloped flood prone areas that can be regulated;
- Flood risk in existing developed areas to allow for protection through structural and land acquisition measures; and
- Properties that will be at risk during flood events.

For the Province of Ontario the following applies:

"The flooding hazard limit is the greater of:

i) the flood resulting from a rainfall actually experienced during a major storm such as the Hurricane Hazel storm (1954) or the Timmins storm (1961), transposed over a specific watershed and combined with the local conditions, where evidence suggests that the storm event could have potentially occurred over watersheds in the general area;
ii) the one hundred year flood; or

iii) a flood which is greater than i) or ii) which was actually experienced on a particular watershed or portion thereof, for example as a result of ice jams and which has been approved as the standard for that specific area by the Minister of Natural Resources; and

The exception is where the use of the 100 year flood or actually experienced event as the flood standard for a specific watershed, even though it does not exceed the Hazel or Timmins event, has been approved by the Minister of Natural Resources, (where past history of flooding supports the lowering of the standard)." [1]

Essa, October 20th, 1954

[1] page 11, Technical Guide - River and Stream Systems: Flooding Hazard Limit, 2002, Ontario Ministry of Natural Resources[1]

1.2 Document Purpose and Scope

The Technical Guidelines serve several purposes including the following:

- To provide guidance to staff of the Steering Committee agencies, and to Consultants undertaking flood hazard mapping studies for those agencies;
- To provide a consistent approach in the development of flood hazard maps; and
- To establish "good engineering practice" in the development of flood hazard maps. This will provide a technical framework for evaluating the acceptability and adequacy of flood hazard maps during Regulatory and technical reviews.

The Technical Guidelines are intended for Steering Committee agencies and their consultants. The Technical Guidelines will be considered as "good engineering practice" during review of external consultants' flood hazard maps produced for new land development sites.

Although the Technical Guidelines represent commonly accepted best practices, it remains the users' responsibility to recommend and justify procedures, computation methods, and parameters that best represent conditions in study areas of concern. It is presumed and recommended that users of the Technical Guidelines have a good working knowledge of hydrologic and hydraulic engineering principles.

The Technical Guidelines do not replace a project's Terms of Reference but should be used in-conjunction with a project's Terms of Reference to determine how flood hazard limits are to be developed. The Terms of Reference should document the intended use of the hazard limits, and the requirements of the Conservation Authority. Too little information in a Terms of Reference may result in a product that does not meet the needs of the Conservation Authority.

This document does not replace, but rather complements the Ontario Ministry of Natural Resources (OMNR) River & Stream Systems: Flooding Hazard Limit, Technical Guide, 2002. This document updates the 2002 Guide with respect to hydrologic models, hydraulic models, survey techniques, and GIS procedures. In addition, it clarifies certain hydrologic and hydraulic procedures.

This document covers both the development of new flood hazard maps and the updating of existing maps due to new development at the watershed, reach and site levels.

1.3 Flood Hazard Mapping Study Components

A flood hazard mapping study includes the following components:

- Data Requirements - Section 2;
- Hydrologic Analysis - Section 3;
- Hydraulic Analysis - Section 4;
- Flood Hazard Maps - Section 5; and
- Flood Hazard Map Updates - Section 6.

Not all components are necessarily conducted during the same study.

Rescue mission during the floods on CNR in Tecumseth Township, ON, October 15th, 1954.

1.4 Public Consultation

A public consultation process is recommended for flood hazard mapping studies. For new flood hazard mapping, two public contacts are recommended. One to inform the public a flood hazard mapping study is underway and to collect information from the public. The second contact would present the draft flood hazard maps and request any comments on the maps. For flood hazard map updates, one public contact is recommended to present the draft flood hazard maps.

A public contact can be an information centre, if there are a significant number of properties at risk from inundation or can be a personal contact if there are only a few properties at risk.

Albion Hills Conservation Area, Caledon, ON, 2015.

2.0 DATA REQUIREMENTS

2.1 General

Section 2 outlines the data required to develop flood hazard maps. The required data includes the following:

1.	Digital Elevation Data	Section 2.2;
2.	Feature Data	Section 2.3; and
3.	Hydraulic Structure Data	Section 2.4.

The methodology for a flood hazard mapping project must be specified in the project's Terms of Reference. Methodologies will be based on existing data, required data, the intended future use of digital elevation data, and follow up studies that may be required. An example of a follow up study would be a Two Zone analysis where flood depths, and flood velocities are required. Project costs could differ depending on the methodology used to develop the flood hazard maps. It is important that the project Terms of Reference list the intended use and the methodologies to be used when developing flood hazard maps.

Flood hazard limits can be delineated on (1) line maps with contours and spot elevations; (2) ortho-photo maps with contours and spot elevations; and (3) ortho-photos with an elevation grid. Typically, contours and spot elevations will be used to display the results of 1-D hydraulic models, and an elevation grid will be used to display the results of 2-D hydraulic models.

Figure 2-1 identifies digital elevation data options available for a flood hazard mapping project. There are options for collecting digital elevation data, there are options for input to the hydraulic model, and there are options for displaying the results of the hydraulic model. The collection and processing of digital elevation data will probably be conducted by agencies external to those conducting the hydrologic and hydraulic analyses. These agencies include a Conservation Authority's Geographic Information System (GIS) department or an external mapping firm. Each method used to collect digital elevation data has its associated strengths and weaknesses. A balance must be struck between cost and accuracy when choosing the data collection method.

The digital elevation data for input to the hydraulic analysis will include contours and cross section points for 1-D modelling and gridded elevation data or DEMs for 2-D modelling.

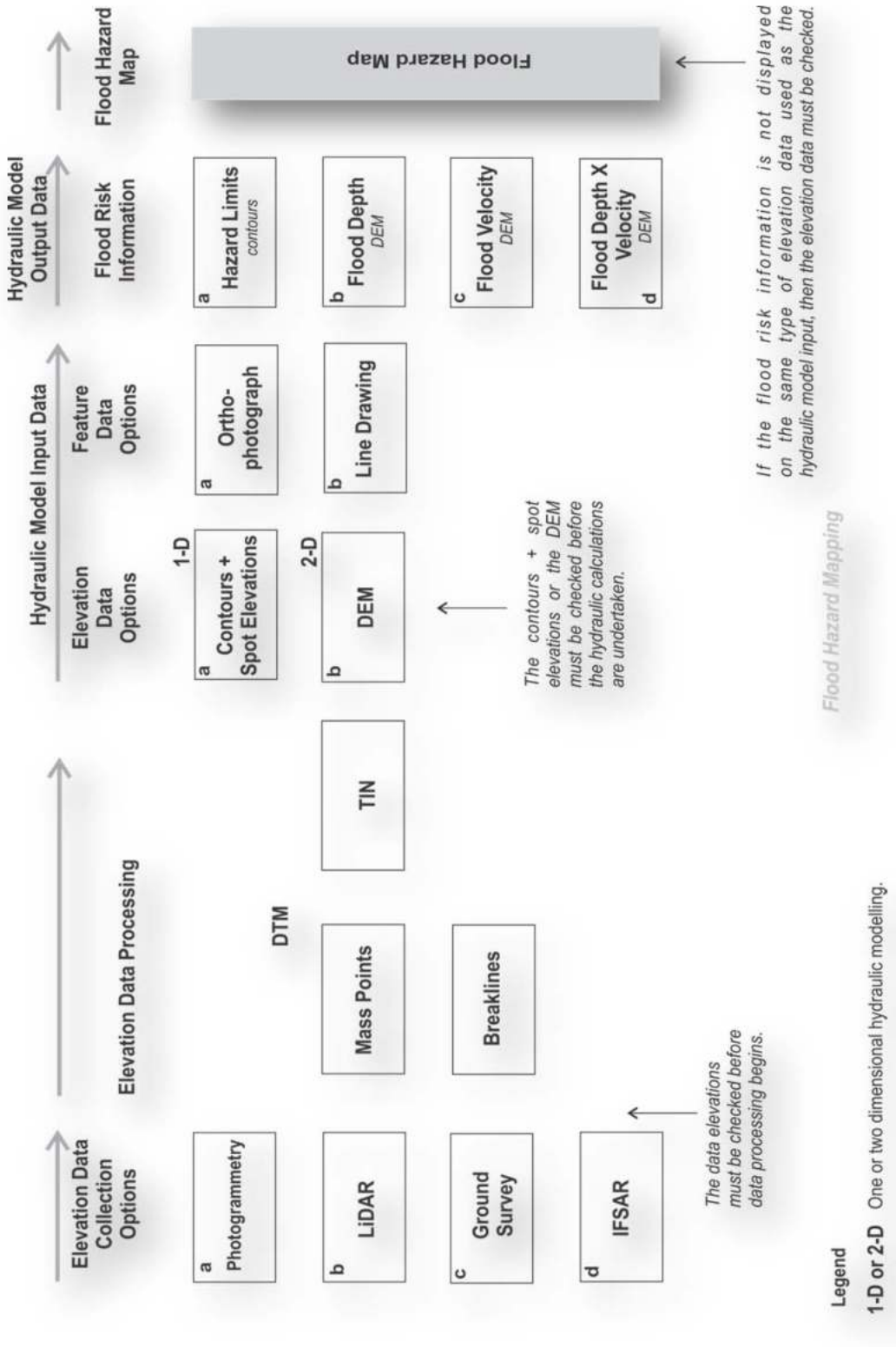
Digital elevation data sources, used for input to the hydraulic model, must be field survey checked prior to use. Also, if the results of the hydraulic analysis are placed on digital elevation data sources different from the input data, then the output digital elevation data sources must also be checked. As an example, water surface elevations may be created from contours and spot elevations while the flood elevations are plotted on a grid such as a DEM. This example would require two checks, one for the contours and spot elevations and one for the DEM. Survey data collected to check contours and spot elevations could be used to check the DEM.

The collection and processing of data must be conducted using established procedures, and must be easily reproducible. Qualified persons are to be able to recognize and understand all methods, approaches, basic data and rationale and any assumptions used in the analysis. Qualified persons are to be able to recreate the entire work without referring to other documents. Documentation must include the following:

- What analysis was done including purpose, alternative methods, and the rationale for the chosen method;
- How the analysis was conducted including input data, data sources, measurements of data, verification, corroboration, uncertainty analysis, calibration, validation, and sensitivity analysis;
- The results of the analysis;
- How the results were checked; and
- What are the limitations of the analyses.

Minimum Upstream Drainage Area For Flood Hazard Mapping - currently there is no Provincial minimum upstream drainage area requirement for the development of flood hazard limits. During the 1970's and 1980's a minimum drainage area of 125 ha was utilized presumably not to conflict with the Ontario Drainage Act. Headwater tributaries can have a significant impact on downstream flooding. The effective management of headwater tributaries may require flood hazard limits. It is currently up to the individual Conservation Authorities to define and implement flood hazard mapping or regulations on headwater tributaries based on their established watershed management needs and not upon any set drainage area.

Figure 2-1 - Flood Hazard Map Options



2.2 Digital Elevation Data - Contours, Cross Section Points and Grids

2.2.1 General

Hydraulic programs that model one-dimensional (1-D) flow usually require cross section points as part of the input. Cross sections are represented by a series of points located along a line or series of line segments that are perpendicular to flow. These points have a location specified by UTM co-ordinates and an elevation referenced to a datum. Cross section points represent the ground in the channel and the flood plain. Contours are required to (1) align cross sections, to abstract cross section points; (2) to identify ineffective flow areas; and (3) to plot hazard limits between cross sections. Contours are imaginary lines with all points on the line having the same elevation.

Hydraulic programs that model two-dimensional (2-D) flow usually required a grid or mesh to model the ground surface. Grids can be irregular in size or can be rectangular of the same size. DEMs (Digital Elevation Model) are one example of a grid.

Contours, cross section points, and grids can be manually or automatically developed from several different types of surface models that include mass points, breaklines, DTMs, TINs, and DEMs.

Mass Points - mass points define the horizontal and vertical location of specific points on the earth. Mass points can be generated using photogrammetry, LiDAR, IFSAR, ground based laser scanning, ground surveys (GNSS, Total Station) as well as other methods that meet the required accuracy.

Photogrammetry **-** can be used to gather digital elevation data for use in mass point data sets. Photogrammetry is the science of making accurate measurements from aerial photographs. Adjustments must be made to account for distortions in the camera system, and the curvature of the Earth. Photogrammetric mapping is accomplished through four processes that include aerial photograph acquisition, ground control acquisition, adjustment of the aerial photographs to the Earth, and feature collection.

LiDAR (Light Detection and Ranging) - Airborne LiDAR systems can gather digital elevation data to be used in mass point data sets, and in DEMs. LiDAR is composed of an airborne GPS with a GPS base station, an Inertial Measurement Unit (IMU), and light-emitting scanning laser. The airborne GPS determines the in-flight three-dimensional position of the sensor, and the IMU determines the attitude of the sensor i.e., the roll, pitch and heading. Automated and manual processing are required to identify vegetation, anthropogenic features and artifacts to produce a bare-earth model. LiDAR generates first return data that represents tree tops, roof tops, etc. Also, LiDAR produces last return data that represents points on bare-earth.

Ground Surveys - are typically conducted using GNSS (Global Navigation Satellite System) surveys or total station surveys. GNSS receivers can gather digital elevation

data to be used in mass point data sets. GNSS receivers capture data from several satellites to determine position coordinates (Northing, Easting, elevation) of a survey station. Total Stations can be used to gather digital elevation data to be used in mass point data sets. A Total Station measures horizontal and vertical angles as well as horizontal and vertical distances. Recorded data is stored in a data collector.

IFSAR (Interferometric Synthetic Aperture Radar) - airborne systems can gather digital elevation data to be used to create bare earth DEMs and associated data products. LiDAR transmits and receives pulses using lasers. IFSAR transmits and receives radar pulses. IFSAR is side looking where LiDAR is centered over the terrain features. IFSAR pulses can penetrate clouds where LiDAR pulses are absorbed by water. IFSAR operates at high altitudes (6,000 to 10,000 m) and speeds approaching 750 km/hr. LiDAR operates at approximately 200 km/hr. and at elevations of 300 m to 1,880 m. Vertical accuracy for LiDAR is about 15 - 50 cm RMSE and IFSAR is approximately 60 cm RMSE. Generally, LiDAR has greater accuracies than IFSAR for small urban and forested areas. IFSAR is more cost efficient for large areas where lower accuracies are required.

Breaklines - are linear features that describe a change in the slope, smoothness, or continuity of a surface. Breaklines should be produced using either stereo photogrammetric procedures or digital ortho-photography, where breakline features are digitized as two-dimensional features. Breaklines are created for stream centerlines, drainage ditches, tops and bottoms of streambanks, ridge lines, road crowns, levees, bulkheads, seawalls, road/highway embankments, and features that constrict the flow of water.

DTMs (Digital Terrain Model) - is the combination of mass points and breaklines that can be used to generate a TIN. See Table 2.5 for more details.

TINs (Triangulated Irregular Networks) - a TIN is a set of adjacent, non-overlapping triangles computed from point, line, and polygon data interpreted from mass points and breaklines. The TIN model stores the topological relationship between triangles and their adjacent neighbors. A TIN allows for the efficient generation of surface models for the analysis and display of terrain surfaces. A TIN model can be used to generate contour lines and DEMs. DEM accuracy is a function of the accuracy of the mass point data and the grid spacing.

DEMs - represent the elevation of bare earth at regularly spaced intervals in eastings and northings. DEMs are usually displayed as uniformly spaced grids. DEMs may neglect breakline information, as the DEM is grid based. DEMs are normally produced from irregularly spaced mass points. DEMs are slightly less accurate than TINs, or mass points from which they are averaged or interpolated. DEMs can be produced by a variety of methods. See Table 2.4 for more detail.

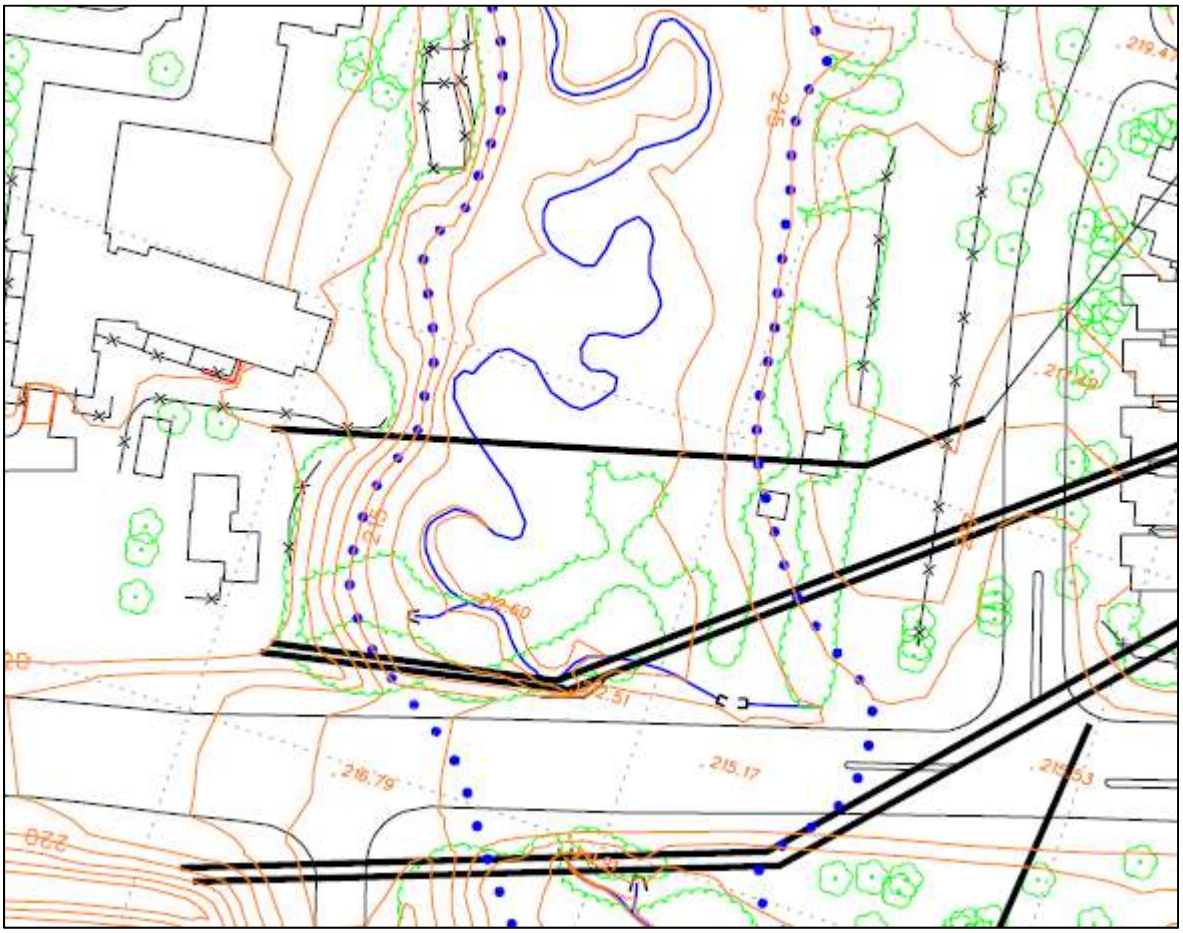
DEM cells may not accurately represent a watercourse (i.e., puddles) due to the averaging or interpolation nature of a grid cell. A hydro-enforced DEM uses breaklines to lower DEM cell

elevations to accurately represent watercourses and water bodies. Breaklines must be manually entered in the DEM. Thus, errors are introduced when the DEM is hydrologically conditioned.

The remainder of Section 2 has been divided into the following sub-sections:

2.2.2 Digital Elevation Data - Contours and Spot Elevations
2.2.3 Digital Elevation Data - Ground Surveys
2.2.4 Digital Elevation Data - Datum
2.2.5 Digital Elevation Data - Vertical Accuracy
2.2.6 Digital Elevation Data - Vertical Accuracy Checking
2.2.7 Digital Elevation Data – Deliverables

Figure 2-2 - Example of Flood Hazard Map



2.2.2 Digital Elevation Data - Contours and Spot Elevations

Contours are used to align cross sections, to abstract cross section points, and to plot floodlines between cross sections. Contours can be created in several different ways including a Triangular Irregular Network (TIN), a Digital Terrain Model (DTM), or a DEM. All methods must, at a minimum, generate contours at the following interval:

Contour Interval

- Maximum contour interval shall be 1 m for line maps and ortho-photo maps with 0.5 m interpolated contours.

  The contour interval for any project will be based on the intended use of the hazard limits, and should not be greater than the maximum contour interval. The project contour interval should be defined in the Flood Hazard Mapping Terms of Reference.

Spot Elevations

Spot elevations will be shown at the following locations:

- Intersections of all roads, railways, trails and foot paths;
- End of runways;
- All bridges, culverts and watercourse crossings;
- Dams, docks, piers, and wharfs; and
- All water bodies.

2.2.3 Digital Elevation Data - Ground Surveys

Low-flow Cross Section Points - A representative low flow section shall be field measured for each reach between crossings and applied to each cross section in the hydraulic model.

Flood plain cross section points can be abstracted from digital elevation products (mass points, contours, TINs, DEMs, etc.) or from ground surveys. All surveyed cross section points must conform to the following:

- All points must be geo-referenced, and shown in ESRI shapefiles;
- All points must be referenced to the datum in Section 2.2.4 and must conform to the accuracies specified in Section 2.2.5;
- Surveyed points must represent significant breaks in ground slope and at changes in the hydraulic characteristics of the floodplain;
- Bank elevations to the channel bed and the deepest part of the stream must be measured;

- Underwater cross section elevations may require measurement (as per study Terms of Reference);
- Surveyed cross sections must include the entire flood plain of the main channel and any tributaries. Surveyed cross sections must be tied in vertically to established benchmarks and horizontally to permanent structures;
- In areas of uniform slope, readings must be taken at a maximum spacing of 15 metres. Supplementary data readings will be taken in areas of major change in relief (e.g. ditch centerline, top of fill slopes, etc.); and
- For irregular features such as watercourses, the survey must include points at significant bends in the feature. The maximum distance between data readings for irregular features is 10 meters.

2.2.4 Digital Elevation Data – Datum

Contours should be based on the following datum and projections:

- The vertical datum will be based upon the most current Geodetic Survey of Canada (Canadian Geodetic Vertical Datum CGVD28 - 1978 Version);
- The horizontal projection and datum for all the imagery and digital elevation data will be 6-degree Universal Transverse Mercator Projection (UTM) grid coordinates on NAD83 - CSRS (Canadian Spatial Reference System);
- The Canadian Gravimetric Geoid 2000 (CGG2000) with HTv2.0 will be used; and
- Imagery and data will be expressed in UTM Easting, UTM Northing, and elevation in metric.

2.2.5 Digital Elevation Data - Vertical Accuracy

The Terms of Reference for a flood hazard mapping project must define the level of accuracy of the digital elevation data to be used for the project. Each flood hazard mapping project is unique. The level of accuracy should not be greater than the level of accuracy required for the intended use. Levels of accuracy greater than what is required will result in increased costs, increased project schedules, and decreases in the number of studies that can be completed. The accuracy of the digital elevation data should be based on data needs related to the project Terms of Reference.

The vertical accuracy of a point is defined as the difference in elevation of a point on a map, and the elevation of the point on Earth. Geodetic or ground surveying is used to determine the location and elevation of a point on Earth. The horizontal accuracy of a point or spot elevation is defined as the difference in location between a point on the terrain data model and a point on Earth.

The following vertical accuracy must at a minimum be used for flood hazard mapping projects:

Vertical Accuracy

All contours, spot elevations, breaklines, TINs, and DEMs that have been used to develop cross section data for the hydraulic model will have an accuracy of 0.30 m at the 95% confidence level. This implies that 38 of 40 checkpoints must be within plus or minus 0.30 m of their true elevation.

2.2.6 Digital Elevation Data - Vertical Accuracy Checking

The accuracy of the digital elevation data will be checked for all flood hazard mapping projects. Checkpoints are defined as points in the digital elevation data that will be field surveyed. The surveyed UTM Northing, UTM Easting, and elevation will be compared with the digital elevation data values to determine the accuracy of the digital elevation data.

Checkpoints will be located within a Check Area or a block of land with an area of approximately 2 km2. More than one Check Area with checkpoints may be required to determine the accuracy of digital elevation data and surface models. Checkpoints should be located on public/government owned land to avoid the need for obtaining private property owner permission for conducting the field survey. Checkpoints should be located in flood plain areas if possible. Checkpoints will be evenly distributed across a Check Area.

Check Areas will be selected by the project manager. The number of Check Areas should not be more than 10% of the total surface model area. At least one Check Area will be selected per project to determine the accuracy of the digital elevation data. If the number of Check Areas is greater than one, then the Check Areas will be evenly spaced within the surface model.

Digital Elevation Data Vertical Accuracy Check - Contours & Spot Elevations

A minimum of 40 checkpoints will be used to check the elevation accuracy of a Check Area. The checkpoints will be distributed as follows:

- A minimum of 15 checkpoints will be located on a contour;
- A minimum of 15 checkpoints will be located on a spot elevation; and
- A minimum of 15 checkpoints will be located within the estimated flood hazard limit.

The contours and spot elevations are acceptable if it meets the required accuracy from Section 2.2.5.

Digital Elevation Data Vertical Accuracy Check - DEMs

A minimum of 40 checkpoints in a Check Area shall be used to determine the acceptability of the DEM. The checkpoints shall be selected in terrain that is flat or uniformly sloped. The uniform slope must not exceed 20 percent.

The checkpoints must never be located near to breaklines, such as bridges or embankments. The checkpoints should be evenly distributed in each of the following categories and evenly spaced across the Check Area:

- A minimum of 10 checkpoints will be located on bare earth and low grass;
- A minimum of 10 checkpoints will be located on impervious surfaces; and
- A minimum of 10 checkpoints will be located in high grass, weeds, and crops.

Areas of heavy vegetation may be less accurate than lightly vegetated areas, bare earth areas and impervious surfaces.

The DEM is acceptable if it meets the required accuracy in Section 2.2.5.

2.2.7 Digital Elevation Data - Deliverables

The following shall be submitted in the Accuracy Check Report:

- All field survey notes including electronic files (ASCII files), and paper copies of the notes and files;
- ESRI shapefiles showing the following:
- Benchmarks, temporary benchmarks, and monument locations;
- Contour locations used in the elevation data model check; and
- All surveyed checkpoints;
- A table comparing the field surveyed contour line elevations with the digital elevation model shown contour line elevations;
- A table comparing the field surveyed spot elevations with the digital elevation model shown spot elevations;
- A table comparing the field surveyed UTM coordinates of the checkpoint locations with the abstracted terrain data model values; and
- A table comparing all checkpoints used to determine the acceptability of the DEM.

2.3 Feature Data

2.3.1 General

Generally, flood hazard limits can be displayed on either ortho-photo maps or line maps. The use of either line maps or ortho-photo maps as a base for floodlines should be specified in the project Terms of Reference. Contour lines, and spot elevations will be added to either the ortho-photo maps or the line maps. Features such as buildings, road outlines, etc. appear in the ortho-photos. For line maps those features must be digitized from aerial photos.

Ortho-photographs and Line Drawings

Ortho-photo maps and line maps should show contours, spot elevations, grids, property lines, political boundaries, geographic names, planimetric features, cultural features, etc. Features (property lines, political boundaries, etc.) must be digitized from aerial photos or images. As a result line maps may be more expensive than orhto-photos.

Ortho-photos are a combination of aerial photographs and a DEM after undergoing process call ortho-rectification. The process includes (i) acquisition of photographs; (ii) scanning of non-digital photographs; (iii) ground control point selection for rectification of the photographs to its geographical position; (iv) acquisition of a DEM; (v) merging of the DEM with the aerial photograph with radiometric correction; and (vi) tiling and formatting of the ortho-photos.

Table 2.1 lists some of the features required for ortho-photo maps and line maps.

Deliverables for ortho-photo maps and line maps are shown in Tables 2.2 and 2.3 respectively.

2.3.2 Feature Data - Datum

The horizontal projection and datum for all the imagery and digital elevation data will be 6-degree Universal Transverse Mercator Projection (UTM) grid coordinates on NAD83 - CSRS (Canadian Spatial Reference System).

2.3.3 Feature Data - Accuracy

Features shown on ortho-photos or line maps for hazard maps should at a minimum have the following horizontal accuracy:

- 95% of the features are within a 1 m radius of their true position. Features will include buildings (building corners), fire hydrants, utility poles, or other single fixed points. This implies that 19 of 20 points must be within a 1 m radius of their true position.

2.3.4 Feature Data - Accuracy Checking

A minimum of 20 points per Check Area will be used to check the horizontal accuracy of features on a line drawing or features on an ortho-photograph. The checkpoints will be located at 20 well-defined, identifiable and accessible features that are evenly distributed throughout the Check Area. The feature data locations are acceptable if it meets the required accuracy shown in Section 2.3.3.

Brooklin, ON, July 2008.

Table 2.1 Feature Collection

Ortho-photo Maps & Line Maps

- Contour lines (Intermediate, Index, Auxiliary, Indefinite, and Depressions)
- Control Points (horizontal and vertical)
- Benchmarks/Monuments
- Watercourse Centre Lines & Flow Direction
- Boundaries - (International, Provincial, District, Municipal, Township, Native Reserve, Lot and Concession, Approximate, Annotation, Parking Lots, and Park Dump)
- Parks (National, Provincial, Amusement, Conservation Areas, Campgrounds, Tennis Courts, etc.)
- Spot Elevations
- Road Names (Highway, County, Township, Access, Runways, etc.)
- Cemetery Names
- Watercourse Names

Line Maps

- Aerial Cableways
- Antennae
- Marshes/Swamps/Wetlands
- Woods, plantations, etc.
- Lakes, Ponds
- Bridges (Foot, Road, and Railroad)
- Buildings (Ruins,)
- Cemeteries
- Chimneys
- Control Points (horizontal and vertical)
- Benchmarks/Monuments
- Shoals
- Conveyors, Ski Lifts,
- Culverts
- Dams, Ditches, and Dykes
- Flooded Lands
- Feature Outliers (buildings under construction)
- Fencing
- Light Standard, Poles,
- Depressions, Pits, Quarries
- Rocks
- Rivers, Streams, and Canals (including direction of flow)
- Piles
- Pipelines
- Rail Lines
- Roads (Highway, County, Township, Access, Runways, etc.)
- Trail/Brush Road
- Swimming Pools
- Tanks, Storage Bins,
- Towers
- Trails
- Transmission Lines (Poles, Pylons, and Tunnels, etc)
- Utility Poles & Lines
- Walls, Fence, Headwalls, & Breakwalls
- Wharfs, Docks, Ferry Slips, Groynes, & Piers
- Wooded Areas
- Reservoirs
- Masts
- Cliffs, Pits, and Piles
- Falls, Rapids,
- Shorelines

Table 2.2 – Ortho-Photo and Images

All ortho-rectified imagery will be delivered in 8-bit/band GeoTIFF; with multi-spectral imagery packaged as either two 3-band files (RGB and CIR) or one 4- band file; with the panchromatic band provided as a separate file.

Breaklines shall be placed on features such as overpasses, bridges, water crossings, dams, cliffs and other features that may cause vertical shifts in the imagery.

Delivery formats: GeoTIFF, JPEG2000, JPEG, ECW (ER Mapper Compress Wavelets), and MrSID (Multi-resolution Seamless Image Database). File extensions. Image files should predefined, format-specific file extensions, listed in the table below.

World files. Each image dataset should be accompanied by a valid world file with format-specific file extension (see table below) or generic extension ".wld". For example, a GeoTIFF image file "sample.tif" should have associated world file "sample.tfw" or "sample.wld.

For GeoTIFF files, it is desirable that files contain the GeoTIFF tag "Coordinate System" which contains the full definition of the spatial reference system in the Well-Known Text (WKT) format.

Image Format	File Extension	World File Extension
GeoTIFF	.tif	.tfw
JPEG	.jpg	.jgw
JPEG2000	.jp2	.j2w
ECW	.ecw	.eww
MrSID	.sid	.sdw

Point and tabular data in X/Y or X/Y/Z format can be delivered in ASCII (comma or tab separated) Excel, MS Access, ESRI geo-database table, dBase formats.

GeoTIFF based raster imagery will have all the projection parameters correctly defined in the GeoTIFF headers.

The rasterized version of a DEM will also be delivered in an uncompressed 32 bit GeoTIFF file at the same post spacing.

Data Tiling - All processed tiles should be uniquely identified and labelled using the lower left (southwest) coordinate values for position and uniqueness.

Notes:
Portions of the text have been abstracted from Flood Inundation Mapping Guidelines by Environmental Water Resources Group Ltd. in association with 4DM for the Ontario Power Generation, March 2009.

Portions of the text have been abstracted from Imagery and Elevation Acquisition Guidelines by Mapcon Mapping Ltd. for the Ministry of Natural Resources, November 2009.

Table 2.3 – Line Maps

Shapefiles should have a clean geometry as indicated by the ArcGIS Check Geometry tool.

Data submission should include the relevant ".shp", ".shx", ".dbf" and ".prj" files; optionally the relevant ".sbn" and ".sbx" files may be included.

Tolerance, resolution and domain: Feature classes and feature datasets in ESRI geodatabases have associated tolerance, resolution and domain settings for the X, Y, Z and M coordinates.

Topology: If geodatabase topologies have been created in a geodatabase, the topological rules and relationships, as well as the reasons for implementing the topologies, should be fully documented in the metadata.

All datasets referenced in the project and layer files must be submitted.

Vector data and other shapefile based data such as LiDAR Point Clouds will be delivered in ESRI shapefile format, along with the appropriate ArcGIS projection file (*.prj) indicating the above projection and datum.

Contours will be delivered as an ESRI LineZ Shapefile. Each contour line will have an attribute to indicate if it is an index or intermediate contour and whether it is a depression contour and if it is in an obscured or low reliability area. Contours shall be developed using a combination of elevation mass points, polygons, and breaklines to generate a TIN.

Spot elevations will be shown at the following locations:

- Intersections of all roads, railways, trails and foot paths;
- End of runways;
- All bridges, culverts and watercourse crossings;
- Dams, docks, piers, and wharfs; and
- All water bodies.

The edited topologically correct breakline and other planimetric features as ESRI LineZ or PolygonZ shapefiles as is appropriate will be submitted.

AutoCAD DWG and DXF or Bentley Microstation V8 DGN will be submitted in addition to the shapefile listed above. Non data element such as drawing borders, title blocks, north arrows, etc. shall be placed on a separate layer.

The original collected mass points and a raster data which may be interpolated from the TIN created by the mass points and breaklines) as ESRI PointZ.

All shapefiles will be full 3D files.

Notes:
Portions of the text have been abstracted from Flood Inundation Mapping Guidelines by Environmental Water Resources Group Ltd. in association with 4DM for the Ontario Power Generation, Draft March 2009.

Portions of the text have been abstracted from Imagery and Elevation Acquisition Guidelines by Mapcon Mapping Ltd. for the Ministry of Natural Resources, November 2009

Table 2.4 – Mass Points/DEM

Deliverables:

Mass Point Data X/Y or X/Y/Z Format

- ASCII (comma or tab separated)
- Excel
- MS Access
- ESRI Geo-database table
- dBase

ESRI ASCII Grid

- ESRI Binary Grid.
- ESRI file geodatabase raster, ArcGIS version 9.2 or later.

GeoTIFF

- GeoTIFF files should have an associated valid world file with extension ".tfw" (or ".wld");
- GeoTIFF files should have an associated valid spatial reference system definition file (".prj") in a well-known text (WKT) format;

The GeoTIFF tag "Coordinate System" which contains the full definition of the spatial reference system in the well-known text (WKT) format will be submitted.

Breakline features must be classified and separately attributed for the following features:

- Water Body Features, Shorelines (lakes, reservoirs, etc.)
- Water features (such as wide rivers)
- Linear Hydrographic Features - streams, shorelines, canals, etc. with varying elevations
- Road Features - not including bridges and overpasses
- Overpasses and Bridges
- Ditches and other constructed features
- Obscured Areas - vegetated areas that are considered obscured to the extent that adequate vertical data cannot be clearly determined.

Notes:
Portions of the text have been abstracted from Flood Inundation Mapping Guidelines by Environmental Water Resources Group Ltd. in association with 4DM for the Ontario Power Generation, Draft March 2009.

Portions of the text have been abstracted from Imagery and Elevation Acquisition Guidelines by Mapcon Mapping Ltd. for the Ministry of Natural Resources, November 2009.

Table 2.5 – DTM

Deliverables:

Mass points, breaklines, obscured areas, and optionally contours, shall be referred to herein as the Digital Terrain Model.

Elevation data will include mass point data with a posting not greater than ten times the specified accuracy.

Elevation data will include breakline data for any hydrologically significant features to support the development of a hydrologic terrain surface. A hydrologic terrain surface is defined here as a 3D elevation surface created from elevation points and line and/or polygon breaklines that accounts for any barriers to hydrologic flow.

Breakline features must be classified and separately attributed for the following features:

- Water Body Features, Shorelines (lakes, reservoirs, etc.)
- Water features (such as wide rivers)
- Linear Hydrographic Features - streams, shorelines, canals, etc. with varying elevations
- Road Features - not including bridges and overpasses
- Overpasses and Bridges
- Ditches and other constructed features
- Obscured Areas - vegetated areas that are considered obscured to the extent that adequate vertical data cannot be clearly determined.

Contours shall be developed using a combination of elevation mass points, polygons, and breaklines to generate a TIN.

Notes:
Portions of the text have been abstracted from Flood Inundation Mapping Guidelines by Environmental Water Resources Group Ltd. in association with 4DM for the Ontario Power Generation, Draft March 2009.

Portions of the text have been abstracted from Imagery and Elevation Acquisition Guidelines by Mapcon Mapping Ltd. for the Ministry of Natural Resources, November 2009.

2.4 Hydraulic Structure Data

Hydraulic structure data is required to undertake the hydrologic and hydraulic analyses required for flood hazard maps. Generally, the data is acquired through field surveys, field investigations, and as built drawings. Hydraulic structure data includes the following:

- Photographs;
- Highwater Marks and Debris Lines; and
- Hydraulic Structure Dimensions and Elevations.

Photographs

- Photographs of each hydraulic structure, upstream face, downstream face, looking across the overtopping section from left to right, looking upstream, looking through the structure, and looking downstream; and
- All photographs taken in the field will be geo-referenced and will be located in ESRI shapefiles.

Highwater Marks and Debris Lines

The following should be photographed and surveyed/measured:

- Highwater or flood marks;
- Ice scars, scour marks, etc.;
- Signs of relief flow and any signs of scour of deposition; and
- The location, type, size and amount of debris.

Hydraulic Structure Dimensions and Elevations

Hydraulic structure data sheets should be prepared outlining the physical characteristics of each structure. The data sheets shall be prepared for all hydraulic structures (bridges, dams and embankments, road/rail crossings, etc.).

- Included on the data sheets for bridges/culverts will be the following:
  - Street Name;
  - UTM Co-ordinates;
  - Skew Angle;
  - Crossing Length;
  - Entrance (vertical abutments, headwalls, wingwalls, mitered to slope, projecting);
  - Parapet Type and Dimensions, length and Height;
  - Deck Thickness;
  - Number of Cells;
  - Each Cell Shape;
  - Each Cell Dimensions - Span, Height;
  - Each Cell Material;
  - Pier Width;
  - Top of Road Elevation;
  - Road Sag Elevation;
  - Upstream and Downstream Crossing Invert Elevations;
  - Upstream and Downstream Soffit Elevations;
  - Crossing Material; and
  - Assessment of Scour/Deposition, and Potential for Debris Blockage.

- Included on the data sheets for dams/weirs will be the following:
  - Top-of-dam elevation;
  - Normal pool elevation;
  - Principal spillway type;
  - Inlet and outlet elevations and dimensions; and
  - Emergency spillway type, elevation and dimensions.

- Surveyed profiles across each hydraulic structure. The surveyed profile will be used in the hydraulic model and the points surveyed in the field will be included in the ESRI shapefiles;

- Channel and bridge/culvert drawings used to develop the hydraulic models; and

- All information surveyed and measured in the field will be submitted in ESRI shapefiles. This includes hydraulic structures (road crossings, dams, stormwater ponds, benchmarks, monuments, etc.).

2.5 References

Parts of Section 2 has been abstracted from the following documents:

- Guidelines for Digital Elevation Data v1.0, by National Digital Elevation Program (NDEP), May 2004;
- Photogrammetric Mapping,by U.S. Army Corps of Engineers, July 2002;
- Imagery and Elevation Acquisition Guidelines,by Mapcon Mapping Ltd., November 2009;
- Data Capture Standards, Appendix M, Guidelines and Standards for Flood Risk Analysis and Mapping by FEMA, January 2008;
- Guidance for Aerial Mapping and Surveying, Appendix A, Guidelines and Specifications for Flood Hazard Mapping Partners by FEMA, April 2003;
- Supporting Sustainable Water Management in Ontario through Innovation, by Ganaraska Region Conservation Authority, March 2009;
- Surveying Principles and Applications, 6th Edition, Barry F. Kavanagh, 2003;
- ASPRS Positional Accuracy Standards for Digital Geospatial Data, American Society for Photogrammetry & Remote Sensing, Revision 7 Version 1, Final Draft for Board Approval, November 14, 2014;
- LAS Specification Version 1.4 - R13, American Society for Photogrammetry & Remote Sensing, July 15, 2013;
- LiDAR Base Specification, By Hans Karl Heidemann, Chapter 4 of Section B, U.S. Geological Survey Standards Book 11, Collection and Delineation of Spatial Data, Version 1.2, November 2014;
- LiDAR Specifications for Flood Hazard Mapping, Appendix 4B: Airborne Light Detection and Ranging Systems, Federal Emergency Management Agency; and
- National Floodplain Mapping Assessment, MMM Group Limited in association with JFSA and Matrix Solutions Inc. for Public Safety Canada June 2014.

3.0 HYDROLOGIC ANALYSIS

3.1 General

Hydrologic analyses are undertaken to develop a comprehensive assessment and understanding of precipitation runoff characteristics and to provide input data to hydraulic analysis procedures. Hydrologic analyses must be conducted using established procedures, and must be easily reproducible. Professional engineers are to be able to recognize and understand all methods, approaches, basic data and rationale and any assumptions used in the analysis. Professional engineers are to be able to recreate the entire work without referring to other documents. Documentation must include the following:

- What analysis was done including purpose, alternative methods, and the rationale for the chosen method;
- How the analysis was conducted including input data, data sources, measurements of data, verification, collaboration, uncertainty analysis, calibration, validation, and sensitivity analysis;
- The results of the analysis;
- How the results were checked; and
- What are the limitations of the analyses.

A hydrologic analysis can be undertaken using the following steps (Figure 3-1):

1. Determine the information that is required, and to what level of accuracy;
2. Conceptualize and characterize the watershed including historical meteorological drivers of flooding;
3. Determine what data is available and to what level of accuracy;
4. Select the hydrologic computation procedure;
5. Conduct the hydrologic computations;
6. Determine the acceptability of the results and
7. Document the study process and results.

Standard Hydrologic Parameters (Section 3.9) should be used in all hydrologic computations. If the engineer feels that the Standard Parameters should be modified, the engineer should provide documentation to the Conservation Authority providing justification that can include the results of calibration/validation analyses.

Hydrologic computations for hazard limit delineation are usually conducted through either a frequency analysis of recorded streamflow rates, or by simulating streamflow rates using a computer program or by field measurements of maximum flood elevations.

Section 3 refers to two (2) types of data or series of data. Historical data refers to floods that have occurred. Design data or series of data refers to simulated streamflow using standard input such as design storms. For example, a historical flood frequency curve refers to return

period values developed using recorded streamflow data. A design flood frequency curve refers to return period values developed from computer simulation model data.

Section 3 is divided into the following subsections:

3.2 Information Requirements
3.3 Watershed Conceptualization and Characterization
3.4 Data Availability: Climatic, Precipitation, Streamflow
3.5 Selecting a Computational Procedure
3.6 Technical Reviews
3.7 Frequency Analysis: Streamflow
3.8 Computer Modelling
3.9 Hydrologic Standard Parameters
3.10 References

The hydrologic study report must be sealed, signed, and dated by a professional engineer. All computer program input and output data must be sealed, signed, and dated by the professional engineer who prepared or supervised the preparation of the input data and who checked the output data. The computer model description boxes must include the professional engineers name, PEO number, and the completion date.

3.2 Information Requirements

- The study report must discuss the hydrologic information required for input to the hydraulic model, and the methodology used to obtain that information. Information includes the characteristics of streamflow, and where the information is required. The report must discuss what scenarios are to be calculated, and what level of accuracy is required.

- It is the engineer's responsibility to review the accuracy of the input parameters and the computation methods to ensure the flood hazard maps are produced at a reasonable cost. The accuracy of the hydrologic results is a function of the accuracy of the input values and the computation methods. Generally, the greater the level of accuracy required in the hydrologic results, the greater the level of effort and resources needed to produce the hydrologic results. Each input value and computation method has an associated level of accuracy. Increasing the level of accuracy in one of the inputs does not necessarily increase the level of accuracy to the same extent in the hydrologic results. Increasing the level of accuracy in one of the inputs or selecting a computation method with a higher level of complexity may result in higher costs.

- Specification of the information requirements combined with characterization of the watershed, and determination of available data will allow a computation procedure to be selected.

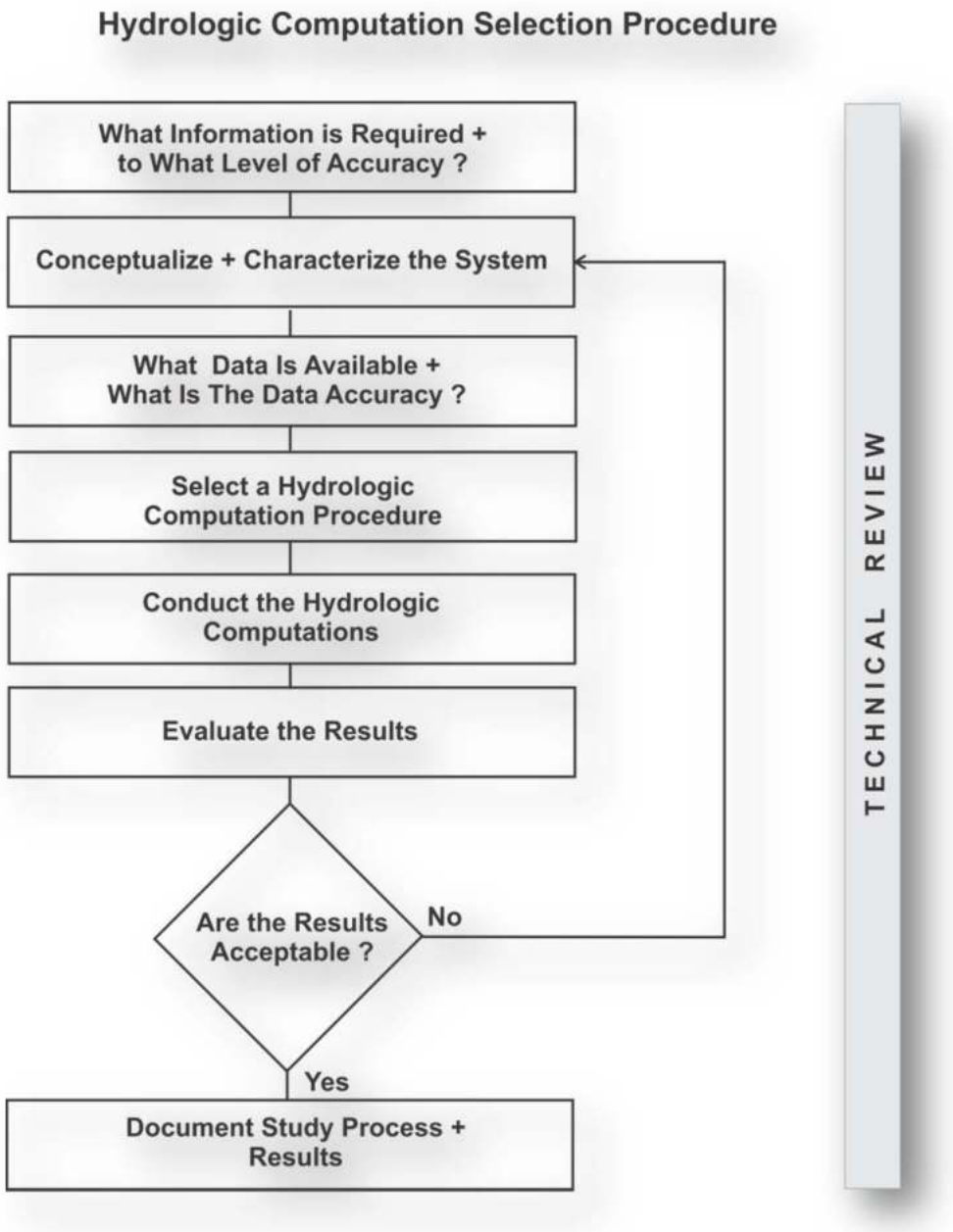
3.3 Watershed Conceptualization and Characterization

- The report must discuss the conceptualization and characterization of the watershed under study. Conceptualization and characterization aids in determining the computation methods to be used in the hydrologic calculations including which computer programs may be applicable.

- Conceptualization will determine the salient components of the watershed, the relationships between the components, the upstream and downstream boundary conditions, and the temporal computation requirements. Also, the size of the time step to be used in the computations must be determined. Conceptualization will determine how lumped or detailed the hydrologic processes will be modelled. Assumptions must be fully discussed and justified.

- Characterization of the watershed will aid in determining which computation methods are selected. It includes the size and location of storage and conveyance elements within the watershed.

Figure 3-1


Hydrologic Computation Selection Procedure
What Information is Required + to What Level of Accuracy ?
Conceptualize + Characterize the System
What Data Is Available + What Is The Data Accuracy ?
Select a Hydrologic Computation Procedure
Conduct the Hydrologic Computations
Evaluate the Results
Are the Results Acceptable ?
No
Yes
Document Study Process + Results
TECHNICAL REVIEW

3.4 Data Availability: Climatic, Precipitation, Streamflow

The study report should contain a discussion on the data used to derive parameters for the model, and the data used to evaluate the model. The accuracy of the model will depend on the accuracy of the data used to develop and calibrate the model. The discussion should include the following:

- Where can the data be sourced;
- How and by whom was the data measured;
- Period of record that was used in the model; and
- What is the level of accuracy of the data.

Error and uncertainty creeps into data through a number of ways. Included are errors due to the procedures used to acquire the data, errors due to natural spatial and temporal variability, transcription errors, data storage errors, and errors due to data manipulation.

An example is streamflow data. Accuracy of streamflow rates can vary from plus or minus 2% to as high as 40%. The process entails observations of flow depth, periodic measurements of streamflow, and development of a rating curve to convert flow depth to flow rate. Error is dependent on the following:

- Accuracy and precision of the instruments used for making the flow depth measurements;
- Methods used to average the depth measurements;
- Skill of the hydrographer measuring streamflow rates;
- Open channel flow conditions such as backwater and non- steady flow conditions;
- Climatic and environmental factors that affect the quality of streamflow measurements; and
- The validity of the method used to develop the rating curve and the stability of the channel section.

Some agencies have considered measurements of daily streamflow to be excellent if measured within 5% of the true value, good if measured within 10% and fair if measured within 15%. For individual storm events, the accuracy of measurements could be greater than 15%.

Data Filling and Modification

- The study report must contain a discussion on data filling and modification of data used in the study. Generally, missing data needs to be filled. Also, suspect data needs to be modified.

- Discussion should include the following:
  - What data was filled or modified; and
  - What techniques were used to fill the data including the statistical characteristics of the modified data. Statistics include data means, standard deviation, skewness, event frequency, and high/low spell lengths.

Data Stationarity

- The study report must contain a discussion regarding data stationarity. Changes to data sets may be gradual, or may be abrupt or may be in a more complex form.

- Data sets may not be stationary for a variety of reasons including the following:
  - Changes in measurement techniques or instrumentation or relocation of the gauge;
  - Changes in land use or land use management;
  - Changes in stream channel geometry;
  - Changes in streamflow regulation and deregulation;
  - Changes in groundwater; and
  - Changes in climate.

3.5 Selecting A Computational Procedure

There are several procedures that may be conducted to calculate the hydrologic requirements for flood hazard mapping projects. Included are single station frequency analysis, regional frequency analysis, and hydrologic modelling. The choice is based on the need for a hydrograph as opposed to peak discharge rate, the size and characteristics of the watershed, the availability of data, input requirements of the hydraulic procedures, previous studies, and future land use change.

Single station frequency analysis that includes the use of recorded data in the vicinity of the study area is the preferred choice for developing the return periods of peak streamflow rates. The use of single station frequency analysis is limited to a significant period of record, stable upstream land use, unchanging future upstream land use, the lack of a need for a full hydrograph in the drainage system analysis, and the lack of a need for the analysis of a historical storm event. Many stations within southern Ontario cannot meet these criteria.

Regional frequency analysis is an extension of single station analysis to a region where data from several gauges is utilized to develop equations for the prediction of peak streamflow rates. Regional frequency analyses have limitations similar to single station frequency analyses.

Precipitation-runoff modelling or hydrologic modelling is the typical method used to develop the input data for the development of flood hazard maps. Data recorded at streamflow gauges and single station frequency analysis should be used in the development of precipitation-runoff models.

The Conservation Authority must approve the computation procedure prior to the analysis.

Brock St, in Stayner, ON

3.6 Technical Reviews

Hydrologic studies should be reviewed to determine the correctness, completeness or appropriateness of procedures used to develop information for the intended purpose and for adherence to these Technical Guidelines. Included are input data, initial conditions, conceptual model, mathematical model and parameters, model limitations, and documentation.

Reviews can be undertaken near the end of a study, or throughout the study. Both approaches have limitations. For example, there may not be sufficient budget to correct any deficiencies found in a review if the review is conducted near the end of a study. Also, a reviewer's independence may become jeopardized if reviews are conducted throughout the study, as the reviewer may act as an advisor rather than a reviewer. The preference is to have the reviewer involved throughout the study.

A formal process should be followed to review hydrologic studies, and each review should be documented. Reviewers may be performed by the client organization soliciting the work, or can be undertaken by third parties.

Reviewers must have sufficient expertise in the area of practice to properly assess the hydrologic analysis. Reviewers must be capable of conducting the study, and reviewers must have a thorough understanding of methodologies and knowledge of accepted hydrologic engineering practice. A reviewer should have access to the computer program being used in the study. A reviewer should be a Professional Engineer licensed in the Province of Ontario.

The reviewers report should identify the following:

- The individual who authorized the review,
- The author;
- The purpose of the review;
- The basis under which the review was conducted;
- A brief description of the study report under review;
- A summary of documentation provided to the reviewer;
- Communications made during the review;
- A description of the reviewer’s methodology for conducting the review; and
- The reviewer’s findings that include information upon which the opinions are base.

3.7 Frequency Analysis: Streamflow

3.7.1 General

Single station frequency analysis or regional frequency analysis may be used to determine peak streamflow rates required for the hydraulic analysis. Frequency analysis does not provide a full streamflow hydrograph and is not applicable to changing land use conditions.

As a result, frequency analysis cannot provide the input required for 2-D hydraulic modelling, or for unsteady flow modelling or for catchments where the existing land use is substantially different than future anticipated conditions.

Yonge/York Mills Channel, Toronto, ON

3.7.2 Single Station Frequency Analysis

- Frequency analysis can be undertaken where suitable streamflow records exist for the study watershed;

- The suitability of the records for frequency analysis will be evaluated through discussion with the Conservation Authority, the operating agency, field inspection and review of the records;

- Single station analysis should be carried out when the length of record is equal to or greater than 20 years;

- For record lengths between 10 years and 19 years, single station analysis shall be substantiated through comparison with regional frequency analysis. If the length of record is less than 10 years, only regional frequency analysis shall be undertaken;

- The 95% confidence limits on peak streamflow estimates and expected probability adjustments must be provided;

- Frequency analysis of streamflow data should only be performed for data that is random, independent, homogeneous and stationary;

- Factors that must be considered in using existing streamflow records are the conversion and reconversion of regulated and natural flows; non-stationary records; the extension of the streamflow records; single site versus regional flood frequency analysis; and transfer of location of record;

- Any modifications to streamflow data or the results of the frequency analysis must be documented in the study report. Documentation must include reasons for the modifications, and any limitations caused by the modifications;

- Frequency analysis may be performed using the Consolidated Frequency Analysis computer program (CFA88), developed by Environment Canada. Programs and spreadsheets may be used when prior approval has been granted by the Conservation Authority; and

- Computer programs, that are used to perform the frequency analysis must be selected by the engineer and approved by the Conservation Authority. Reasons for selecting the program must be documented in the study report.

3.7.3 Regional Frequency Analysis

- All parameter values must fall within the range of basin and climatic characteristics used to derive the equations; and

- Several regional frequency analyses have been prepared for Ontario applications. Included are the following:
  - Index Flood Method, Environment Canada 1985;
  - Multiple Regression Method, Environment Canada, 1986;
  - Regionalization by Multiple Regression Analysis, Ontario Ministry of Natural Resources, 1984; and
  - Modified Flood Index Method, by Ontario Ministry of Transportation, 1986.

3.7.4 Corroboration

- Where results from a single station or a regional frequency analysis are used as input to hydraulic procedures, the results must be corroborated using an independent method.
  Regional frequency analysis results may be used to corroborate the results from a single station frequency analysis.
  Regional frequency analysis results may be used to corroborate the results from a different regional frequency analysis methodology; and

- The results from the corroboration must be documented in the study report. If the results cannot be corroborated then the Conservation Authority must be contacted before hydraulic analyses are initiated.

3.7.5 Documentation and Deliverables

- All model input and output files and geo-referenced spatial files showing hydrologic features used for the analysis must be submitted;

- All data and reports must be submitted in electronic format as specified by the Conservation Authority;

- Discussion on streamflow gauging stations including equipment, site rating curve, vulnerability to backwater, ice influence or flanking with conclusions regarding its reliability shall be prepared as part of the study report;

- Discussion on the criteria used in the flood frequency analysis and reasons for choosing a particular frequency distribution shall be included in the study report;

- Table - results of the regional frequency analysis for 2 through 100 year peak flow rates at various points of interest;
- Table - input parameters used in the regional frequency analysis;
- Table - summary of streamflow gauges, including location, period of record, etc.;
- Table - summary of streamflow data used in the frequency analysis; and
- Graphs of flood frequency curves with 90% confidence limits.

3.8 Computer Modelling

3.8.1 General

Computer models are a simplification of reality. Computer models are simply tools that can be used to better understand how watersheds function. Computer models can range from complex, geographically explicit computer models, to simple lumped models. Modelling to a higher resolution or level of accuracy than is necessary will not always produce superior results and may ultimately waste time and resources.

Figure 3-2 is a methodology or process that may be followed to undertake computer modelling. The process is similar to the hydrologic selection process shown in Figure 3-1.

Section 3.8 is divided into the following sections:

3.8.2 Program/Software Selection

3.8.3 Model Building
- 3.8.3.1 Precipitation
- 3.8.3.2 Discretization
- 3.8.3.3 Land Use
- 3.8.3.4 Time Steps
- 3.8.3.5 Hydrologic Abstractions
- 3.8.3.6 Hydrograph Convolution
- 3.8.3.7 Channel Routing
- 3.8.3.8 Reservoir Routing
- 3.8.3.9 Diversions
- 3.8.3.10 Input Hydrographs

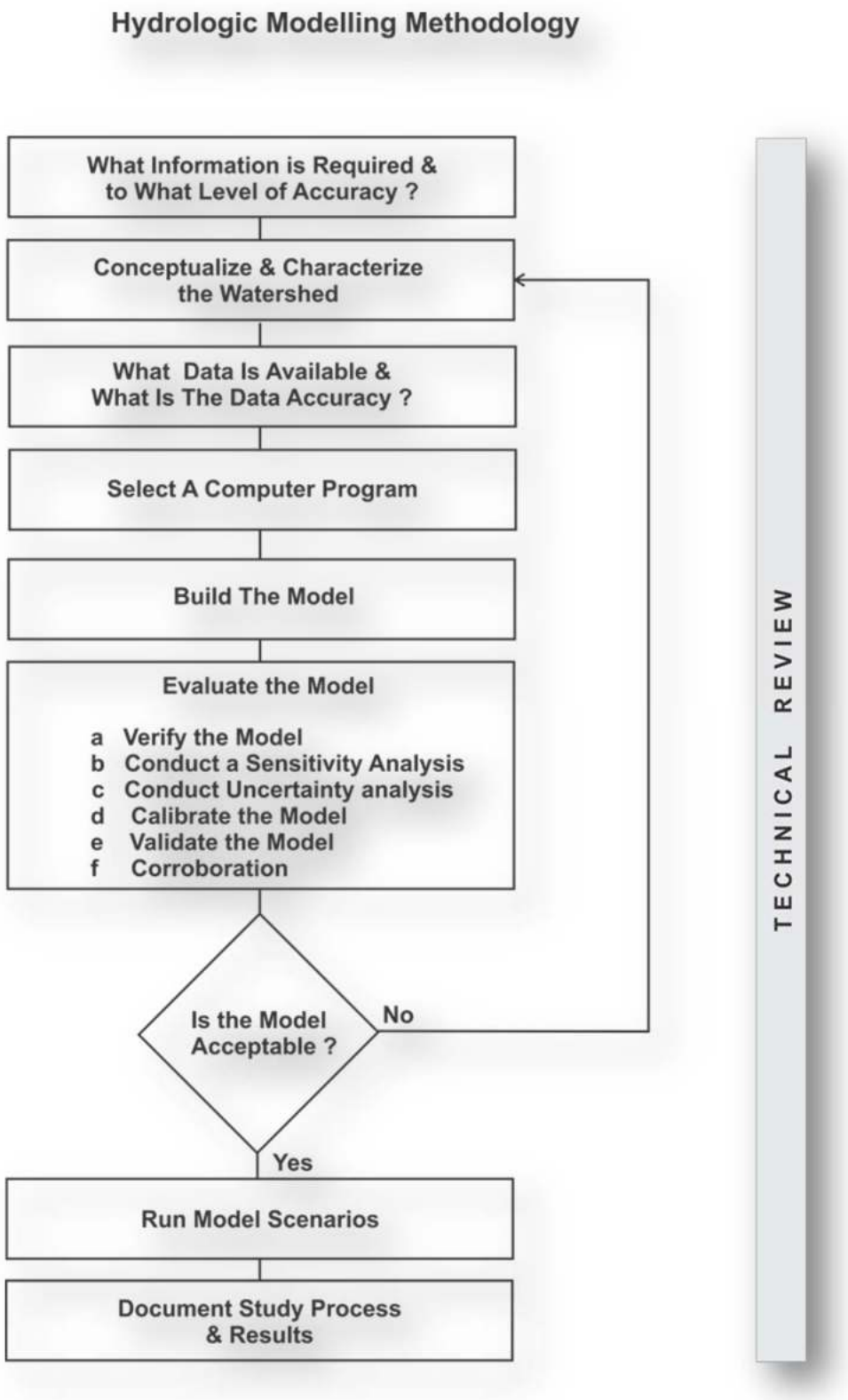
3.8.4 Model Evaluation
- 3.8.4.1 Model Verification
- 3.8.4.2 Sensitivity Analysis
- 3.8.4.3 Uncertainty Analysis
- 3.8.4.4 Calibration/Validation
- 3.8.4.5 Corroboration
- 3.8.4.6 Error and Warning Messages

3.8.5 Model Acceptability

3.8.6 Modelling Scenarios and Results

3.8.7 Study Report and Deliverables

Figure 3-2


Hydrologic Modelling Methodology
What Information is Required & to What Level of Accuracy ?
Conceptualize & Characterize the Watershed
What Data Is Available & What Is The Data Accuracy ?
Select A Computer Program
Build The Model
Evaluate the Model
a Verify the Model
b Conduct a Sensitivity Analysis
c Conduct Uncertainty analysis
d Calibrate the Model
e Validate the Model
f Corroboration
Is the Model Acceptable ?
No
Yes
Run Model Scenarios
Document Study Process & Results
TECHNICAL REVIEW

3.8.2 Program/Software Selection

- An engineer must select the computer program to be used in the hydrologic analysis. Reasons for selecting a computer program must be documented by the engineer and approved by the Conservation Authority. The documentation must include alternate programs, and reasons why the alternate programs were not selected. The documentation for the program selection must be sealed, signed and dated by a professional engineer;

- Computer programs used in the hydrologic analyses must be the most recent version. The engineer should follow the procedures and guidance given in the program User's Manual;

- Computer programs used in the hydrologic analyses should not be modified by anyone except the programs author; and

- If the engineer proposes any modifications to the computer program or proposes to use an existing modified program, the consultant must submit to the Authority input test data, output, and complete listing of the modified computer program, user's manual and an explanation in detail as to the nature of and reasons for modifications for review and approval prior to its use. The Conservation Authority and its agents should be granted a royalty free license to use the program for flood plain modifications.

Program/Software Selection Notes

- A computer program is a system or algorithm with mathematical equations, parameters and data structures. Programs may be developed in-house, may be external open source or may be an external proprietary program where the source code is not shared. Open source programs that are actively managed are recommended;

- There may be more than one suitable program to conduct the computations and more than one computer program may be required;

- The engineer should be familiar with the principles, equations, algorithms, and assumptions used in the program; be aware of the programs limitations; and know when the program is providing the appropriate answers;

- Table 3.1 identifies some of the steps required by the engineer to demonstrate due diligence when selecting and using hydrologic and hydraulic software. The

engineer selecting the software is responsible for conducting due diligence whether it is Conservation Authority staff or a consultant;

- The engineer should select a program (algorithms and equations) with the available data that reflects the dominant and sensitive processes described in the conceptual model; and
- The engineer should select a program that is no more complicated than necessary to compute the required information. Models tend to increase uncertainty in their results as they become too simple or too complex. The complexity of a model should be sufficient to minimize uncertainty, and that any more or less complexity will increase uncertainty.

Old Mill, Hamilton, ON

Table 3.1 - Software Due Diligence

1. The engineer should accept or reject software based on their own assessment of the compatibility and viability of the software to the task at hand.
2. The engineer should be able to justify and document the selection of each software tool.
3. The engineer should keep records of input data, and check output data from newer software versions with that obtained from earlier, verified versions.
4. The engineer should test all problematic situations that arose in the past.
5. Logs should be kept that report software performance and observations of past problems and limitations.
6. The engineer should establish and conduct suitable tests to determine that the software performs as it was intended to do.
7. Software is verified by comparing output data with actual results from real-life situations or thoroughly checked manual calculations.
8. The engineer should check output data after each run to be assured the data is correct and reliable for use in design.

The data can be checked by comparing output from manual calculations with software output. Also, output data can be checked through comparison of output data from past projects of a similar nature.

Notes:
One or more engineers may be required to comply with the above statements.

"Due diligence is the effort expected to be made by an ordinarily prudent or reasonable party to avoid harm to another party."

"Professional engineers are responsible for all aspects of the design or analysis they incorporate into their work, whether it is done by an engineering intern, a technologist or a computer program."

page 4, Professional Engineers Using Software-Based Engineering Tools *April 2011*, by Professional Engineers Ontario.

3.8.3 Model Building

Model building is the development of a mathematical model from a conceptual model. Conceptual models describe how a system behaves, the system components, and the functional relationships between these components. Model building requires both a spatial and temporal discretization of the physical watershed into a mathematical model. The construction of the mathematical model is a function of the computer program. The model building phase determines parameter values that are fixed, and parameter values before calibration. Parameters before calibration or standard parameters can be found in Section 3.9 Hydrologic Standard Parameters.

The development of flood hazard maps specifically refers to models that simulate extreme streamflow rates and streamflow hydrographs. Separate models may have to be developed for low flow events.

3.8.3.1 Precipitation

Historical Storms

- Observed storms can be transposed from their location of occurrence to the basin in question and their orientation changed to maximize the flooding effects on the watershed; and
- For historical storms, the spatial distribution of rainfall must be discussed in the report. It is important to note that historic storms move across a catchment while design storms are assumed to be stationary over the catchment and evenly distributed across the catchment.

IDF Curves

- The model shall be based on rainfall frequency or, where snowmelt floods are significant, a combination of snowmelt and rainfall; and
- Municipal intensity-duration-frequency (IDF) values can be used when undertaking hydrologic simulations for urban watersheds. If municipal IDF values are not available, then the values shown in Section 3.9 Hydrologic Standard Parameters may be used.

Long Duration Climate/Precipitation

- Continuous simulation programs may be used to simulate the runoff response required as input to hydraulic models. The continuous model should be capable of simulating high flow events. Time steps used for computation should be short enough to simulate high flow events. Typically, time steps should be equal to roughly 1/5th of the time to streamflow peak for a catchment. The study report must justify the selection of continuous simulation to develop flood flows and document the area where the flood flows are not appropriate. Continuous simulation programs and input data must be approved by the Conservation Authority before the analysis is initiated.

Design Storms

- The engineer must document the characteristics of the design storm, the methodology used to develop the design storm, and where the data was sourced. Typically, design storms will represent either a snowmelt/rainfall (spring) event or an intense thunderstorm (summer) event. The design storm will be characterized by duration, time step, a temporal pattern, areal reduction factors, and antecedent precipitation.

  The use of a snowmelt/rainfall event or an intense thunderstorm event will be dependent on when the majority of annual maximum peak flow rates occur, spring or summer. Generally, floods on rural basins are generated by spring snowmelt/rainfall events while floods on urban basins are generated by intense summer events. In some instances, both a snowmelt/rainfall event and an intense thunderstorm event will be required.

  The design storm duration must exceed the time of concentration of the catchment upstream of the point of interest. The time of concentration should include the residence time in ponds and reservoirs. The time step of the design storm should be less than the minimum time of concentration of any subcatchment.

  There are several design storm patterns available for intense summer events. Included are the Keifer & Chu or Bandyopadhyay storm, the SCS Type II storm, the AES storm, and the Hydrotek storm. The Keifer & Chu or Bandyopadhyay storm is recommended for use on urban or urbanizing basins. The storm has a variable duration, a variable time step, and all intensities within the storm conform to all durations within the Intensity-Duration-Frequency curve from which it is developed. The Conservation Authority should approve the design storm before the analysis is initiated.

A "critical design storm" approach should not be used for hydrologic modelling. A critical design approach involves simulating runoff from all design storms and then selecting the design storm that yields the highest flow rate. This approach does not preserve risk or return period intensities for all points of interest within a watershed. Intensities may be over estimated for some points of interest and under estimated for other points of interest. Intensity-duration curves can be developed for historical storms and design storms. These intensity-duration curves can be compared to intensity-duration-frequency curves (MSC) developed from recorded rainfall. For a given point of interest or a time of concentration, the intensities from the two curves should be equal or similar. Design storm distributions such as the SCS type II storm, the AES storm, and the Hydrotek storm do not preserve risk or return period intensities for all durations within the storm.

- The engineer must develop a design storm for snowmelt/rainfall events and have it approved by the Conservation Authority before use. There are no accepted design storms for snowmelt/rainfall (spring) events. A frequency analysis of snow-course data and meteorological conditions will have to be conducted to develop a design storm. The analyses will include the amount of snow (water) on the ground, the temperature pattern, and the volume of rainfall to be utilized in the design storm.

- Sensitivity analyses should be conducted when modelling snowmelt-rainfall events. Engineering experience with snowmelt-rainfall modelling is required when data is limited.

Climate Change

It is recommended that an adaptive approach be utilized when accounting for climate change in the development of flood hazard maps. The recommended approach is based on the use of the last 50 years of recorded data when developing intensity-duration-frequency curves (IDF) and the last 50 years of recorded streamflow data when developing return period streamflow rates. This moving window approach should capture climate change that may be occurring and the 50 year period of record should be sufficient to develop 100 year return period values. There are other approaches to reflecting climate change in hazard limits. Maintaining up-to-date IDF curves and flood frequency curves of streamflow data is within the flood plain manager's area of control.

One of the key components of the hydrology that will change will be the local intensity-duration-frequency curve (IDF) that may result in a shift in how design storms are distributed or defined. While this component is often developed outside of the floodplain manager's area of control, utilizing the most recent IDF curve and understanding its vulnerabilities from a climate change perspective should be a component of any mapping update program. Maintaining a working understanding of IDF research related to climate change is recommended.

Climate change may also result in the key drivers of flood risk within the watershed to shift. An example may be a watershed that responds to snowmelt and rainfall as the key flood driver may shift to a thunderstorm driven watershed. Flow and weather data may change and will need to be understood to determine how sensitive the watershed may be to climate change, and therefore the need to reassess flood hazard mapping needs. It is anticipated that climate driven changes will be subtle and may need to be viewed over a longer duration. Understanding the potential changes and creating a component within the watershed management program that allows for their recognition and assessment in terms of defining a need to update mapping should be incorporated, if not already in place.

There may also be an impact to the riverine system and therefore hydraulic component of flood hazard mapping as a result of climate change. Increased erosion and flood events can lead to major changes within the channel. This may or may not be a major trigger for a flood hazard mapping update. Changes to the low flow channel may result in a shift in terms of the frequency of flooding experienced within the floodplain area, and impacts to local servicing infrastructure and transportation features.

Determining the need to update a map or series of maps or even an entire watershed based upon impacts related to climate change alone, while possible is operationally unlikely. Understanding the impacts that the effects of a changing climate can create such as those noted above is important. It is also important to understand and incorporate all stressors that may create changes that result in a need to update flood hazard mapping. A sensitivity analysis can be conducted to gain insight on how changing precipitation patterns impact runoff.

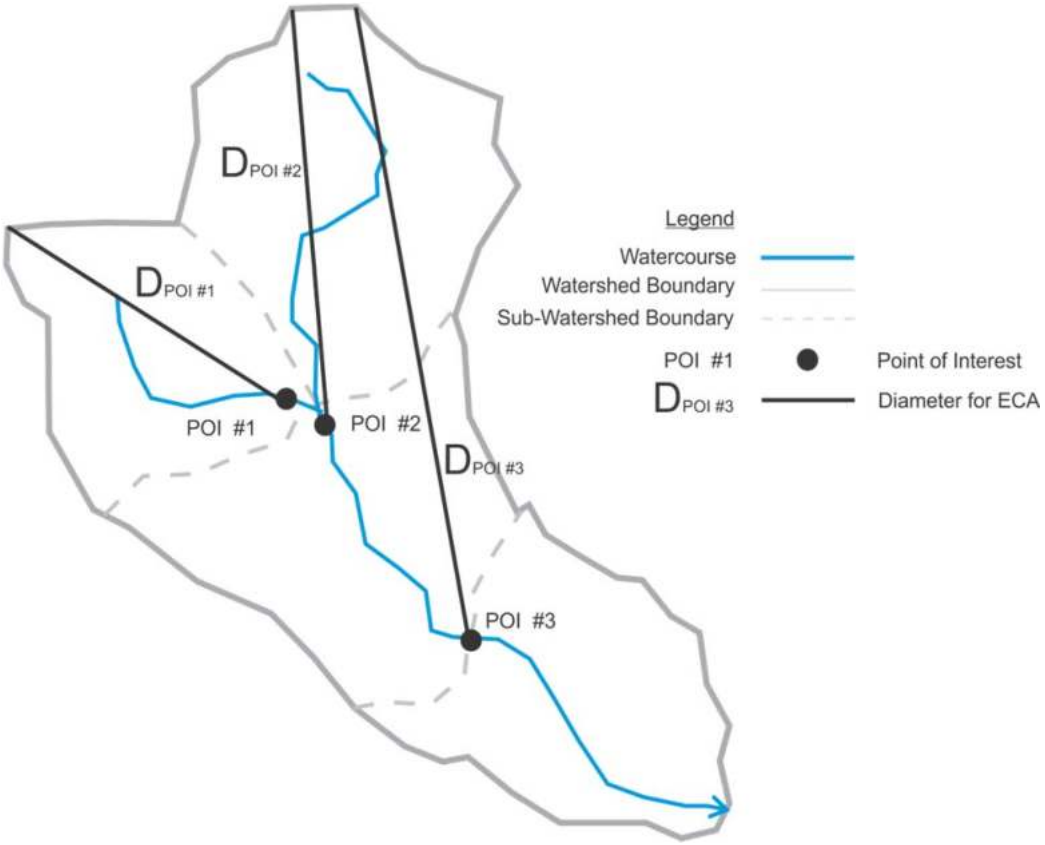
Areal Reduction Factors

- Areal reduction factors should be used for all design storms including 2 through 100 year events. Areal reduction factors (or lack thereof) for return period storms must be documented in the study report and approved by the Conservation Authority. If areal reduction factors are not used, reasons must be documented in the report.

- The areal reduction factors must be calculated using the equivalent circular area method (ECA).

  The equivalent circle area (ECA) will be calculated by using the distance, as the diameter, from the point of interest to the furthest upstream watershed boundary.

  For the Regional Storm, extremely elongated shaped watersheds can use the isohyetal method where the Regional Storm rainfall isohyets are transposed to the upstream watershed.



3.8.3.2 Discretization

- Watershed points of interest will be included in the discretization scheme;
- Future proposals for culvert replacement shall also be considered. For points downstream of such structures, the design flows shall not exhibit the retardation provided by the structures; i.e., only non-routed flows should be used;
- Drainage Boundaries - determine the watershed contributing drainage area through the use of topographic maps, DEMs, shapefiles, air photo interpretation, and field reconnaissance. Ineffective runoff areas, (e.g. pits and quarries) shall be included in the model and the parameters affecting runoff should be adjusted accordingly. Ineffective runoff areas will be discussed in the report and with the Conservation Authority prior to finalizing the hydrologic calculations;
- Sub-catchments used for modelling should have similar times of concentration, have fairly homogeneous land use, fairly homogeneous soils, fairly homogeneous vegetation, and similar geographic characteristics. Sub-catchments should be delineated at confluences of major tributaries;
- Data sources and datum must be provided for all topographic information used in the analysis. Information should include map title, author, publisher, scale, surveyor name, survey date, and date flown. If multiple sources are used then the datum must be modified to be congruent; and
- Generally, the change in flow rate between points of interest should be limited through discretization to 10%. There may be exceptions in headwater areas, and where tributaries confluence with the main branch. An iterative approach in discretization is required to achieve the 10% change in flow rate.

3.8.3.3 Land Use

- All hydrologic analysis for the development of flood hazard maps must be based on anticipated future land use conditions as defined in Official Plans and other municipal land use planning documents. An assessment of the impact of the future land use on the return period flows must be conducted using an existing condition calibrated hydrologic model as the base and fully documented in the study report. Land use at the time of the calibration/validation events maybe different than the when the Study is being undertaken; and
- Existing Land Use Impervious Areas - shall be computed for existing areas from topographic maps, aerial photographs, and shapefiles. For large basins,

impervious areas can be determined by sampling a representative area in each sub-catchment. An accurate estimate of the impervious area is very important, as models are sensitive to this parameter. The method of determining impervious areas must be documented and justified in the study report.

3.8.3.4 Time Steps

- The study report must document the time steps used within the computer model, and the reasons for choosing the time steps. There may be up to several time steps required in a computer model. Included are a time step for precipitation, a time step for hydrograph computation, a time step for sewer routing, a time step for reservoir routing, and a time step for channel routing. Some programs allow only a single time step value.

  If a more accurate hydrograph peak flow rate is required, the hydrograph computation time step must be based on the shortest catchment time of concentration and shortest routing time step. The rainfall time step should be at approximately 1/5 the shortest catchment time of concentration.

  For example, the use of a design storm that uses a 15 minute time step, would dictate the shortest basin time of concentration of approximately 1.25 hours (5 x 0.25 hours). A channel reach of say 200 m would dictate routing time step in the order of a few minutes. The conceptualization and subsequent discretization of the model must ensure that time step criteria are met. If the criteria are not met then simulated peak flow rates for some points of interest may not be accurate.

3.8.3.5 Hydrologic Abstractions

- The study report must include a discussion on the methods used to compute rainfall losses, the reasoning for using those methods, the sources of data and methods used to measure parameters. Also, the report should include a discussion on the antecedent precipitation condition modelled for each frequency; and

- The method used for simulating infiltration should account for all the flows entering, moving within, and leaving soil-water storage. As an example, perched groundwater tables should be included in soil-water storage. The amount of infiltration may be low even though the soil matrix is capable of higher infiltration rates.

3.8.3.6 Hydrograph Convolution

- The study report must document the rationale for using a particular option and the sources and methods used for measuring data and determining the input parameters;

- If a unit hydrograph is input as a table, documentation must include its derivation, including the sources of rainfall and runoff data; and

- There are many methods to calculate hydrograph time to peak or time of concentration for rural areas. Two (2) methods commonly used include the Airport Method, and the Bransby-Williams method. The methods are described in the Hydrologic Standard Parameters Section 3.9 of this report.

3.8.3.7 Channel Routing

- Appropriate channel/sewer routing method should be incorporated into the hydrologic model. Sewer routing may be necessary where runoff from upstream rural areas is piped through a development area;

- Dynamic wave routing shall be undertaken for channel reaches with mild slope where the diffusive wave model criterion cannot be satisfied;

- Cross Section Points - cross section points required for the hydrologic model routing procedure must be obtained from contours, TINs, DTMs or from field surveys. Cross sections shall be extended sufficiently to ensure that the flows shall not exceed the range of the travel timetable.

- Rating curves and travel times used in channel routing shall be determined by preliminary hydraulic calculations of the backwater profile or by procedures available in the approved hydrologic model;

- The study report will contain graphs of all cross sections utilized in the hydrologic model. In addition, the cross section locations will be shown in the shapefiles.

- Manning Roughness Parameters - refer to Section 3.9 Hydrologic Standard Parameters;

- The study report must document the routing methods used, including the values of input parameters, the derivation of those parameters, and the methods of measurements and sources from which those parameters were obtained or measured; and

- Two or more hydrographs will be combined before being routed through channel reaches. It is not acceptable to route the hydrographs separately.

3.8.3.8 Reservoir Routing

- Reservoir routing shall be undertaken for in-stream lakes and swamps, dam and embankments, such as railway embankments and road fills that have significant storage effects. e.g. A minimum volume assessment for road and railway embankments where 10-15% of the flood is available for routing can be used as a trigger to determine if routing should be investigated further. The 10-15% trigger can also be used to investigate whether storage behind embankments should be used in the calibration/validation events;

- Storage upstream of road embankments, dams, and in reservoirs should not be used in the development of peak flow rates unless it can be demonstrated that the structure will not fail under extreme events. A geotechnical analysis may be required to confirm stability. Failure includes the exceedance of design flow rates;

- The Conservation Authority shall be consulted where this storage upstream of road and railway embankments, or alternatively, failure of the dam or embankment, will have a significant effect on downstream flows and upstream flood levels. If failure may occur under flood conditions, consideration will be given to the effect on increasing the downstream peak flows or requesting a dam break analysis;

- Elevation-storage-outflow relations used in the model must be documented in the study report. Documentation must include sources of data regarding reservoir operation, the outlet structure, and the methods, sources, and measurements of data used to define the relation; and

- The study report should discuss the method used and assumptions made in the calculating the effect of storage on flows.

3.8.3.9 Diversions

- All calculations and results used to divert flow in the hydrologic model must be included in the study report. Often hydraulic analysis must be completed before the hydrologic analysis is conducted.

3.8.3.10 Input Hydrographs

- Any inflow hydrographs used in the hydrologic model must be documented in the study report. Details should include synchronization of rainfall and the input hydrographs.

3.8.4 Model Evaluation

- The study report must discuss the results of the model evaluation, and the model evaluation process. Model evaluation is the process used to determine whether a model and its results are sufficient to simulate the inputs required for the hydraulic analysis. Model evaluation includes the following:

  3.8.4.1 Model Verification
  3.8.4.2 Sensitivity Analysis
  3.8.4.3 Uncertainty Analysis
  3.8.4.4 Calibration/Validation
  3.8.4.5 Corroboration
  3.8.4.6 Error and Warning Messages

  The engineer must consider what degree of uncertainty is acceptable within the context of model application. If the engineer does not accept the model for its intended purpose, then the process must be re-started by re-visiting the conceptualization of the study watershed and the drainage system.

3.8.4.1 Model Verification

- The computer model will be verified and documented in the study report. Model verification is the examination of the model to prove that it truly represents the conceptual model.

  Model verification checks the proper implementation of the model on the computer. The model should be computationally stable and provide credible results.

3.8.4.2 Sensitivity Analysis

- Sensitivity analyses should be performed to determine the impact of changing model input parameters and initial conditions on simulated flows. Model input parameters to be varied for the sensitivity analysis may include impervious area, time to peak, recession constants, storage coefficients, overland flow lengths, slopes, Curve Numbers, initial abstraction, and roughness coefficients. Typical ranges would be 75% to 125% of the estimated parameter values; and

- Documentation of the results of the sensitivity analyses shall be provided in the study report. The results will identify the importance of model parameters that will have to be adjusted during calibration.

3.8.4.3 Uncertainty Analysis

- An uncertainty analysis will be conducted and discussed in the study report.

- The uncertainty analysis will investigate the effects of the lack of knowledge and other potential sources of error of model inputs (e.g., the “uncertainty” associated with parameter values, constants, data and beliefs). Models cannot be expected to be more accurate than the errors in the input and observed data. Sources include the science underlying the model, assumptions, and simplifications of what the model is representing. Uncertainty analysis is performed with numerical modelling.

3.8.4.4 Calibration/Validation

- Calibration/validation must be conducted for any hydrologic computer simulation model. Calibration/validation improves the confidence in the hydrologic model results;

- Calibration - consists of a model test with known input and output information that is used to adjust or estimate model coefficients or parameters within physically defensible ranges until the resulting predictions give the best possible fit to the observed data;

- Validation - the model results are compared with an independent set of observations (not used in the calibration) of the real system to verify whether the model describes system behaviour correctly;

- If there are no suitable records within the study watershed, parameters used in the model must be supported by calibration/validation on a similar adjacent watershed. Selection of the appropriate adjacent watersheds or sub-watersheds must be documented and agreed upon by the Conservation Authority;

- Both calibration and validation should be conducted. Validation is as important as calibration. Validation is used to determine the accuracy of the hydrologic model. Validation is used, in part, to determine if the model is good enough to simulate the required information;

- Calibration/validation of the hydrologic model shall be undertaken using all available streamflow records

- Calibrated watershed parameters shall not be adjusted beyond ranges shown in Section 3.9 Hydrologic Standard Parameters. Parameters outside the range must be revised;

- The flows generated by the calibrated model must be substantiated through comparison with other analyses such as regional frequency analysis;

- Documentation must include dates, measurements, and locations of measurements of historical storms; parameters revised and rationale for revising; and input and output data for the calibrated model;

- All hydrologic data must be submitted in electronic format;

- Size of Events - events greater than the capacity of the natural low flow channel or in the case of channelization the events should be greater than the 2 year flow rate. The model has been developed to simulate flood flows. Flood flows are conveyed in the left and right overbanks. Therefore the model should be calibrated and validated with flow rates greater than the capacity of the natural low flow channel. If no such events exist, the model should use Hydrologic Standard Parameters shown in Section 3.9. The selected events for calibration/validation must be approved by the Conservation Authority;

- Duration of Events - should exceed the time of concentration of the watershed upstream of the streamflow gauge;

- Number of Events - At a minimum, two (2) events should be used for each calibrated parameter. One event should be used for calibration and one event for validation. Usually there are more model parameters for calibration than there are observed precipitation/streamflow data sets. Alternatively stated: there are fewer equations than there are unknowns. As a result there is more than one combination of parameter values that can yield good results. A set of parameters that yields good results for one storm event may not yield equally good results for another event. Generally, the number of parameters required for calibration needs to be reduced. Usually, sensitivity analysis is used to reduce the number of parameters to be calibrated. The parameters that have considerable influence on the model results should be used in the calibration process. A sensitivity analysis can be undertaken to determine the parameters that have considerable influence; and

- Antecedent Moisture Conditions - soil moisture conditions should match as closely as possible to actual soil moisture conditions for the historical storm event. Soil moisture conditions have a significant impact on runoff and peak flow rates for rural catchments. The most accurate calibration and validation results will occur when model soil moisture conditions match actual soil moisture conditions. Soil moisture conditions for historic storms must be discussed and approved by the Conservation Authority.

Calibration/Validation Notes

No calibration/validation procedure is perfect.

- There are always deviations due to modelling and measurement errors. There are conceptual errors due to model definition such as the simplification of complex structures, neglect of sub-processes, and errors in the mathematical description or in the numerical method applied. There are errors when measuring field observations such as precipitation and streamflow. There are also errors when selecting model parameters that are not known with certainty.

No model can be truly validated, but can only be invalidated for a specific application. After a sufficient number of successful tests the model is not valid or good but good enough. The model can then be regarded as having been validated.

There are no universally accepted "goodness-of-fit" criteria that will apply in all cases.

- Model performance is evaluated by a series of graphical and statistical tests. Model performance is the ability to reproduce field observations. Graphical tests include the following:
  - Time series plots of observed and simulated values;
  - Observed vs. simulated scatter plots with a 45o linear regression line; and
  - Cumulative frequency distributions of observed and simulated variables.

- Statistical tests include the following:
  - Error statistics; e.g., mean error, absolute mean error, relative error, relative bias, standard error of estimate;
  - Nash-Sutcliffe Efficiency;
  - Correlation tests e.g. linear correlation coefficient, coefficient of model fit efficiency; and
  - Cumulative distribution tests.

Manual vs. Automatic Calibration**:**

- Involves adjusting parameters until a good fit is achieved between measured and simulated values. Manual trial-and-error adjustments can be successful for a simple set of parameters. Manual trial-and-error is usually not reproducible, and the minimum difference between measured and simulated values may not be found. Automatic calibration finds the minimum difference between measured and simulated values using iterations of many parameter values. The engineer is usually limited to the automation procedures found within the program.

- Either manual or automatic calibration will involve (i) selecting the parameters to be calibrated; (ii) determining the range of values for the calibration parameters; (iii) selecting an objective function to determine the goodness of fit; and (iv) determining the criteria to stop the calibration process.

Non-stationarity Data Sets:

- Care must be taken when using data sets that are non-stationary; e.g., streamflow has been measured while the upstream watershed is undergoing urbanization.

Example of the Steps in a Single Event Manual Calibration/Validation Process -

1. Select Cutoff Points for Calibration and Validation
2. Conduct a Sensitivity Analysis
3. Select Recorded Events for Calibration/Validation
4. Conduct Calibration Simulations for Hydrograph Volume of Runoff
5. Conduct Calibration Simulations for Hydrograph Time to Peak
6. Conduct Calibration Simulations for Hydrograph Shape and Peak
7. Accept or Reject the Calibration Results
8. Conduct the Validation Simulations
9. Accept the Validation Simulations
10. Accept the Calibration/Validation Process

3.8.4.5 Corroboration

- Results from computer simulation models must be corroborated using other methods that include previous studies, single station frequency analysis, and regional frequency analysis. The comparison must be documented in the study report. If the results are significantly different reasons must be stated to explain the differences.

3.8.4.6 Error and Warning Messages

- All error and warning messages generated by hydrologic programs must be corrected. Any messages that cannot be corrected must be discussed in the study report.

3.8.5 Model Acceptability

- The study report must include a statement regarding the acceptability of the model to simulate the information required for the hydraulic model. The statement should summarize the results of the model verification, the calibration/validation analysis, the sensitivity analysis, and the uncertainty analysis. Also, the discretization in time and space, and the correctness of the conceptual model will be addressed. The statement will need to answer the question of whether the correct program, and model have been chosen; and

- The Conservation Authority must approve the acceptability of the model in writing before the modelling scenarios are conducted.

3.8.6 Modelling Scenarios and Results

- The study report must contain the results of the scenario runs. Once the model has been accepted or the model is sufficient to conduct the simulations, the scenario runs may be undertaken.

3.8.7 Study Report and Deliverables

Study Report

The Study Report should allow third parties to reproduce the model study including its results. The Study Report must include the following:

- List of technical persons with qualifications that worked on the project;
- The hydrologic study report must be sealed, signed, and dated by a professional engineer. Any computer program input and output data must be sealed, signed, and dated by the professional engineer who prepared or supervised the preparation of the input data and who checked the output data. Where the input data and the output data cannot be sealed, the computer model description box must include the professional engineers name, PEO number, and the completion date;
- A statement on the appropriateness of the model to provide the information required for the hydraulic program;
- A section on model limitations;
- An explanation of differences between observations and model predictions;
- The location of the watershed and study area, study limits, locations where the flood discharges were estimated, associated streamflow gauges, climatic data, hydrologic features;
- The rainfall-runoff model used and all the assumptions and supporting computations associated with the model;
- All data, and assumptions used for rainfall analyses, including the antecedent moisture conditions modeled for each frequency, the methods used to compute the rainfall losses, and areal reduction factors;
- The reasoning for selecting and the methods for determining the hydrograph parameters;
- The routing methods used, including the values of input parameters, the derivation of those parameters, and methods of measurements and sources of data;
- The methods and data used for modelling any diversions;
- The process for model calibration/validation, including dates, measurements, and locations of measurements of historical storms; parameters revised and rationale for revising; and input and output data for the calibrated model; and
- A comparison of modelled flow rates with regional frequency analysis, previous studies, and single station frequency analysis.

Typical Report Figures and Maps

- All Figures and maps to be provided in electronic format acceptable to the Conservation Authority;
- Figure - watershed location plan;
- Figure - watershed modelling schematic that reflects the model input data and the sub-catchment map;
- Figure - precipitation, and observed and simulated hydrographs in the calibration and validation analysis;
- Figure - cross section plot of all routing cross sections with Manning roughness coefficient values, and channel slope;
- Watercourse Profile Graph - through all sub-catchments with the location of the routing cross sections;
- Map - showing sub-catchment location, hydrometric stations, and meteorological stations. Use of an aerial photograph is recommended;
- Map - showing sub-catchments and soil types;
- Map - showing hydrologic model input parameters by catchment.;
- Map - showing sub-catchments and existing and anticipated future land use;
- Map - showing the location of the routing cross sections and the watershed sub-catchments; and
- Map - showing key nodes described in the modelling report.

Typical Report Tables

- Table - model input parameters for existing and anticipated future land use;
- Table - listing the percentage of each soil type in each sub-catchment;
- Table - storage and associated discharge rates used in the reservoir routing;
- Table - discharge storage values, or number of inlets and inlet capacities for diversion structures;
- Table - calibration and validation results;
- Tables - data (observed hydrographs, rainfall amounts, spatial and temporal distributions of rainfall, antecedent moisture conditions, etc.) used in calibration;
- Table - calculated and calibrated watershed parameters for existing and anticipated future conditions;
- Table - comparison of modelled and regional frequency analysis peak flow rates at various points of interest for 2- through 100-year return periods;
- Table - comparison of modelled peak flow rates developed in the present study with values generated in past studies;
- Table - comparison of 100 year peak flow rates generated by varying model input parameters such as impervious area, infiltration rates, and hydrograph shape parameters;

- Table - Regional 100-, 50-, 25-, 10-, 5-, and 2-year peak flow rates for various points of interest within the Study watershed for existing and future land use conditions;
- Table - identifying potential spill areas;
- Table - available hydrometric and meteorological data;
- Table - listing the intensity-duration-frequency values for the 2 through 100 year return periods;
- Table - listing input design storm values; and
- Table - listing the equivalent circular drainage areas and rainfall reduction factors for the various points of interest for the Regional Storm and 2- through 100-year return period events.

Deliverables

- Electronic copies of model input data and output files used in the sensitivity analysis;
- Electronic copies of input and output files used in the computer modelling including Regional, and 2- through 100-year return period events for existing and future land uses;
- Electronic copies of the model input data and output of the calibration and validation analysis;
- Electronic copies of the Study Report that contains at the minimum the Submission Requirements;
- Deliverables - geo-referenced shapefiles showing the sub-basins, locations of estimated flood discharges, flood control structures, such as reservoirs, soil types, creek centreline, road network, and diversions within the reach system that affect flood flow; and
- Electronic copies of all model input and output files and geo-referenced spatial files showing hydrologic features used in the modelling must be submitted.

3.9 Hydrologic Standard Parameters

Standard parameters are shown in Table 3.2. The parameters should be used for un-calibrated models. If the engineer feels that the Standard Parameters should be modified, the engineer should provide documentation to the Conservation Authority providing justification. Area weighted calculations based on land use and soil types are required for Curve Numbers, initial abstraction and runoff coefficients.

An analysis should be conducted for each computer program to determine the sensitive input parameters.

Burlington, ON, on August 5, 2014.

Table 3.2 - Hydrologic Standard Parameters

Table 3.2.1 - Rainfall

Summer Rainfall or Intense Rainfall Storms

- Pattern - Keifer & Chu (Chicago)
- Duration - 24 hours, 5 min time step
- Time of Peak - 0.4 of Storm Duration
- IDF Curves - as below

MSC Toronto Gauge 6158350
1940 - 2003 55 years

Rainfall Intensity Duration Frequency Values

Duration min	2 year mm/hr	5 year mm/hr	10 year mm/hr	25 year mm/hr	50 year mm/hr	100 year mm/hr
5	111	154	183	220	247	274
10	76.8	103	120	142	158	174
15	61.8	85.5	101	121	136	150
30	39.1	54.6	64.9	77.8	87.5	97.0
60	23.8	32.0	38.5	45.9	51.4	56.9
120	14.1	18.8	21.9	25.9	28.8	31.7
360	5.8	7.7	9.0	10.6	11.8	12.9
720	3.4	4.5	5.1	6.0	6.6	7.3
1440	1.9	2.5	2.8	3.3	3.6	4.0

Recommended Areal Reduction Factors - U.S. Weather Bureau

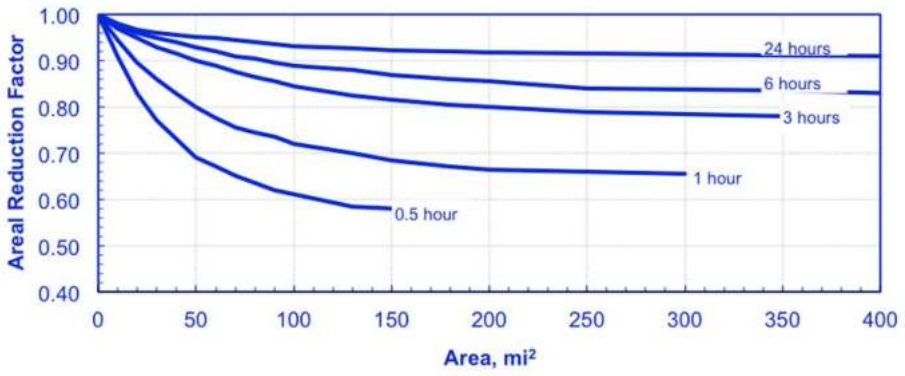


Table 3.2 - Hydrologic Standard Parameters…continued

Table 3.2.2 - Depression Storage Parameters

Depression Storage	d_s Standard mm	Calibration Range	
		Minimum mm	Maximum mm
Impervious	2.0	1.0	3.0
Lawns	5.0	3.0	10.0
Cultivated	7.0	3.0	10.0
Meadows	8.0	3.0	10.0
Woods	10.0	5.0	15.0
Wetland	15.0	15.0	45.0

Table 3.2.3 - Subcatchment Width

Overland Flow Length - SWMM/PCSWMM			
Width = Area/OFL, m^2/m	OFL Should not include channelized flow.		
Overland Flow Length	**OFL Standard m**	**Calibration Range Minimum m**	**Maximum m**
Rural	100	20	150
Urban	40	20	50

Note: The sub-catchment width represents overland sheet flow and not rill or channel flow.

Table 3.2 - Hydrologic Standard Parameters…continued

Table 3.2.4 - Horton Infiltration Parameters

Horton Equation - Minimum Infiltration Rate			
SCS Hydrologic Soil Group	**f_c Standard mm/hr.**	**Calibration Range**	
		Minimum mm/hr.	**Maximum mm/hr.**
A	10.0	8.0	12.0
B	6.0	4.0	8.0
C	3.0	2.0	4.0
D	1.0	0.0	2.0

Horton Equation - Maximum Infiltration Rate			
SCS Hydrologic Soil Group	**f_o Standard mm/hr.**	**Calibration Range**	
		Minimum mm/hr.	**Maximum mm/hr.**
A	250.0	150.0	300.0
B	80.0	60.0	150.0
C	50.0	35.0	60.0
D	25.0	15.0	35.0

Horton Equation - Decay Parameter			
	k Standard hr^{-1}	**Calibration Range**	
		Minimum hr^{-1}	**Maximum hr^{-1}**
Decay Parameter	4	1	**5**

Note: Table is not applicable to frozen soils or to a period where snowmelt contributes to runoff.

Table 3.2 - Hydrologic Standard Parameters…continued

Approval is required from the Conservation Authority to modify any of the following Green-Ampt parameters:

Table 3.2.5 – Green – Ampt Method Parameters

Soil Texture Class	Hydrologic Soil Group	Porosity	Wetting Front Soil Suction Head cm	Saturated Hydraulic Conductivity cm/h
Sand	A	0.435	4.95	23.56
Loamy Sand	A	0.440	6.13	5.98
Sandy Loam	A	0.450	11.01	2.18
Loam	B	0.465	8.89	1.32
Silt Loam	B	0.500	16.68	0.68
Sandy	C	0.400	21.85	0.30
Clay Loam	D	0.465	20.88	0.20
Silty Clay	D	0.470	27.3	0.20
Sandy Clay	D	0.430	23.90	0.12
Silty Clay	D	0.480	29.22	0.10
Clay	D	0.475	31.63	0.06

Table 3.2.6 - SCS Curve Numbers

Curve Numbers - AMC II							
Cover	Hydrologic Soil Group						
	A	AB	B	BC	C	CD	D
Woods	32	46	60	67	73	76	79
Meadows	38	51	65	71	76	79	81
Cultivated	62	68	74	78	82	84	86
Lawns	49	59	69	74	79	82	84
Impervious Areas	100	100	100	100	100	100	100

Note: AMC II conditions are used where the Timmins Storm is applicable and AMC III conditions are used for the Hurricane Hazel Storm. Converting from an AMC II Curve Number can be accomplished using Table 3.2.7.

Hydrologic classification of soils types can be found in the MTO Drainage Manual, Design Flood Estimations, Chapter H, Chart H2-5, Hydrologic Soil Groups for Soil Associations in Southern Ontario.

Table 3.2 - Hydrologic Standard Parameters…continued

Table 3.2.7 - Variation In Curve Number Based On Antecedent Condition

Condition			Condition			Condition		
I	**II**	**III**	**I**	**II**	**III**	**I**	**II**	**III**
100	100	100	48	68	84	19	36	56
97	99	100	47	67	83	18	35	55
94	98	99	46	66	82	18	34	54
91	97	99	45	65	82	17	33	53
89	96	99	44	64	81	16	32	52
87	95	98	43	63	80	16	31	51
85	94	98	42	62	79	15	30	50
83	93	98	41	61	78	12	25	43
81	92	97	40	60	78	9	20	37
80	91	97	39	59	77	6	15	30
78	90	96	38	58	76	4	10	22
76	89	96	37	57	75	2	5	13
75	88	95	36	56	75	0	0	0
73	87	95	35	55	74			
72	86	94	34	54	73			
70	85	94	33	53	72			
68	84	93	32	52	71			
67	83	93	31	51	70			
66	82	92	31	50	70			
64	81	92	30	49	69			
63	80	91	29	48	68			
62	79	91	28	47	67			
60	78	90	27	46	66			
59	77	89	26	45	65			
58	76	89	25	44	64			
57	75	88	25	43	63			
55	74	88	24	42	62			
54	73	87	23	41	61			
53	72	86	22	40	60			
52	71	86	21	39	59			
51	70	85	21	38	58			
51	69	85	20	37	57			

I	dry antecedent precipitation conditions
II	average antecedent precipitation conditions
III	wet antecedent precipitation conditions

Table 3.2 - Hydrologic Standard Parameters…continued

Table 3.2.8 - Entrance/Exit, and Transition Loss Coefficients

Weir Flow Coefficients	'C' Standard	Calibration Range	
		Minimum	Maximum
Broad Crested i.e. Road Embankment	1.5	1.40	1.70
Sharp Crested	1.6	1.40	1.80

A sharp crested weir coefficient should be used when there is air underneath the nappe. Such conditions would exist for a stormwater management pond weir outlet. A broad crested weir assumes the nappe is supported. An example of a broad crested weir would be a road crossing. Generally, when the ratio of flow depth divided by the weir thickness is greater than 0.5 a sharp crested weir coefficient should be used. When the ratio is less than 0.5 the broad crested weir coefficient should be used.

Orifice Coefficient	'C' Standard	Calibration Range	
		Minimum	Maximum
Orifice Coefficient	0.66	0.62	0.78

Expansion/Contraction Coefficients	Contraction	Expansion
Gradual Transitions	0.1	0.3
Bridges	0.3	0.5
Culverts	0.5	0.8
Abrupt Transitions	0.6	0.8

Table 3.2 - Hydrologic Standard Parameters…continued

Table 3.2.9 - Manning Roughness Coefficients

Conduit	'n' Standard	Calibration Range	
		Minimum	Maximum
Concrete	0.013	0.011	0.015
Brick	0.015	0.013	0.017
Plastic	0.013	0.011	0.015
Iron	0.013	0.011	0.015
Corrugated Steel Pipe - 3"x1"	0.024	0.021	0.027
Structural Plate Corrugated Steel Pipe - 6"x2"	0.032	0.026	0.036

Open Channel	'n' Standard	Calibration Range	
		Minimum	Maximum
Overbank			
Woods	0.080	0.040	0.120
Meadows	0.055	0.035	0.070
Lawns	0.045	0.030	0.055
Channel			
Natural	0.035	0.025	0.045
Grass	0.030	0.025	0.035
Natural Rock	0.035	0.025	0.045
Armour Stone	0.025	0.017	0.030
Concrete	0.015	0.011	0.017
Articulated Block	0.020	0.019	0.032
Gabions	0.025	0.020	0.030
Wood	0.012	0.011	0.013

Overland	'n' Standard	Calibration Range	
		Minimum	Maximum
Impervious	0.013	0.011	0.015
Lawns	0.250	0.150	0.410
Cultivated	0.300	0.060	0.170
Meadows	0.350	0.025	0.400
Woods	0.600	0.400	0.800

Table 3.2 - Hydrologic Standard Parameters…continued

Table 3.2.10 - Computation Time Steps

Hydrograph Computation Time Step

Time step should be equal to 1/5 of smallest basin time to peak.

Routing Computation Time Step

DT = Length / Celerity

= Length * (g * Avg. Depth) 0.5 / Q

DT = time step, s
Length = routing length, m
g = gravitational constant, 9.8... m2/s
Depth = flow depth, m
Q = flow rate, m3/s

Table 3.2 - Hydrologic Standard Parameters…continued

Table 3.2.11 - Time of Concentration

Bransby-Williams Formula [2]

If runoff coefficient "C" value is greater than 0.4

$$t_c = 0.057 * L * S_w^{-0.2} * A^{-0.1}$$

Airport Equation [2]

If "C" value is less than 0.4

$$t_c = 3.26 * (1.1 - C) * L^{0.5} * S_w^{-0.33}$$

t_c = time of concentration, minutes
C = runoff coefficient
L = watershed length, m
Sw = watershed slope, %
A = watershed area, ha

Rational Method Runoff Coefficients

Rational Method 'C' Values	'C'	Calibration Range	
	Standard	Minimum	Maximum
Impervious	0.95	0.95	0.95
Lawns	0.15	0.05	0.35
Cultivated	0.45	0.22	0.70
Meadows	0.35	0.10	0.55
Woods	0.30	0.08	0.52
Wetlands	0.05	0.00	0.10
Business	0.70	0.50	0.95
Residential	0.50	0.25	0.75
Industrial	0.80	0.50	0.90
Parks	0.15	0.10	0.25
Apartments	0.60	0.50	0.70

Table 3.2 - Hydrologic Standard Parameters…continued

Table 3.2.12 - Hurricane Hazel Storm

In the first 36 hours the total rainfall recorded was 73 mm. The following 12 hour rainfall represents the Ontario Ministry of Natural Resources Storm:

Timing	Depth (mm)	Percent of Total
37th hour	6	3
38th hour	4	2
39th hour	6	3
40th hour	13	6
41st hour	17	8
42nd hour	13	6
43rd hour	23	11
44th hour	13	6
45th hour	13	6
46th hour	53	25
47th hour	38	18
48th hour	13	6
Total	212 mm	100

Table 3.2.13 - Hurricane Hazel Areal Reduction Factors

Circular Drainage Area (km^2)	Total Percentage of Rainfall
0 to 25	100
26 to 45	99.2
46 to 65	98.2
66 to 90	97.1
91 to 115	96.3
116 to 140	95.4
141 to 165	94.8
166 to 195	94.2
196 to 220	93.5
221 to 245	92.7
246 to 270	92.0
271 to 450	89.4
451 to 575	86.7
576 to 700	84.0
701 to 850	82.4
851 to 1000	80.8
1001 to 1200	79.3
1201 to 1500	76.6

Table 3.2 - Hydrologic Standard Parameters…continued

Table 3.2.14 - Timmins Storm

The following 12 hour rainfall represents the Ontario Ministry of Natural Resources Storm:

Timing	Depth (mm)	Percent of Total
1st hour	15	8
2nd hour	20	10
3rd hour	10	6
4th hour	3	1
5th hour	5	3
6th hour	20	10
7th hour	43	23
8th hour	20	10
9h hour	23	12
10th hour	13	6
11th hour	13	7
12th hour	8	4
Total	193 mm	100

Table 3.2.15 – Timmins Storm Areal Reduction Factors

Circular Drainage Area (km^2)	Total Percentage of Rainfall
0 to 25	100
26 to 50	97
51 to 75	94
76 to 100	90
101 to 150	87
151 to 200	84
201 to 250	82
251 to 375	79
376 to 500	76
501 to 750	74
751 to 1000	70
1001 to 1250	68
1251 to 1500	66
1501 to 1800	65
1801 to 2100	64
2101 to 2300	63
2301 to 2600	62
2601 to 3900	58
3901 to 5200	56
5201 to 6500	53
6501 to 8000	50

Figure 3-3 Flood Hazard Criteria Zones

Abstracted from Technical Guide, River & Stream Systems: Flooding Hazard Limit, page 12, Ontario Ministry of Natural Resources, 2002

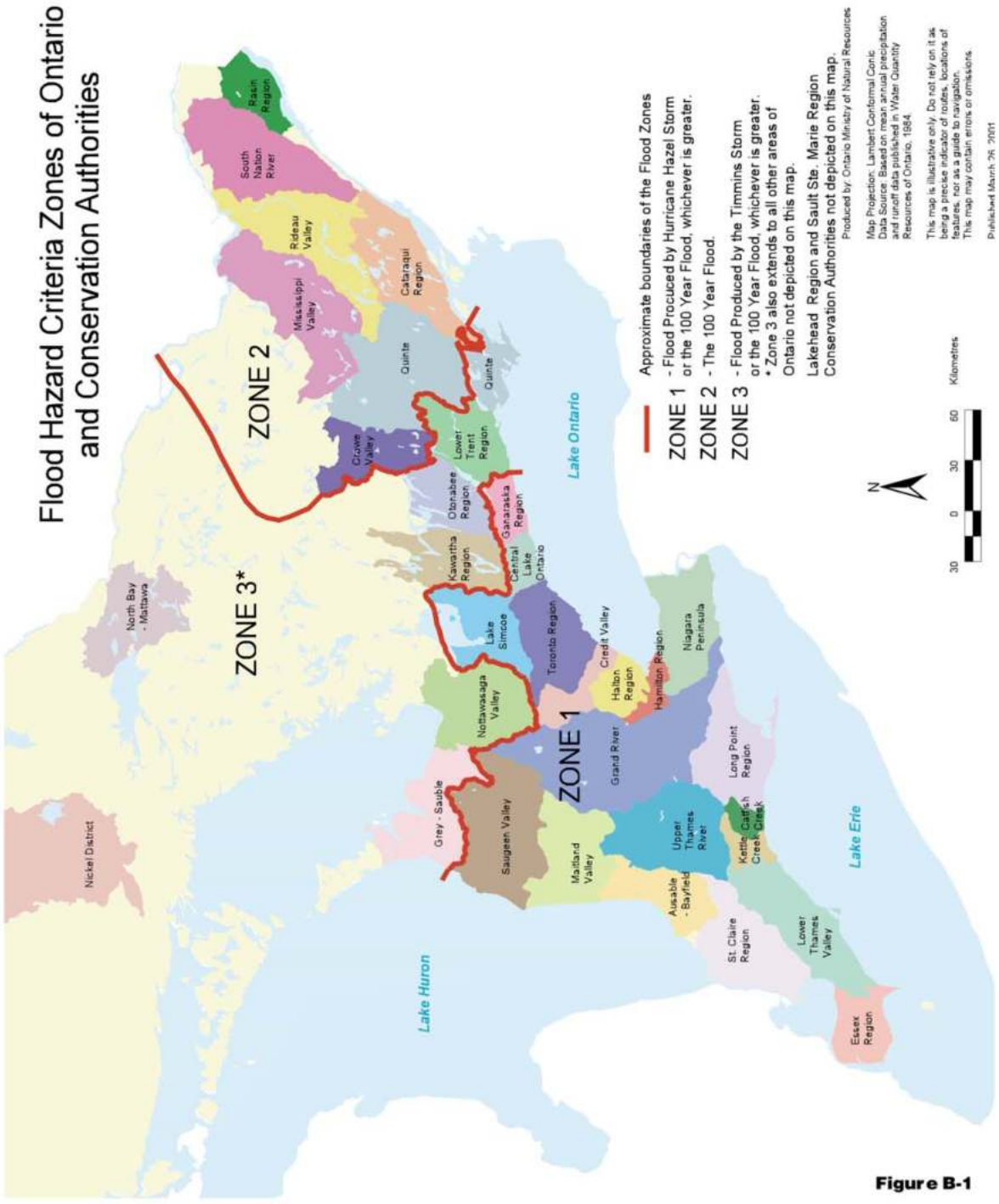


Figure B-1

3.10 References

Information used in Section 3 has been abstracted from the following documents:

- Guidelines for Water Management Modelling
  eWater CRC, Australia 2011
- Guidance on the Development, Evaluation, and Application of Environmental Models
  US EPA CREM (Council for Regulatory Environmental Modeling) March 2009
- Good Modelling Practice Handbook
  STOWA Report 99-05
- Appendix 2 Modelling
  Assessment Report: Draft Guidance Modules, Ontario Ministry of the Environment October 2006
- Flooding Hazard Limit, Technical Guide River & Stream Systems
  Ontario Ministry of Natural Resources 2002
- Appendix C: Guidance for Riverine Flooding Analyses and Mapping
  Guidelines and Specifications for Flood Hazard Mapping Partners US FEMA November 2009
- Selection, Calibration, and Testing of Hydrologic Models.
  D.L. James and S.J. Burges. In Hydrologic Modeling of Small Watersheds, Mono. No. 5, American Society of Agricultural Engineers. 1982

4.0 HYDRAULIC ANALYSIS

4.1 General

Hydraulic analyses are performed to determine water surface elevations at various locations along a watercourse for various streamflow return periods. The water surface elevations are used to delineate flood hazard limits and floodplains.

- The technical reports for hydraulic analyses are to be prepared in such a manner that the entire work can be recreated by professional engineers without the need to refer to any other material. Further, professional engineers are to be able to recognize and understand all methods, approaches, basic data, and rationale used for these methods;

- Hydraulic Standard Parameters (Section 4.9) should be used in all hydraulic computations. If the engineer feels that the standard parameters should be modified, the engineer should provide documentation to the Conservation Authority providing justification that can include the results of calibration/validation analyses;

- Hydraulic calculations must be approved by the Conservation Authority before the flood hazard limits are delineated. Hydraulic calculations to determine water surface elevations are usually conducted using a computer program;

- The study report documentation must include the following:
  - What analysis was done including purpose, alternative methods, and the rationale for the chosen method;
  - How the analysis was conducted including input data, data sources, measurements of data, verification, collaboration, uncertainty analysis, calibration, validation, and sensitivity analysis;
  - The results of the analysis;
  - How were the results checked; and
  - What are the limitations of the analyses.

The hydraulic analysis report must be sealed, signed, and dated by a professional engineer. Any computer program input and output data must be sealed, signed, and dated by the professional engineer who prepared or supervised the preparation of the input data and who checked the output data. The computer model description box must include the professional engineer's name, PEO registration number, and the completion date.

Section 4 is divided into the following subsections:

4.2 Information Requirements

- The study report must discuss the objectives of the analysis, the information required for input to the hydraulic model, and the methodology used to obtain that information. The report must discuss the scenarios to be analyzed, and the level of accuracy required.

  Specification of the information requirements combined with characterization of the watercourse, and determination of available data, will allow a computation flow analyses procedure to be selected.

4.3 Watercourse Conceptualization and Characterization

- The report must discuss the conceptualization and characterization of the watercourse under study. Conceptualization and characterization aids in determining the computation methods to be used in the hydraulic analysis including which computer programs may be applicable.

  Conceptualization will determine the salient components of the watercourse, the relationships between the components, the upstream and downstream boundary conditions, and the temporal computation requirements. Conceptualization will determine if computations should be undertaken at a 1-D or 2-D level. Conceptualization will also include the size of the time step if unsteady flow computations are conducted. Conceptualization will determine how lumped or detailed the hydraulic processes will be modelled. Assumptions must be fully discussed and justified in the study report.

4.4 Data Availability:

- The study report should contain a discussion on the data used to derive parameters for the model, and the data used to evaluate the model. The accuracy of the model will depend on the accuracy of the data used to develop and calibrate the model. The discussion should include the following:
  - Where the data can be sourced;
  - How and by whom was the data measured;
  - Period of record that was used in the model; and
  - What is the level of accuracy of the data.

  Error creeps into data through a number of ways. Included are errors due to the procedures used to acquire the data, errors due to natural spatial and temporal variability, transcription errors, data storage errors, and errors due to data manipulation.

Data Filling and Modification

- The study report must contain a discussion on any data filling and modification of data used in the study. Generally, missing data needs to be filled. Also, suspect data needs to be modified. Discussion should include the following:
  - What data was filled or modified, why; and
  - What techniques were used to fill the data.

Data Stationarity

- The study report must contain a discussion regarding data stationarity. Changes to data sets may be gradual, or may be abrupt or may be in a more complex form. Data sets may not be stationary for a variety of reasons. Included are the following:
  - Changes in measurement techniques or instrumentation or relocation of the gauge; and
  - Changes to stream channel geometry.

4.5 Technical Reviews

Hydraulic studies should be reviewed to determine the correctness, completeness and appropriateness of procedures used to develop information for the intended purpose and for adherence to these Technical Guidelines. Included are input data, boundary conditions, conceptual model, mathematical model and parameters, model limitations, and model documentation.

Reviews can be undertaken near the end of a study, or throughout the study. Both approaches have limitations. Both approaches have limitations. For example, there may not be sufficient budget to correct any deficiencies found in a review if the review is conducted near the end of a study. Also, a reviewer's independence may become jeopardized if reviews are conducted throughout the study, as the reviewer may act as an advisor rather than a reviewer. It is recommended that the technical review be undertaken throughout the study to minimize the potential for wasted efforts.

A formal process should be followed to review hydraulic studies, and each review should be documented. Reviewers can be from the Conservation Authority undertaking the work, or can be undertaken by third parties.

Reviewers must have sufficient expertise in the area of practice to properly assess the hydraulic analysis. Reviewers must be capable of conducting the study, and reviewers must have a thorough understanding of methodologies and knowledge of accepted hydraulic engineering practice. A reviewer must have access to the computer program being used in the study. A reviewer must be a Professional Engineer licensed in the Province of Ontario.

The reviewer's report should identify the following:

- The individual who authorized the review,
- The author;
- The purpose of the review;
- The basis under which the review was conducted;
- A brief description of the study report under review;
- A summary of documentation provided to the reviewer;
- Communications made during the review;
- A description of the methodology for conducting the review; and
- The reviewer’s findings that include information upon which the reviewer's opinions are based.

The reviewer shall check the following:

- Results of the hydraulic model should match the maps, including the distances between cross sections, water-surface elevations, flood widths;
- All hydraulic structures in the model are reflected on the maps and vice versa;
- Water-surface and energy grade line profiles of different flood frequencies do not cross one another;
- Water-surface profiles do not show water-surface elevations at an upstream cross section lower than a water-surface elevation at a downstream cross section;
- Flood discharges used as inputs correlate with the hydrologic analysis;
- Cross section location and alignment;

- Ineffective flow areas;
- Absence of buildings from cross sections;
- Floodline map accuracy and appearance;
- Starting water-surface elevations are correct;
- Distribution of flood flows or changes to the distribution between left overbank, channel, and right overbank;
- Cross sections, Manning's roughness coefficients, transition loss coefficients, and loss coefficients at structures are modeled in accordance with the Technical Guidelines;
- Water-surface elevations at bridges or culvert sections are correct;
- Hydraulic models are calibrated with high-water marks or measured flow rates and water surface elevations where available;
- Hydraulic model results that are compared with aerial photographs of historic flooding where flood elevations can be determined;
- Appropriateness of the program used in the analysis; and
- Water surface elevations on the main branch must equal the water surface elevations of tributaries that confluence with the main branch for those tributaries not being studied.

Figure 4-1 – Sample Flood Plain Mapping Product for Public Discussion.

4.6 Selecting A Flow Analyses Procedure

- Generally, the type of flow analysis will be requested in a study's Terms of Reference. The engineer should confirm and discuss in the study report the type of flow analyses that is appropriate for the development of floodlines in the study area.

  Four (4) types of flow analyses can be analyzed for the development of floodlines. The types of flow analysis include the following:

  - One-dimensional steady flow;
  - One-dimensional unsteady flow;
  - Two-dimensional steady flow; and
  - Two-dimensional unsteady flow.

  One-dimensional (1-D) steady flow models are applicable where flow peaks are not significantly affected by storage, where the channel storage-discharge relationship is represented by a single-valued rating curve, and where water-surface profiles are not affected by reverse flow conditions. Typical reaches are well-defined open channels with gradually varied flow.

  One-dimensional (1-D) unsteady flow models are applicable to reaches with significant storage, reverse flow, or are subject to rapidly varied flow and waves.

  Two-dimensional (2-D) steady and unsteady flow models are most applicable to streams on flat terrain with broad floodplains where flow is moving in two or more directions, or flow is hydraulically disconnected between the main channel and the floodplain (spills and split flow). Two-dimensional (2-D) modellng may be appropriate for Special Policy Areas, Two-Zone mapping, risk assessment, emergency response and flood remediation measures.

4.7 Computer Modelling

4.7.1 General

Computer models, despite their complexity, are a simplification of reality. Computer models are simply tools that can be used to better understand how watercourses function. Modelling to a higher resolution or level of accuracy than is necessary may not guarantee better results and may ultimately waste time and resources.

The hydraulic modelling methodology is shown in Figure 4-2.

Section 4.7 is divided into the following subsections:

4.7.2 Program/Software Selection

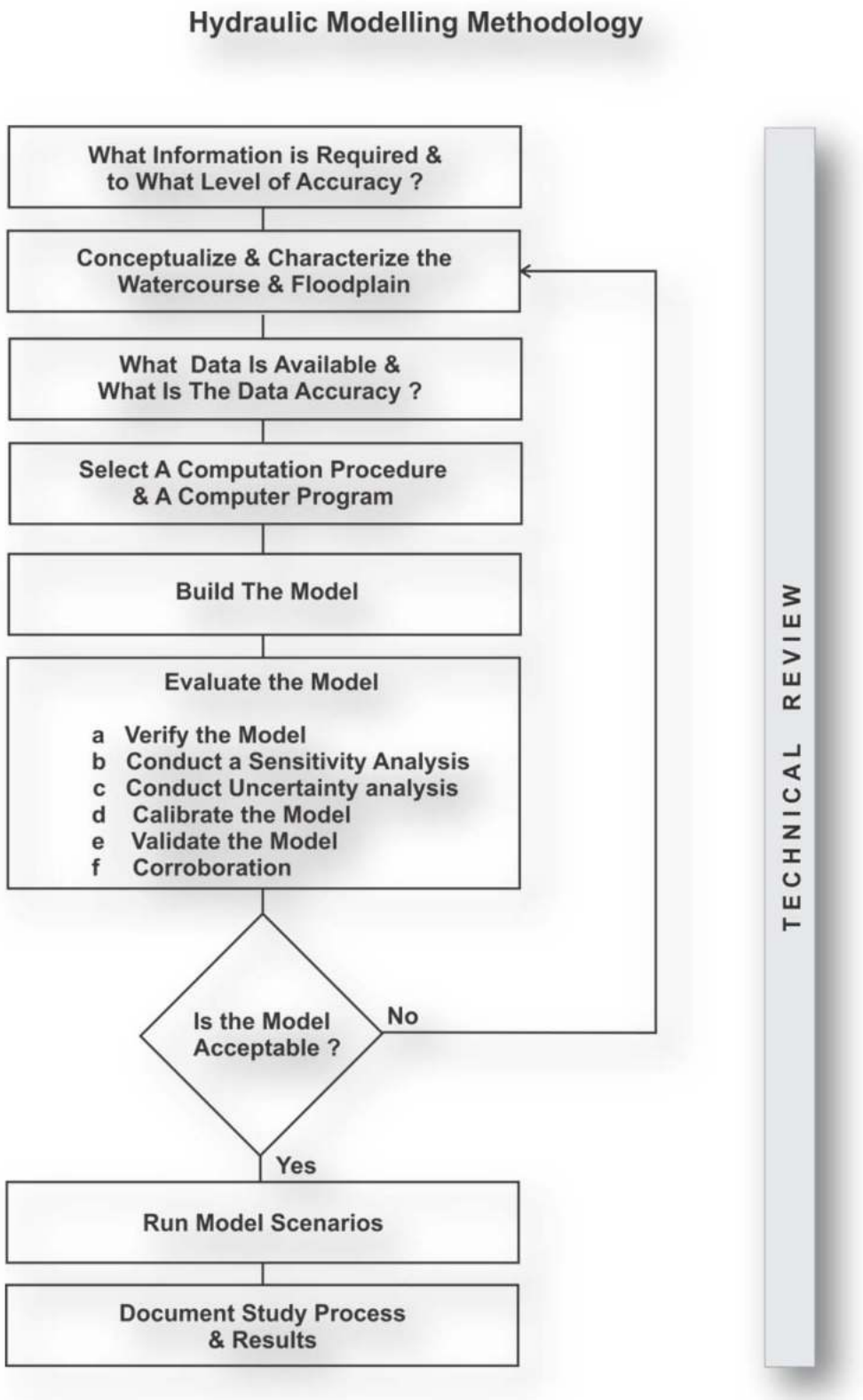
4.7.3 Model Building
- 4.7.3.1 One Dimensional - Steady Flow Models
- 4.7.3.2 One Dimensional - Unsteady Flow Models
- 4.7.3.3 Two Dimensional - Steady and Unsteady Flow Models

4.7.4 Model Evaluation
- 4.7.4.1 Model Verification
- 4.7.4.2 Sensitivity Analysis
- 4.7.4.3 Uncertainty Analysis
- 4.7.4.4 Calibration/Validation
- 4.7.4.5 Corroboration
- 4.7.4.6 Error/Warning Messages

4.7.5 Model Acceptability

4.7.6 Modelling Scenarios and Results

Figure 4-2


Hydraulic Modelling Methodology
What Information is Required & to What Level of Accuracy ?
Conceptualize & Characterize the Watercourse & Floodplain
What Data Is Available & What Is The Data Accuracy ?
Select A Computation Procedure & A Computer Program
Build The Model
Evaluate the Model
a Verify the Model
b Conduct a Sensitivity Analysis
c Conduct Uncertainty analysis
d Calibrate the Model
e Validate the Model
f Corroboration
Is the Model Acceptable ?
No
Yes
Run Model Scenarios
Document Study Process & Results
TECHNICAL REVIEW

4.7.2 Program/Software Selection

- The engineer must select the computer program to be used in the hydraulic analysis. Reasons for selecting a computer program or a suite of programs must be documented in the study report and must be approved by the Conservation Authority prior to model building;

- The documentation must include an assessment of alternate programs, and reasons why the alternate programs were not selected;

- The most recent version of the computer programs must be used. The engineer should follow the procedures and guidance given in the program's User Manual and Technical Reference;

- Computer programs used in the hydraulic analyses should not be modified by anyone except the program author; and

- If the engineer proposes any modifications to a computer program or proposes to use an existing modified program, the engineer must submit to the Authority input test data, output, and complete listing of the modified computer program, user's manual and an explanation in detail as to the nature of and reasons for modifications for review and approval prior to its use. The Conservation Authority and its agents should be granted a royalty free license to use the program for floodline modifications.

Program/Software Selection Notes

- A computer program is a system or algorithm with mathematical equations, parameters and data structures. Programs may be developed in-house, may be external open-source or may be an external proprietary program where the source code is not shared. Open source programs are preferred;

- There may be more than one suitable program to conduct the computations and more than one computer program may be required;

- The engineer should be familiar with the principles, equations, algorithms, and assumptions used in the program; be aware of the programs limitations; and know when the program is providing the appropriate answers;

- Table 3.1 identifies some of the steps required by the engineer to show demonstrate due diligence when selecting and using hydrologic and hydraulic software. The engineer who selects the software is responsible for conducting due diligence whether it is Conservation Authority staff or a consultant;

- The engineer should select a program (algorithms and equations) with the available data that reflects the dominant and sensitive processes described in the conceptual model; and

- The engineer should select a program that is no more complicated than necessary to compute the required information. Models tend to increase uncertainty as they become too simple or too complex. The complexity of a model should be sufficient to minimize uncertainty, and that more or less complexity will increase uncertainty.

4.7.3 Model Building

Model building is the development of a mathematical model based on a conceptual model. Model building requires both a spatial and temporal discretization of the physical watercourse into a mathematical model. The construction of the mathematical model is a function of the computer program used. The model building phase determines parameter values that are fixed, and initial estimates of calibration parameters are made. Hydraulic standard parameters are shown in Section 4.9.

Section 4.7.3.1 should be read first as it contains information common to Section 4.7.3.2 and Section 4.7.3.3.

Some general notes include the following:

- The hydraulic model should be continuous from the upstream study limit to the downstream study limit. Only one hydraulic model should be used; and

- The study report must include a discussion of the assumptions made and methods used, with respect to parameter estimation, and effective flow areas of the cross section at various stages of the hydraulic analysis.

  Effective flow areas are portions of cross sections through which floodwaters are conveyed. Ineffective flow areas are portions of the flood plain where water ponds.

4.7.3.1 One-Dimensional Steady Flow Models

- One-dimensional (1-D) steady flow backwater models must be applied to channels with mild to moderate slopes without significant storage and with gradually varied flow. One dimensional steady flow models should not be applied to channels with reverse flow conditions;

- Documentation of one-dimensional models must include shapefiles showing the location and alignment of each cross section, location of each hydraulic structure, river centreline, and show water surface elevations; and

- One-dimensional models usually require the following information:
  - Cross Sections;
  - Hydraulic Structures;
  - Ineffective Flow Areas;
  - Expansion and Contraction Coefficients;
  - Weir Coefficients;
  - Manning 'n' Values;
  - Starting Water-Surface Elevations;
  - Flow Interpolation Between Points of Interest;
  - Spills and Split Flows; and
  - Mixed Flow Calculations.

<u>Cross Sections</u>

- Documentation must include the sources of cross-section data points and methods of measurement; and

- Each cross section must have a unique identifier that is used on the maps, in the hydraulic model, in the field survey notes, and on the cross section plots.

<u>Cross Sections - Location</u>

- Cross sections should be located in accordance with a program's user manual;

- Maximum spacing between successive cross sections shall be dictated by the analytical requirements of the program. The length between cross sections should be based on river geometry and the assumption that gradually varied flow within a reach is valid;

- Cross sections should be representative of the reaches adjacent to them, and located close enough together to ensure accurate computation of the energy losses;

- Cross sections should be located such that the energy gradient, water-surface slope, and bed slope are all as parallel to each other between cross sections as is pragmatic. If any channel feature causes one of these three profiles to curve, break, or not be parallel to the others, the reach should be further subdivided with more sections;

  Discussion shall be contained within the report on the criteria used in locating and defining the cross-sections;

- Cross sections shall be located where changes occur in longitudinal slope, cross-sectional area, channel roughness, bridges and other channel constrictions. Several cross sections at short intervals maybe required to model abrupt changes where the conveyance changes greatly as a result of changes in width, depth, or roughness, and where the lateral distribution of conveyance changes radically with distance. Abrupt changes occur at bridges, culverts, weirs, dams, ponds, levees, bends, and expanding and contracting reaches;

- Tributaries - cross sections should be located immediately upstream and downstream from the confluence on the main stream and immediately upstream on the tributary to account for changes in flow rates in the hydraulic model;

- Locate cross-sections immediately upstream and downstream of any culvert or bridge. The cross sections should be just outside the toe of the fill and the side ditch; and

- Locate cross-sections at the same cross sections used in previous floodplain studies, where high water marks are available, at county, city, and town and other corporate boundaries, and at future development sites.

Cross Sections - Alignment

- Cross sections must be placed perpendicular to flood flow. Cross section alignment should be a straight line if possible. Cross sections with more than two or more segments are likely to occur;

- Cross sections should never cross or intersect each other. Care must be taken at river bends and tributary junctions to avoid overlap of sections;

- Cross sections shall be extended across the entire anticipated floodplain, should be perpendicular to the anticipated flow lines (approximately perpendicular to contour lines) and only positive distances are to be utilized. Computer generated vertically extended and interpolated cross-sections are not acceptable; and

- Buildings shall be included (coded or obstructions) in the flood plain portion of cross sections.

Cross Sections - Points

- All cross sections should be coded left to right looking downstream. Existing models and detail design drawings for crossings may contain cross sections looking upstream. Updates to existing models should be coded consistently looking upstream or downstream;

- Cross sections should include points at changes in grade across the cross section;

- Cross section data points can be abstracted from mass points, DEMs, TINS, contours, geodetic field surveys, and measured low flow sections. Cross section data points must have the accuracy specified in Section 2. Typical low flow sections shall be field measured for each reach between hydraulic structures;

- Left and right bank channel stations shall be representative of actual channel low flow banks;

- Ineffective flow areas shall be noted and excluded from the conveyance portion of the cross section;

- The maximum elevation of each end of a cross section should be higher than the anticipated maximum water surface elevation. The maximum water surface elevation must be contained within the input cross section. Some computer programs will modify input cross sections to contain the flow; and

- Local irregularities in the ground surface such as depressions or rises that are not typical of the reach or do not allow conveyance of flow should not be included in the cross sectional data.

Hydraulic Structures

- For each stream crossing modeled, the engineer must document the dimensions of the crossing, values of energy loss coefficients, and the justification of those values;

- The sources of data and means of measurement must be fully documented. Documentation must include an explanation for any structures that were not surveyed;

- Discussion of the method used and assumptions made in the calculation of water surface elevations at watercourse crossings;

- Dimensions of hydraulic structures may be taken from as-built drawings where access to the structure cannot be obtained and the as-built drawings can be visually verified in the field;

- Survey information of dimensions and elevations must be referenced to geodetic datum;

- The top of road profile should be obtained by field survey and extend across the entire width of the flood plain;

- A dam break analysis shall be considered to determine flood levels downstream of high (greater than 5 m) embankments that are associated with large upstream storage volumes and where failure under flood conditions may occur. The Conservation Authority should be contacted to confirm dam break modelling. Inundation lines may be plotted on maps for information purposes.

- Hydraulic model coding should reflect the bridge data sheets;

- Equivalent culverts may be required where culverts are composed of two or more segments with different shapes, sizes, and constructed of different materials. Also, equivalent culverts may be required where there are bends in the culvert alignment. The upstream culvert should be modified to equate to the combined head losses of the two or more segments;

- Horizontal stationing at a bridge or culvert section must be consistent with the downstream and upstream channel-floodplain cross-sections. The centerline station of a culvert should be provided and be consistent with the upstream and downstream cross-section stationing;

- Bridge/culvert cross sections will include parapets and railings;

- Bridge/culvert losses should be checked by a method other than the hydraulic program used to develop water surface profiles. In addition the results of the bridge/culvert loss check should be documented in the study report;

- The study report must document for each profile the amount of flow through bridges/culverts and the amount of weir flow. For the HEC-RAS program an option under the profile output table report lists the amount of pressure and weir flow; and

- Skewed cross sections must be corrected for the hydraulic calculations. The corrections can be made using program parameters or corrected manually.

Ineffective Flow Areas

- Ineffective flow elevations at a bridge/culvert represent weir flow over the bridge/culvert. For the upstream cross section the elevations are set equal to the elevation (minimum top of road) at which weir flow occurs in the left and right overbanks. For the downstream cross section the elevation at which weir flow occurs is not known for the initial run. An initial estimate is the half way between the low chord and the minimum top of road. The final downstream ineffective flow elevation must be determined through trial runs with different flow rates to determine the flow at which weir flow occurs and then setting the ineffective elevation equal to the downstream water level; and

- The study report must fully document the location and the technique used to exclude ineffective flow areas from the conveyance portion of the watercourse.

Contraction and Expansion Coefficients

- Expansion and contraction coefficients - refer to Hydraulic Standard Parameters Section 4.9. Typical values are 0.1 and 0.3 for gradual contractions and expansions respectively and 0.3 and 0.5 at abrupt contractions and expansions such as bridges and culverts.

  The engineer may use other values when approved by the Conservation Authority. The engineer must document the reasons for using other values and provide documentation to support those reasons.

Weir Coefficients

- Weir coefficients - refer to Hydraulic Standard Parameters Section 4.9. The engineer may use other values when approved by the Conservation Authority. The engineer must document the reasons for using other values and provide documentation to support those reasons.

Manning 'n' Values

- Manning's roughness coefficients - refer to Hydraulic Standard Parameters Section 4.9;

  The engineer may use other values when approved by the Conservation Authority. The engineer must document the reasons for using other values and provide documentation to support those reasons. Other values may be suggested after a site visit. Documentation of on-site observations must include photographs; and
- If “n” values are adjusted based on calibration, the documentation must include a summary of the values before and after the adjustments.

Starting Water-Surface Elevations

- Where a control starting elevation, such as a weir that creates a critical depth, is not possible, the starting section shall be located sufficiently downstream that the reach under consideration is not significantly affected by starting water surface elevations. A sensitivity analysis can be used to demonstrate that the starting water surface elevation is located sufficiently downstream not to affect the study reach.

  A control is a cross section at which the computed water-surface elevation is unaffected by changes in the downstream flood elevation, and the upstream reach is hydraulically independent;

- Starting water surface elevations for tributaries will assume coincident peaks with the main branch unless it can be justified otherwise;

- Where a lake is the control point, the starting water surface elevation shall be based on the long-term mean lake level;

- Discussion on the methods used and assumptions made in the determination of the starting water surface elevations for backwater computations shall be included in the study report; and

- 100-year lake levels are to be superimposed on the resultant water surface profile to establish the Regulatory level.

Flow Interpolation Between Points of Interest

- The study report must contain a discussion on how flow rates were interpolated for locations between points of interest in the hydrologic model. Generally, flow rates should not change more than 10% between points of interest and less between cross sections.

  Two methods are acceptable. The first method uses the flow rate from a downstream point of interest in all cross sections to the upstream point of interest. The flow rate does not vary.

  The second method interpolates the flow rate between two points of interest based on drainage area. A linear interpolation of drainage area is used in the calculations.

Spills and Split Flows

- The study report must document the location of a spill, the estimated maximum depth of the spill, the estimated maximum flow rate of the spill, the estimated volume of the spill, and the receiving watercourse of the spill. The lack of mapping is not considered a spill location.

  Spills are floodwaters that leave a defined watercourse and spill overland. Spills can re-enter the watercourse at a downstream point or flow overland to another watercourse;

- The study report must discuss whether a spill is natural or as a result of artificial structures. In case of a significant natural spill, downstream flood levels may be based upon reduced peak flow rates. The Conservation Authority should be contacted for approval prior to the use of reduced peak flow rates.

  The hydrologic model may need to be modified to include the natural spill;

- The study report must discuss the methods used and assumptions made in the determination of the estimated spill flows, effects on downstream flows and flood plains, and areas affected due to the spill shall be included in the study report.

At crossings, spill characteristics may be estimated using the lateral weir option in HEC-RAS or by using a top of road or weir cross section that accounts for flow moving over the crossing and moving along the path of the diverted flow. Both these methods provide estimates only, as the methods assume that flow passes through critical depth.

A more accurate estimate may be made using split flow analysis or a 2-D model. Split flow analysis refers to flow that is separated from the main channel for some distance and then merges back with the main channel. Spilt flow analysis requires at a minimum a common upstream headwater level. HEC-RAS contains an option to conduct a split flow analysis. Split flow analysis can be conducted manually as described in Open Channel Hydraulics by Ven Te Chow.

Mixed Flow Calculations

- Subcritical flow calculations shall be assumed for natural reaches. Mixed flow (subcritical and supercritical) calculations will be considered for artificial watercourses such as concrete lined channels. The Conservation Authority should be contacted for approval prior to the use of mixed flow calculations;

- The study report must document the reaches where subcritical and mixed flow calculations were used to delineate the Regulatory Floodlines. The study report should document where there are large differences in water surface elevations between subcritical and mixed flow calculations; and

- The engineer must investigate and report on natural reaches where the computer program indicated that flow was critical at a cross section. Some hydraulic programs use critical depth as a default water surface elevation. If critical depth is calculated, then the engineer should check the number of iterations used to calculate critical depth. If the number is equal to the maximum allowed number of iterations, then more cross sections may be required. Where there are numerous or continuous critical depth values, mixed flow calculations may be required. The Conservation Authority should be contacted for approval prior to the use of mixed flow calculations.

4.7.3.2 One-Dimensional Unsteady Flow Models

- Generally, 1-D unsteady flow models are not used to develop Regulatory Floodlines. 1-D unsteady flow modelling maybe used to delineate Two Zone areas and may be used to develop inundation areas for dam break analysis;

- The Conservation Authority should be consulted and must approve the use of 1-D unsteady flow modelling to delineate Regulatory Floodlines;

- The study report must document data sources used to develop the hydraulic model, including inflow hydrographs, geometry data for channel cross sections or other conduits, junctions and/or other storage areas, energy loss coefficients, and downstream boundary conditions. Some one-dimensional unsteady state models describe the drainage system as a nodal network, consisting of nodes (junctions) and links (conduits). Other programs use channel network features described by cross sections. All data and sources must be described in the study report; and

- Steady flow models may not be easily converted into unsteady flow models.

Cross Sections for 1-D Unsteady Flow

- Cross section end points should have the same elevations. Uneven end points may cause numerical instabilities during simulation;

- Interpolated cross sections should not be used;

- Hydraulic properties such as top width, hydraulic radius, etc. of a cross section should not change abruptly; and

- In-line weirs should be used for severe drops in bed profile.

Boundary Conditions for Unsteady Flow Computations

- The study report must document the upstream boundary conditions (hydrographs), downstream boundary conditions (stage-discharge relationship), tributary hydrographs, and lateral inflows. The documentation should include the source of the data, and the reasoning used to assign frequencies to the hydrographs.

Non-Conveyance Areas for Unsteady Flow Computations

- The study report must document any non-conveyance or storage portions of cross sections used in the unsteady flow computations. Many 1-D unsteady flow programs can model off-channel storage area connected to the channel. Documentation must include elevation-storage relationships, used in the

analysis, including the methods, sources, and measurements of data used to define the relationships; and

- These storage areas are usually defined by elevation-volume or elevation-surface area relations or modeled by user-defined flow allocation ratios. Such areas should be clearly labeled with a unique identifier corresponding to the storage area used in the model.

4.7.3.3 Two-Dimensional Steady and Unsteady Flow Models

- Generally, 2-D steady or unsteady flow models are not used to develop flood hazard limits. 2-D modelling may be required in areas where flow is moving in two different directions at the same time or where flow paths may not be well defined or difficult to visualize. 2-D models provide a better estimation of local variations of velocity and water depths. 2-D models will only be required for reaches where 1-D modelling is inappropriate;

- 2-D models are applicable to bi-furcated flow patterns, rigid boundaries, overland flow, and complex hydrodynamics. For flood hazard maps, 2-D models should only be used when flow depths are greater than 0.3 m;

- It is expected that full 2-D models will be rarely required to develop flood hazard maps. Rather a 1-D model coupled with a 2-D model will be used after consultation with and approved by the Conservation Authority; and

- The study report must document the reasons for utilizing a 1-D/2-D steady or unsteady state model for delineating hazard limits.

  1-D analysis may be appropriate to represent the channel flow for wide floodplains with defined channels where conveyances, velocities, and associated physical forces are only significant in the downstream direction. Hydraulic parameters can be computed using cross sections placed perpendicular to the flow direction. 1-D modelling is well suited to hydraulic structures and has short computation times when compared to 2-D modelling.

  The 2-D analysis has the ability to accurately model steady or unsteady, unconfined flows caused by flat terrain. Flow in this scenario is moving in two or more directions. The 1-D flow analysis may not accurately model water surface elevations. For 2-D modelling grid elevations are presumed to vary gradually. For 2-D analysis a grid is required instead of cross sections and rating curves maybe used to model crossing losses. The 2-D model accounts for lateral variations in

water surface elevations. The 2-D analysis has significant computation times and may not accurately account for head losses at structures.

A coupled 1-D/2-D model is often the most efficient model given the advantages and disadvantages of 1-D models and 2-D models. A coupled 1-D/2-D model has short computation times, accounts for bifuracted flow, and accurately accounts for head losses at hydraulic structures.

Model Domain

- The model domain defined by bathymetry should cover the river network and its floodplain. In urbanized areas the slope of the road network may carry the shallow flooding well beyond the area of interest. A boundary should be chosen sufficiently far from the area of interest and located where the surface is sloping down away from the model domain;

- In places where the 2-D model domain crosses the 1-D channel model the location of the 2-D model boundary should be chosen such that flow is expected to be generally confined to the 1-D channel;

- The model domain must be sufficiently extended laterally from the channel to ensure that overland flow moving away from the channel does not encounter the boundaries of the 2-D domain and become artificially constrained within the domain; and

- The model domain should be adjusted in such a way that the 1-D model network should ideally extend upstream and downstream such that the start point and end point are outside of the 2-D model area of interest.

Boundary Conditions for 1-D/2-D Models

- The study report must document the upstream boundary conditions (hydrographs), downstream boundary conditions (stage-discharge relationship), tributary hydrographs, and lateral inflows. The documentation should include the sources of the data, and the reasoning used to assign frequencies to the hydrographs;

- Downstream boundary conditions for the 2-D model will be extracted from the 1-D model at the domain limits;

- The 2-D domain must be of sufficient lateral extent to ensure that flow moving away from the channel does not encounter the boundaries of the 2-D domain and

become artificially constrained within the domain. The lateral flow should be allowed to reach a shallow depth of flow under hydraulic influence only 0.05 m; and

- The 2-D model must provide for lateral inflows or changes in flow over the 2-D domain, where the domain is large enough that there is a distinct hydrologic transition to higher flows (e.g. domain encompasses an area where upstream catchments are connected via downstream reaches to additional catchments providing inflows into the river network).

Cross Section in coupled 1-D/2-D model

- Cross sections should be spaced to adequately represent the bank elevations along the lateral link for smooth transfer of flows from 1-D to 2-D and vice versa.

Links in coupled 1-D/2-D model

- The study report must document linkages (lateral and standard/structure link) types, locations and lengths of the 1-D and 2-D model components and why the linkages were selected.

Initial Conditions in Coupled 1-D/2-D Models

- The study report must justify the initial conditions used for 2-D analysis. The documentation should include the source of inflow hydrographs and downstream water surface elevations; and

- If inflow hydrographs are modified, for example to reduce computation time, then justification should be provided in the study report.

Computational Grids in Coupled 1-D/2-D Models

- The study deliverables must include a geo-referenced spatial data file (i.e. DEM, DTM) showing the locations of the stream under study, major flow paths emanating from and adjacent to the study stream, hydraulic structures adjacent to and crossing the stream, and the grid of cells. The location of each cell must be readily ascertained from the spatial data file. The grid cells should cover the entire project area and consider buildings.

- The study report should document the grid cell size, and the reasoning for the selection of the cell size. The cell size will be dependent on the accuracy of the

topographic data, the computational efficiency of the program, and the mapping and floodplain management requirements. The engineer must ensure gradual changes in elevation from one cell to adjacent cells.

The grid spacing should be sufficiently resolved such that it can capture the topographic features (e.g. curbs, berms, ditches, etc.) that will act as hydraulic controls to influence the direction and depth of overland flow. In order to capture appropriately the flood waters in the floodplain, review of noticeable land features should be conducted to determine if there will be any high or low ground topography that required a finer resolution in the grid spacing. Some sensitivity analysis may be required to develop reasonable grid spacing.

Hydraulic Structures in Coupled 1-D/2-D Models

- The study report must document the modeling of each hydraulic structure. The documentation must include a list of each cell associated with the structure and a description of the rating table including its derivation and its sources of data. Typically, hydraulic structures are input as rating tables at specific grid cells;

- A long crossing with significant overtopping that does not flow back to the stream should be coded in the 2-D model. In a coupled 1-D/2-D model, the majority of crossings should be coded as part of the 1-D model;

- Q-h relations should be calculated for all weirs and culverts to verify the model hydraulics are representative of the defined geometries.

Non-Conveyance Areas (Buildings) in Coupled 1-D/2-D Models

- The study report must document the reasoning for, location of, and technique used to model non-conveyance areas through input data and include a discussion where artificial data have been used.

  The engineer must ensure that non-conveyance areas be modelled to reflect natural conditions (topography and roughness) as closely as practical. Removing cells from computation should not be used when performing hydraulic computations.

Energy Loss Coefficients in Coupled 1-D/2-D Models

- The study report must document roughness coefficients or Manning's 'n' values for each of the grid cells. Roughness coefficients are one of the parameters to be considered in model calibration.

- Bed roughness within the 2-D domain should provide equivalent representation of the frictional characteristics of the 2-D domain as the Manning 'n' roughness coefficients for the corresponding 1-D model.

Coupled 1-D/2-D Models Modelling Notes

- Deliverables must include geo-referenced shapefiles showing the locations of the stream, major flow paths, hydraulic structures crossing the stream, and the grid of cells. For models using a grid of cells, the location of each cell must be readily ascertained from the geo-referenced shapefiles;

- The study report must include a list of each grid or element associated with the crossings, and a description of the rating table including the derivation, sources of data;

- The study report must document initial conditions and why the initial conditions were selected;

- The study report must document a discussion of the sensitivity analysis and the results;

- The study report should summarize mathematical formulations integrated in the proposed 2-D model to simulate the physical processes, numerical method to solve the mathematical formulation, numerical grid type to discretize the study area in order to apply the numerical method, representation of boundary condition to the model domain and method of linking with other models; and

- The study report should show separate flood profiles for significant flow paths including the main channel that can be identified by velocity, flow rate, flow depth, and flow volume.

4.7.4 Model Evaluation

- The study report must discuss the results of the model evaluation, and the model evaluation process. Model evaluation is the process used to determine whether a model and its results are sufficient to simulate the inputs required for the hydraulic analysis. Model evaluation includes the following:

  4.7.4.1 Model Verification
  4.7.4.2 Sensitivity Analysis
  4.7.4.3 Uncertainty Analysis
  4.7.4.4 Calibration/Validation
  4.7.4.5 Corroboration
  4.7.4.6 Error/Warning Messages

  The engineer must consider what degree of uncertainty is acceptable within the context of model application. If the engineer does not accept the model for its intended purpose, then the process must be re-started by re-visiting the conceptualization of the study watershed and the drainage system.

4.7.4.1 Model Verification

- The computer model will be verified and documented in the study report. Model verification is the examination of the model to prove that it truly represents the conceptual model.

  Model verification checks the proper implementation of the model on the computer. The model should be computationally stable over the entire range of flow rates being analyzed and provide credible results; and

- FEMA's Check-RAS program can be utilized to check HEC-RAS models for errors and reasonableness. The Check-RAS program offers comments on Manning's roughness coefficients and transition loss coefficients, cross-sections, bridges and culverts, floodways, and computed profiles. Engineering judgement must be utilized to interpret the Check-RAS results.

4.7.4.2 Sensitivity Analysis

- Sensitivity analyses shall be performed to determine the impact of changing model input parameters and initial conditions on calculated flows;

- Sensitivity analysis will involve varying Manning roughness coefficients by plus/minus 20%, expansion/contraction parameters by plus/minus 100%, bridge area by plus/minus 20%;

- An assessment of the sensitivity of culvert blockages on upstream flood levels must also be carried out for high embankments that have a history of debris blockages. The Conservation Authority should be contacted before undertaking sensitivity analyses; and

- Documentation of the results of the sensitivity analyses shall be provided in the study report. The results will identify the importance of model parameters that will have to be adjusted during calibration.

4.7.4.3 Uncertainty Analysis

- An uncertainty analysis will be conducted and discussed in the study report.

  The uncertainty analysis will investigate the effects of the lack of knowledge and other potential sources of error. Sources include data collection, model inputs, constants, and recorded data, numerical simulation, post processing, and theoretical assumptions.

4.7.4.4 Calibration/Validation

- The model should be calibrated where sufficient data exists. The study report must document the process, including dates, measurements, and locations of measurements of historic floods; parameters revised and rationale for revising; and the calibration model input and output data.

  Generally, calibration of hydraulic model parameters is performed by adjusting energy loss coefficients and comparing model results with values from historic floods.

  Data for calibration/validation includes the following:
  - Highwater marks;
  - Rating curves at streamflow gauges;

  - Measured water surface elevations and flow rates along a reach;
  - Photographs showing flood plains with measured flow rates and water surface elevations;

- Calibrated parameters shall not be adjusted beyond the ranges shown in Section 4.9. Model parameters must be within the range of engineering practice. Parameters outside the range must be revised;

- All hydraulic data must be submitted in electronic format; and

- Discussion of the data used in calibration work including the reasons for the choice of data used in the work shall be included in the study report.

Calibration/Validation Notes

Calibration

- Consists of a model test with known input and output information that is used to adjust or estimate model coefficients or parameters within physically defensible ranges until the resulting predictions give the best possible fit to the observed data.

Validation

- The model results are compared with an independent set of observations (not used in the calibration) to verify whether the model describes system behaviour correctly.

No calibration/validation procedure is perfect

- There are always deviations due to modelling and measurement errors. There are conceptual errors due to model definition such as the simplification of complex structures, neglect of sub-processes, and errors in the mathematical description or in the numerical method applied. There are errors when measuring field observations such as high water marks, precipitation and streamflow. There are also errors when selecting model parameters that are not known with certainty.

No model can be truly validated

- But can only be invalidated for a specific application. After a sufficient number of successful tests the model is not valid or good but good enough. The model can then be regarded as having been validated.

There are no universally accepted "goodness-of-fit" criteria that will apply in all cases

- Model performance is evaluated by a series of graphical tests. Model performance is the ability to reproduce field observations. Graphical tests include the following:
  - Observed vs. simulated profile plots of water surface elevations; and
  - Observed vs. simulated plots stage vs. water surface elevations at a specific location (e.g., streamflow gauge).

Manual vs. Automatic Calibration

- Calibration for hydraulic simulation models typically involves energy loss coefficients. Examples include expansion/contraction coefficients and Manning 'n' roughness coefficients. Manual trial-and-error adjustments can be very successful for a few parameters. The engineer must determine whether automatic calibration is required.

Data Set Trends

- Care must be taken when using data sets where changes in measurement locations, changes in equipment, and changes in personnel can negatively impact measurements.

Number of Parameters To Be Calibrated

- Generally, there are fewer parameters to be calibrated in hydraulic models than in hydrologic models. Calibration usually entails the matching water surface elevations to measured streamflow rates at gauges.

4.7.4.5 Corroboration

- Results from computer simulation models must be corroborated using other methods. For hydraulic programs these methods include hand calculations, MTO inlet and outlet charts, and results from previous studies. The comparison must be documented in the study report. If the results are significantly different, then reasons must be stated in the study report to explain the differences.

4.7.4.6 Error/Warning Messages

- All error and warning messages generated by hydraulic programs should be corrected. Any messages that cannot be corrected must be discussed and explained in the study report; and

- Critical depth locations in the HEC-RAS model output must be carefully reviewed. HEC-RAS defaults to critical depth when the flow changes from

subcritical to supercritical flow and when the program cannot reach a solution in a specified number of iterations.

Engineering judgement is required to ensure that the location of critical depth is correct when the flow is changing from sub- to super-critical. When the program cannot reach a solution this is an indication of errors in the modelling procedure. The engineer should review whether additional cross sections are required or cross sections have to be modified.

4.7.5 Model Acceptability

- The study report must include a statement regarding the acceptability of the model to simulate the information required from the hydraulic analysis. The statement should summarize the results of the model verification, the calibration/validation analysis, the sensitivity analysis, and the uncertainty analysis. Also, the discretization in time and space, and the correctness of the conceptual model will be addressed. The statement is required to answer the question of whether the correct program, and model have been chosen; and

- The Conservation Authority must approve the acceptability of the model before the modelling scenarios are conducted.

4.7.6 Modelling Scenarios and Results

4.7.6.1 General

- The study report must discuss the methods used and assumptions made in the determination of spill flows; effects on downstream flows and flood plains, and areas affected due to the spill shall be included in the Hydraulic Report; and

- The study report must contain the results of the scenario runs. Once the model has been accepted or the model is sufficient to conduct the simulations, the scenario runs may be undertaken.

4.7.6.2 Ice Jams

The study report must document instances or lack of instances of ice jam flooding through the study reach. Ice jams can reduce watercourse flow area and increase upstream water surface elevations that result in flooding. Flood hazard limits must consider ice jams whenever ice jams have historically been indicated within the study reach. There are several methods to predict ice jam water levels. Most have not been widely tested in Ontario.

Ice Jam Characteristics

- Ice jams have been categorized as freeze-up jams or break-up jams;
- Several freeze-up and break-up jams may occur each year;
- Freeze-up and break-up jams do not necessarily denote fall and spring events;
- Ice accumulation may remain until the next thaw;
- Ice jams may occur in some reaches but not in others;
- Ice jam data in one reach may not be transposed to other reaches;
- Ice jams cannot be predicted with certainty in any given year;
- Ice jams often re-occur at the same locations;
- Ice jams may not be sustainable beyond a given flow rate;
- Ice jams occur over small areas (e.g., a few kilometres), and for short durations (e.g., a few hours to a few days);
- Ice jams often occur when flow rates are low and increasing;
- Ice usually flows downstream and accumulates at an obstruction or a sudden change in channel flow direction, slope, alignment, or cross sectional shape or depth;
- Ice jam growth depends on the river discharge, the quantity of ice delivered from upstream, and meteorological conditions; and
- Ice jams can only be removed by either thermal melt or a sudden dynamic collapse created by an increase in upstream hydraulic head or from internal ice

erosion caused by flows moving through the ice jam. Ice jams may re-form downstream.

The maximum stage-frequency distribution through a reach is the combination of a stage-frequency distribution for ice jam conditions with the stage-frequency distribution for open water conditions. Stage-frequency distributions are developed rather than discharge-frequency distributions, as ice jams tend to occur at periods other than very high flow rates.

The stage-frequency distribution analysis will consist of ranking stages, assigning plotting positions, plotting the ranked stages on probability paper, and curve fitting the stages. The stage-frequency analysis can use historical stages or can use synthetic (computer simulated) stages.

Figure 4-3 presents the procedure for undertaking an ice jam analysis. It is based upon information presented in the Technical Guide - River and Stream System: Flooding Hazard Limit, Ontario Ministry of Natural Resources, 2002. The following text gives a short description of that procedure:

Are High Water Levels the Result of Ice Jams ?

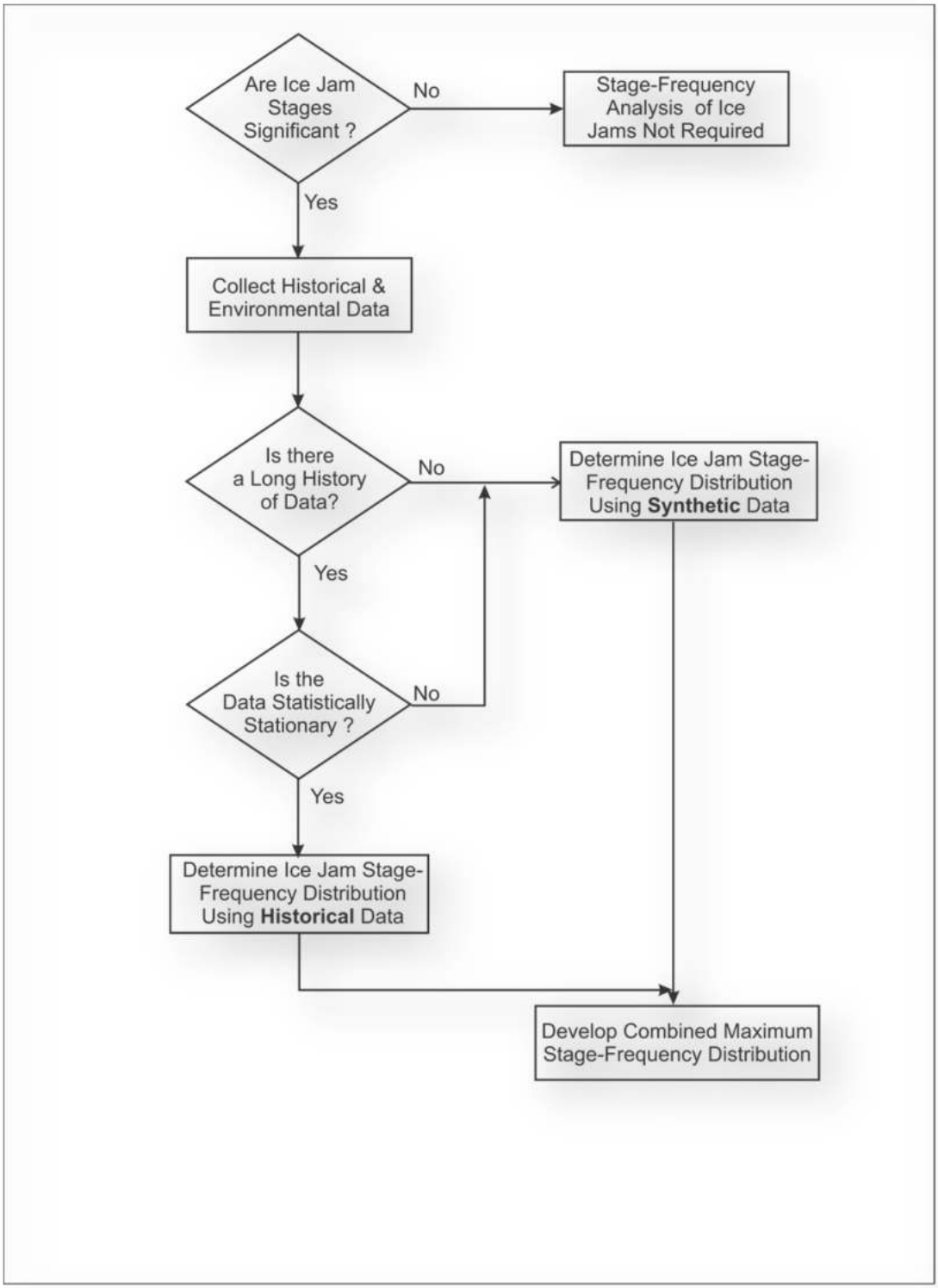
The study report must document whether high water levels or stages within the study reach are the result of ice jams. Conservation Authorities, municipalities, and local residents should be contacted to determine if high water levels are the result of ice jams. Also, the study report should document who was contacted and when.

If high water levels are not the result of ice jams, then the frequency analysis of ice jam stages does not have to be performed.

If high water levels are the result of ice jams, then historical and environmental data relating to ice jams must be collected.

A detailed review of the ice jam documents listed in Section 4.10 should be conducted before ice jam calculations are conducted.

Figure 4-3 - Ice Jam Stage-Frequency Analysis Procedure



Collection of Historical and Environmental Data

The study report must document all of the historical and environmental data relating to ice jams and the source of that data collected during the study. Data is collected during on-site investigations, surveys, and through discussions with local authorities and residents. Data include the following:

- Tree damage and scars;
- Vegetation trim lines;
- Disturbed bank material;
- Gravel pavement;
- Ridges of bank material;
- Societal - resident recollections, archives, newspapers, books, photographs, hydrometric gauges;
- Location of ice jams;
- Dimensions of ice jams;
- Volume of ice jams;
- Causes of ice jams;
- Associated river stages and discharges;
- Frequency of occurrence;
- Detailed river geometry;
- Lateral and upstream extent of flooding;
- Historical flood level data;
- Discharge measurement data;
- Duration of ice jam event;
- Season of occurrence; and
- Damage to structures.

Is There A Long History of Data? and Is the Data Statistically Stationary?

The study report must document whether there is a long history of data and if that data is statistically stationary.

If there is a long history of data and the data is statistically stationary, then a frequency analysis of historical stages may be undertaken. A long history is considered to be three or more events in a 25 year period of record. Data may not be statistically stationary if there have been modifications to the watercourse or streamflow. Modifications may include channelization, reservoirs, dyking, etc.

If there isn't a long history of data or the data is not statistically stationary then a frequency analysis of synthetic (computer simulated) and historical data is required.

The results from the use of historical information or synthetic information should always be checked using an alternate method.

Determining a Stage-Frequency Distribution Using Historic Ice Jam Stages

The study report should document the stage-frequency distribution analysis and the historical data used in the analysis. Separate stage-frequency distribution curves will be developed for ice jam events and for open water events. The peak ice jam stage can occur at a different time than the maximum discharge rate. Graphical frequency analysis may be used to develop the stage-frequency distribution.

A frequency analysis of historical data requires the following:

- Many years of observed levels at an ice jam site;
- An ice regime that has been statistically stationary;
- An examination of ice jam flood stages and the flood prone area; and
- On-site investigations and interviews.

A methodology is presented in the paper entitled "Probability Analysis of Historical Flood Data" by Gerard and Karpuk to determine a stage-frequency distribution using historical ice jam stages. The Gerard and Karpuk methodology is presented in the MNR Flooding Hazard Limit document (2002).

Determining a Stage-Frequency Distribution Using Synthetic Ice Jam Stages

The study report should document the stage-frequency distribution analysis and the synthetic data used in the analysis. A stage-frequency distribution for ice jams must be developed using synthetic data when there is insufficient historical data or the historical data is not statistically stationary. A methodology presented in "Ice Related Flood Frequency Analysis: Application of Analytical Estimates" by Gerard and Calkins may be used for determining a stage-frequency distribution for ice jams.

The study report will document the development of a stage-frequency distribution for open water, for a solid ice cover, and for an ice jam cover in equilibrium. The stage-frequency distribution curve would represent a minimum ice-affected stage while the stage-frequency curve for an ice jam in equilibrium would represent the maximum stage possible for a given discharge.

Discharge data used in the analysis may have to be transposed from gauge data elsewhere along the river course or from computer simulation models. Ice jam stages may have to be developed using computer simulation modeling (HEC-RAS, RIVJAM, etc.) and confirmed with observed ice jam stages. Considerable judgement is required when estimating stages for ice

cover conditions and for ice jam conditions. Information required includes estimates of ice thickness, ice cover or ice jam roughness, position of the jam's toe and head, and the upstream length contributing ice to a jam.

The final ice jam stage-frequency distribution is the highest stage resulting from a combination of the solid cover distribution curve and the ice jam distribution curve. The final distribution is largely a matter of engineering judgement.

Develop A Maximum Stage-Frequency Distribution

Once the ice jam stage-frequency distribution has been determined, it must be combined with the open water stage-frequency distribution. The combined maximum stage-frequency distribution will allow the abstraction of flood stages for various return periods.

4.8 Study Report and Deliverables

Study Report

- The study report should allow third parties to reproduce the model study including its results; and
- The study report must document the program utilized to conduct the computations, the source and method of measuring cross-section data; the source and method of measuring hydraulic structures; and the method of estimating loss parameters and starting water-surface elevations.

The study report must include the following:

- List of technical persons with qualifications that worked on the project;
- PEO seal, signature, and date of the professional engineers who prepared or supervised the preparation of the input data and checked the output data;
- A statement on the appropriateness of the model to provide the information required for the hydraulic program; and
- A section on model limitations.

Tables

- Table - Design flows and water surface elevations for the Regional, 100, 50, 25, 10, 5 and 2-year return period floods. Design flows and water surface elevations must be determined for existing and future land use conditions;
- Table - starting water surface elevations;
- Table - results of calibration;
- Table - of initial hydraulic parameters and calibrated hydraulic parameters;
- Table - observed flow hydrographs and water level profiles used in the calibration;
- Table summarizing spill locations and associated details;
- Table - results of the sensitivity analysis; and
- Table - comparing the immediate previous study water surface elevations with the current study water surface elevations.

Figures

- Figure - a topographic map showing the watershed and sub-watershed boundaries, flood plain mapping study limits and flood plain map sheet location;
- Figure - water surface profiles of all design floods;
- Plots of field measured representative low flow sections of each reach;

- Plots of all cross-sections and road profiles with crossings;
- Photographs of channel and floodplain at several representative locations;
- Plots of surveyed profiles across each hydraulic structure (road/rail crossing, dam, etc.);
- Copies of all bridge/culvert drawings used to develop the hydraulic model;
- Photographs of all hydraulic structures including bridges, dams, weirs, etc.; and
- Schematic plot with names of the main branch and tributaries in the HEC-RAS model.

Deliverables

- Electronic copies of model input and output data;
- Electronic copies of all calibration input and output data;
- Electronic copies of all sensitivity input and output data; and
- Electronic copies of all Check-RAS output files.

4.9 Hydraulic Standard Parameters

Standard parameters are shown in Table 4.1. The parameters should be used for un-calibrated models. If the engineer feels that the Standard Parameters should be modified, the engineer should provide documentation to the Conservation Authority providing justification. For calibrated models, the parameters must be within the range shown in each of the tables.

A sensitivity analysis should be conducted for each computer program to determine the sensitive input parameters.

Table 4.1 - Hydraulic Standard Parameters

Table 4.1.1 – Loss Coefficients

Weir Flow Coefficients	'C' Standard	Calibration Range	
		Minimum	Maximum
Broad Crested i.e. Road Embankment	1.5	1.4	1.7
Sharp Crested	1.6	1.4	1.8

A sharp crested weir coefficient should be used when there is air underneath the nappe. Such conditions would exist for a stormwater management pond weir outlet. A broad crested weir assumes the nappe is supported. An example of a broad crested weir would be a road crossing. Generally, when the ratio of flow depth divided by the weir thickness is greater than 0.5 a sharp crested weir coefficient should be used. When the ratio is less than 0.5 the broad crested weir coefficient should be used.

Orifice Coefficient	'C' Standard	Calibration Range	
		Minimum	Maximum
Orifice Coefficient	0.66	0.62	0.78

Expansion/Contraction Coefficients	Standard Parameters	
	Contraction	Expansion
Gradual Transitions	0.1	0.3
Bridges/Culverts	0.3	0.5
Abrupt Transitions	0.6	0.8

Table 4.1 - Hydraulic Standard Parameters…continued

Table 4.1.2 - Manning Roughness Coefficients

Conduit	'n' Standard	Calibration Range Minimum	Maximum
Concrete	0.013	0.011	0.015
Brick	0.015	0.013	0.017
Plastic	0.013	0.011	0.015
Iron	0.013	0.011	0.015
Corrugated Steel Pipe - 3"x1"	0.024	0.021	0.027
Structural Plate Corrugated Steel Pipe - 6"x2"	0.032	0.026	0.036
Open Channel	**'n' Standard**	**Calibration Range Minimum**	**Maximum**
Overbank			
Woods	0.080	0.040	0.120
Meadows	0.055	0.035	0.070
Lawns	0.045	0.030	0.055
Channel			
Natural	0.035	0.025	0.045
Grass	0.030	0.025	0.035
Natural Rock	0.035	0.025	0.045
Armour Stone	0.025	0.017	0.030
Concrete	0.015	0.011	0.017
Articulated Block	0.020	0.019	0.032
Gabions	0.025	0.020	0.030
Wood	0.012	0.011	0.013

4.10 References

Information used in Section 4 has been abstracted from the following documents:

- Appendix C: Guidance for Riverine Flooding Analyses and Mapping,
  Guidelines and Specifications for Flood Hazard Mapping Partners, US FEMA, November 2009

- Open Channel Hydraulics
  by Ven Te Chow, McGraw-Hill Book Company, 1959

- Chapter 10 Ice Jam Floods
  Hydrology of Floods in Canada, A Guide to Planning and Design, W.E. Watt, et. al. National Research Council of Canada, 1989

- Technical Guide, River & Stream Systems: Flooding Hazard Limit
  Ontario Ministry of Natural Resources,
  2002

- Guidance for Ice-Jam Flooding Analyses and Mapping
  Guidelines and Specifications for Flood Hazard Mapping Partners, Federal Emergency Management Agency (FEMA)
  April 2003

- Probability Analysis of Historical Flood Data
  R. Gerard and E.W. Karpuk, Journal of the Hydraulics Division, A.S.C.E., pp. 1153-1165.
  1979

- Ice Related Flood Frequency Analysis: Application of Analytical Estimates
  R. Gerard and D.J. Calkins
  Proceedings Cold Regions Engineering Specialty Conference, CSCE, Montreal.
  1984

- River Ice Jams: Theory, Case Studies, and Applications
  S. Beltaos, Journal of Hydraulic Engineering, American Society of Civil Engineers,
  Vol. 109, No. 10, pp. 1338-1359.
  1983

5.0 FLOOD HAZARD MAPS

5.1 General

Section 5 provides guidance for displaying and communicating flood risk information including flood hazard limits, water surface elevations, flood depths, flood velocities, and the product of flood depth times flood velocity.

Flood hazard maps identify cultural information, topographic information, and flood risk information. Traditionally, flood hazard maps show cultural information that can be shown on ortho-photographs or line drawings. Topographic information is added to the cultural information along with the flood risk information.

Flood hazard maps can be composed of ortho-photographs combined with a grid of cells representing flood characteristics. Gridded information can be categorized with colours to more easily communicate flood risk information.

Section 5 is comprised of the following sections:

5.2 Map Sheet Layout and Contents

A sample map sheet layout is shown on Figure 5-1. For this sample, the trimmed map sheet size is 1067 mm x 762 mm (42 inches by 30 inches) although other sizes are acceptable. The map border size is 1025 mm X 710 mm. The map sheet is composed of a series of information blocks. The map sheet includes the following blocks:

- Base Map/Photo & Flood Risk Information Block
- Base Map Author & Stamp Block
- Flood Risk Author & Stamp Block
- Legend Block
- North Arrow & Datum Block
- Scale & Contour Interval Block
- Map Sheet Index Block
- Client Logo Block
- Title Block
- Sheet Number Block

The following describes each of the information blocks:

Base Map/Photo & Flood Risk Information Block - will contain an ortho-photograph or a line drawing showing cultural information, flood risk information, and topographic information. If gridded information is presented, topographic information may be omitted. The base map block (Figure 5-1) will show the location of the following:

- Location of all benchmarks and monuments;
- Location of all streamflow gauges and climate stations;
- Street names, park names, cultural information, etc.;
- Political boundaries; i.e., cities, municipalities, townships, counties, etc.;
- Watercourse name and flow arrow;
- Name of major water control structures;
- Cross section and cross section labels;
- Water surface elevation at each cross section;
- Gridded flood characteristic name and colour ramp categories;
- Upstream and downstream study limits and mapping limits;
- Match lines for overlapping map sheets; and
- Topographic information.

Base Map Author & Stamp Block - will identify the author or organization that developed the base map showing the cultural and topographic information. If appropriate the block will contain an author's stamp. The block will contain the date of the data used to derive the mapping.

Flood Risk Author & Stamp Block - will identify the author or organization conducting the flood risk map study and the PEO seal, signature, and date of the professional engineers who prepared or supervised the preparation of the flood risk map.

Legend Block - will contain all annotations used on the base map.

North Arrow & Datum Block - will contain a north arrow and the horizontal and vertical datum used to develop the base map and the flood risk information.

Scale & Contour Interval Block - will contain a scale for metric units. In addition, the block will contain the contour interval used for the topographic information along with the interpolated contour interval. A 1:2000 scale is commonly used.

Map Sheet Index Block - will identify the location and number of all map sheets for the study area, and will show the location of the current sheet. In addition, the index will identify the major transportation features to aid in identifying the location of the current sheet.

Client Logo Block - the clients name, address information, and logo will be contained within this block.

Title Block - The title block will contain the watercourse name and a brief description of the study limits or the limit of the hydraulic profiles.

Sheet Number Block - will contain the sheet number and the total number of sheets for the Study area.

5.3 Flood Risk Information

5.3.1 Flood Hazard Information

The following information will be added to each flood hazard map:

- Flood hazard limit (Hurricane Hazel or Timmins);
- 100-year floodline;
- Cross sections used in the hydraulic model;
- Water surface elevations (Hurricane Hazel or Timmins and 100 year Storms) at each cross section; and
- Notes on annotating flood hazard limits, cross sections, and text are shown on Figure 5-2 and on the following pages.

Floodlines should be used to define flood hazard limits. Gridded flood risk maps can be used to present flood risk information (water surface elevations, flood depths, flood velocities, etc.) to the general public.

If hydraulic characteristics of a flood plain require a 2-D model, then the results of the 2-D model should be used to develop floodlines for the flood hazard limit. A gridded map can be used to convey flood risk information to the public.

In some situations the results of the hydraulic modelling may not be appropriate to define flood hazard areas. For instance, most hydraulic programs do not model rapidly varied flow. In those situations, flood elevations should not be shown on the flood risk maps and floodlines should be shown as dashed lines. A note should be added to the maps indicating more detailed analysis is required to define the flood hazard areas. Other situations are where the results of the hydraulic modelling may not be appropriate is where the watercourse is under active and significant erosion.

Floodline Notes

- All cross sections in the hydraulic model must be shown on the Flood Hazard Maps. Two types of cross sections can be shown: major and minor;
- Major cross sections are shown with a large circle with water surface elevations, and a cross section label;
- Minor cross sections are shown with a small circle;
- The flood hazard limit (Hurricane Hazel or Timmins Storm or the 100 year floodlines) must be plotted on all maps and ;
- The flood hazard limits or floodlines that intersect a building must be drawn to include the entire building and not drawn along the side of the building facing the watercourse;
- Two floodlines must not intersect;
- Flood hazard limits or floodlines must join at the edge of sheets and match on adjacent sheets. Do not overlap information on different sheets;
- Flood hazard limits or floodlines must be continuous across the sheet;
- Flood hazard limits or floodlines must only cross a contour line once. Flood hazard limits or floodlines must parallel contour lines in all other locations;
- Flood hazard limits or floodlines at the cross section must have the same label as in the hydraulic model;
- Flood hazard limits or floodlines at the cross section must have the same elevation as the label; and
- Flood hazard limits or floodlines, cross section labels, water surface elevations must be identical to the legend.

Cross Section Notes

- Crossings are represented by two small circles with a line over the road profile;
- All channel drops must be shown with two circles. A small circle for the cross section at the bottom of the drop (no water surface elevations), and a standard cross section label for the crest of the drop. Crest of the drop is a major cross section, and bottom of drop is a minor cross section;
- All cross section endpoints must be outside the flood plain. All cross section map lengths must match the lengths in the hydraulic model;
- A white background must be used on cross section labels to improve readability;
- The flood hazard limits or floodlines or cross sections must not be shown beyond mapping sheet match lines or study limits;
- Cross sections that overlap two sheets must have a label on both sheets;
- Hurricane Hazel or Timmins Storm and the 100 year flood elevation must be shown in circles at the end of the cross section labels;
- Each cross section will be labelled with the cross section number in the hydraulic model;

- Labels must be placed on one side of the map in an ascending order; and
- Tic marks must be located at both ends of the cross section to denote the start and end of each cross section.

Text Notes

- Study Limits at upstream and downstream boundaries of the flood profiles;
- Mark minor watercourses with a Study Limit;
- Starting and ending chainage should be located where the watercourse enters and leaves the mapping sheet;
- Notes where topographic mapping does not match surveyed data;
- Street names adjacent to watercourse; and
- Spills - open floodline with a large arrow and marked SPILL. Spill locations must be approved by the Conservation Authority.

5.3.2 Gridded Flood Risk Information

Floodlines should be used to define flood hazard limits. A grid of cells can be used to communicate flood risk information to the public. Each cell can represent a magnitude of a flooding characteristic. Only one characteristic would be shown on a single map sheet. Each cell can have geographic coordinates. The grid would define geographic space with an array of square cells arranged in rows and columns. A grid of cells can more easily communicate flood risk information to the public than traditional floodline maps.

Typical flood characteristics for a gridded map include the following:

- Water Surface Elevation;
- Flood Depth;
- Velocity and Direction; and
- Flood Severity - the product of depth and velocity.

Cell Size - each flood characteristic cell size should be based on the cell size of the ground elevation data.

Grid Origin - all flood characteristic grids should have the same origin, extent, and coordinate system. This allows for comparison and manipulation of cell values for characteristics of flood depth and flood velocity.

Results from both 1-D and 2-D hydraulic models can be displayed as gridded values. 2-D models are developed using DEMs or gridded elevation data. Results from 1-D models, such as HEC-RAS, can be displayed in a grid using a GIS program, a TIN (Triangulated Irregular Network) and water surface elevations at each cross section.

Figure 5-1 Sample Flood Hazard Map Sheet Layout

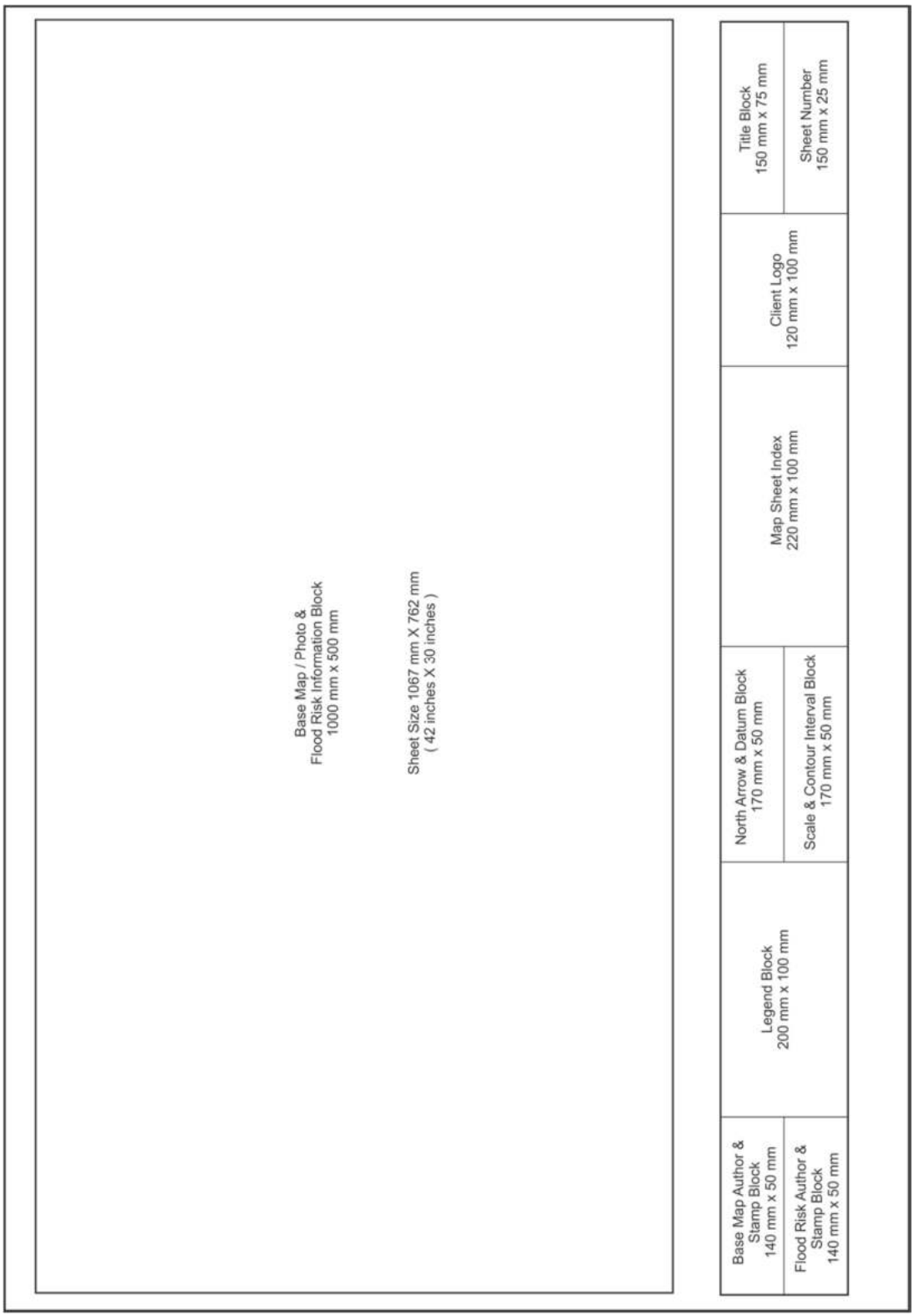
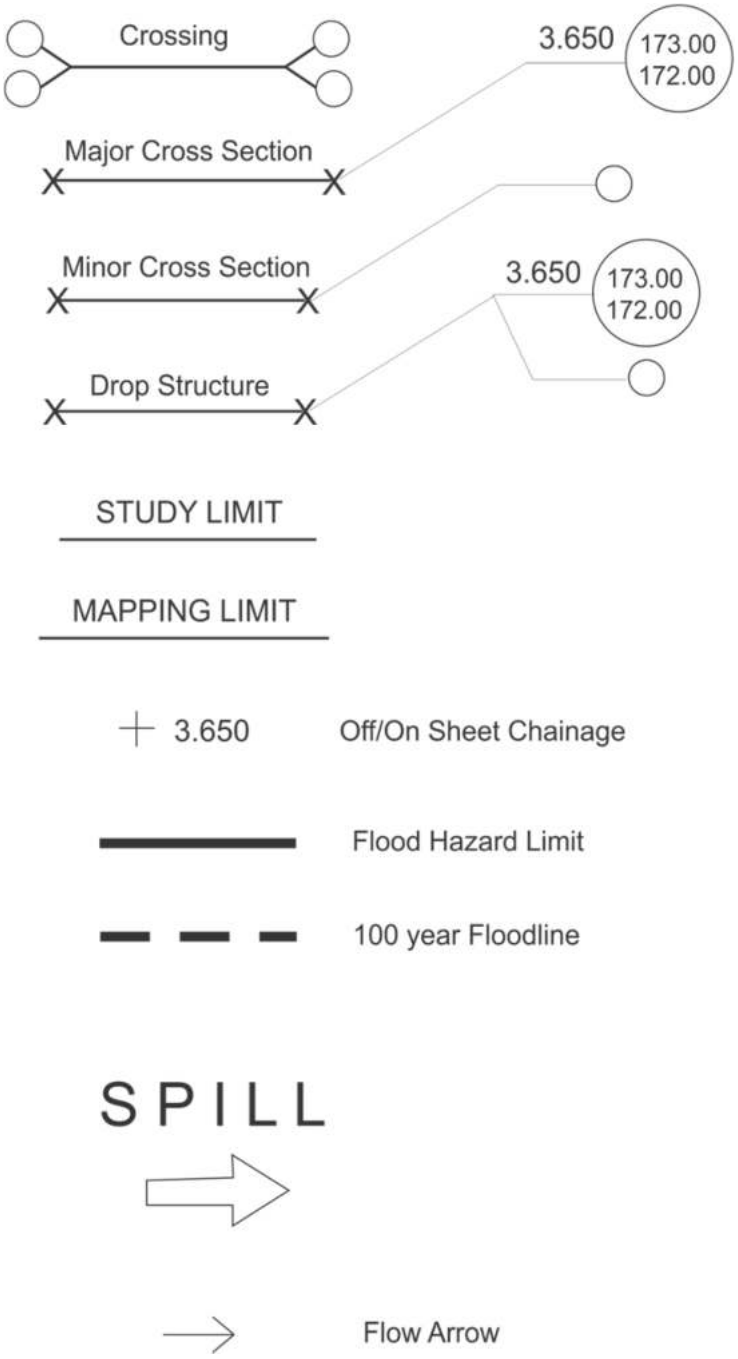


Figure 5-2 Typical Flood Hazard Map Sheet Annotations



Note: Spills are floodwaters that leave a defined watercourse and spill overland. Spills can re-enter the watercourse at a downstream point or flow overland to another watercourse.

5.4 References

Information used in Section 5 has been abstracted from the following documents:

- Appendix K: Format and Specifications for Flood Insurance Rates Maps,
  Guidelines and Specifications for Flood Hazard Mapping Partners
  FEMA (Federal Emergency Management Agency)
  April 2003

- Flood Depth and Analysis Grids,
  Guidance for Flood Risk Analysis and Mapping
  FEMA (Federal Emergency Management Agency)
  May 2014

6.0 FLOOD HAZARD MAP UPDATES

6.1 General

Flood hazard maps may need to be updated for many reasons including the following:

- More accurate terrain information is available;
- If a frequency analysis was used to determine flow rates, then the frequency analysis may need to be updated when there are additional streamflow data;
- If a hydrologic model is used to determine flow rates, then the model may need to be updated when there are more flow events for the calibration/validation process;
- If there has been a significant change to the hydrologic and hydraulic flow regimes. Examples include encroachment, new dams, removal of flood control structures, stormwater ponds, new crossings, land use changes, stream re-habilitation, revised operating procedures, etc. Existing data files should be run with the model updates, and if necessary the flood risk maps should be updated;
- To correct errors in previous modelling; and
- Hydrologic and hydraulic computer programs used in the original flood hazard map study have been upgraded.

An investigation must be conducted in-conjunction with Official Plan reviews to determine if flood hazard maps need to be updated. Currently Official Plan reviews are conducted every five years. Flood hazard map updates should be conducted to inform the land use planning process rather than in reaction to the land use planning process.

For some Authorities there may be a need to replace a few maps, but not all maps in a series. In these cases, replacement flood hazard maps must be edge matched with existing flood hazard maps not being replaced.

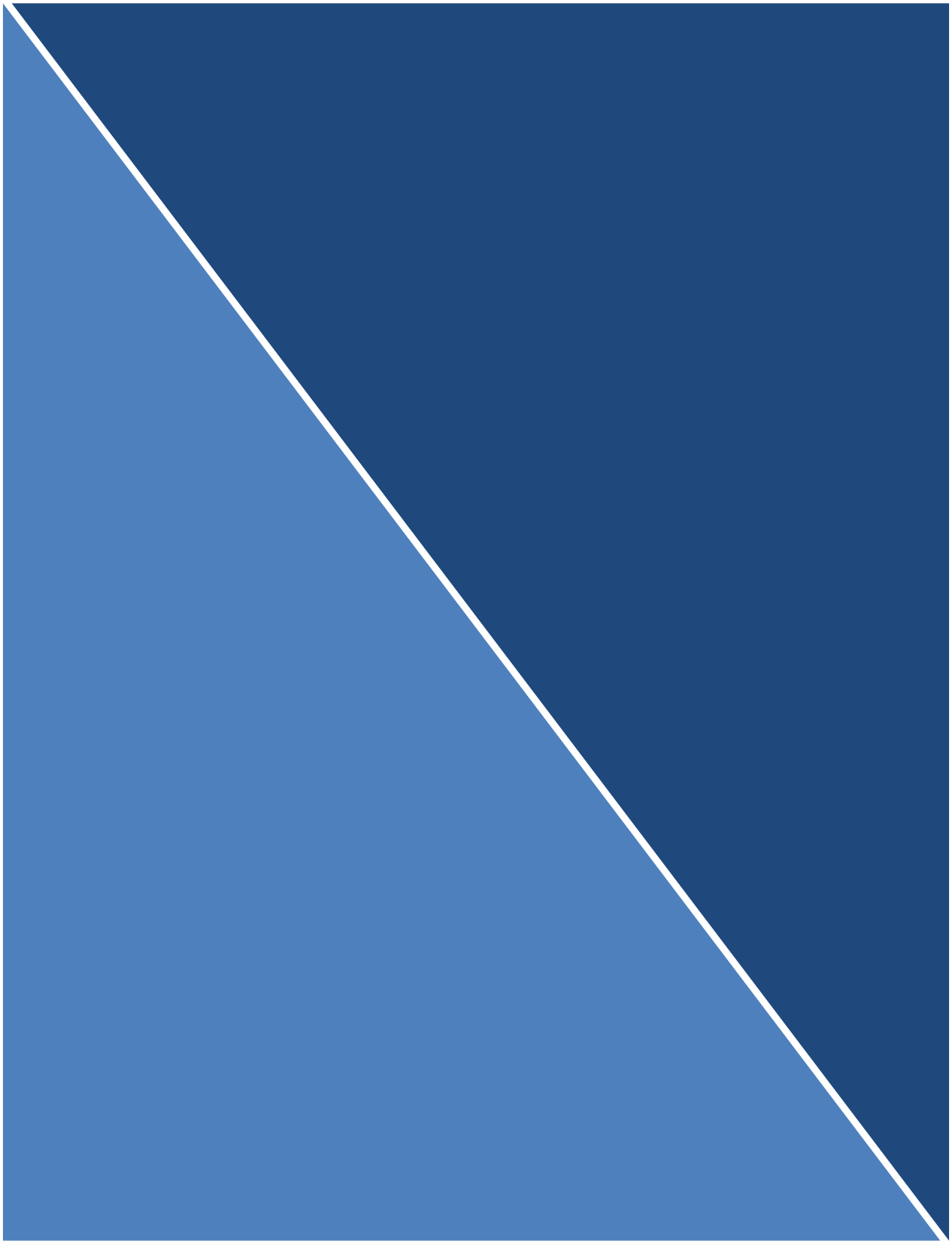
A new study should be commissioned to update floodlines within a flood hazard map. The new flood hazard map sheet should incorporate the PEO seal, signature, and date of the professional engineers who prepared or supervised the preparation of the input data and checked the output data for the flood hazard map. It is not recommended to update the original flood hazard map unless the original authoring engineer is conducting the update.

Hydrologic and hydraulic analyses required to update flood hazard maps must, when feasible, be conducted with the methodology that was used to develop the original flood hazard maps. If the methodology is not available or it's use is inappropriate, the reasons why the methodology cannot be used must be documented along with the reasons why the proposed methodology is appropriate.

6.2 Estimated Flood Hazard Mapping

Estimated flood hazard mapping must be updated to engineered flood hazard mapping to support a development application that is within or near estimated flood hazard limits. Estimated flood hazard mapping has been developed by Conservation Authorities where engineered flood hazard mapping does not exist. Estimated flood hazard maps are not prepared to the same level of detail as engineered flood hazard maps that are described in this Technical Guideline document. The level of detail pertains to topographic information, hydrology, and hydraulics.

The Conservation Authority should be contacted before updating estimated flood hazard mapping.



From:	Del Villar Cuicas, Joan (MECP)
To:	Chris Nechacov; Brown, Steve (Waterloo)
Cc:	Murray, Katie; Whitelaw, Clarissa (MECP)
Subject:	RE: West Central, MEA Class EA, Schneider and Shoemaker Creeks Naturalization Environmental Assessment
Date:	Wednesday, April 12, 2023 3:17:12 PM
Attachments:	Acknowledgement Letter_Scheneider and Shoemaker Creeks Naturalization.pdf Client Guide to Preliminary Screening-May 2019.pdf

Good afternoon,
Please find attached MECP's Letter of Acknowledgement and attachments in response to the Notice of Commencement for Schneider and Shoemaker Creeks Naturalization Municipal Class EA in the City of Kitchener.

Please do not hesitate to contact me if you have any questions.

Regards,

Joan Del Villar Cuicas (she/her)
Regional Environmental Planner
Project Review Unit | Environmental Assessment Branch
Ontario Ministry of the Environment, Conservation and Parks
Joan.delvillarcuicas@ontario.ca|Phone: 365-889-1180

From: Murray, Katie <Katie.Murray@stantec.com>
Sent: March 31, 2023 9:25 AM
To: EA Notices to WCRegion (MECP) <eanotification.wcregion@ontario.ca>
Cc: Chris Nechacov <Chris.Nechacov@kitchener.ca>; Brown, Steve (Waterloo) <steve.brown@stantec.com>; Raheem, Ferenaz <Ferenaz.Raheem@stantec.com>
Subject: West Central, MEA Class EA, Schneider and Shoemaker Creeks Naturalization Environmental Assessment

Good morning,

Please see attached the Notice of Commencement (NoC) and the Project Information Form for a Municipal Class EA for the Schneider and Shoemaker Creeks Naturalization Environmental Assessment.

Should you have any questions or require additional information regarding the above-mentioned project, please refer to the attached Notice of Commencement and PIC for project contact information.

Thank you,

Katie Murray
Environmental Consultant
Assessment & Permitting Team

Mobile: (519) 860-7084
Katie.Murray@stantec.com

Stantec
600-171 Queens Avenue
London ON CA
N6A 5J7

We do what is right for our communities and our world. Learn more about our net zero pledge and commitment to sustainability.

Ministry of the Environment, Conservation and Parks

Environmental Assessment Branch

1st Floor
135 St. Clair Avenue W
Toronto ON M4V 1P5
Tel.: 416 314-8001
Fax.: 416 314-8452

Ministère de l'Environnement, de la Protection de la nature et des Parcs

Direction des évaluations environnementales

Rez-de-chaussée
135, avenue St. Clair Ouest
Toronto ON M4V 1P5
Tél. : 416 314-8001
Téléc. : 416 314-8452

April 12, 2023

Chris Nechacov
Design and Construction Project Manager
City of Kitchener
schneidercreekea@kitchener.ca

Steve Brown
Design & Construction Project Manager Project Manager
City of Kitchener Stantec Consulting Ltd.
Email: schneidercreekea@stantec.com

BY EMAIL ONLY

Re: **Schneider and Shoemaker Creeks Naturalization Environmental Assessment**
City of Kitchener
Municipal Class Environmental Assessment, Schedule C
Acknowledgement of Notice of Commencement

Dear Project Team,

This letter is in response to the Notice of Commencement for the above noted project. The Ministry of the Environment, Conservation and Parks (MECP) acknowledges that the City of Kitchener (proponent) has indicated that the study is following the approved environmental planning process for a Schedule C project under the Municipal Class Environmental Assessment (Class EA).

Please note that amendments to the Municipal Class Environmental Assessment (Class EA) came into effect on March 3, 2023. For information about the amendments, please refer to the attached letter "Municipal Class Environmental Assessment Amendments - Stakeholder Notification - March 2023" and the corresponding posting on the Environmental Registry of Ontario at https://ero.ontario.ca/notice/019-5069, where the amended version of the Municipal Class EA (2023) document is available.

The **updated (August 2022)** attached "Areas of Interest" document provides guidance regarding the ministry's interests with respect to the Class EA process. Please address all areas of interest in the EA documentation at an appropriate level for the EA study. Proponents who address all the applicable areas of interest can minimize potential delays to the project schedule. **Further information is provided at the end of the Areas of Interest document relating to recent changes to the Environmental Assessment Act through Bill 197, Covid-19 Economic Recovery Act 2020.**

The Crown has a legal duty to consult Aboriginal communities when it has knowledge, real or constructive, of the existence or potential existence of an Aboriginal or treaty right and contemplates conduct that may adversely impact that right. Before authorizing this project, the Crown must ensure that its duty to consult has been fulfilled, where such a duty is triggered. Although the duty to consult with Aboriginal peoples is a duty of the Crown, the Crown may delegate procedural aspects of this duty to project proponents while retaining oversight of the consultation process.

The proposed project may have the potential to affect Aboriginal or treaty rights protected under Section 35 of Canada's *Constitution Act* 1982. Where the Crown's duty to consult is triggered in relation to the proposed project**, the MECP is delegating the procedural aspects of rights-based consultation to the proponent through this letter.** The Crown intends to rely on the delegated consultation process in discharging its duty to consult and maintains the right to participate in the consultation process as it sees fit.

Based on information provided to date and the Crown`s preliminary assessment the proponent is required to consult with the following communities who have been identified as potentially affected by the proposed project:

- Mississaugas of the Credit First Nation
- Six Nations of the Grand River
    - Elected Council, and
    - Haudenosaunee Confederacy Chiefs Council (HCCC) and the Haudenosaunee Development Institute (HDI)

Steps that the proponent may need to take in relation to Aboriginal consultation for the proposed project are outlined in the "Code of Practice for Consultation in Ontario's Environmental Assessment Process". Additional information related to Ontario's Environmental Assessment Act is available online at: www.ontario.ca/environmentalassessments.

Please also refer to the attached document "A Proponent's Introduction to the Delegation of Procedural Aspects of consultation with Aboriginal Communities" for further information, including the MECP's expectations for EA report documentation related to consultation with communities.

The proponent must contact the Director of Environmental Assessment Branch (EABDirector@ontario.ca) under the following circumstances after initial discussions with the communities identified by the MECP:

- Aboriginal or treaty rights impacts are identified to you by the communities;
- You have reason to believe that your proposed project may adversely affect an Aboriginal or treaty right;
- Consultation with Indigenous communities or other stakeholders has reached an impasse; or
- A Section 16 Order request is expected based on impacts to Aboriginal or treaty rights

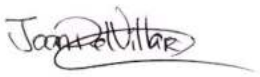
The MECP will then assess the extent of any Crown duty to consult for the circumstances and will consider whether additional steps should be taken, including what role you will be asked to play should additional steps and activities be required.

A draft copy of the report should be sent directly to me prior to the filing of the final report, allowing a minimum of 30 days for the ministry's technical reviewers to provide comments.

Please also ensure a copy of the final notice is sent to the ministry's West Central Region EA notification email account (eanotification.wcregion@ontario.ca) after the draft report is reviewed and finalized.

Should you or any members of your project team have any questions regarding the material above, please contact me at Joan.delvillarcuicas@ontario.ca or 365-889-1180.

Sincerely,



Joan Del Villar C
Regional Environmental Planner – West Central Region
Project Review Unit, Environmental Assessment Branch

Cc: Clarissa Whitelaw, Guelph District Supervisor, MECP
Katie Murray, Stantec Consulting Ltd.

Enclosed: Areas of Interest

Attached: Client's Guide to Preliminary Screening for Species at Risk

A Proponent's Introduction to the Delegation of Procedural Aspects of Consultation with Aboriginal Communities

AREAS OF INTEREST (v. August 2022)

It is suggested that you check off each section after you have considered / addressed it.

☐ **Planning and Policy**

- Applicable plans and policies should be identified in the report, and the proponent should describe how the proposed project adheres to the relevant policies in these plans.
    - Projects located in MECP Central, Eastern or West Central Region may be subject to **A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2020)**.
    - Projects located in MECP Central or Eastern Region may be subject to the **Oak Ridges Moraine Conservation Plan (2017)** or the **Lake Simcoe Protection Plan (2014)**.
    - Projects located in MECP Central, Southwest or West Central Region may be subject to the **Niagara Escarpment Plan (2017)**.
    - Projects located in MECP Central, Eastern, Southwest or West Central Region may be subject to the **Greenbelt Plan (2017)**.
    - Projects located in MECP Northern Region may be subject to the **Growth Plan for Northern Ontario (2011).**

- The **Provincial Policy Statement (2020)** contains policies that protect Ontario's natural heritage and water resources. Applicable policies should be referenced in the report, and the proponent should describe how the proposed project is consistent with these policies.

- In addition to the provincial planning and policy level, the report should also discuss the planning context at the municipal and federal levels, as appropriate.

☐ **Source Water Protection**

The *Clean Water Act*, 2006 (CWA) aims to protect existing and future sources of drinking water. To achieve this, several types of vulnerable areas have been delineated around surface water intakes and wellheads for every municipal residential drinking water system that is located in a source protection area. These vulnerable areas are known as a Wellhead Protection Areas (WHPAs) and surface water Intake Protection Zones (IPZs). Other vulnerable areas that have been delineated under the CWA include Highly Vulnerable Aquifers (HVAs), Significant Groundwater Recharge Areas (SGRAs), Event-based modelling areas (EBAs), and Issues Contributing Areas (ICAs). Source protection plans have been developed that include policies to address existing and future risks to sources of municipal drinking water within these vulnerable areas.

Projects that are subject to the Environmental Assessment Act that fall under a Class EA, or one of the Regulations, have the potential to impact sources of drinking water if they occur in designated vulnerable areas or in the vicinity of other at-risk drinking water systems (i.e.

systems that are not municipal residential systems). MEA Class EA projects may include activities that, if located in a vulnerable area, could be a threat to sources of drinking water (i.e. have the potential to adversely affect the quality or quantity of drinking water sources) and the activity could therefore be subject to policies in a source protection plan. Where an activity poses a risk to drinking water, policies in the local source protection plan may impact how or where that activity is undertaken. Policies may prohibit certain activities, or they may require risk management measures for these activities. Municipal Official Plans, planning decisions, Class EA projects (where the project includes an activity that is a threat to drinking water) and prescribed instruments must conform with policies that address significant risks to drinking water and must have regard for policies that address moderate or low risks.

- In October 2015, the MEA Parent Class EA document was amended to include reference to the Clean Water Act (Section A.2.10.6) and indicates that proponents undertaking a Municipal Class EA project must identify early in their process whether a project is or could potentially be occurring with a vulnerable area. **Given this requirement, please include a section in the report on source water protection.**

    - The proponent should identify the source protection area and should clearly document how the proximity of the project to sources of drinking water (municipal or other) and any delineated vulnerable areas was considered and assessed. Specifically, the report should discuss whether or not the project is located in a vulnerable area and provide applicable details about the area.

    - If located in a vulnerable area, proponents should document whether any project activities are prescribed drinking water threats and thus pose a risk to drinking water (this should be consulted on with the appropriate Source Protection Authority). Where an activity poses a risk to drinking water, the proponent must document and discuss in the report how the project adheres to or has regard to applicable policies in the local source protection plan. This section should then be used to inform and be reflected in other sections of the report, such as the identification of net positive/negative effects of alternatives, mitigation measures, evaluation of alternatives etc.

- While most source protection plans focused on including policies for significant drinking water threats in the WHPAs and IPZs it should be noted that even though source protection plan policies may not apply in HVAs, these are areas where aquifers are sensitive and at risk to impacts and within these areas, activities may impact the quality of sources of drinking water for systems other than municipal residential systems.

- In order to determine if this project is occurring within a vulnerable area, proponents can use Source Protection Information Atlas, which is an online mapping tool available to the public. Note that various layers (including WHPAs, WHPA-Q1 and WHPA-Q2, IPZs, HVAs, SGRAs, EBAs, ICAs) can be turned on through the “Map Legend” bar on the left. The

mapping tool will also provide a link to the appropriate source protection plan in order to identify what policies may be applicable in the vulnerable area.

- For further information on the maps or source protection plan policies which may relate to their project, proponents must contact the appropriate source protection authority. **Please consult with the local source protection authority to discuss potential impacts on drinking water. Please document the results of that consultation within the report and include all communication documents/correspondence.**

More Information

For more information on the *Clean Water Act*, source protection areas and plans, including specific information on the vulnerable areas and drinking water threats, please refer to Conservation Ontario's website where you will also find links to the local source protection plan/assessment report.

A list of the prescribed drinking water threats can be found in section 1.1 of Ontario Regulation 287/07 made under the *Clean Water Act*. In addition to prescribed drinking water threats, some source protection plans may include policies to address additional "local" threat activities, as approved by the MECP.

☐ **Climate Change**

The document "Considering Climate Change in the Environmental Assessment Process" (Guide) is now a part of the Environmental Assessment program's Guides and Codes of Practice. The Guide sets out the MECP's expectation for considering climate change in the preparation, execution and documentation of environmental assessment studies and processes. The guide provides examples, approaches, resources, and references to assist proponents with consideration of climate change in EA. Proponents should review this Guide in detail.

- **The MECP expects proponents of Class EA projects to:**

1. Consider during the assessment of alternative solutions and alternative designs, the following:
    a. the project's expected production of greenhouse gas emissions and impacts on carbon sinks (climate change mitigation); and
    b. resilience or vulnerability of the undertaking to changing climatic conditions (climate change adaptation).
2. Include a discrete section in the report detailing how climate change was considered in the EA.

How climate change is considered can be qualitative or quantitative in nature and should be scaled to the project's level of environmental effect. In all instances, both a project's impacts on climate change (mitigation) and impacts of climate change on a project (adaptation) should be considered.

- The MECP has also prepared another guide to support provincial land use planning direction related to the completion of energy and emission plans. The "Community Emissions Reduction Planning: A Guide for Municipalities" document is designed to educate stakeholders on the municipal opportunities to reduce energy and greenhouse gas emissions, and to provide guidance on methods and techniques to incorporate consideration of energy and greenhouse gas emissions into municipal activities of all types. We encourage you to review the Guide for information.

Air Quality, Dust and Noise

- If there are sensitive receptors in the surrounding area of this project, a quantitative air quality/odour impact assessment will be useful to evaluate alternatives, determine impacts and identify appropriate mitigation measures. The scope of the assessment can be determined based on the potential effects of the proposed alternatives, and typically includes source and receptor characterization and a quantification of local air quality impacts on the sensitive receptors and the environment in the study area. The assessment will compare to all applicable standards or guidelines for all contaminants of concern. **Please contact this office for further consultation on the level of Air Quality Impact Assessment required for this project if not already advised.**

- If a quantitative Air Quality Impact Assessment is not required for the project, the MECP expects that the report contain a qualitative assessment which includes:

    - A discussion of local air quality including existing activities/sources that significantly impact local air quality and how the project may impact existing conditions;
    - A discussion of the nearby sensitive receptors and the project's potential air quality impacts on present and future sensitive receptors;
    - A discussion of local air quality impacts that could arise from this project during both construction and operation; and
    - A discussion of potential mitigation measures.

- As a common practice, "air quality" should be used an evaluation criterion for all road projects.

- Dust and noise control measures should be addressed and included in the construction plans to ensure that nearby residential and other sensitive land uses within the study area are not adversely affected during construction activities.

- The MECP recommends that non-chloride dust-suppressants be applied. For a comprehensive list of fugitive dust prevention and control measures that could be applied, refer to *Cheminfo Services Inc. Best Practices for the Reduction of Air Emissions from*

Construction and Demolition Activities report prepared for Environment Canada. March 2005.

- The report should consider the potential impacts of increased noise levels during the operation of the completed project. The proponent should explore all potential measures to mitigate significant noise impacts during the assessment of alternatives.

Ecosystem Protection and Restoration

- Any impacts to ecosystem form and function must be avoided where possible. The report should describe any proposed mitigation measures and how project planning will protect and enhance the local ecosystem.

- Natural heritage and hydrologic features should be identified and described in detail to assess potential impacts and to develop appropriate mitigation measures. The following sensitive environmental features may be located within or adjacent to the study area:
  - Key Natural Heritage Features: Habitat of endangered species and threatened species, fish habitat, wetlands, areas of natural and scientific interest (ANSIs), significant valleylands, significant woodlands; significant wildlife habitat (including habitat of special concern species); sand barrens, savannahs, and tallgrass prairies; and alvars.
  - Key Hydrologic Features: Permanent streams, intermittent streams, inland lakes and their littoral zones, seepage areas and springs, and wetlands.
  - Other natural heritage features and areas such as: vegetation communities, rare species of flora or fauna, Environmentally Sensitive Areas, Environmentally Sensitive Policy Areas, federal and provincial parks and conservation reserves, Greenland systems etc.

We recommend consulting with the Ministry of Natural Resources and Forestry (MNRF), Fisheries and Oceans Canada (DFO) and your local conservation authority to determine if special measures or additional studies will be necessary to preserve and protect these sensitive features. In addition, for projects located in Central Region you may consider the provisions of the Rouge Park Management Plan if applicable.

Species at Risk

- The Ministry of the Environment, Conservation and Parks has now assumed responsibility of Ontario's Species at Risk program. Information, standards, guidelines, reference materials and technical resources to assist you are found at https://www.ontario.ca/page/species-risk.

- The Client's Guide to Preliminary Screening for Species at Risk (Draft May 2019) has been attached to the covering email for your reference and use. Please review this document for next steps.

- For any questions related to subsequent permit requirements, please contact SAROntario@ontario.ca.

Surface Water

- The report must include enough information to demonstrate that there will be no negative impacts on the natural features or ecological functions of any watercourses within the study area. Measures should be included in the planning and design process to ensure that any impacts to watercourses from construction or operational activities (e.g. spills, erosion, pollution) are mitigated as part of the proposed undertaking.

- Additional stormwater runoff from new pavement can impact receiving watercourses and flood conditions. Quality and quantity control measures to treat stormwater runoff should be considered for all new impervious areas and, where possible, existing surfaces. The ministry's Stormwater Management Planning and Design Manual (2003) should be referenced in the report and utilized when designing stormwater control methods. **A Stormwater Management Plan should be prepared as part of the Class EA process** that includes:

    - Strategies to address potential water quantity and erosion impacts related to stormwater draining into streams or other sensitive environmental features, and to ensure that adequate (enhanced) water quality is maintained
    - Watershed information, drainage conditions, and other relevant background information
    - Future drainage conditions, stormwater management options, information on erosion and sediment control during construction, and other details of the proposed works
    - Information on maintenance and monitoring commitments.

- Ontario Regulation 60/08 under the *Ontario Water Resources Act* (OWRA) applies to the Lake Simcoe Basin, which encompasses Lake Simcoe and the lands from which surface water drains into Lake Simcoe. If the proposed sewage treatment plant is listed in Table 1 of the regulation, the report should describe how the proposed project and its mitigation measures are consistent with the requirements of this regulation and the OWRA.

- Any potential approval requirements for surface water taking or discharge should be identified in the report. A Permit to Take Water (PTTW) under the OWRA will be required for any water takings that exceed 50,000 L/day, except for certain water taking activities that have been prescribed by the Water Taking EASR Regulation – *O. Reg. 63/16*. These prescribed water-taking activities require registration in the EASR instead of a PTTW. Please

review the Water Taking User Guide for EASR for more information. Additionally, an Environmental Compliance Approval under the OWRA is required for municipal stormwater management works.

Groundwater

- The status of, and potential impacts to any well water supplies should be addressed. If the project involves groundwater takings or changes to drainage patterns, the quantity and quality of groundwater may be affected due to drawdown effects or the redirection of existing contamination flows. In addition, project activities may infringe on existing wells such that they must be reconstructed or sealed and abandoned. Appropriate information to define existing groundwater conditions should be included in the report.

- If the potential construction or decommissioning of water wells is identified as an issue, the report should refer to Ontario Regulation 903, Wells, under the OWRA.

- Potential impacts to groundwater-dependent natural features should be addressed. Any changes to groundwater flow or quality from groundwater taking may interfere with the ecological processes of streams, wetlands or other surficial features. In addition, discharging contaminated or high volumes of groundwater to these features may have direct impacts on their function. Any potential effects should be identified, and appropriate mitigation measures should be recommended. The level of detail required will be dependent on the significance of the potential impacts.

- Any potential approval requirements for groundwater taking or discharge should be identified in the report. A Permit to Take Water (PTTW) under the OWRA will be required for any water takings that exceed 50,000 L/day, with the exception of certain water taking activities that have been prescribed by the Water Taking EASR Regulation – *O. Reg. 63/16*. These prescribed water-taking activities require registration in the EASR instead of a PTTW. Please review the Water Taking User Guide for EASR for more information.

- Consultation with the railroad authorities is necessary wherever there is a plan to use construction dewatering in the vicinity of railroad lines or where the zone of influence of the construction dewatering potentially intercepts railroad lines.

Excess Materials Management

- In December 2019, MECP released a new regulation under the Environmental Protection Act, titled "On-Site and Excess Soil Management" (O. Reg. 406/19) to support improved management of excess construction soil. This regulation is a key step to support proper management of excess soils, ensuring valuable resources don't go to waste and to provide

clear rules on managing and reusing excess soil. New risk-based standards referenced by this regulation help to facilitate local beneficial reuse which in turn will reduce greenhouse gas emissions from soil transportation, while ensuring strong protection of human health and the environment. The new regulation is being phased in over time, with the first phase in effect on January 1, 2021. For more information, please visit https://www.ontario.ca/page/handling-excess-soil.

- The report should reference that activities involving the management of excess soil should be completed in accordance with O. Reg. 406/19 and the MECP's current guidance document titled "Management of Excess Soil – A Guide for Best Management Practices" (2014).

- All waste generated during construction must be disposed of in accordance with ministry requirements

Contaminated Sites

- Any current or historical waste disposal sites should be identified in the report. The status of these sites should be determined to confirm whether approval pursuant to Section 46 of the EPA may be required for land uses on former disposal sites. We recommend referring to the MECP's D-4 guideline for land use considerations near landfills and dumps.
  - Resources available may include regional/local municipal official plans and data; provincial data on large landfill sites and small landfill sites; Environmental Compliance Approval information for waste disposal sites on Access Environment.

- Other known contaminated sites (local, provincial, federal) in the study area should also be identified in the report (Note – information on federal contaminated sites is found on the Government of Canada's website).

- The location of any underground storage tanks should be investigated in the report. Measures should be identified to ensure the integrity of these tanks and to ensure an appropriate response in the event of a spill. The ministry's Spills Action Centre must be contacted in such an event.

- Since the removal or movement of soils may be required, appropriate tests to determine contaminant levels from previous land uses or dumping should be undertaken. If the soils are contaminated, you must determine how and where they are to be disposed of, consistent with *Part XV.1 of the Environmental Protection Act* (EPA) and Ontario Regulation 153/04, Records of Site Condition, which details the new requirements related to site assessment and clean up. Please contact the appropriate MECP District Office for further consultation if contaminated sites are present.

Servicing, Utilities and Facilities

- The report should identify any above or underground utilities in the study area such as transmission lines, telephone/internet, oil/gas etc. The owners should be consulted to discuss impacts to this infrastructure, including potential spills.

- The report should identify any servicing infrastructure in the study area such as wastewater, water, stormwater that may potentially be impacted by the project.

- Any facility that releases emissions to the atmosphere, discharges contaminants to ground or surface water, provides potable water supplies, or stores, transports or disposes of waste must have an Environmental Compliance Approval (ECA) before it can operate lawfully. Please consult with MECP's Environmental Permissions Branch to determine whether a new or amended ECA will be required for any proposed infrastructure.

- We recommend referring to the ministry's environmental land use planning guides to ensure that any potential land use conflicts are considered when planning for any infrastructure or facilities related to wastewater, pipelines, landfills or industrial uses.

Mitigation and Monitoring

- Contractors must be made aware of all environmental considerations so that all environmental standards and commitments for both construction and operation are met. Mitigation measures should be clearly referenced in the report and regularly monitored during the construction stage of the project. In addition, we encourage proponents to conduct post-construction monitoring to ensure all mitigation measures have been effective and are functioning properly.

- Design and construction reports and plans should be based on a best management approach that centres on the prevention of impacts, protection of the existing environment, and opportunities for rehabilitation and enhancement of any impacted areas.

- The proponent's construction and post-construction monitoring plans must be documented in the report, as outlined in Section A.2.5 and A.4.1 of the MEA Class EA parent document.

Consultation

- The report must demonstrate how the consultation provisions of the Class EA have been fulfilled, including documentation of all stakeholder consultation efforts undertaken during the planning process. This includes a discussion in the report that identifies concerns that were raised and **describes how they have been addressed by the proponent** throughout

the planning process. The report should also include copies of comments submitted on the project by interested stakeholders, and the proponent's responses to these comments (as directed by the Class EA to include full documentation).

- Please include the full stakeholder distribution/consultation list in the documentation.

Class EA Process

- If this project is a Master Plan: there are several different approaches that can be used to conduct a Master Plan, examples of which are outlined in Appendix 4 of the Class EA. **The Master Plan should clearly indicate the selected approach for conducting the plan**, by identifying whether the levels of assessment, consultation and documentation are sufficient to fulfill the requirements for Schedule B or C projects. Please note that any Schedule B or C projects identified in the plan would be subject to Part II Order Requests under the Environmental Assessment Act, although the plan itself would not be. **Please include a description of the approach being undertaken (use Appendix 4 as a reference).**

- If this project is a Master Plan: Any identified projects should also include information on the MCEA schedule associated with the project.

- The report should provide clear and complete documentation of the planning process in order to allow for transparency in decision-making.

- The Class EA requires the consideration of the effects of each alternative on all aspects of the environment (including planning, natural, social, cultural, economic, technical). The report should include a level of detail (e.g. hydrogeological investigations, terrestrial and aquatic assessments, cultural heritage assessments) such that all potential impacts can be identified, and appropriate mitigation measures can be developed. Any supporting studies conducted during the Class EA process should be referenced and included as part of the report.

- Please include in the report a list of all subsequent permits or approvals that may be required for the implementation of the preferred alternative, including but not limited to, MECP's PTTW, EASR Registrations and ECAs, conservation authority permits, species at risk permits, MTO permits and approvals under the *Impact Assessment Act*, 2019.

- Ministry guidelines and other information related to the issues above are available at http://www.ontario.ca/environment-and-energy/environment-and-energy. We encourage you to review all the available guides and to reference any relevant information in the report.

Amendments to the EAA through the Covid-19 Economic Recovery Act, 2020
Once the EA Report is finalized, the proponent must issue a Notice of Completion providing a minimum 30-day period during which documentation may be reviewed and comment and input can be submitted to the proponent. The Notice of Completion must be sent to the appropriate MECP Regional Office email address.

The public can request a higher level of assessment on a project if they are concerned about potential adverse impacts to constitutionally protected Aboriginal and treaty rights. In addition, the Minister may issue an order on his or her own initiative within a specified time period. The Director (of the Environmental Assessment Branch) will issue a Notice of Proposed Order to the proponent if the Minister is considering an order for the project within 30 days after the conclusion of the comment period on the Notice of Completion. At this time, the Director may request additional information from the proponent. Once the requested information has been received, the Minister will have 30 days within which to make a decision or impose conditions on your project.

Therefore, the proponent cannot proceed with the project until at least 30 days after the end of the comment period provided for in the Notice of Completion. Further, the proponent may not proceed after this time if:

- a Section 16 Order request has been submitted to the ministry regarding potential adverse impacts to constitutionally protected Aboriginal and treaty rights, or
- the Director has issued a Notice of Proposed order regarding the project.

Please ensure that the Notice of Completion advises that outstanding concerns are to be directed to the proponent for a response, and that in the event there are outstanding concerns regarding potential adverse impacts to constitutionally protected Aboriginal and treaty rights, Section 16 Order requests on those matters should be addressed in writing to:

Minister David Piccini
Ministry of Environment, Conservation and Parks
777 Bay Street, 5th Floor
Toronto ON M7A 2J3
minister.mecp@ontario.ca

and

Director, Environmental Assessment Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Ave. W, 1st Floor
Toronto ON, M4V 1P5
EABDirector@ontario.ca

Client's Guide to Preliminary Screening for Species at Risk

Ministry of the Environment, Conservation and Parks

Species at Risk Branch, Permissions and Compliance

DRAFT - May 2019

Table of Contents

1.0 Purpose, Scope, Background and Context

1.1 Purpose of this Guide

This guide has been created to:

- help clients better understand their obligation to gather information and complete a preliminary screening for species at risk before contacting the ministry,
- outline guidance and advice clients can expect to receive from the ministry at the preliminary screening stage,
- help clients understand how they can gather information about species at risk by accessing publicly available information housed by the Government of Ontario, and
- provide a list of other potential sources of species at risk information that exist outside the Government of Ontario.

It remains the client's responsibility to:

- carry out a preliminary screening for their projects,
- obtain best available information from all applicable information sources,
- conduct any necessary field studies or inventories to identify and confirm the presence or absence of species at risk or their habitat,
- consider any potential impacts to species at risk that a proposed activity might cause, and
- comply with the *Endangered Species Act* (ESA).

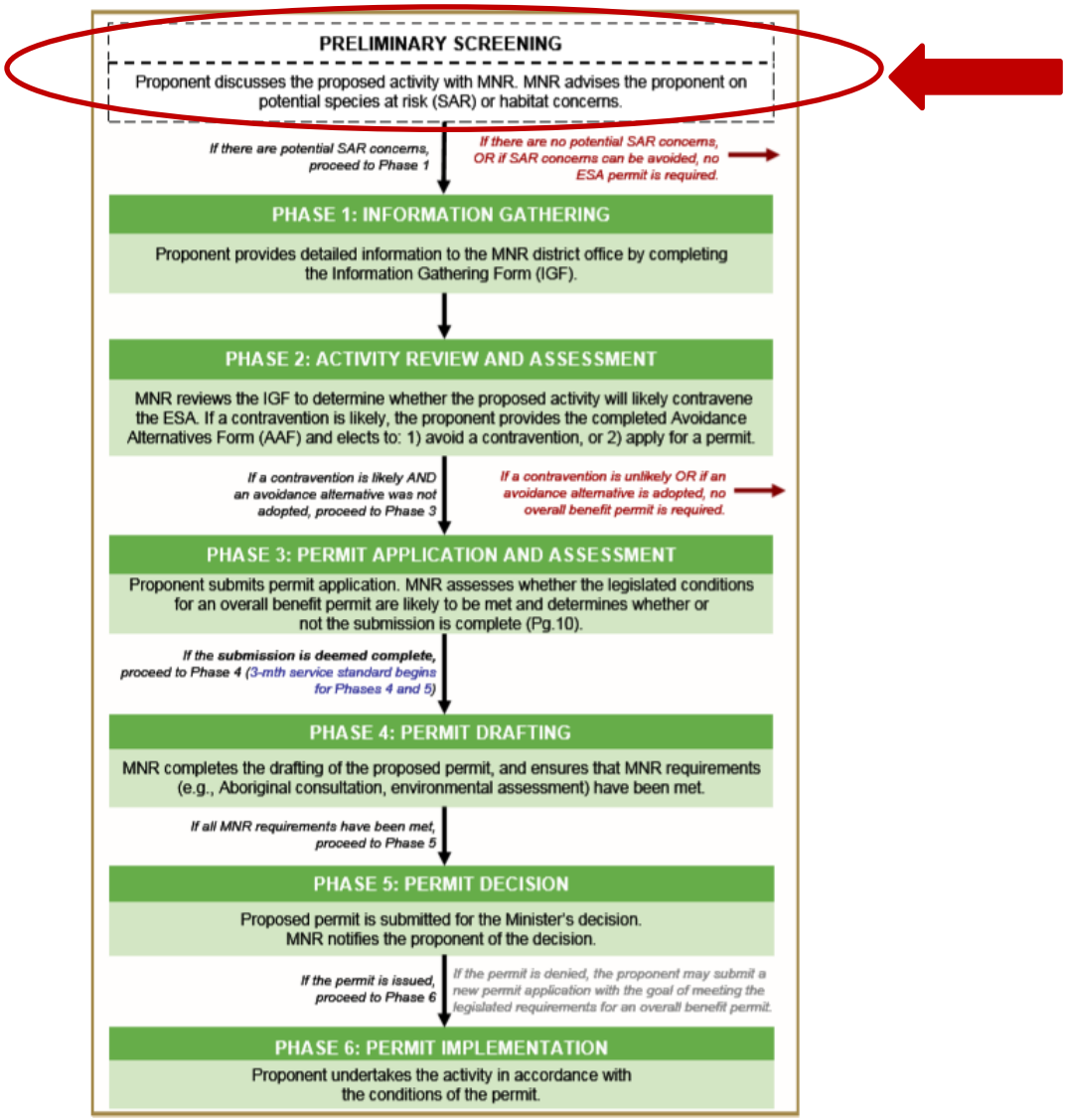
To provide the most efficient service, clients should initiate species at risk screenings and seek information from all applicable information sources identified in this guide, at a minimum, prior to contacting Government of Ontario ministry offices for further information or advice.

1.2 Scope

This guide is a resource for clients seeking to understand if their activity is likely to impact species at risk or if they are likely to trigger the need for an authorization under the ESA. It is not intended to circumvent any detailed site surveys that may be necessary to document species at risk or their habitat nor to circumvent the need to assess the impacts of a proposed activity on species at risk or their habitat. This guide is not an exhaustive list of available information sources for any given area as the availability of information on species at risk and their habitat varies across the province. This guide is intended to support projects and activities carried out on Crown and private land, by private landowners, businesses, other provincial ministries and agencies, or municipal government.

1.3 Background and Context

To receive advice on their proposed activity, clients must first determine whether any species at risk or their habitat exist or are likely to exist at or near their proposed activity, and whether their proposed activity is likely to contravene the ESA. Once this step is complete, clients may contact the ministry at SAROntario@ontario.ca to discuss the main purpose, general methods, timing and location of their proposed activity as well as information obtained about species at risk and their habitat at, or near, the site. At this stage, the ministry can provide advice and guidance to the client about potential species at risk or habitat concerns, measures that the client is considering to avoid adverse effects on species at risk or their habitat and whether additional field surveys are advisable. This is referred to as the "Preliminary Screening" stage. For more information on additional phases in the diagram below, please refer to the *Endangered Species Act Submission Standards for Activity Review and 17(2)(c) Overall Benefit Permits* policy available online at https://www.ontario.ca/page/species-risk-overall-benefit-permits. Please note: any reference to MNR in the diagram is replaced by MECP.



2.0 Roles and Responsibilities

To provide the most efficient service, clients should initiate species at risk screenings and seek information from all applicable information sources identified in this guide prior to contacting Government of Ontario ministry offices for further information or advice.

Step 1: Client seeks information regarding species at risk or their habitat that exist, or are likely to exist, at or near their proposed activity by referring to all applicable information sources identified in this guide.

Step 2: Client reviews and consider guidance on whether their proposed activity is likely to contravene the ESA (see section 3.4 of this guide for guidance on what to consider).

Step 3: Client gathers information identified in the checklist in section 4 of this guide.

Step 4: Client contacts the ministry at SAROntario@ontario.ca to discuss their preliminary screening. Ministry staff will ask the client questions about the main purpose, general methods, timing and location of their proposed activity as well as information obtained about species at risk and their habitat at, or near, the site. Ministry staff will also ask the client for their interpretation of the impacts of their activity on species at risk or their habitat as well as measures the client has considered to avoid any adverse impacts.

Step 5: Ministry staff will provide advice on next steps.

Option A: Ministry staff may advise the client they can proceed with their activity without an authorization under the ESA where the ministry is confident that:

- no protected species at risk or habitats are likely to be present at or near the proposed location of the activity; or
- protected species at risk or habitats are known to be present but the activity is not likely to contravene the ESA; or
- through the adoption of avoidance measures, the modified activity is not likely to contravene the ESA.

Option B: Ministry staff may advise the client to proceed to Phase 1 of the overall benefit permitting process (i.e. Information Gathering in the previous diagram), where:

- there is uncertainty as to whether any protected species at risk or habitats are present at or near the proposed location of the activity; or
- the potential impacts of the proposed activity are uncertain; or
- ministry staff anticipate the proposed activity is likely to contravene the ESA.

3.0 Information Sources

Land Information Ontario (LIO) and the Natural Heritage Information Centre (NHIC) maintain and provide information about species at risk, as well as related information about fisheries, wildlife, crown lands, protected lands and more. This information is made available to organizations, private individuals, consultants, and developers through online sources and is often considered under various pieces of legislation or as part of regulatory approvals and planning processes.

The information available from LIO or NHIC and the sources listed in this guide should not be considered as a substitute for site visits and appropriate field surveys. Generally, this information can be regarded as a starting point from which to conduct further field surveys, if needed. While this data represents best available current information, it is important to note that a lack of information for a site does not mean that species at risk or their habitat are not present. There are many areas where the Government of Ontario does not currently have information, especially in more remote parts of the province. The absence of species at risk location data at or near your site does not necessarily mean no species at risk are present at that location. On-site assessments can better verify site conditions, identify and confirm presence of species at risk and/or their habitats.

Information on the location (i.e. observations and occurrences) of species at risk is considered sensitive and therefore publicly available only on a 1km square grid as opposed to as a detailed point on a map. This generalized information can help you understand which species at risk are in the general vicinity of your proposed activity and can help inform field level studies you may want to undertake to confirm the presence, or absence of species at risk at or near your site.

Should you require specific and detailed information pertaining to species at risk observations and occurrences at or near your site on a finer geographic scale; you will be required to demonstrate your need to access this information, to complete data sensitivity training and to obtain a Sensitive Data Use License from the NHIC. Information on how to obtain a license can be found online at https://www.ontario.ca/page/get-natural-heritage-information.

Many organizations (e.g. other Ontario ministries, municipalities, conservation authorities) have ongoing licensing to access this data so be sure to check if your organization has this access and consult this data as part of your preliminary screening if your organization already has a license.

3.1 Make a Map: Natural Heritage Areas

The Make a Natural Heritage Area Map (available online at https://www.ontario.ca/page/make-natural-heritage-area-map provides public access to natural heritage information, including species at risk, without the user needing to have Geographic Information System (GIS) capability. It allows users to view and identify generalized species at risk information, mark areas of interest, and create and print a custom map directly from the web application. The tool also shows topographic information such as roads, rivers, contours and municipal boundaries.

Users are advised that sensitive information has been removed from the natural areas dataset and the occurrences of species at risk has been generalized to a 1-kilometre grid to mitigate the risks to the species (e.g. illegal harvest, habitat disturbance, poaching).

The web-based mapping tool displays natural heritage data, including:

- Generalized Species at risk occurrence data (based on a 1-km square grid),
- Natural Heritage Information Centre data.

Data cannot be downloaded directly from this web map; however, information included in this application is available digitally through Land Information Ontario (LIO) at https://www.ontario.ca/page/land-information-ontario.

3.2 Land Information Ontario (LIO)

Most natural heritage data is publicly available. This data is managed in a large provincial corporate database called the LIO Warehouse and can be accessed online through the LIO Metadata Management Tool at https://www.javacoeapp.lrc.gov.on.ca/geonetwork/srv/en/main.home. This tool provides descriptive information about the characteristics, quality and context of the data. Publicly available geospatial data can be downloaded directly from this site.

While most data are publicly available, some data may be considered highly sensitive (i.e. nursery areas for fish, species at risk observations) and as such, access to some data maybe restricted.

3.3 Additional Species at Risk Information Sources

- The Breeding Bird Atlas can be accessed online at http://www.birdsontario.org/atlas/index.jsp?lang=en
- eBird can be accessed online at https://ebird.org/home
- iNaturalist can be accessed online at https://www.inaturalist.org/
- The Ontario Reptile and Amphibian Atlas can be accessed online at https://ontarionature.org/programs/citizen-science/reptile-amphibian-atlas
- Your local Conservation Authority. Information to help you find your local Conservation Authority can be accessed online at https://conservationontario.ca/conservation-authorities/find-a-conservation-authority/

  Local naturalist groups or other similar community-based organizations
- Local Indigenous communities
- Local land trusts or other similar Environmental Non-Government Organizations
- Field level studies to identify if species at risk, or their habitat, are likely present or absent at or near the site.
- When an activity is proposed within one of the continuous caribou ranges, please be sure to consider the caribou Range Management Policy. This policy includes figures and maps of the continuous caribou range, can be found online at https://www.ontario.ca/page/range-management-policy-support-woodland-caribou-conservation-and-recovery

3.4 Information Sources to Support Impact Assessments

- Guidance to help you understand if your activity is likely to adversely impact species at risk or their habitat can be found online at https://www.ontario.ca/page/policy-guidance-harm-and-harass-under-endangered-species-act and https://www.ontario.ca/page/categorizing-and-protecting-habitat-under-endangered-species-act
- A list of species at risk in Ontario is available online at https://www.ontario.ca/page/species-risk-ontario. On this webpage, you can find out more about each species, including where is lives, what threatens it and any specific habitat protections that apply to it by clicking on the photo of the species.

4.0 Check-List

Please feel free to use the check list below to help you confirm you have explored all applicable information sources and to support your discussion with Ministry staff at the preliminary screening stage.

- ✓ Land Information Ontario (LIO)
- ✓ Natural Heritage Information Centre (NHIC)
- ✓ The Breeding Bird Atlas
- ✓ eBird
- ✓ iNaturalist
- ✓ Ontario Reptile and Amphibian Atlas
- ✓ List Conservation Authorities you contacted:_____

  _____
- ✓ List local naturalist groups you contacted:_____

  _____
- ✓ List local Indigenous communities you contacted:_____

  _____
- ✓ List any other local land trusts or Environmental Non-Government Organizations you contacted:_____

  _____
- ✓ List and field studies that were conducted to identify species at risk, or their habitat, likely to be present or absent at or near the site: _____

  _____
- ✓ List what you think the likely impacts of your activity are on species at risk and their habitat (e.g. damage or destruction of habitat, killing, harming or harassing species at risk):_____

  _____

Schindler Creek Naturalization
Kirchner Auto Parts Property
116/118 Kent ave

Shirley Greenway

constructed 1978-1980 from Kent to Palmer against 116+118 Kent Ave
Existing fence separates 116+118 from Schindler Creek/Shirley Greenway
Fence is 408' long 6' high and runs from Kent Bridge: Post and wire
It is 9 gauge Galvanized 2" Fabric The style is with top rail
There is a gated entrance at the Kent Bridge
There are Barb arms with barb wire along the property from the Front of 116
building to the rear of the property at Palmer ave.
This fence is 224' long from Front gate to Rear gate.
It consists of: 21 line posts
3 Terminal posts
24 Barb arms
From Kent to Front Gate: 17 line posts
3 Terminal posts
Access gate at Kent Bridge

Greenway
From the fence to the creek bottom is 34'
There is a 9-8' average flat buffer area from the fence before the drop to the Creek. At this point it is a 35° Angle to the water.
Concrete comes up from the creek bed 18' then continues with 9' of Dirt.
From the underside of Kent Bridge to creek bed is 9'.
* There is a barbed wire that runs 116+118 along the fence, creek side.
A catch basin between 116 & 118 is 24' from the fence then it goes through the concrete into the Creek. It is a 8" Corrugated Steel pipe and continues 15' from the fence into the creek
Another catch basin at the rear of 118 is 7'6" from the fence and this goes through a 12" pipe which could be plastic. But is stuck in the concrete embankment From the fence to exit is approx 11'
The Grade difference from asphalt Parking lots to creek bed average 12-13'

Considerations of Design

clean out & remove fencing wood parts, scrub Hawthorn Elderberry etc

How high will the Stone walls be? 18"?

Will the 8-9' Buffer be maintained or incorporated into the 3 tier Stone blocks?

Can the Drainpipes to my catch basins be covered with plastic?

Will the 6' Fence on the property line be replaced as it is now!

Will the 10' Man gate be reinstalled at Rear Bridge or near Corner

Can we add another Man Gate at 300 from Rear for Access to the area for weeding & clean up.

Will the Barb wire be replaced as they are now? (I will supply the wire)

At the rear gate/Base of 118's compound requires entrance security to prevent access to area then Elders along creek toward Sterling

This will prevent access & damage my compound.

If the City supplies some posts I will remove the existing Fence/Steel in the Fence, put the cemented-in posts & then use the posts for the new posts to be installed/cemented in. This would save drilling of posts with new 6' Fence Straight 3" Size KK Style.

Landscaping is similar to [illegible] maker?

Carry dogwood   Nanny berry

Alternate dogwood

Could we add Daylily's or other perennials.

No trees as the soil is unstable they blow over as observed in the area across the creek [illegible] Parking lot.

Hydro One Networks Inc.

483 Bay Street
8th Floor South Tower
Toronto, Ontario M5G 2P5

HydroOne.com

April 19, 2023

Re: Schneider and Shoemaker Creeks Naturalization EA

Attention:
Chris Nechacov, C.E.T.
Design & Construction Project Manager
City of Kitchener

Thank you for sending us notification regarding (Schneider and Shoemaker Creeks Naturalization EA). In our preliminary assessment, we confirm there are no existing Hydro One Transmission assets in the subject area. Please be advised that this is only a preliminary assessment based on current information.

If plans for the undertaking change or the study area expands beyond that shown, please contact Hydro One to assess impacts of existing or future planned electricity infrastructure.

Any future communications are sent to Secondarylanduse@hydroone.com.

Be advised that any changes to lot grading and/or drainage within proximity to Hydro One transmission corridor lands must be controlled and directed away from the transmission corridor.

Sent on behalf of,

Secondary Land Use
Asset Optimization
Strategy & Integrated Planning
Hydro One Networks Inc.

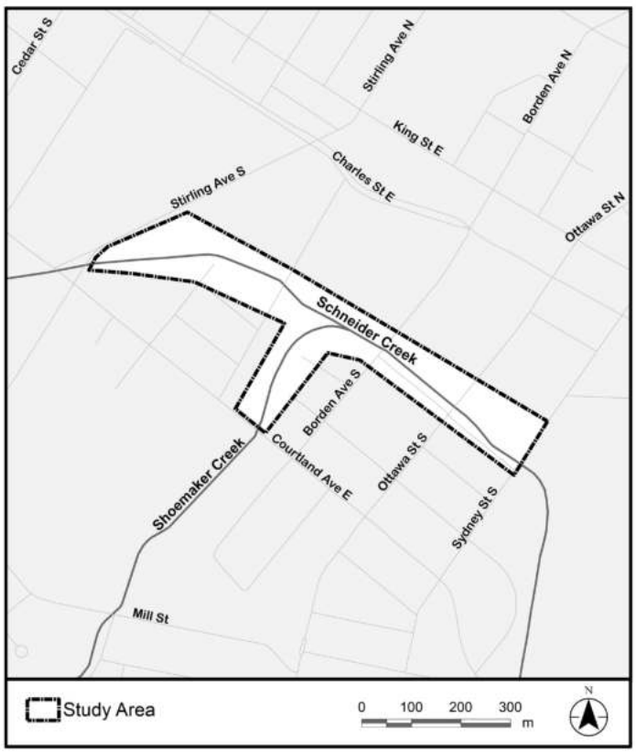
NOTICE OF COMMENCEMENT AND PUBLIC INFORMATION CENTRE

Schneider and Shoemaker Creeks Naturalization Environmental Assessment

Schneider and Shoemaker Creeks are currently lined with concrete where they meet, and the floodplain at this location has expanded past the creek boundaries. This affects adjacent properties and presents a potential risk to public safety.

The City of Kitchener is planning to commence a Class Environmental Assessment (EA), to fully review the environmental risks of this area, and present design options to mitigate those risks. Expanding and naturalizing the creek boundaries to accommodate the flows would provide greater protection, and environmental benefits such as flood mitigation and natural habitat. In addition, this project will look at options for the replacement of the concrete channel with a wider natural channel, which would improve the floodplain by reducing its limits, thereby minimizing potential damage as a result of flooding from larger storm events.

Stantec Consulting Ltd. will be acting as the City of Kitchener's engineering consultant for the project.



Planning Process

Reducing the environmental effects of our projects and operations is important to us. The planning of this project will follow a Schedule "C" Municipal Class EA, established in accordance with the Ontario *Environmental Assessment Act* and is a result of previous studies in the area.

This project is funded in part by the Government of Canada through the Disaster Mitigation and Adaptation Fund.

We'd like to hear from you

Your input is important to us. We invite you to join our upcoming Public Information Centre to learn more about the project, ask our team questions, and provide feedback. Listening to, and learning from, Indigenous Nations and organizations, residents, businesses, government agencies, and interest groups is part of the process.

Please join us:

Public Information Centre
April 13, 2023, 6:00pm – 8:00pm.
Rockway Golf Course
625 Rockway Dr, Kitchener, ON N2G 3B5
Project website: www.engagewr.ca/SchneiderCreekEA

Contact us if you would like to learn more about the project, be added to the project mailing list, provide comments, or have any accessibility requests:

Chris Nechacov, C.E.T.
Design & Construction Project Manager
City of Kitchener
Tel: 519-741-2200
Email: schneidercreekea@kitchener.ca

Steve Brown, MBA, P.Eng.
Project Manager
Stantec Consulting Ltd.
Tel: 519-585-7446
Email: schneidercreekea@stantec.com

All personal information included in your request – such as name, address, telephone number and property location – is collected, under the authority of section 30 of the *Environmental Assessment Act* and is collected and maintained for the purpose of creating a record that is available to the general public. As this information is collected for the purpose of a public record, the protection of personal information provided in the *Freedom of Information and Protection of Privacy Act* (FIPPA) does not apply (s.37). Personal information you submit will become part of the available public record unless you request that your personal information remain confidential.

This Notice was issued on March 31, 2023.

Ministry of Citizenship and Multiculturalism

Heritage Planning Unit
Heritage Branch
Citizenship, Inclusion and Heritage Division
5th Flr, 400 University Ave
Tel.: 613.242.3743

Ministère des Affaires civiques et du Multiculturalisme

Unité de la planification relative au patrimoine
Direction du patrimoine
Division des affaires civiques, de l'inclusion et du patrimoine
Tél.: 613.242.3743

April 20, 2023 EMAIL ONLY

Chris Nechacov, C.E.T.
Design & Construction Project Manager
City of Kitchener
schneidercreekea@kitchener.ca

MCM File	**:**	**0013316**
Proponent	**:**	**City of Kitchener**
Subject	**:**	**Municipal Class EA – Schedule C – Notice of Commencement and Public Information Centre**
Project	**:**	**Schneider and Shoemaker Creeks Naturalization Environmental Assessment**
Location	**:**	**City of Kitchener**

Dear Chris Nechacov:

Thank you for providing the Ministry of Citizenship and Multiculturalism (MCM) with the Notice of Commencement for the above-referenced project.

MCM's interest in this project relates to its mandate of conserving Ontario's cultural heritage, which includes:

- archaeological resources, including land and marine);
- built heritage resources, including bridges and monuments; and
- cultural heritage landscapes.

Under the EA process, the proponent is required to determine a project's potential impact on known (previously recognized) and potential cultural heritage resources.

Project Summary
The City of Kitchener is planning to commence a Class Environmental Assessment (EA), to fully review the environmental risks of the Schneider and Shoemaker Creeks, and present design options to mitigate those risks. The planning of this project will follow a Schedule "C" Municipal Class EA, established in accordance with the Ontario *Environmental Assessment Act* and is a result of previous studies in the area.

Identifying Cultural Heritage Resources
While some cultural heritage resources may have already been formally identified, others may be identified through screening and evaluation.

Archaeological Resources
This EA project may impact archaeological resources and should be screened using the Ministry's *Criteria for Evaluating Archaeological Potential* to determine if an archaeological assessment is needed. MCM archaeological sites data are available at *archaeology@ontario.ca*.

If the EA project area exhibits archaeological potential, then an archaeological assessment (AA) shall be undertaken by an archaeologist licenced under the *Ontario Heritage Act (OHA)*, who is responsible for submitting the report directly to MCM for review.

Built Heritage Resources and Cultural Heritage Landscapes
A Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment will be undertaken for the entire study area during the planning phase and will be summarized in the EA Report. This study will:

1. Describe the existing baseline cultural heritage conditions within the study area by identifying all known or potential built heritage resources and cultural heritage landscapes, including a historical summary of the study area. The Ministry has developed screening criteria that may assist with this exercise: *Criteria for Evaluating for Potential Built Heritage Resources and Cultural Heritage Landscapes*.

2. Identify preliminary potential project-specific impacts on the known and potential built heritage resources and cultural heritage landscapes that have been identified. The report should include a description of the anticipated impact to each known or potential built heritage resource or cultural heritage landscape that has been identified.

3. Recommend measures to avoid or mitigate potential negative impacts to known or potential built heritage resources and cultural heritage landscapes. The proposed mitigation measures are to inform the next steps of project planning and design.

Given that this project covers a large study area, MCM recommends that the Cultural Heritage Report is carried out so that step 1 described above is undertaken early in the planning process. Then, steps 2 and 3 can be undertaken once the preferred alternatives have been selected.

Cultural Heritage Reports will be undertaken by a qualified person who has expertise, recent experience, and knowledge relevant to the type of cultural heritage resources being considered and the nature of the activity being proposed.

Community input should be sought to identify locally recognized and potential cultural heritage resources. Sources include, but are not limited to, municipal heritage committees, historical societies and other local heritage organizations.

Cultural heritage resources are often of critical importance to Indigenous communities. Indigenous communities may have knowledge that can contribute to the identification of cultural heritage resources, and we suggest that any engagement with Indigenous communities includes a discussion about known or potential cultural heritage resources that are of value to them.

Environmental Assessment Reporting
All technical cultural heritage studies and their recommendations are to be addressed and incorporated into EA projects. Please advise MCM whether any technical cultural heritage studies will be completed for this EA project, and provide them to MCM before issuing a Notice of Completion or commencing any work on the site. If screening has identified no known or potential cultural heritage resources, or no impacts to these resources, please include the completed checklists and supporting documentation in the EA report or file.

Please note that the responsibility for administration of the *Ontario Heritage Act* and matters related to cultural heritage have been transferred from the Ministry of Tourism, Culture and Sport (MTCS) to the Ministry of Citizenship and Multiculturalism (MCM). Individual staff roles and contact information remain unchanged. Please continue to send any notices, report and/or documentation to both Karla Barboza and myself.

- Karla Barboza, Team Lead - Heritage | Heritage Planning Unit (Citizenship and Multiculturalism) | 416-660-1027 | karla.barboza@ontario.ca
- Joseph Harvey, Heritage Planner | Heritage Planning Unit (Citizenship and Multiculturalism) | 613-242-3743 | joseph.harvey@ontario.ca

Thank you for consulting MCM on this project and please continue to do so throughout the EA process. If you have any questions or require clarification, please do not hesitate to contact me.

Sincerely,

Joseph Harvey
Heritage Planner
Joseph.harvey@Ontario.ca

Copied to: Steve Brown, Design & Construction Project Manager, Stantec Consulting Ltd.
Katie Murray, Stantec Consulting Ltd.

From:	Harvey, Joseph (MCM)
To:	schneidercreekea@kitchener.ca
Cc:	Murray, Katie
Subject:	FW: File 0013316: Notice of Commencement and Public Information Centre for the Schneider and Shoemaker Creeks Naturalization Environmental Assessment
Date:	Thursday, April 20, 2023 9:05:36 AM
Attachments:	Q22-136-Notice of Commencement-final.pdf 2023-04-20_SchneiderShoemakerCreeks-MCM-Ltr.pdf

Chris Nechacov,

Please find attached our initial advice on the above referenced undertaking.

Please note that the responsibility for administration of the *Ontario Heritage Act* and matters related to cultural heritage have been transferred from the Ministry of Tourism, Culture and Sport (MTCS) to the Ministry of Citizenship and Multiculturalism (MCM). Individual staff roles and contact information remain unchanged. Please continue to send any notices, report and/or documentation to both Karla Barboza and myself.

Please do not hesitate to contact me with any questions or concerns.

Regards,

Joseph Harvey | Heritage Planner
Citizenship, Inclusion and Heritage Division | Heritage Branch | Heritage Planning Unit
Ministry of Citizenship and Multiculturalism
613.242.3743
Joseph.Harvey@ontario.ca

From: Murray, Katie <Katie.Murray@stantec.com>
Sent: March-31-23 9:43 AM
Subject: Notice of Commencement and Public Information Centre for the Schneider and Shoemaker Creeks Naturalization Environmental Assessment

Good morning,

Please see attached the Notice of Commencement and Notice of Public Information Centre (April 13th) for the Schneider and Shoemaker Creeks Naturalization Environmental Assessment Study. For more information, please visit the project website: www.engagewr.ca/SchneiderCreekEA.

Should you have any questions or comments regarding the above-mentioned project, please do not hesitate to contact the Project Team per the attached Notice.

Thank you.

I.5 Indigenous Consultation Log

Last Reviewed: May 2023

Date	From	To	Indigenous Nation Contact Details / Attendees	Medium (e.g. email, letter, phone call, meeting)	Communication Description (highlight Indigenous Knowledge) and outcomes of the meeting.	Action Item	Status (In Progress/ Resolved)
31-3-2023	Stantec	Mississaugas of the Credit First Nation	Fawn Sault, Consultation Manager 2789 Mississauga Road, RR#6, Hagersville, ON, N0A 1H0; 905-768-1133, fawn.sault@mncfn.ca	Email with attachment	Sent Notice of Commencement (NoC) and Notice of Public Information Centre on April 13th, 2023. Included a copy of the published NoC.	N/A	Resolved
31-3-2023	Mississaugas of the Credit First Nations	Stantec	Fawn Sault, Consultation Manager 2789 Mississauga Road, RR#6, Hagersville, ON, N0A 1H0; 905-768-1133, fawn.sault@mncfn.ca	Email	Has moved on from position and to contact Stacey LeForme.	To send a copy to Stacey leForme.	Resolved
31-3-2023	Stantec	Mississaugas of the Credit First Nation	Chief R. Stacey LaForme 2789 Mississauga Road, RR#6, Hagersville, ON, N0A 1H0; 905-768-1133; stacey.laforme@mncfn.ca	Email with attachment	Sent Notice of Commencement (NoC) and Notice of Public Information Centre on April 13th, 2023. Included a copy of the published NoC.	N/A	Resolved
31-3-2023	Stantec	Mississaugas of the Credit First Nati	Abby LaForme, Consultation Coordinator 2789 Mississauga Road, RR#6, Hagersville, ON, N0A 1H0, 905-768-1133; abby/laforme@mncfn.ca	Email with attachment	Sent Notice of Commencement (NoC) and Notice of Public Information Centre on April 13th, 2023. Included a copy of the published NoC.	N/A	Resolved
31-3-2023	Stantec	Six Nations of the Grand River	Robbin Vanstone, Land Use Unit – Consultation Supervisor, 2498 Chiefswood Rd, PO Box 5000 Ohsweken, ON, N0A 1M0; 226-388-0284, rvanstone@sixnations.ca	Email with attachment	Sent Notice of Commencement (NoC) and Notice of Public Information Centre on April 13th, 2023. Included a copy of the published NoC.	N/A	Resolved
31-3-2023	Stantec	Six Nations of the Grand River	Chief Mark B. Hill 1695 Chiefwood Rd, PO Box 5000 Ohsweken, ON, N0A 1MO, 519-455-2201, markhill@sixnations.ca	Email with attachment	Sent Notice of Commencement (NoC) and Notice of Public Information Centre on April 13th, 2023. Included a copy of the published NoC.	N/A	Resolved
31-3-2023	Stantec	Haudenosaunee Confederacy	Todd Williams, Haudenosaunee Development Institute - Monitoring Program Coordinator 16 Sunrise Crt, PO BOX 714, Ohsweken, ON, N0A 1MO 519-445-4222, Williams.todde@gmail.com	Email with attachment	Sent Notice of Commencement (NoC) and Notice of Public Information Centre on April 13th, 2023. Included a copy of the published NoC.	N/A	Resolved
31-3-2023	Stantec	Huron-Wendat Nation	Administrative 255 Place Chef Michel Laveau, Wendake, QC, G0A 4V0; 418-843-3767; administrative@cnhw.qc.ca	Email with attachment	Sent Notice of Commencement (NoC) and Notice of Public Information Centre on April 13th, 2023. Included a copy of the published NoC.	N/A	Resolved
31-3-2023	Stantec	Métis Nation of Ontario	Lands, Resources and Consultations Consultations@metisnation.org	Email with attachment	Sent Notice of Commencement (NoC) and Notice of Public Information Centre on April 13th, 2023. Included a copy of the published NoC.	N/A	Resolved
18-05-2023	City + Stantec	Six Nations of the Grand River	Sarah.Anderson@kitchener.ca; Samantha.Brickman@kitchener.ca; dawnrussell@sixnations.ca; Peter Graham - LRCS@sixnations.ca; Lonnybomberry@sixnations.ca; tayler.hill@sixnations.ca; tanyahill-montour@sixnations.ca; lrluo2@sixnations.ca; Laurenjones@sixnations.ca; adnb@sixnations.ca; Stantec: Steve Brown, Ferenaz Raheem	Teams Meeting	1-hour Teams Meeting to review SNGR priorities and IK shared thus far. Six Nations attendees confirmed priorities, as re-shared in the form of a diagram are consistent with what has been shared. The team also presented the Evaluation Criteria that will be used for the evaluation of alternative solutions. An explanation of how Six Nation's priorities have shifted the evaluation criteria was also provided. For example, we have reduced the value of Economic factors in the evaluation in order to prioritize focus on the natural, social, cultural and technical environment. Six Nations staff confirmed their appreciation for this change as it was consistent with their priorities.	Share the Eval. Criteria and present Alternative Solutions at next meeting (June 15)	Pending final EC
19-Jun-23	Stantec	Mississaugas of the Credit First Nation	Fawn Sault, Consultation Manager 2789 Mississauga Road, RR#6, Hagersville, ON, N0A 1H0; 905-768-1133, fawn.sault@mncfn.ca	Email with attachment	Sent Notice of Public Information Centre #2 on June 28th, 2023. Attached a copy of the published Noticed.	N/A	Resolved
19-Jun-23	Stantec	Mississaugas of the Credit First Nation	Chief R. Stacey LaForme 2789 Mississauga Road, RR#6, Hagersville, ON, N0A 1H0; 905-768-1133; stacey.laforme@mncfn.ca	Email with attachment	Sent Notice of Public Information Centre #2 on June 28th, 2023. Attached a copy of the published Noticed.	N/A	Resolved
19-Jun-23	Stantec	Mississaugas of the Credit First Nati	Abby LaForme, Consultation Coordinator 2789 Mississauga Road, RR#6, Hagersville, ON, N0A 1H0, 905-768-1133; abby/laforme@mncfn.ca	Email with attachment	Sent Notice of Public Information Centre #2 on June 28th, 2023. Attached a copy of the published Noticed.	N/A	Resolved

19-Jun-23	Stantec	Six Nations of the Grand River	Robbin Vanstone, Land Use Unit – Consultation Supervisor, 2498 Chiefswood Rd, PO Box 5000 Ohsweken, ON, N0A 1M0; 226-388-0284, rvanstone@sixnations.ca	Email with attachment	Sent Notice of Public Information Centre #2 on June 28th, 2023. Attached a copy of the published Noticed.	N/A	Resolved
19-Jun-23	Stantec	Six Nations of the Grand River	Chief Mark B. Hill 1695 Chiefwood Rd, PO Box 5000 Ohsweken, ON, N0A 1MO, 519-455-2201, markhill@sixnations.ca	Email with attachment	Sent Notice of Public Information Centre #2 on June 28th, 2023. Attached a copy of the published Noticed.	N/A	Resolved
20-Jun-23	Stantec	Huron-Wendat Nation	Administrative 255 Place Chef Michel Laveau, Wendake, QC, G0A 4V0; 418-843-3767; administrative@cnhw.qc.ca	Email with attachment	Sent Notice of Public Information Centre #2 on June 28th, 2023. Attached a copy of the published Noticed.	N/A	Resolved
21-Jun-23	Stantec	Métis Nation of Ontario	Lands, Resources and Consultations Consultations@metisnation.org	Email with attachment	Sent Notice of Public Information Centre #3 on December 12th, 2023. Attached a copy of the published Noticed.	N/A	Resolved
1-Dec-23	Stantec	Mississaugas of the Credit First Nation	Fawn Sault, Consultation Manager 2789 Mississauga Road, RR#6, Hagersville, ON, N0A 1H0; 905-768-1133, fawn.sault@mncfn.ca	Email with attachment	Sent Notice of Public Information Centre #3 on December 12th, 2023. Attached a copy of the published Noticed.	N/A	Resolved
1-Dec-23	Stantec	Mississaugas of the Credit First Nation	Chief R. Stacey LaForme 2789 Mississauga Road, RR#6, Hagersville, ON, N0A 1H0; 905-768-1133; stacey.laforme@mncfn.ca	Email with attachment	Sent Notice of Public Information Centre #3 on December 12th, 2023. Attached a copy of the published Noticed.	N/A	Resolved
1-Dec-23	Stantec	Mississaugas of the Credit First Nati	Abby LaForme, Consultation Coordinator 2789 Mississauga Road, RR#6, Hagersville, ON, N0A 1H0, 905-768-1133; abby/laforme@mncfn.ca	Email with attachment	Sent Notice of Public Information Centre #3 on December 12th, 2023. Attached a copy of the published Noticed.	N/A	Resolved
1-Dec-23	Stantec	Six Nations of the Grand River	Robbin Vanstone, Land Use Unit – Consultation Supervisor, 2498 Chiefswood Rd, PO Box 5000 Ohsweken, ON, N0A 1M0; 226-388-0284, rvanstone@sixnations.ca	Email with attachment	Sent Notice of Public Information Centre #3 on December 12th, 2023. Attached a copy of the published Noticed.	N/A	Resolved
1-Dec-23	Stantec	Six Nations of the Grand River	Chief Mark B. Hill 1695 Chiefwood Rd, PO Box 5000 Ohsweken, ON, N0A 1MO, 519-455-2201, markhill@sixnations.ca	Email with attachment	Sent Notice of Public Information Centre #3 on December 12th, 2023. Attached a copy of the published Noticed.	N/A	Resolved
1-Dec-23	Stantec	Huron-Wendat Nation	Administrative 255 Place Chef Michel Laveau, Wendake, QC, G0A 4V0; 418-843-3767; administrative@cnhw.qc.ca	Email with attachment	Sent Notice of Public Information Centre #3 on December 12th, 2023. Attached a copy of the published Noticed.	N/A	Resolved
1-Dec-23	Stantec	Métis Nation of Ontario	Lands, Resources and Consultations Consultations@metisnation.org	Email with attachment	Sent Notice of Public Information Centre #3 on December 12th, 2023. Attached a copy of the published Noticed.	N/A	Resolved
12-Sep-22	City	Mississaugas of the Credit First Nation	Mark LaForme, Director; Abby LaForme, Acting Consultation Coordinator; MCFN Deparment of Consultation and Accommadation (DOCA); Samantha Brickman, Supervisor, Capital Programs; Bu Lam, Director; Sarah Anderson, Engagement Associate; City, Sanitary & Stormwater Utilities; Sue Weare, Community Engagement Consultant; City Marketing & Communications	Teams Meeting	1-hour Teams Meeting to provide the MCFN with updates on the Disaster Mitigation and Adaptation Fund (DMAF) projects that the City will be undertaking, address questions, and discuss concerns or accommodations. Another goal of this meeting was to determine if the proposed engagement approach was appropriate based on the needs of the MCFN. MCFN expressed interest in consulting on educational opportunities for signage/art. MCFN expressed feedback on the use of the term "Indigenous Communities", indicating that they prefer to differetiate themselves (e.g. a First Nation with rights).	N/A	Resolved
20-Sep-22	City	Six Nations of the Grand River	Lauren Jones, Wildlife Stewardship Management; Tayler Hill, Director Trainee; Phil Monture, Land Rights Consultant; Lonny Bomberry, Director of Lands and Resources; Peter Graham, Land Use Officer; Dawn Russel, Consultation Administrative Assistant; Six Nations of the Grand River Consultation & Acommodation Process Team; Samantha Brickman, Supervisor, Capital Programs; Bu Lam, Director; Sarah Anderson, Engagement Associate; City of Kitchener, Santiary & Stormwater Utilities; Sue Weare, Community Engagement Consultation; City of Kitchener, Marketing & Communications	Teams Meeting	1-hour Teams Meeting to provide the SNGR updates on different project elements funded through DMAF and get feedback from SNGR on our enagement approach for each element to ensure our engagement activities meet SNGR's needs. Discussing incorporating IK into the EA process, and including culturally significant plants in the naturalization plan.	N/A	Resolved

28-Feb-23	City	Six Nations of the Grand River	Lony Bomberry, Director of Lands and Resources; Daylon Gee, Land Use Officer; Peter Graham, Consultation Supervisor; Taylor Hill, Director Trainee; Lauren Jones, Wildlife Stewardship Manager; Lauren Vanderlinger, Willife Stewardship Assistant; Six Nations of the Grand River Consultation & Accomodations Process Team; Sarah Anderson, Engagement Associate; Samantha Brickman, Supervisor, Capital Programs; Nick Gollan, Manager, Utility Planning and Program; City of Kitchener Sanitary & Stormwater Utilities.	Six Nations Development Corporation	2-hour in-person meeting to provide SNGR updates on the Disaster Mitigation Adaption Fund (DMAF) projects that the City is undertaking and a brief update on the Integrated Sanitary Master Plan; To discuss the draft chart of relevant documents for review regarding capacity funding; to discuss Indigenous Knowledge and the Environmental Assessment process; to answer questions and identify accomodation needs.	N/A	Resolved
28-Mar-23	City	Mississaugas of the Credit First Nation	Mark LaForme, Director; Abby LaForme, Acting Consultation Coordinator; Adam LaForme, Supervisor, Archaeological Operations; MCFN Deparment of Consultation and Accommadation (DOCA); Samantha Brickman, Supervisor, Capital Programs; Nick Gollan, Manager, Utility Planning and Programs; Sarah Anderson, Engagement Associate; City, Sanitary & Storm	Teams Meeting	1.5 hour Teams Meeting to provide MCFN with updates on the Disaster Mitigation Adaptation Fund (DMAF) projects that the City will be undertaking, address questions, and discuss concerns or accommodations. MCFN does not have environmental capacity at this time but are looking at building it in the immediate future. City is looking at ways to integrate IK in the EA process.	N/A	Resolved
15-Jun-23	City	Six Nations of the Grand River	Lonny Bomberry, Director of Lands and Resources; Tany	131 Goodrich Drive, Kitchener, ON	4-hour in-person meeting to engage in Municipality-to-Nation relationship building and seeking feedback on Sanitary and Stormwater Division and Parks & Cemeteries Division initiatives; to answer questions and learn from the SNGR Consultation and Accomodation Process Team. Evaluation critera for the EA has been adapated based on SNGR advices, including combining social, economic, and cultural impacts.	N/A	Resolved
23-Jun-23	City	Mississaugas of the Credit First Nation	Mark LaForme, Director; Adam LaForm, Archaeology; Al	Wilson Park, 1 Wilson Avenue, Kitchener, ON	3-hour in-person meeting to enegage in Municipality-to-Nation relationship building and seek feedback on Sanitary & Stormwater Division initiatives; to answers questions and learn from the MCFN.	N/A	Resolved
4-Dec-23	City	Mississaugas of the Credit First Nation	Mark LaForme, Director, DOCA; Abby LaForme, Consult	Zoom	3-hour Zoom Meeting to engage in Municipality-to-Nation relationship building and seek feedback on updates to DMAF projects; extend relationship building to the Parks and Cemetaries department; to answer questions and learn from the MCFN. The four alternatives are shared and the assessment criteria and the decision on option four is explained. MCFN agree that this is the preferred alternative.	N/A	Resolved