APPENDIX E

Groundwater Assessment Report

ONTARIO MINISTRY OF TRANSPORTATION
GWP 4054-17-00

GROUNDWATER ASSESSMENT REPORT

PRELIMINARY DESIGN AND CLASS ENVIRONMENTAL ASSESSMENT STUDY, HIGHWAY 401 PLANNING STUDY FROM COLBORNE TO BRIGHTON, TOWNSHIP OF CRAMAHE, MUNICIPALITY OF BRIGHTON AND THE CITY OF QUINTE WEST, ON

FINAL

JULY 30, 2021

CONFIDENTIAL

GROUNDWATER ASSESSMENT REPORT

PRELIMINARY DESIGN AND CLASS ENVIRONMENTAL ASSESSMENT STUDY HIGHWAY 401 PLANNING STUDY FROM COLBORNE TO BRIGHTON, TOWNSHIP OFCRAMAHE, MUNICIPALITY OF BRIGHTON AND THE CTY OF QUINTE WEST, ONTARIO

ONTARIO MINISTRY OF TRANSPORTATION

GWP 4054-17-00

FINAL

PROJECT NO.: 17M-01712-11
DATE: JULY 30, 2021

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July 30, 2021

17M-01712-11

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Attention: Erin Pipe, MTO Environmental Planner

Dear Ms. Pipe:

Client ref.: GWP 4054-17-00

Please find enclosed WSP's submission of a Groundwater Assessment Report for the Preliminary Design and Class Environmental Assessment Study for the Highway 401 Planning Study from Colborne to Brighton in the Township of Cramahe, Municipality of Brighton and the City of Quinte West.

Yours sincerely,

Natalia Codoban, M.Eng., P.Eng.

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NC/nc

cc: Christine Vazz

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1 INTRODUCTION

1.1 BACKGROUND

WSP Canada Inc. (WSP) was retained by the Ontario Ministry of Transportation (MTO) to undertake a Preliminary Design (PD) and Class Environmental Assessment (EA) Study on Highway 401 for the replacement and rehabilitation of structures, establishing the future Highway 401 footprint for an interim six lanes and ultimate eight lanes to address current and future transportation needs, and commuter parking lot improvements from 0.8 km east of Percy Street to 0.4 km west of Christiani Road. The approximate length of the study area is 16 km, located in the Township of Cramahe, Municipality of Brighton and the City of Quite West.

As part of the Preliminary Design and Class EA Study, WSP conducted a Groundwater Assessment. For the purposes of this study, a 500-m evaluation zone was added around the project limits (the "Study Area"), to focus the investigation on areas with high potential groundwater sensitivity to the project. This assessment was completed in accordance with Section 3.3 of the MTO document entitled "*Environmental Reference for Highway Design*" (MTO, June 2013). The project limits and the Study Area (sub-divided into "Study Area A" and "Study Area B") are shown on **Figure 1**.

1.2 STUDY OBJECTIVE

The objective of the groundwater assessment report (GAR) was to broadly characterize the local hydrogeological conditions within the Study Areas and provide technical hydrogeological input to the project's Preliminary Design, by completing a desktop review and an inspection of the Study Areas. A water well survey was carried out for selected areas as part of the groundwater assessment for this project, to identify current users relying on groundwater for water supply purposes in proximity to proposed replacement / rehabilitation of structures and document the groundwater conditions in water wells in baseline (i.e., prior to construction) conditions.

This groundwater study discusses potential impacts resulting from the proposed works in the context of the following:

- Potential impacts to private and municipal water wells;
- Existing source water protection areas;

- Likelihood of release of contaminants; and
- Impacts to groundwater and surface water from construction activities.

The Scope of Work undertaken in this GAR includes the following tasks:

a) Review of Records

- Review of Physiographic, Geological and Hydrogeological Maps and Records to identify the general physiography, geology, and hydrogeology within and surrounding Study Areas A and B, to understand the general groundwater flow system(s);
- Review of Water Well Records: to provide any relevant information on the construction of wells, their location, depth to bedrock, static water levels, and geological materials observed; and
- Review of Permit to Take Water (PTTW) Information – to identify existing and expired PTTWs in the Study Area, to understand the current and historical impacts on the aquifer.

b) Study Area Inspection

- Visual Inspection: observe local groundwater characteristics (e.g., springs and seeps), areas of municipal servicing and presence of private water wells, and flow in culverts and streams, where possible.

c) Water Well Survey

- Solicit property owners residing in the vicinity of the structures proposed to be rehabilitated / replaced to participate in a water well survey;
- Conduct an interview regarding water use on the properties, measure water levels in private wells, and collect samples representative of the raw groundwater conditions for laboratory analysis against Ontario Drinking Water Standards (ODWS).

d) Reporting

- Compilation, Evaluation and Discussion of Findings: compilation, evaluation and discussion of all information collected from the Records' Review and Study Area Inspection; and
- Preparation of a Factual and Concise Report, which is written documentation of the results into a GAR.

2 DESCRIPTION OF STUDY AREA

The Study Areas A and B are located in the Township of Cramahe, Municipality of Brighton, and the City of Quinte West, Ontario (see **Figure 1**). The Study Areas are located within the jurisdiction of the Lower Trent Conservation Authority (Conservation Ontario, 2020).

2.1 LOCATION

The Study Area A includes Highway 401 from approximately 800 m east of Big Apple Drive to 890 m west of County Road 30. The carpool lot immediately south of Highway 401 and east of County Road 30 off Telephone Road is included in Study Area A (see **Figure 1**). Study Area B includes the stretch of Highway 401 located approximately 1,500 m east of County Road 30 to approximately 150 m east of Christiani Road.

Both Study Areas are located within the Lower Trent Conservation Authority (Conservation Ontario, 2020).

The majority of the Study Areas are present in the Ganaraska sub-watershed of the larger Lake Ontario and Niagara Peninsula watershed. A portion of Study Area A surrounding Little Lake to approximately 1 km west of County Road 30 is part of the Trent – Crowe sub-watershed of the larger Lake Ontario and Niagara Peninsula watershed (Ministry of Environment, Conservation and Parks, 2020a).

2.2 CURRENT LAND USE

Current land uses in the Study Areas are a mix of natural areas, open space, rural residential, and light commercial/industrial use. Lands in the Study Areas and in the area immediately adjacent to the Study Areas are shown on **Figure 1**.

2.3 PHYSIOGRAPHY, TOPOGRAPHY AND DRAINAGE

Study Areas A and B are located within both the South Slope and the Iroquois Plain physiographic regions (Chapman and Putnam, 2007, Ontario Geological Survey, 2007).

The South Slope is the southern portion of the Oak Ridges Moraine, located between Lake Ontario and the Oak Ridges Moraine. It extends from the Niagara Escarpment to the Trent River and covers an area approximately 2,435 km^2 in size. The eastern portion of the slope is thickly covered by large drumlins.

The Iroquois Plains covers the lowest lands, under 183 metres above sea level (masl; Chapman and Putnam, 2007).

The Iroquois Plain also extends around the western part of Lake Ontario, from the Niagara River in the west to the Trent River Valley in the east. East of Newcastle, islands of the older Lake Iroquois are now drumlinized uplands although conditions in this lake plain vary greatly. Between Cobourg and east of Colborne, the Iroquois Plain is approximately 5.6 km wide. Many drumlins are present in this area with some over 45 m in height. These drumlins are aligned in a south-west alignment and the hollows consist of silt soils. Highway 401 runs along what was previously the shoreline of Lake Iroquois. In areas consisting of forested swamps, the lacustrine deposits are composed of sand, fine sand, and silt. In areas with acceptable drainage, specifically between Brighton and Trenton, the soils are suitable for orchards (Chapman and Putnam, 2007).

The topography of the Study Area is determined by its geologic foundations and associated landforms. Surface topography of both Study Area A and B are undulating, with elevations as high as approximately 210 masl and lows of 170 masl. Areas of higher elevations correspond to drumlins present in the area, with many located on the north side of Highway 401 in both Study Areas A and B, and south of Highway 401 in the east half of Study Area A (Ministry of Natural Resources and Forestry, n.d.). Tributaries of Colborne Creek, Biddy Creek, and Proctors Creek are present in Study Area A. Little Lake is present in the centre of Study Area A. Tributaries of Proctors Creek, Smithfield Creek, and Mayhew Creek are present in Study Area B. These tributaries are all classified as having a cold-water thermal regime (see **Figures 2A** and **2B**). Surface water flows in tributaries of Biddy Creek at Culvert 21-471C, 21-472C and 21-474C is to the north. Flow at the Biddy Creek tributary at Culvert 21-473C is towards south (**Figures 2A and 2B**; MECP, 2020a).

Both Study Areas fall within the Ganaraska sub-watershed of the larger Lake Ontario and Niagara Peninsula watershed. A portion of Study Area A surrounding Little Lake to approximately 1 km west of County Road 30 is part of the Trent – Crowe sub-watershed (MECP, 2020a).

There are no Provincially Significant Wetlands (PSWs), but there are many non-evaluated wetlands in both Study Areas A and B. The Brighton Bluff Area of Natural and Scientific Interest (ANSI) is present in the northern portion of Study Area B (see **Figure 2B**).

2.4 WATERCOURSES IN STUDY AREA AND SOURCE WATER PROTECTION AREAS

As described in Section 2.3, tributaries of Colborne Creek, Biddy Creek, and Proctors Creek, in addition to Little Lake, are present in Study Area A. Tributaries of Proctors Creek, Smithfield Creek, and Mayhew Creek are present in Study Area B (see **Figures 2A** and **2B**).

Study Areas A and B are both located in the Lower Trent Source Protection Area (SPA; MECP, 2020a).

Source Protection Areas (SPAs) were established under the Clean Water Act (2006) by Ontario Regulation (O. Reg.) 284/07. The Clean Water Act focusses on protecting municipal residential and designated private drinking water sources from water quantity and water quality threats. Source Protection Plans (SPP) are policies developed to manage, prevent or eliminate significant threats to drinking water quality and identify who is responsible to take corrective action (Trent Conservation Coalition Source Protection Region, 2014).

The Trent Source Protection Area includes the Crowe Valley, Kawartha-Haliburton, Lower Trent and Otonoabee-Peterborough Source Protection Areas, covering an area of approximately 12, 900 km^2. Approximately 43% of the population of the Trent Source Protection Area is served by 46 municipal residential drinking water systems, which include 31 groundwater systems and 15 surface water systems.

Drinking water systems in the larger Trent Conservation Coalition Source Protection Region include municipal systems of varying sizes, drawing water from both groundwater and surface water sources. Municipal residential drinking water systems are owned and/or operated by municipalities and serve residential developments. Small municipal residential systems serve fewer than 101 private residences, and large municipal residential systems serve more than 100 private residences (Trent Conservation Coalition Source Protection Region, 2014).

Vulnerable areas are delineated around water intakes, based on the area of land and water that contributes source water to a drinking water system intake within a specified distance, period of flow time, and/or watershed area and within which it is desirable to regulate or monitor drinking water threats (see **Figures 3A and 3B**).

Intake protection zones (IPZ) are those delineated around surface water intakes. An IPZ-1 is the area closest to the intake pipe and is considered the most vulnerable area for surface water intakes due to its proximity to the intake. An IPZ-2 acts as a secondary protective zone that generally extends upstream of the IPZ-1. The IPZ-2 is defined as the area within and around a surface water body that may contribute

water to an intake within a time of travel of 2 hours (the time determined by water treatment plant operators to be sufficient to responding to a contamination event). An IPZ-3 is a protective zone where early warning activities such as monitoring may be effective and is defined as the area within each surface water body that may contribute water to the associated intake.

There are no IPZ-1 and IPZ-2 within the Study Areas A and B; the closest IPZ-1 and IPZ-2 are located approximately 18 km west of Study Area A and 10 km east of Study Area B. An IPZ-3 is present in the central portion of Study Area A and eastern portion of Study Area B (see **Figures 3A** and **3B**; MECP, 2020a).

Wellhead Protection Areas (WHPA) are those delineated around groundwater wells and are based on the length of time it takes for water to move from the ground surface underground to the well. WHPA-A is the area within a 100-m radius from the wellhead and is considered the most vulnerable for groundwater intakes. WHPA-B is the area within which the time of travel within the aquifer to the well is up to and including 2 years (not including WHPA-A). WHPA-C is the area where travel time to the well is up to and including 5 years (not including WHPA-B and WHPA-A) and WHPA-D is the area where travel time is up to and including 25 years (not including WHPA-C, WHPA-B and WHPA-A; Trent Conservation Coalition Source Protection Region, 2014).

The Colborne Supply Wells are located approximately 300 m south of Highway 401 off Purdy Road and east of Big Apple Drive in Study Area A (see **Figure 3A**). There is a WHPA-A around the two wells, with WHPA-B, WHPA-C and WHPA-D delineated to the north of the wells. In Study Area B, there is a WHPA-A around three wells at the Brighton Well Supply Field, approximately 600 m south of Highway 401 on the west of County Road 26. WHPA-B, WHPA-C and WHPA-D are delineated to the north of the well field (see **Figure 3B**).

2.5 SURFICIAL GEOLOGY

Surficial geology varies throughout the Study Area. Coarse-textured glaciolacustrine deposits of sand, gravel, and minor inclusions of silt and clay are present throughout Study Areas A and B (see **Figures 4A** and **4B**). In Study Area A, modern alluvium deposits are present in the west and central portions, with silty sand predominant in the east portion. Deposits of sandy silt till are present throughout the northern portion and organic deposits are found in a wetland area in the eastern portion. In Study Area B, modern alluvium deposits dominate Highway 401 and the northern portion of the Study Area. Sandy silt till is found in the northwest and central areas, while silty sand is present in the southern portion of the Study Area (Ontario Geological Survey, 2010).

The review of the Ministry of the Environment, Conservation and Parks (MECP) water well records (WWRs) indicates that the Study Area A is underlain by a layer of topsoil, ranging in thickness from 0.30 to 1.83 m. Underlying the topsoil, there is a layer of clay ranging from 1.82 to 3.05 meters below the ground surface (mbgs) or elevations of 180.0 to 161.9 meters above sea level (masl). A sand lens is present within the clay layer with a thickness of 0.9 to 3.7 m. Layers of alternating silty clay and sandy silt till are present from depths 3.7 to 93.2 mbgs (172.00 to 113.69 masl). Topsoil is present in Study Area B, with a varying thickness of 0.2 to 1.2 m. Alternating layers of sandy silt and clayey silt till are present from 1.2 to 68 mbgs (elevations of 179.90 to 103.92 masl; MECP 2020b).

2.6 BEDROCK GEOLOGY

The bedrock in Study Areas A and B is Middle Ordovician aged limestone, dolostone and shale of the Shadow Lake Formations of the Ottawa and Simcoe Groups (Ontario Geological Survey, 2011).

3 HYDROGEOLOGY

3.1 OVERVIEW OF GROUNDWATER FLOW PRINCIPLES

3.1.1 GROUNDWATER FLOW

Groundwater flow is controlled by permeability (i.e., referred to as hydraulic conductivity), which is a function of porosity (i.e., amount and size of pores or spaces) of the soil or rock material, interconnectivity, and by water pressure (i.e., hydraulic head). Groundwater generally moves quickly through permeable materials such as sand and gravel, and slowly through less permeable materials such as clays and silts. The permeability of bedrock can be quite variable.

The hydraulic conductivity of overburden deposits (e.g., sand and gravel) is a function of the physical properties of the porous media (e.g. particle size, angularity, effective porosity, and tortuosity). The hydraulic conductivity of bedrock is determined by the distribution, width and connectivity of joints, fractures and bedding planes.

3.1.2 AQUIFERS

Hydrogeologic units that produce / supply useful quantities of water are referred to as aquifers. Typical geological formations that act as good aquifers include: sandstones, dolostone and limestone bedrock, as well as coarse-grained overburden material (i.e., sands and gravels). Materials with low permeability, such as clay and silt, silt till, competent shale and igneous and metamorphic bedrock are not generally suitable as a source of groundwater, however, they can provide a measure of protection to underlying aquifers as they can limit the migration of contaminated groundwater.

3.1.3 CONFINED AND UNCONFINED AQUIFERS

Aquifers are either confined (i.e., under hydrostatic pressure/artesian conditions when the water level is above the top of the aquifer) or unconfined (i.e., not under hydrostatic pressure where the water level is within the aquifer). A confined aquifer is bordered or bonded by one or more low permeability units (or aquitards) and may not be able to readily transmit groundwater to other aquifer systems directly. An unconfined aquifer generally has its upper limit defined by the water table and is usually found close to the ground surface.

The bedrock aquifer system may be confined or unconfined depending on whether or not fractured bedrock is exposed at the surface. In general, bedrock that is covered by a significant layer of relatively low permeability material (i.e., clay) located above the bedrock surface is classified as being confined. Confined aquifers are considered to be more secure from a groundwater resource perspective, as they are less prone to contamination from surficial sources.

3.1.4 GROUNDWATER TABLE

The top of the permanently saturated groundwater zone is called the water table. The elevation and slope of the water table is generally a subtle reflection of surface topography, and groundwater flows from areas of higher elevation (recharge) to lower elevation (discharge).

3.1.5 GROUNDWATER RECHARGE AND DISCHARGE

Recharge and discharge are used to describe vertical movement of groundwater within an aquifer system. If the direction of flow is downward then the area is under recharge conditions; if the flow is upward then the area is under discharge conditions.

3.1.6 GROUNDWATER OBSTRUCTION AND INTERCEPTION

An obstruction to groundwater is something that causes a blockage or hindrance to groundwater flow, quality or quantity (i.e., physical object or related to construction activities such as fill placement and compaction). Interception is the act or instance of interfering with groundwater, such that the flow (or rate of flow) is altered or the groundwater table is raised or lowered. This is typically caused by excavations or cuts into the shallow aquifer system.

3.2 MECP WATER WELL RECORDS

The MECP Water Well Information System (WWIS) is a compilation of water wells drilled in the Province of Ontario for the purpose of human, agricultural and industrial consumption. Pursuant to the Ontario Water Resources Act (OWRA), any well drilled for these purposes must be drilled by an MECP licensed well drilling contractor and documented on a WWR. The record is then filed with the MECP. Examples of data recorded on a water well record include: location of well, date drilled, depth to where water is found, static water level and subsurface stratigraphy (i.e., geological layers). Since well records have been completed by many different drillers during the past approximately 50 years, data accuracy and

consistency is sometimes questionable. The information in the records cannot always be taken as accurate and must be interpreted in the context of the overall regional setting, and geological conditions.

A search of the MECP WWIS identified 223 records of water wells present within Study Area A (**Figure 5A**). The well records were obtained through an MECP database search (December 2020). Seventeen (17) of the wells were listed as abandoned or altered; the remaining 206 well locations (see **Table 1A**) are summarized below:

Summary of MECP Water Well Records in Study Area A

- 38 wells (18%) had a total depth of 10 m or less; 68 wells (33%) had a total depth of between 10 and 20 m, 36 wells (18%) were identified as having a total depth between 20 and 30 m;
- 59 wells (29%) had a total depth over 30 m;
- 5 records (2%) did not have well depth information;
- 172 wells (83%) were screened in overburden; 4 wells (2%) were screened in bedrock; 30 wells (15%) had no information provided;
- 175 of the above-mentioned wells were listed for domestic water supply use (85%); 5 wells were listed for commercial water supply use; 8 wells were listed for livestock use; 1 well was listed water supply use and did not specify further; 10 wells were listed for monitoring/observation/test hole purposes; 5 records did not provide any well information. Two (2) wells were listed as replacement wells of a domestic and municipal well;
- Static water level information was available for 184 wells. Static water levels range between -5.5 (flowing artesian conditions) to 43.6 mbgs. Eight (8) wells were recorded to be flowing (i.e., groundwater was above the ground surface);
- Information on "water found" depth was available for 192 wells. Groundwater depths for these wells ranged between 0.9 and 67.1 mbgs;
- 162 wells (79%) were identified as having fresh water, 3 wells were listed as having "mineral" water (1%), 1 well was listed as having salty water (0.5%), 1 well was listed as having sulphur water (0.5%), 34 wells did not specify the water type (17%), 5 wells were listed as not tested (2%).

Based on review of the MECP WWR, eight wells were identified to exhibit flowing artesian conditions (MECP, 2020b). Detailed well records are included in **Appendix A**.

A search of the MECP WWIS identified 69 records of water wells present within Study Area B (**Figure 5B**). The well records were obtained through an MECP database search (December 2020). Seven (7) of the wells were listed as abandoned; the remaining 62 well locations (see **Table 1B**) are summarized below:

Summary of MECP Water Well Records in Study Area B

- 10 wells (16%) had a total depth of 10 m or less; 14 wells (23%) had a total depth of between 10 and 20 m, 12 wells (19%) were identified as having a total depth between 20 and 30 m;
- 26 wells (42%) had a total depth over 30 m;
- 38 wells (61%) were screened in overburden; 8 wells (13%) were screened in bedrock; 16 wells (26%) had no information provided;
- 49 of the above-mentioned wells were listed for domestic water supply use (79%); 1 well was listed for public water supply use; 1 well was listed for municipal water supply use; 1 well was listed for commercial water supply use; 2 wells were listed for livestock use; 7 wells were listed for monitoring/observation/test hole purposes, and 1 well was listed a s a replacement for a domestic water supply well.
- Static water level information was available for 55 wells. Static water levels range between 0.0 to 32.0 mbgs. Two (2) wells were recorded to be flowing;
- Information on "water found" depth was available for 58 wells. Groundwater depths for these wells ranged between 0.6 and 59.4 mbgs;
- 36 wells (58%) were identified as having fresh water, 1 well is listed as having sulphur water (1.6%), 21 wells did not specify the water type (34%), 3 wells were listed as not tested (5%), and 1 well is listed as other (1.6%).

Based on review of the MECP WWR, two wells were identified to exhibit flowing artesian conditions (MECP, 2020b). Detailed well records are included in **Appendix A**.

3.3 PERMITS TO TAKE WATER

Under Section 34 of the Ontario Water Resources Act (OWRA), the MECP requires ground and/or surface water users who are taking higher volumes of water (>50,000 L/day) to obtain a Permit to Take Water (PTTW) or Environmental Activity and Sector Registry (EASR). There are two active PTTWs in

Study Area A. In Study Area B, there is one active PTTW (MECP, 2020c). Details can be found in **Table 2** below.

Table 2: Summary of 2020 PTTW Records

Permit Number	Study Area	Permit Holder Name	Purpose	Expiry Date	Source	Maximum L/day
1418-B6BMSH	A	Fidelity Engineering and Construction Inc.	Dewatering Construction	Dec 20, 2020	Ground Water	5,124,500
8612-BNENBH	A	The Corporation of the Township of Cramahe	Municipal	April 6, 2030	Ground Water	3,283,200
3210-9P3LCQ	B	The Corporation of the Municipality of Brighton	Water Supply	October 15, 2024	Ground Water	2,151,360

3.4 HYDROGEOLOGICAL SETTING

This section provides the results of the hydrogeological evaluation completed by WSP for the Study Areas, based on the information collected from the MECP water well records, observed conditions during the site reconnaissance and a desktop review of secondary sources. Discussion of vulnerability of aquifers within the Study Areas is presented in Section 3.4.5.

3.4.1 OVERBURDEN AQUIFER SYSTEM

Based on the literature review, there is a local aquifer present within the Iroquois Plain to the northeast of Colborne. Glaciolacustrine sands either occur at the surface or are covered by till deposits. The elevation of the sands varies between 100 and 130 masl, with a thickness of 5 to 65 m. Where sands are at surface, the aquifer is unconfined. The depths to the water table are mostly a few metres below the surface. Specific capacities of wells in this aquifer generally range between 10 and more than 50 L/min.

A second aquifer is present north of Trenton. Glaciolacustrine sands are present at the surface with an elevation of 130 and 160 masl and a thickness of 5 to 25 m. These sands rest atop bedrock. In some areas,

the sand is overlain by clay deposits, causing these areas to be confined. The depths to the water table range from a few metres to more than 20 m, and the specific capacities of most wells vary between 10 to more than 50 L/min (Singer et. al., 2003).

The water well records available for the Study Area suggest that static water levels within the overburden range between above the ground surface (i.e., flowing artesian conditions) and 43.5 mbgs in Study Area A, and above the ground surface to 32 mbgs in Study Area B. These water levels are in wells drilled to depths ranging from 3.4 to 86.5 mbgs and 2.9 and 335.3 mbgs, respectively (MECP, 2020b; **Appendix A**).

Assessment of groundwater impacts associated with construction activities and proposed mitigation measures are discussed in Sections 7.0 and 8.0.

The depth of bedrock within the Study Area, interpreted from MECP water well records, to be present around elevation of 88 masl (or 118 mbgs) in Study Area A and elevations of 108 to 95 masl (49 – 76 mbgs) in Study Area B. The majority of the MECP records in the Study Area are listed as overburden wells, which confirms that the overburden is the main source of groundwater in the Study Areas (MECP, 2020b).

3.4.2 BEDROCK AQUIFER SYSTEM

Precambrian rocks underlie the Study Areas, overlain by Paleozoic limestones. The bedrock elevation ranges from approximately 300 to 360 masl in the areas in the north near the headwaters of the Trent River and slope to approximate elevation of 40 to 80 masl closer to Lake Ontario (Singer et. al., 2003).

3.4.3 GROUNDWATER FLOW

The groundwater flow from the unconfined aquifer will follow existing local topography to discharge areas. Flow within the deeper, confined aquifers will follow regional topographic watershed basin patterns. Shallow groundwater flow is directed towards major surface water features such as wetlands and streams.

It is interpreted that shallow groundwater flow follows the topography, towards surface water features such as the watercourses and associated wetlands and drainage ditches (see **Figures 2A** and **2B**).

3.4.4 GROUNDWATER RECHARGE AND DISCHARGE

Significant groundwater recharge areas (SGRA) are defined as areas where groundwater recharge is 1.15 times greater that the average rate of recharge. They are areas where a high percentage of precipitation makes its way from the ground surface to recharge or replenish an aquifer (CTC Source Protection Committee, 2015). Based on the Source Protection Information Atlas (MECP, 2020a), the majority of the Study Areas A and B are SGRA.

Highly vulnerable aquifers (HVAs) are mapped using information from MECP WWIS, hydraulic conductivity values, thickness of the described units, and location of the water table (CTC Source Protection Committee, 2015). The majority of Study Area A is an HVA, while only a small portion in the east of Study Area B is classified as such (MECP, 2020a), shown on **Figures 3A** and **3B**.

Areas of groundwater discharge are typically inferred to be present, using indicators of groundwater upwelling such as iron staining and presence of watercress. Indicators of groundwater upwelling were observed during the site visits on October 5, 2020. Additional details can be found in Section 5.0.

3.4.5 AQUIFER SUSCEPTIBILITY TO CONTAMINATION

Aquifer susceptibility maps identify areas where contamination of aquifers is likely to occur as a result of surface contamination, construction depths and multiple land use practices, due to the presence or absence of permeable surficial materials, depth to the groundwater table, presence of surface water features, and/or location relative to sensitive receptors such as surface water features, catch basins, etc. Generally, aquifer susceptibility is higher in areas characterized as having a shallow aquifer system.

The groundwater flow from the unconfined aquifer will follow existing local topography to discharge areas. Flow within the deeper, confined aquifers will follow regional topographic watershed basin patterns.

Shallow groundwater flow is directed towards major surface water features such as wetlands and streams.

As can be seen from **Figures 6A** and **6B**, areas of low, moderate and high groundwater susceptibility were identified within the Study Area, considering the following criteria:

— The areas identified as having a surficial geologic formation of high permeability such as sandy and/or gravelly (alluvium) deposits, organic deposits or exposed bedrock present within water stream valleys were marked as areas with high groundwater susceptibility;

- Areas in proximity to wetlands and source water protection elements (WHPA, IPZ, HVA and SGRA) were marked as areas with high groundwater susceptibility;
- Areas in proximity to properties that rely on private well water with a shallow static water level (within 3 m of the ground surface) were marked as areas with high groundwater susceptibility;
- Areas with an overburden composed of silty sand were marked as moderate groundwater susceptibility;
- Areas of low permeability deposits such as sandy silt till were considered as having low groundwater susceptibility to contamination.

3.4.6 SURFACE WATER SUSCEPTIBILITY TO CONTAMINATION

Figures 7A and **7B** show areas of surface water susceptibility surrounding permanent and intermittent waterbodies. Watercourses are present throughout the Study Areas, indicating high surface water susceptibility to contamination.

4 DRINKING WATER SOURCE PROTECTION

4.1 BACKGROUND

The Trent Source Protection Area is identified as having an important role in implementing Source Protection Plans within the Study Areas A and B. The key objectives of Source Protection Plans are outlined within the *Clean Water Act* (2006) and require existing and future drinking water sources within the source protection area be protected. Key objectives also include ensuring that for areas identified within the Assessment Reports as areas where an activity is (or would be) a significant drinking water threat, the activity never becomes a significant drinking water threat.

4.2 THREATS TO DRINKING WATER

As described in Section 2.4, two WHPAs within the Study Areas A and B. There is a WHPA-A around the two wells, with WHPA-B, WHPA-C and WHPA-D delineated to the north of the wells (see **Figure 3A**). In Study Area B, there is a WHPA-A around three wells at the Brighton Well Supply Field, approximately 600 m south of Highway 401 on the west of County Road 26. WHPA-B, WHPA-C and WHPA-D are delineated to the north of the well field (see **Figure 3B**). An IPZ-3 is present within the central portion of Study Area A (see **Figure 3A**) and eastern portion of Study Area B (see **Figure 3B**).

As discussed in Section 3.4.4, there are HVAs and SGRAs located within the Study Areas A and B (see **Figures 3A** and **3B)**.

Prescribed drinking water threats are defined in the *Clean Water Act* (2006) as:

"...an activity or condition that adversely affects or has the potential to adversely affect the quality or quantity of any water that is or may be used as a source of drinking water..."

There are 21 threats for which the Source Protection Committees must write policies in areas where a threat could be significant. For the scope of this Project, the following prescribed threats will be discussed as they relate to the construction and operation of a roadway/highway:

- Application of road salt;
- Application of commercial fertilizer; and

— Handling and storage of fuel.

The first two construction and operation activities are considered to pose a low risk threat to the drinking water systems in the area. The risk associated with handling and storage of fuel represents a moderate risk, discussed in Section 4.2.3.

4.2.1 APPLICATION OF ROAD SALT

The chemicals of concern for road salt are listed as sodium and chloride. The application of road salt is considered a low risk threat where road salt is applied to highways and may result in a release to groundwater or surface water. The Plans identify circumstances where the risk score increases slightly but the overall vulnerability score remains the same at 6 (low risk threat). Risk scores increase in the circumstance where the percent impervious area in an HVA increases.

The MTO is committed to keeping Ontario's highways as safe as possible during winter weather conditions. The Ministry and its contractors monitor weather and road conditions so they can respond to winter storm events in a quick and efficient manner. Contractors are required to meet the Ministry maintenance standards which have been developed based on extensive experience and are consistent with the best practices of highway authorities in North America. Clearing winter roads to bare pavement usually requires a combination of plowing and salting operations. The purpose of the salt is to break the bond between the snow and the pavement surface, in order to allow the snow to be removed by snow plows. In order to ensure the continued safety of highways, and the health of our environment, MTO have developed guidelines for the responsible and appropriate use of road salt in winter maintenance operations.

MTO's Salt Management Plan ensures that salt is used efficiently and effectively. For example, all salt spreading trucks are required to be equipped with electronic spreading controls to reduce waste and maximize the effectiveness of the materials used.

Anti-icing is a road maintenance strategy that is employed before a winter storm event to prevent snow and ice from bonding to the pavement surface. This is accomplished through the use of liquid salt solutions. These liquids are also added to road salt, to help it stick to the road and activate more quickly. This reduces the quantity of salt required and minimizes the impact on the environment.

The application of road salt may be a significant drinking water threat if applied in areas designated as WHPA-A and WHPA-B or anywhere in an Issue Contributing Area (ICA) for sodium or chloride. Rehabilitation / replacement of the bridge at Herley Road is anticipated to occur at the edge of WHPA-B

(see **Figure 3A**). Mitigation measures to protect water quality of the municipal well are provided in Section 8.4.

4.2.2 APPLICATION OF COMMERCIAL FERTILIZER

Nitrogen is listed in the Plans as the chemical of concern in commercial fertilizer. The circumstance is that fertilizer is applied to land and may result in a release to groundwater or surface water. The application of commercial fertilizer threat was identified in areas where managed land activities are mapped to cover greater than 80% of the area of a HVA or SGRA (Trent Conservation Coalition Source Protection Region, 2014). Managed land activities are areas where there may be application of agricultural source material, commercial fertilizer, or non-agricultural source material. According to the current land use (see Section 2.2), there are no managed lands in HVAs and SGRAs within the Study Areas A and B.

As part of the construction project, there will be exposed earth surfaces which will require seeding to re-establish vegetative cover. MTO prescribes the use of commercial fertilizer containing nitrogen where cover is to be re-established on earth surfaces through seeding. Nitrogen application rates and soil surface conditions are prescribed in the contract by Ontario Provincial Standard Specification (OPSS, November 2010) such that the risk of run-off from the site is minimized.

4.2.3 HANDLING AND STORAGE OF FUELS

Several constituent compounds of fuels are listed by Source Protection Plans as chemicals of concern. Potential concerns associated with the handling and storage of fuel that pose a threat to drinking water sources include the handling and the storage of fuel. Temporary storage and handling of fuel may occur during the construction phase for the operation and maintenance of heavy-equipment. The contractor will be handling fuels for refuelling mobile and stationary equipment. The contract will contain provisions and operational constraints to minimize the risk of spills. Spill containment and clean-up kits will be required on site. A spills action plan must be in place to ensure any spills are reported and handled appropriately and as required by legislation. During the operational phase of the project, vehicle car accidents and malfunctions also pose a risk to release potentially harmful fuels. Measures to protect water quality are provided in Section 8.3.

5 STUDY AREA INSPECTION

WSP completed reconnaissance of the Study Areas on October 5, 2020. The purpose of the visit was to evaluate the land use and topography, physiographic features that could have an influence on existing groundwater conditions as well as to confirm the presence of water servicing and surface water features in proximity to bridges and culverts proposed to be rehabilitated / replaced in the Study Areas. Photographs documenting the inspection results are presented following the text of the report.

The following observations were made during the inspection:

Current Land Use

- The land use in the Study Area was observed to be natural areas, open space, rural residential, and light commercial / industrial areas;
- The land use on either side of Highway 401 was observed to be mostly natural areas (Photographs 1 and 2);
- The land use throughout the Study Areas is primarily rural residential. Private residences were observed along County Road 26, Telephone Road, McDonald Road, Cochrane Road and Durham Road (Photograph 3); light commercial land use was found on County Road 30 (Photograph 4), and light commercial / industrial land use in the west section at the intersection of Industrial Park Road and Orchard Road (**Figure 2A**).

Surface Water and Groundwater Findings

- No surface water was observed in roadside ditches within the Study Area on the day of the site visit (Photographs 5 and 6). Therefore, surface water flow direction could not be determined at the time of the site visit;
- Several watercourses are present throughout the Study Area (Photograph 7; **Figures 2A** and **2B**);
- Little Lake is present in the central portion of Study Area A (Photograph 8; **Figure 2A**).

Municipal Servicing in Study Area

- The majority of the Study Area was observed to rely on private water wells for water supply purposes. Absence of municipal servicing and private wells were observed on County Road 26, Telephone Road, Cochrane Road, Lake Road, McDonald Road, Purdy Road and Durham Road (Photographs 9, 10, 11 and 12);

— It is interpreted that municipal servicing for water supply is present in the most western portion of the Study Area in the vicinity of Industrial Park Road and Orchard Road. This was confirmed following a phone conversation with the "Big Apple" store located at 262 Orchard Road, Colborne on November 12, 2020. Municipal hydrants are also present along Purdy Road for approximately 800 m east of the intersection with Percy Street (**Figure 2A**).

Potential indicators of groundwater discharge such as iron staining and watercress were observed by WSP during the site visit on October 4, 2020. These indicators were observed at the following locations: Culvert 21-472C (southeast and north sides; iron staining; Photograph 13), Culvert 21-474C (north side; watercress; Photograph 14), and Culvert 21-473C (north side; iron staining Photograph 15), shown on **Figure 2A**.

6 WATER WELL SURVEY

A groundwater assessment completed by WSP for the project indicated that the Study Areas A and B rely predominantly on groundwater in private wells for water supply purposes.

To evaluate the impacts of construction activities related to replacement / rehabilitation of structures to groundwater users in the Study Areas, WSP completed a water well survey. The procedure WSP staff followed during the water well survey is outlined below.

On October 5, 2020, WSP delivered solicitation letters to properties in proximity to structures being replaced / rehabilitated (**Figures 8A, 8B, 8C, 8D**). The letter explained the purpose of the survey and requested permission from the owners for WSP staff to enter their properties in order to carry out a water well survey, record water levels in their wells and collect samples of raw groundwater for chemical analysis, on behalf of MTO (**Appendix B**). Owners and tenants who wished to participate in the survey were provided with a phone number to contact WSP by e-mail or phone.

The following process was followed when conducting the water well survey:

- If no one was present at a property, a notification letter was left by WSP staff at the door or in the mailbox with WSP contact details, so property owners could follow-up with WSP staff to participate in the water well survey. Property owners that followed up with WSP staff, completed the water well survey questionnaire over the phone (due to COVID-19 situation at the time of the survey work) and an appointment was set for the groundwater sample to be collected at a time mutually convenient for WSP staff and the property owner.
- If the property owner was present at the time of dropping off the letter, WSP staff invited well owners to participate in the survey. Activities involving accessing the wells and recording well measurements and GPS coordinates were carried out by WSP staff for accessible wells only. Wells with rusted bolts, where the technician could not reasonably open the well without damaging the well cap, were classified as inaccessible.
- In the monitoring wells that were accessible, a static water level was taken by WSP staff using a calibrated water level meter. The water meter probe was rinsed and sanitized with Alconox solution between static water level measurements at different wells in order to prevent cross-contamination between the wells. Results of interviews and water level measurements in private wells were recorded on water well survey forms (see **Appendix B**).
- WSP staff took photographs of each surveyed well.

- Samples of untreated (raw) groundwater were collected at each property from a tap connected to the well. Hoses and aerators were removed from the tap and each tap was disinfected prior to sample collection, as per WSP's sampling procedures. Water was allowed to run for several minutes to flush the water supply system and a representative water sample was collected into laboratory-prepared sample bottle. At the property located at 627 County Road 26 the only tap that was representative of raw groundwater was located in the basement of the house. WSP staff explained to the property owner how to collect a groundwater sample from the basement tap following the appropriate protocols.
- A total of six (6) groundwater samples were collected and submitted for laboratory analysis by WSP staff. The water samples were submitted to AGAT Laboratories, a laboratory accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA). The samples were kept on ice and were transferred to the lab within 24 hours of collection.
- Groundwater samples were analyzed for concentrations of nutrients, general and inorganic parameters, metals, microbiology (bacteria). Analytical results for the groundwater samples were compared to the Ontario Drinking Water Standards (ODWS). For two properties at 252 Lake Road and 15791 Telephone Road, groundwater samples were also analyzed for concentrations of petroleum hydrocarbons, including fractions F1-F4 and benzene, toluene, ethylbenzene and xylenes and compared to Table 2 Site Condition Standards of Ontario Regulation 153/04.
- Following receipt of the laboratory certificates of analysis, WSP reviewed the analytical results. Where one or more of the measured parameters exceeded the health-related ODWS, WSP immediately contacted the owner by phone to notify them of the exceedances. Letters explaining the groundwater sampling results and accompanied by the laboratory certificates were sent via regular mail or email to each participating property owner. Copies of letters with exceedances were forwarded by WSP to the Haliburton, Kawartha, Pine Ridge District Health Unit via email.

6.1 WATER WELL SURVEY RESULTS

Data obtained from the well survey is summarized in **Table C-1** (**Appendix C**). Water well survey results letters and laboratory certificates of analyses are included in **Appendix D**. The summarized data includes anecdotal reports by property owners concerning the wells: water quality issues (e.g., presence of bacteria, odour, taste); water supply issues; well type; well depth; and water levels. Other information entered into the database included the nature of the water use, water treatment systems utilized, results of

the water sampling carried out by WSP, and observations of the conditions of the wells at the time of the survey. The water well survey details are provided below.

6.1.1 PARTICIPATION

Table 3 presents an overall summary of the well survey for the Study Area.

Table 3: Summary of 2020 Water Well Survey Results

Category	Count	Percentage
Total Number of Properties Visited	**11**	**100%**
Properties that participated in the Survey - Number of wells present - Number of wells present that were accessible	6 (7) (5)	55% 100% 71%
No response/No contact	3	27%
Resident did not wish to participate	2	18%

In total, eleven (11) properties were visited by WSP staff in the Study Area. Three (3) property owners at 248 Cochrane Road, 10 McDonald Road, and 110 Durham Road did not provide any response to WSP's solicitation attempts. Interviews were carried out at six (6) properties, representing a 55% participation rate. The locations and participation status of all properties visited by WSP are shown on **Figures 8A, 8B, 8C and 8D**.

6.1.2 DISCUSSION

Findings and interpretation of the water well survey results of the existing groundwater quality and water use are provided below.

6.1.2.1 EXISTING CONDITIONS OF PRIVATE WATER WELLS

As described in **Table 3**, seven (7) private water supply wells were present in the Study Area, however, one (1) well was inaccessible and one (1) well was not in use at the time of the water well survey. Therefore, no further information was gathered by WSP for these wells. Water levels in the remaining five (5) wells ranged from 4.85 to 31.73 mbgs on October 16, 21, and 28, 2020. Details on the water levels can be found in **Table C-1**.

As can be seen from Photographs 16 – 21, five (5) active wells have suitably maintained well casings and well caps. The well at 252 Lake Road has a rusty casing. Water well survey details are provided in **Table C-1** (**Appendix C**).

6.1.2.2 *WATER QUALITY*

As described in Section 6, the groundwater samples collected as part of the water well survey were analyzed for concentrations of nutrients, metals, general and inorganic parameters (hardness, pH, turbidity, conductivity, etc.), PHCs (benzene, toluene, ethylbenzene and xylenes, fractions F1 to F4) and microbial parameters, including the background bacteria, heterotrophic plate count, Total Coliform bacteria and *E. Coli* bacteria. Analytical results for the groundwater samples were compared against the ODWS; PHC concentrations were also compared to Table 2 SCS of O. Reg. 153/04.

Following receipt of the laboratory certificates of analysis, WSP reviewed the analytical results and notified the property owner about results. A copy of the letter can be found in **Appendix D** along with a laboratory Certificate of Analysis and Chain of Custody.

Table 4 presents a summary of water quality results from the water well survey. The locations of properties with water quality issues are shown on **Figures 8A, 8B, 8C** and **8D**.

6.1.2.3 *WATER QUANTITY*

The well owners at the property located at 15773 Telephone Road noted to WSP that they would like for the well to provide more water for their supply needs.

6.1.2.4 *WATER WELL SURVEY*

Six (6) groundwater samples were collected from properties in the Study Area during the water well survey work. **Table 4** presents a summary of the groundwater sampling results, where analyzed parameters were found to exceed the ODWS. Anecdotal information relating to water quality issues obtained by WSP during interviews with well owners is provided in **Table 5**. The location of the properties with water quality issues are shown on **Figures 8A, 8B, 8C** and **8D**.

Table 4: Summary of Water Quality Evaluated During Water Sampling – ODWS Exceedances

Parameter	ODWS Criteria	523 County Road 26	15791 Telephone Road	8 McDonald Road	252 Lake Road
Total Coliforms (CFU/mL)	0 (1)	**N/A**	**N/A**	**2**	**1**
Sodium (mg/L)	20 (2)	**23.97**	**191.43**	**21.94**	**N/A**

Bold font represents concentration outside the ODWS range.
Notes:

1. Coliform organisms are a group of bacteria that are commonly found in the environment and are an indicator of the safety of groundwater. Coliform bacteria are not harmful, but their presence tells that other disease-causing organisms may be in the water supply. The presence of more than five coliform bacteria in a water sample usually means that surface water has washed contaminants into the well.

2. In accordance with the Ministry of the Environment Ontario Drinking Water Standards, the Regional Medical Officer has been notified as the sodium concentration in water supply exceeds 20 mg/L. Sodium occurs naturally and is not considered to be toxic. While the aesthetic objective for sodium is 200 mg/L, persons suffering from hypertension or congestive heart disease may require a sodium-restricted diet. In this case, the intake from drinking water could become significant. Individuals on sodium-restricted diet should review these results with their physician.

As can be seen from **Table 4**, three (3) sampled wells were found to have sodium concentrations above the concentration of 20 mg/L, a health-related parameter for people on sodium-restricted diets. Three (3) properties had a sodium concentration below the ODWS aesthetic objective of 200 mg/L but above the 20 mg/L limit recommended for those who must modify sodium intake. Presence of Total Coliform bacteria was detected in well water in two (2) wells.

Table 5 provides a summary of concerns expressed by property owners during the interviews.

Table 5: Summary of Water Quality Issues as Reported by Residents

Well Location	Number of Wells	Hardness	Iron	Sediment
15773 Telephone Road	1	1	N/A	1
15791 Telephone Road	1	1	1	N/A
Wells with Reported Issues		2	1	1

As can be seen from **Table 5**, two (2) property owners reported issues for hardness, iron and sediment in their wells (see **Table C-1** for additional details).

6.1.2.5 *WATER WELL SURVEY CONCLUSIONS*

The water well survey completed by WSP between October 5 and 28, 2020 included carrying out well survey interviews via phone and collecting water samples for participating well owners in the Study Areas A and B. In total, eleven (11) properties were visited by WSP staff in the Study Areas. Interviews were carried out at six (6) properties where seven (7) wells were present. Water levels were measured at five (5) wells during well surveys since not all wells were accessible or in use at the time of the survey work.

The groundwater sampling results have shown that three (3) out of six (6) wells have concentration of sodium above the 20 mg/L, a health-related parameter for people on sodium restricted diets. Presence of Total Coliform bacteria was identified in the well water at two (2) properties. The presence of bacteria in water may be due to a combination of well maintenance issues and well head conditions.

Residents reported water quality issues for hardness, iron and presence of sediment at two (2) properties.

The majority of residents interviewed indicated that their wells had enough water for their needs. Property owners at one property noted that they would like for their well to provide more water for their supply needs.

7 ASSESSMENT OF POTENTIAL GROUNDWATER IMPACTS

7.1 TEMPORARY AND PERMANENT CONSTRUCTION IMPACTS

7.1.1 CLEARING AND GRUBBING

The removal of trees and stumps, and other vegetation for establishing the future Highway 401 footprint for an interim six lanes and ultimate eight lanes may result in increased surface water runoff and a decrease in water infiltration into the subsurface. This can affect groundwater quantity and quality. Watercourses may also be affected due to an increased amount of suspended particles carried by surface water runoff.

7.1.2 GRADING

The use of heavy equipment to “cut” or “fill” the original topography within the Study Areas (to grades specified in Detail Design contract drawings) can have an effect on groundwater. Excavations made into the shallow aquifer system can result in temporary or permanent changes in groundwater flow patterns and could result in the need for dewatering.

Dewatering activities (e.g. discharging to an alternate location) may change the water supply to private water users; lead to settlement of the ground surface; and/or change the quality of the groundwater. An EASR/PTTW will be required for active dewatering in locations where the extraction of groundwater more than 50,000 litres per day is involved.

7.1.3 BRIDGES AND CULVERTS

Embankments, foundations, footings, abutments and piers may be required to be constructed as part of the rehabilitation/ replacement of bridges at Herley Road, Lake Road and County Road 26. Based on discussions with the bridge engineers for this project in February 2021, it is understood that the current approach is to design new bridges with the use of caissons at the bridge piers and piles driven below

grade at the abutment locations. These methods require predominantly limited excavations (subject to be confirmed by the bridges team).

Excavations may be required for culverts 21-471C, 21-472C, 21-473C and 21-474C in Study Areas A and B. The new culverts are expected to be pre-cast concrete box culverts with excavations to at least the depths of the existing culverts. This may result in interception of groundwater as base flow to surface watercourses.

Current construction methods being considered for the new bridges and culverts are expected to lead to minimal dewatering volumes. This interpretation needs to be confirmed as design details are finalized.

7.1.4 PREPARATION OF THE ROAD BED

Compaction of the land prior to road surfacing activities can reduce groundwater recharge to the overburden and bedrock aquifer systems. Obstruction to groundwater recharge will have the greatest impact in upland (elevated) areas where permeable deposits are removed, compacted, or paved over. Obstruction to groundwater discharge may occur if compaction takes place adjacent to the surface water features and seepage zones. Compaction can also increase surface water runoff to nearby watercourses.

7.1.5 ROAD SURFACING

The rehabilitation / replacement of culverts and bridges in the Study Areas may affect watercourses, due to an increased amount of suspended particles carried by surface water runoff.

The installation of concrete and/or asphalt roadway surfaces during the improvements of Highway 401 can increase imperviousness and result in the entrainment or wash-off of residual material such as lime, cement, oil and grease, and asphalt into surface water runoff. Runoff can flow to nearby watercourses or adjacent areas where infiltration into the aquifer system may result in groundwater contamination if residuals are not appropriately managed.

7.1.6 OVERALL CHANGE IN GROUNDWATER AND DISCHARGE

Effects on groundwater recharge through the processes noted in the previous sections could reduce infiltration capacity to the aquifer system and result in an alteration of groundwater storage and flow patterns. Road construction activities might also disrupt groundwater discharge or result in the formation of new discharge areas, which could impact groundwater quantity and flow; change water table levels; and/or result in a change in the distribution of wetlands.

Changes in surface water flow are generally reflected in a corresponding alteration of the groundwater flow pattern, specifically: flow rate, water level, and direction of flow. Some components of road construction might cause changes in the amount of surface water runoff, drainage patterns, water levels and flow volumes. In general, changes in groundwater quantity or flow in response to changes in surface water recharge are expected to be attenuated (i.e., more subdued in magnitude and potentially of longer duration).

7.2 POTENTIAL WATER WELL IMPACTS

Based on the visual reconnaissance completed for the Study Areas in October 2020, it appears that the majority of Study Area A and B rely on private wells for water supply (**Figures 8A, 8B, 8C** and **8D**).

Any adverse water well impacts resulting from road construction activities and replacement / rehabilitation of bridges and culverts are expected to be greatest for well users with the following conditions:

- In areas where construction work is being performed below the shallow water table. Groundwater seeping into the excavation has the potential to impact groundwater resources as groundwater will have to be pumped out during excavation. This action may lower the water table temporarily reducing water supply to local wells.
- Road construction activities have the potential to adversely impact the shallow aquifer through disturbing contaminated soils, or handling and management practices (e.g. spills of fuel, lubricants etc.), thus introducing contaminants that could enter the groundwater system and impact nearby water wells; and
- Road construction activities have the potential to physically impact water wells due to vibration and shock.

7.3 LIKELIHOOD OF RELEASE OF CONTAMINANTS

During any phase of road construction activities, due care should be exercised to avoid fuel, lubricant and fluid spills. Spill and contamination prevention practices should be implemented to avoid potential environmental hazards and cleanups. Where practical, activities such as refueling should not be undertaken in areas with high susceptibility to groundwater contamination, shown on **Figures 6A** and **6B**. Small spills and leaks during construction activities have the potential to affect areas of shallow groundwater and high permeability soils. The environmental impacts of spills on fine-grained soils are

potentially the most damaging to surface water quality due to runoff, whereas spills on more medium to coarse-grained soils are most damaging to groundwater resources.

Road salting within the Study Area will occur during the winter season. Concentrations of sodium and chloride will continue to be present in the runoff along roadside drainage ditches and through roadside infiltration, and will most likely impact surface water features. MTO employs and recognizes the importance of salt best management practices and has developed a Salt Management Plan in accordance with Environment Canada's Code of Practice for the Environmental Management of Road Salts (Environment Canada, 2004).

7.4 AQUIFER AND SURFACE WATER SUSCEPTIBILITY

There is Brighton Bluff Area of Natural and Scientific Interest in the northern portion of Study Area B, no PSWs and multiple unevaluated wetlands present within the Study Areas A and B, as discussed in Section 2.3 and shown on **Figures 2A** and **2B**. Open channel with surface water in the Study Area has a high susceptibility to contamination (**Figures 7A** and **7B**).

7.4.1 INTAKE PROTECTION ZONES

As discussed in Sections 2.4 and 4.2, an IPZ-3 is present within the central portion of Study Area A and eastern portion of Study Area B. Mitigation measures to protect surface water quality during construction are discussed in Sections 8.2 and 8.3.

7.4.2 WELLHEAD PROTECTION AREAS

Wellhead Protection Areas indicate areas around municipal groundwater systems where quality of drinking water source is more likely to be negatively impacted by certain activities. As discussed in Section 2.4, there are WHPAs within the Study Areas A and B. Mitigation measures to protect municipal wells are presented in Section 8.4.

8 CONCLUSIONS AND RECOMMENDATIONS

8.1 GENERAL RECOMMENDATIONS FOR DETAIL DESIGN

General recommendations for the Detail Design include:

- Maximize the distance from watercourses and surface water bodies, as practical;
- Minimize the use of lands designated as having a high susceptibility to groundwater impacts (i.e., areas containing sand and gravel, potential groundwater discharge areas);
- Minimize the need for deep cuts into the overburden, especially in areas having high susceptibility to groundwater impact; and
- Choose areas for construction activities where minimal dewatering is required.

8.2 GROUNDWATER AND SURFACE WATER MITIGATION MEASURES

The OWRA states that the diversion of surface water or the extraction of groundwater in excess of 50,000 litres per day requires an EASR / PTTW from the MECP. Construction activities for the replacement/rehabilitation of bridges, culverts and retaining walls may result in groundwater / surface water takings.

This project will be required to be assessed during Detail Design when detailed construction information becomes available, to address the potential impacts of any construction dewatering on groundwater and/or surface water resources. As discussed in Section 3.3, an EASR / PTTW may be required to be obtained for some sections of the project due to the presence of permeable soils, shallow groundwater, and unserviced areas in the Study Areas.

If it is determined during Detail Design that an EASR/PTTW is required for water control, wetlands and areas with the groundwater discharge or shallow water levels should be evaluated in detail in a report supporting an EASR/PTTW application. All groundwater studies for an EASR/PTTW will be conducted in accordance with the MECP guidelines.

8.3 SOURCE WATER PROTECTION AREAS

As discussed in Sections 2.4 and 4.2, Study Areas A and B contain WHPAs, IPZs, HVAs and SGRAs. These areas have been identified as high groundwater and surface susceptibility to contamination.

Construction and operation activities associated with application of road salt and application of commercial fertilizer represent a low risk to HVAs and SGRA. The risk associated with handling and storage of fuel represents a moderate risk to HVAs and SGRA.

To protect the quality of groundwater and surface water in IPZ-3 during the construction stage of the project, fuel, lubricant and fluid spills and construction debris falling in road-side ditches, culverts and surface water catchment grates need to be avoided. Equipment refueling and maintenance activities should not take place within 30 m of a watercourse. A monitoring plan to prevent spills and fall of debris in surface water features and contingency plan to efficiently mitigate any potential spills should be prepared prior to the construction stage of the project.

The Detail Design assignments shall include reviewing the project to develop Drinking Water Source protection activities to a greater level of detail. The measures identified as being required to protect drinking water will be provided by way of the contract documents. This project may require that MECP PTTW/EASR applications be developed during Detail Design for surface water and possibly groundwater takings (e.g., for installing new bridges). The PTTW/EASR application shall be developed by qualified persons and is one of the processes that assists in protecting drinking water.

8.4 MITIGATION MEASURES FOR PRIVATE AND MUNICIPAL WELLS

As described in Sections 3 and 4, private wells were observed to be present throughout Study Area A and B (see **Figures 8A, 8B, 8C** and **8D**). The Study Areas are interpreted to rely on private water wells for water supply purposes.

Based on the proposed rehabilitation / replacement of three bridge structures and expansion of Highway 401 to an interim 6 lanes and ultimate 8 lanes, shallow water wells may be impacted by construction. Based on the current bridge design details to include limited excavations for construction of caissons and piles, it is interpreted that dewatering volumes and impacts to the private water well users in the Study Areas in immediate vicinity of the bridge construction areas are anticipated to be minimal. This interpretation is recommended to be checked at the Detail Design stage. Depending on the timing of the

Detail Design and/or anticipated construction schedule, water well surveys may need to be repeated to confirm that the groundwater use and well dimensions remain the same.

WSP recommends applying spill mitigation measures during construction activities to minimize the potential for accidental releases and transport of road salt and contaminants to Colborne Supply Wells and Brighton Well Supply Field.

9 QUALIFICATIONS

WSP is a leading, full-service engineering company that has seen successful growth in the past decade with a Canadian contingent of approximately 8,000 people making a significant contribution to our 34, 000 global staff, based in more than 500 offices, across 40 countries. In 2015, WSP acquired SPL Consultants Limited and MMM Group Limited, which has resulted in the expansion of our environmental services in Ontario. WSP staff, including SPL and MMM (both wholly owned subsidiaries of WSP), employs about 450 environment staff in Ontario including Professional Engineers, Professional Geoscientists, Biologists and Certified Technicians.

The firm provides services to transform the built environment and restore the natural environment, and its expertise ranges from environmental remediation to urban planning, from engineering iconic buildings to designing sustainable transport networks, and from developing the energy sources of the future to enabling new ways of extracting essential resources. Our focus is technical excellence and client service.

Natalia Codoban, M.Eng., P.Eng., is a Senior Hydrogeologist / Project Manager in the Environmental Management Department (EMD). Ms. Codoban has an academic background in Earth / Environmental Sciences and Geology, and Environmental Engineering. She has over 16 years of consulting experience in completing and managing hydrogeological and environmental investigations. Natalia has provided expertise to numerous clean water and contaminant groundwater investigations, hydrogeological studies, Permit to Take Water (PTTW) applications, water balance evaluations and on-site servicing projects, developing impact assessments, landfill assessments, modelling groundwater flow and contaminant plume migration, seepage analyses and dewatering evaluations.

Haley Spennato, M.Sc., is an Environmental Scientist in the EMD with WSP. Ms. Spennato has an academic background in Earth / Environmental Science. Haley's field experience includes collecting hydrological and hydrogeological data, completing stream flow measurements, collection of soil samples and maintenance of Eddy-Covariance towers. Haley has experience analyzing various data sets and summarizing the scientific results into reports, such as theses, Groundwater Assessment Reports, and hydrogeological reports in support of Environmental Activity and Sector Registry and Permits to Take Water for various stakeholders.

10 STANDARD LIMITATIONS

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The report is intended to be used in its entirety. No excerpts may be taken to be representative of the findings in the assessment.

The conclusions presented in this report are based on work performed by trained, professional and technical staff, in accordance with their reasonable interpretation of current and accepted engineering and scientific practices at the time the work was performed.

The content and opinions contained in the present report are based on the observations and/or information available to WSP at the time of preparation, using investigation techniques and engineering analysis methods consistent with those ordinarily exercised by WSP and other engineering/scientific practitioners working under similar conditions, and subject to the same time, financial and physical constraints applicable to this project.

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Design recommendations given in this report are applicable only to the project and areas as described in the text and then only if constructed in accordance with the details stated in this report. The comments made in this report on potential construction issues and possible methods are intended only for the guidance of the designer. The number of testing and/or sampling locations may not be sufficient to determine all the factors that may affect construction methods and costs. We accept no responsibility for any decisions made or actions taken as a result of this report unless we are specifically advised of and participate in such action, in which case our responsibility will be as agreed to at that time.

Overall conditions can only be extrapolated to an undefined limited area around these testing and sampling locations. The conditions that WSP interprets to exist between testing and sampling points may differ from those that actually exist. The accuracy of any extrapolation and interpretation beyond the sampling locations will depend on natural conditions, the history of Site development and changes through construction and other activities. In addition, analysis has been carried out for the identified chemical and physical parameters only, and it should not be inferred that other chemical species or physical conditions are not present. WSP cannot warrant against undiscovered environmental liabilities or adverse impacts off-Site.

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This limitations statement is considered an integral part of this report.

11 REFERENCES

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PHOTOGRAPHS

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PHOTOGRAPH 21: DRILLED WELL AT 15791 TELEPHONE ROAD

FIGURES

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N

COUNTY RD 25

COUNTY RD 30

COUNTY RD 26

TELEPHONE RD

CHRISTIANI RD

COUNTY RD 21

CARPOOL LOT

HWY 401

HWY 2

GEORGINA ST

Little Lake

MAIN ST

ELIZABETH ST

COUNTY RD 64

ONTARIO ST

CEDAR ST

HARBOUR ST

BIG APPLE DR

COUNTY RD 2

BARNES RD

KING ST E

BEACH DR

LAKESHORE RD

DIVISION ST

PRESQUILLE PKY

PAXTON RD

LIGHTHOUSE LANE

COUNTY RD 31

Lake Ontario

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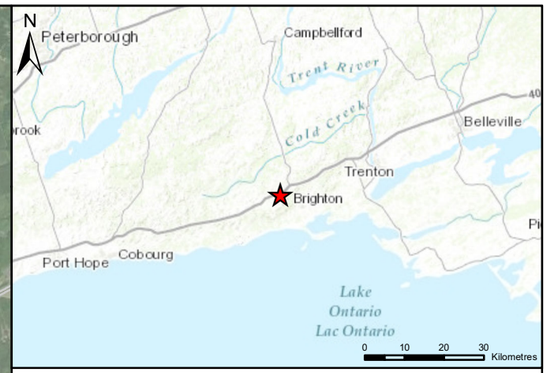

LEGEND:

- SITE LOCATION
- STUDY LIMITS
- STUDY AREA A - 500m BUFFER
- STUDY AREA B - 500m BUFFER
- WATERBODIES

TITLE:

SITE LOCATION PLAN

PROJECT: GROUNDWATER ASSESSMENT REPORT
HIGHWAY 401 PLANNING STUDY FROM
COLBORNE TO BRIGHTON
TOWNSHIP OF CRAMAHE, MUNICIPALITY OF BRIGHTON,
AND THE CITY OF QUINTE WEST, ONTARIO

CLIENT: ONTARIO MINISTRY OF TRANSPORTATION

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wsp	17M-01712-11	NC
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G:\Ontario\PROJECTS\2017\17M-01712-11 Hwy 401 Colborne to Brighton\MXD\HGI\Figure 1 Site Location.mxd

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N

Old Creek

COUNTY RD 21

COUNTY RD 30

CARPOOL LOT

1418-B6BMSH

Proctors Creek

Bibby Creek

21-474C

21-473C

21-472C

21-471C

Lake Road

HWY 401

Little Lake

COUNTY RD 25

Herley Road

PURDY RD

8612-BNENBH

BIG APPLE DR

ORCHARD RD

INDUSTRIAL PARK RD

Colborne Creek

COUNTY RD 2

BARNES RD

MAIN ST

PERCY ST

TORONTO ST

DIVISION ST

KING ST E

Sajem Creek

BEACH DR

LAKESHORE RD

Lake Ontario

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G:\Ontario\PROJECTS\2017\17M-01712-11 Hwy 401 Colborne to Brighton\MXD\HGI\Figure 2A Urban_Nat Features.mxd

LEGEND:

- STUDY LIMITS
- STUDY AREA A - 500m BUFFER
- AREA OF NATURAL AND SCIENTIFIC INTEREST
- STRUCTURAL CULVERTS
- BRIDGES
- POTENTIAL GROUNDWATER UPWELLING (OCT. 5, 2020)
- PERMITS TO TAKE WATER
- WATERCOURSES
- WATERBODIES

THERMAL REGIME

- COLD
- WARM
- UNKNOWN

WETLANDS

- UNEVALUATED WETLANDS
- PROVINCIALLY SIGNIFICANT WETLANDS

TITLE:
NATURAL AND MAN MADE FEATURES STUDY AREA A

PROJECT: GROUNDWATER ASSESSMENT REPORT
HIGHWAY 401 PLANNING STUDY FROM
COLBORNE TO BRIGHTON
TOWNSHIP OF CRAMAHE, MUNICIPALITY OF BRIGHTON,
AND THE CITY OF QUINTE WEST, ONTARIO

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17M-01712-11	NC
DATE: JULY 2021	FIGURE: **2A**

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N

BROOKS CRES
HANSEN RD
CARMAN RD
CHATTEN RD
DALWOOD RD
LONG REACH RD
Brighton Bluff
3RD LINE RD
COLTMAN RD
Mayhew Creek
CHRISTIANI RD
COUNTY RD 26
HWY 401
TELEPHONE RD
County Road 26
MIDDLE RIDGE RD
BULLIS RD
SCRIVER RD
TIMBER RIDGE DR
D J WHITES RD
3210-9P3LCQ
Smithfield Creek
DREWERY ST
WALT ST
SMITH ST
HWY 2
TILLINGS RD
MCLEAN RD
WHITES RD
ALEXANDRIA
COUNTY RD 30
Proctors Creek
GEORGINA ST
BONN RD
LISGAR S
COUNTY RD 2

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0 0.5 1 1.5 Kilometers

LEGEND:

- STUDY LIMITS
- STUDY AREA B - 500m BUFFER
- AREA OF NATURAL AND SCIENTIFIC INTEREST
- STRUCTURAL CULVERTS
- BRIDGES
- POTENTIAL GROUNDWATER UPWELLING (OCT. 5, 2020)
- PERMITS TO TAKE WATER
- WATERCOURSES

THERMAL REGIME

- COLD
- WARM
- UNKNOWN

WETLANDS

- UNEVALUATED WETLANDS
- PROVINCIALLY SIGNIFICANT WETLANDS

TITLE:
NATURAL AND MAN MADE FEATURES STUDY AREA B

PROJECT: GROUNDWATER ASSESSMENT REPORT
HIGHWAY 401 PLANNING STUDY FROM
COLBORNE TO BRIGHTON
TOWNSHIP OF CRAMAHE, MUNICIPALITY OF BRIGHTON,
AND THE CITY OF QUINTE WEST, ONTARIO

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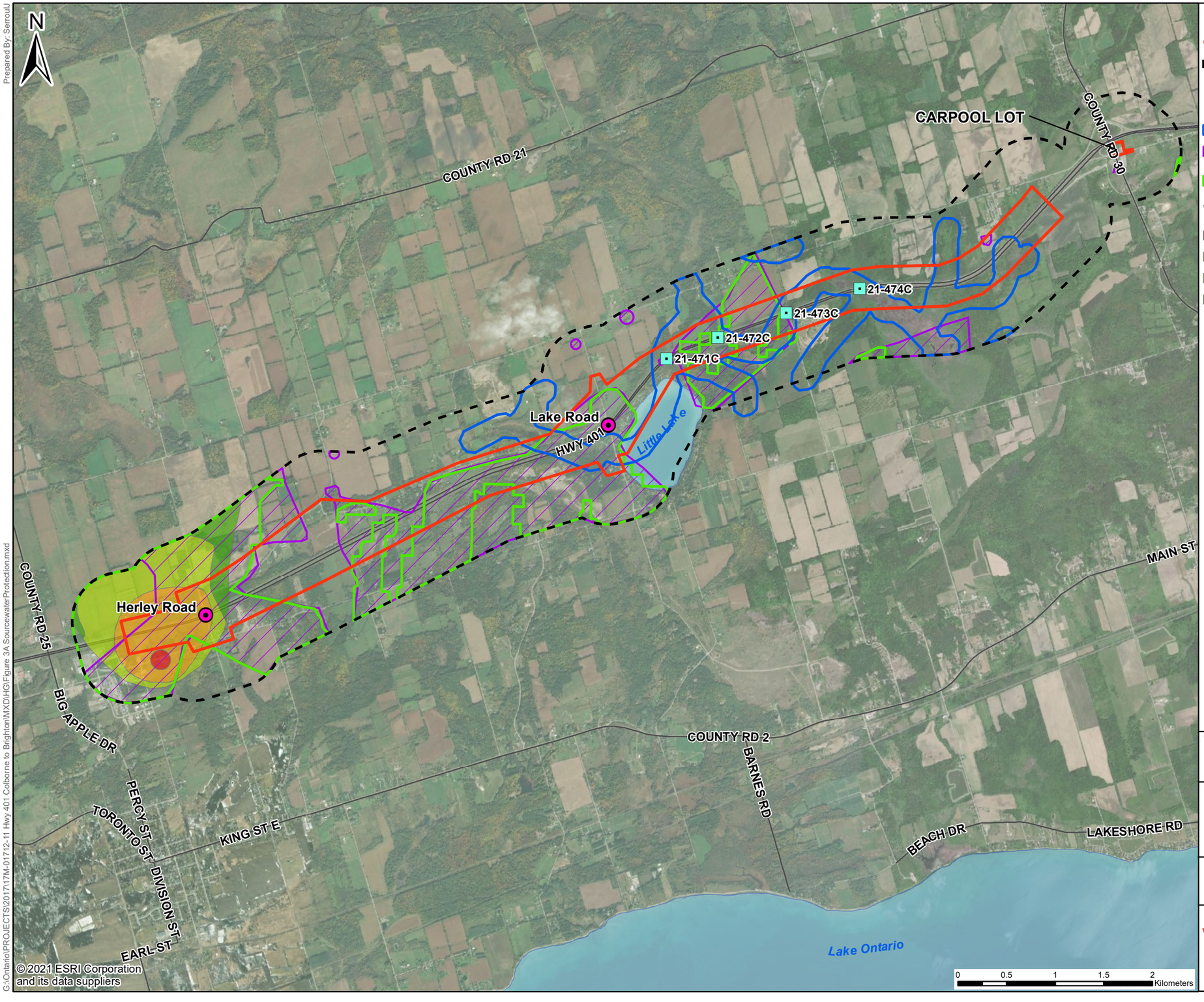
G:\Ontario\PROJECTS\2017\17M-01712-11 Hwy 401 Colborne to Brighton\MXD\HGI\Figure 2B Urban_Nat Features.mxd



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G:\Ontario\PROJECTS\2017\17M-01712-11 Hwy 401 Colborne to Brighton\MXD\HGI\Figure 3A SourcewaterProtection.mxd

LEGEND:

- STUDY LIMITS
- STUDY AREA A - 500m BUFFER
- STRUCTURAL CULVERTS
- BRIDGES
- INTAKE PROTECTION ZONE 3
- HIGHLY VULNERABLE AQUIFERS
- SIGNIFICANT GROUNDWATER RECHARGE AREAS

WELLHEAD PROTECTION AREA

- WHPA - A
- WHPA - B
- WHPA - C
- WHPA - D

TITLE:
SOURCEWATER PROTECTION FEATURES STUDY AREA A

PROJECT: GROUNDWATER ASSESSMENT REPORT
HIGHWAY 401 PLANNING STUDY FROM
COLBORNE TO BRIGHTON
TOWNSHIP OF CRAMAHE, MUNICIPALITY OF BRIGHTON,
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PROJECT NO.:	REVIEWED BY:
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DATE: JULY 2021	FIGURE: **3A**

Prepared By: SerroulJ

N

BROOKS CRES
HANSEN RD
CARMAN RD
CHATTEN RD
DALWOOD RD
LONG REACH RD
3RD LINE RD
COLTMAN RD
CHRISTIANI RD
COUNTY RD 26
HWY 401
TELEPHONE RD
MIDDLE RIDGE RD
BULLIS RD
SCRIVER RD
TIMBER RIDGE DR
D J WHITES RD
DREWERY ST
WALT ST
SMITH ST
HWY 2
COUNTY RD 2
WHITES RD
MCLEAN RD
TILLINGS RD
ALEXANDRIA
COUNTY RD 30
GEORGINA ST
BONN RD
LISGAR ST
DRUMMOND ST

County Road 26

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0 0.5 1 1.5 Kilometers

LEGEND:

- STUDY LIMITS
- STUDY AREA B - 500m BUFFER
- STRUCTURAL CULVERTS
- BRIDGES
- INTAKE PROTECTION ZONE 3
- HIGHLY VULNERABLE AQUIFERS
- SIGNIFICANT GROUNDWATER RECHARGE AREAS

WELLHEAD PROTECTION AREA

- WHPA - A
- WHPA - B
- WHPA - C
- WHPA - D

TITLE:
SOURCEWATER PROTECTION FEATURES STUDY AREA B

PROJECT: GROUNDWATER ASSESSMENT REPORT
HIGHWAY 401 PLANNING STUDY FROM
COLBORNE TO BRIGHTON
TOWNSHIP OF CRAMAHE, MUNICIPALITY OF BRIGHTON,
AND THE CITY OF QUINTE WEST, ONTARIO

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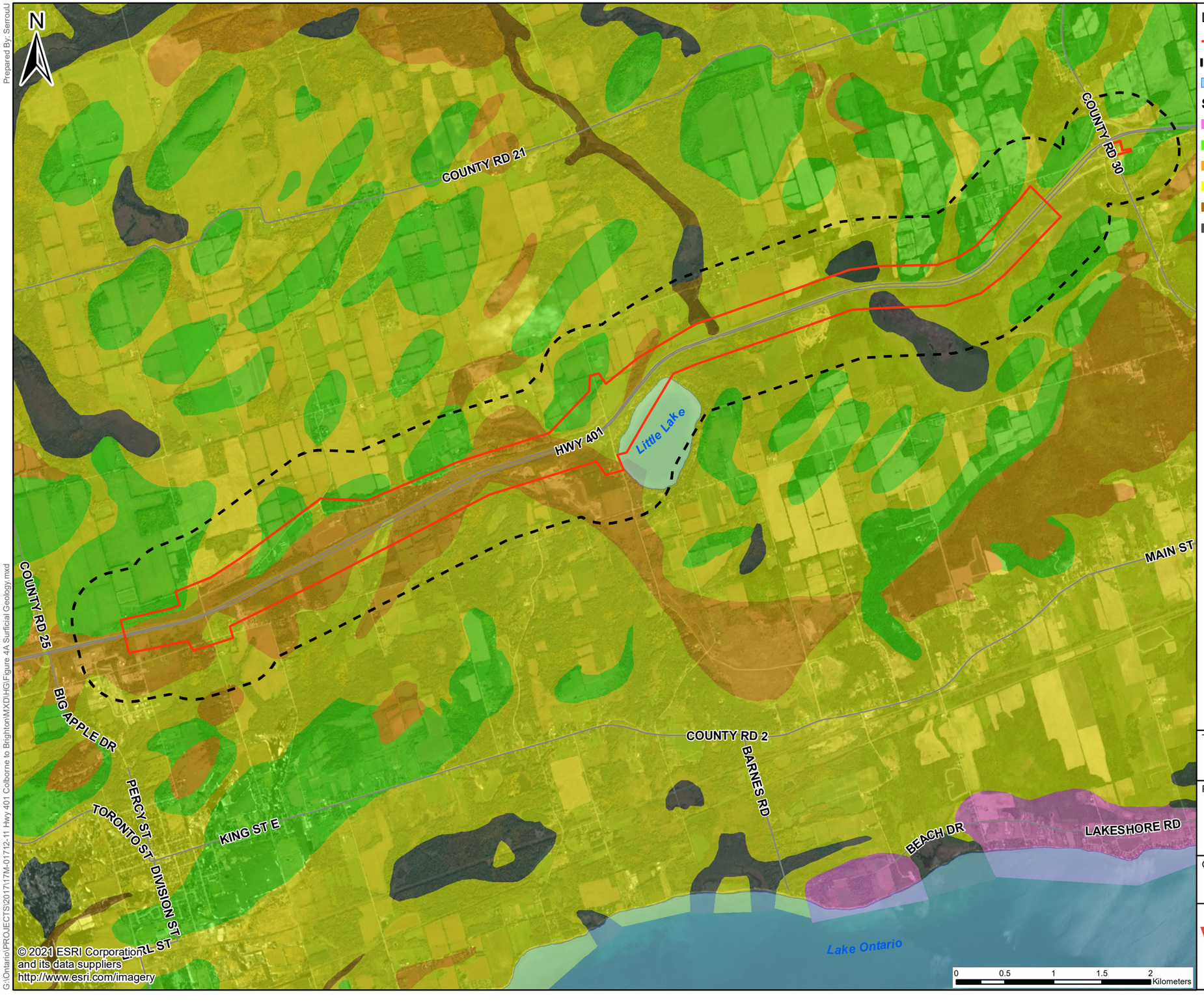

LEGEND:

- STUDY LIMITS
- STUDY AREA A - 500m BUFFER
- WATERBODIES

SURFICIAL GEOLOGY

- BEDROCK
- SANDY SILT TILL
- SAND AND GRAVEL
- SILTY SAND
- MODERN ALLUVIUM
- ORGANIC DEPOSITS

TITLE:
SURFICIAL GEOLOGY
STUDY AREA A

PROJECT: GROUNDWATER ASSESSMENT REPORT
HIGHWAY 401 PLANNING STUDY FROM
COLBORNE TO BRIGHTON
TOWNSHIP OF CRAMAHE, MUNICIPALITY OF BRIGHTON,
AND THE CITY OF QUINTE WEST, ONTARIO

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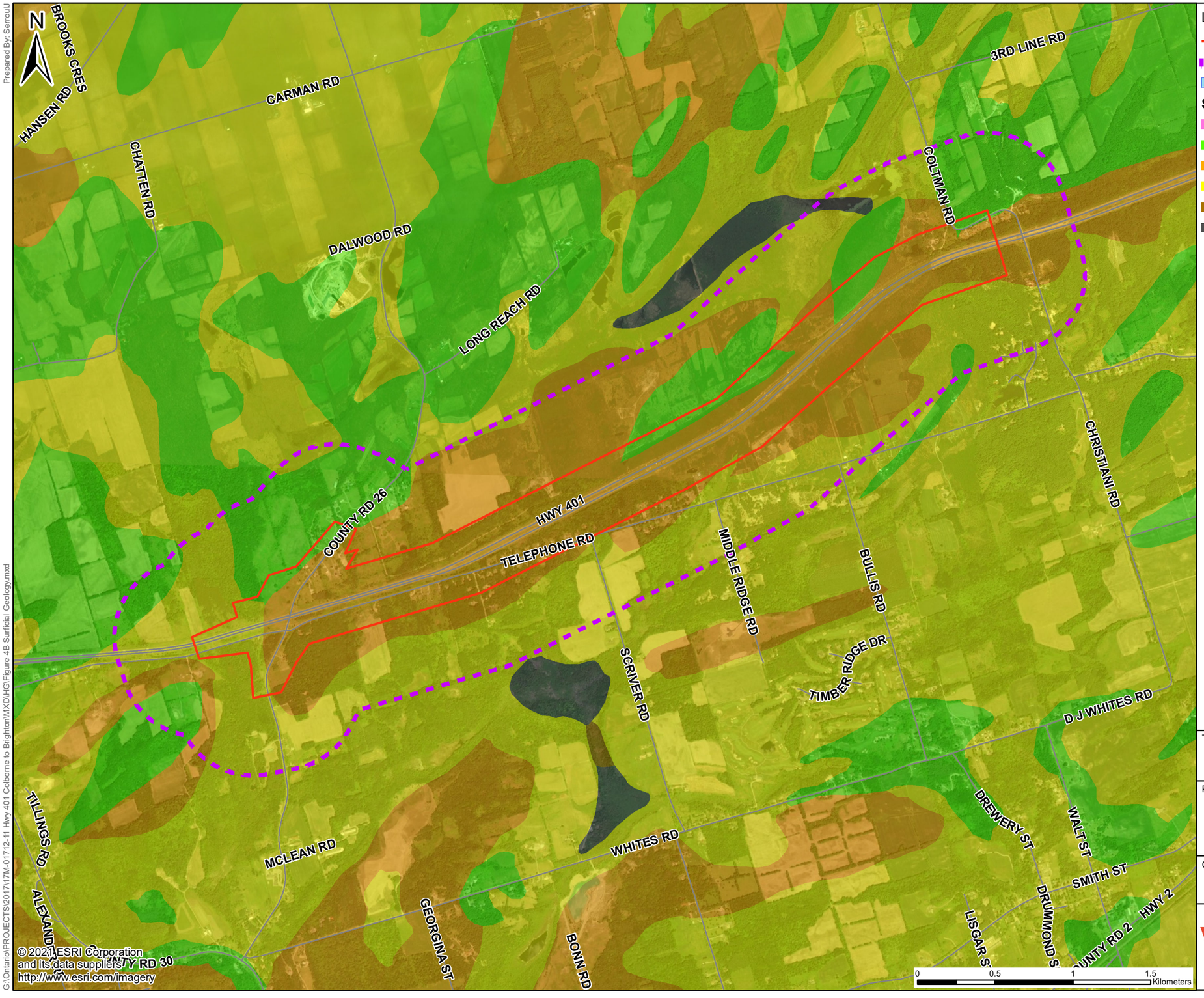
G:\Ontario\PROJECTS\2017\17M-01712-11 Hwy 401 Colborne to Brighton\MXD\HGI\Figure 4A Surficial Geology.mxd



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LEGEND:

- STUDY LIMITS
- STUDY AREA B - 500m BUFFER
- WATERBODIES

SURFICIAL GEOLOGY

- BEDROCK
- SANDY SILT TILL
- SAND AND GRAVEL
- SILTY SAND
- MODERN ALLUVIUM
- ORGANIC DEPOSITS

TITLE:
SURFICIAL GEOLOGY
STUDY AREA B

PROJECT: GROUNDWATER ASSESSMENT REPORT
HIGHWAY 401 PLANNING STUDY FROM
COLBORNE TO BRIGHTON
TOWNSHIP OF CRAMAHE, MUNICIPALITY OF BRIGHTON,
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CARPOOL LOT

COUNTY RD 21

COUNTY RD 30

HWY 401

COUNTY RD 25

BIG APPLE DR

PERCY ST

TORONTO ST

DIVISION ST

KING ST E

COUNTY RD 2

BARNES RD

BEACH DR

LAKESHORE RD

MAIN ST

Little Lake

Lake Ontario

7124571
4511659
4506262
4500237
4500399
4508478
4511987
4514512481
4511985
4500397
4512694
4514810
4510649
4512123
4514418
4500398
4500395
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4503542
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4510213
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4505800
4507622
4502368
4502682
4514227

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G:\Ontario\PROJECTS\2017\17M-01712-11 Hwy 401 Colborne to Brighton\MXD\HGIFigure 5A MECP WWRs.mxd

LEGEND:

- STUDY LIMITS
- STUDY AREA A - 500m BUFFER
- MECP WATER WELL RECORDS
- MECP WATER WELL RECORDS (>3mbgs SWL)

TITLE:
MECP WATER WELL RECORDS
STUDY AREA A

PROJECT: GROUNDWATER ASSESSMENT REPORT
HIGHWAY 401 PLANNING STUDY FROM
COLBORNE TO BRIGHTON
TOWNSHIP OF CRAMAHE, MUNICIPALITY OF BRIGHTON,
AND THE CITY OF QUINTE WEST, ONTARIO

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	DATE: JULY 2021	FIGURE: **5A**

Prepared By: SerroulJ

N

BROOKS CRES
HANSEN RD
CARMAN RD
CHATTEN RD
DALWOOD RD
LONG REACH RD
3RD LINE RD
COLTMAN RD
HWY 401
CHRISTIANI RD
COUNTY RD 26
TELEPHONE RD
MIDDLE RIDGE RD
BULLIS RD
SCRIVER RD
TIMBER RIDGE DR
D J WHITES RD
DREWERY ST
WALT ST
SMITH ST
HWY 2
COUNTY RD 2
TILLINGS RD
MCLEAN RD
WHITES RD
ALEXANDRA
COUNTY RD 30
GEORGINA ST
BONN RD

4509781
4506247
4505393
4503332
7130978
7222599
7128042
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7262268
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LEGEND:

- STUDY LIMITS
- STUDY AREA B - 500m BUFFER
- MECP WATER WELL RECORDS
- MECP WATER WELL RECORDS (>3mbgs SWL)

TITLE:
MECP WATER WELL RECORDS
STUDY AREA B

PROJECT: GROUNDWATER ASSESSMENT REPORT
HIGHWAY 401 PLANNING STUDY FROM
COLBORNE TO BRIGHTON
TOWNSHIP OF CRAMAHE, MUNICIPALITY OF BRIGHTON,
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PROJECT NO.:	REVIEWED BY:
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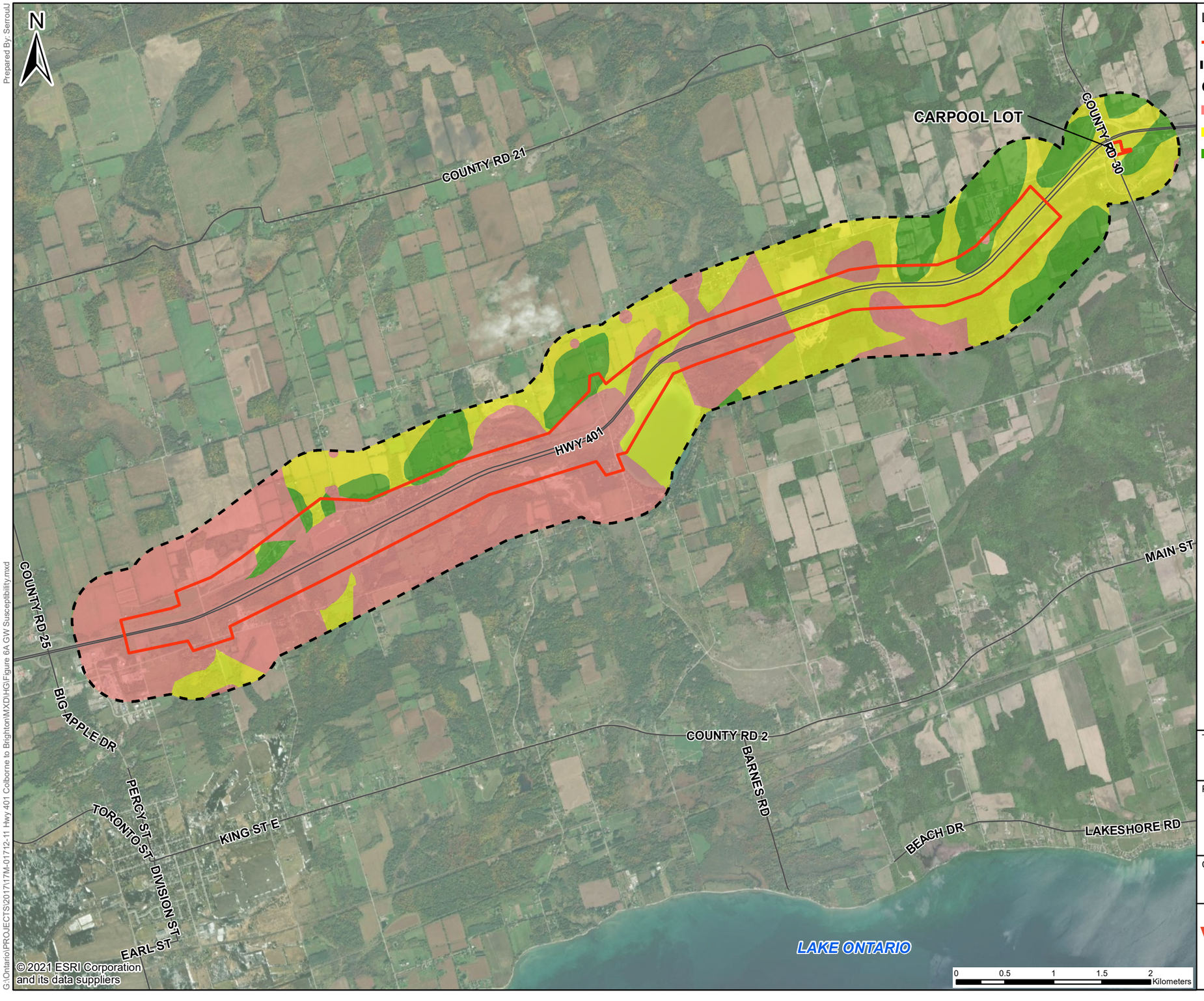

Prepared By: SerroulJ

G:\Ontario\PROJECTS\2017\17M-01712-11 Hwy 401 Colborne to Brighton\MXD\HG\Figure 6A GW Susceptibility.mxd

LEGEND:

- STUDY LIMITS
- STUDY AREA A - 500m BUFFER

GROUNDWATER SUSCEPTIBILITY

- HIGH
- MODERATE
- LOW

TITLE: **GROUNDWATER SUSCEPTIBILITY STUDY AREA A**

PROJECT: GROUNDWATER ASSESSMENT REPORT
HIGHWAY 401 PLANNING STUDY FROM
COLBORNE TO BRIGHTON
TOWNSHIP OF CRAMAHE, MUNICIPALITY OF BRIGHTON,
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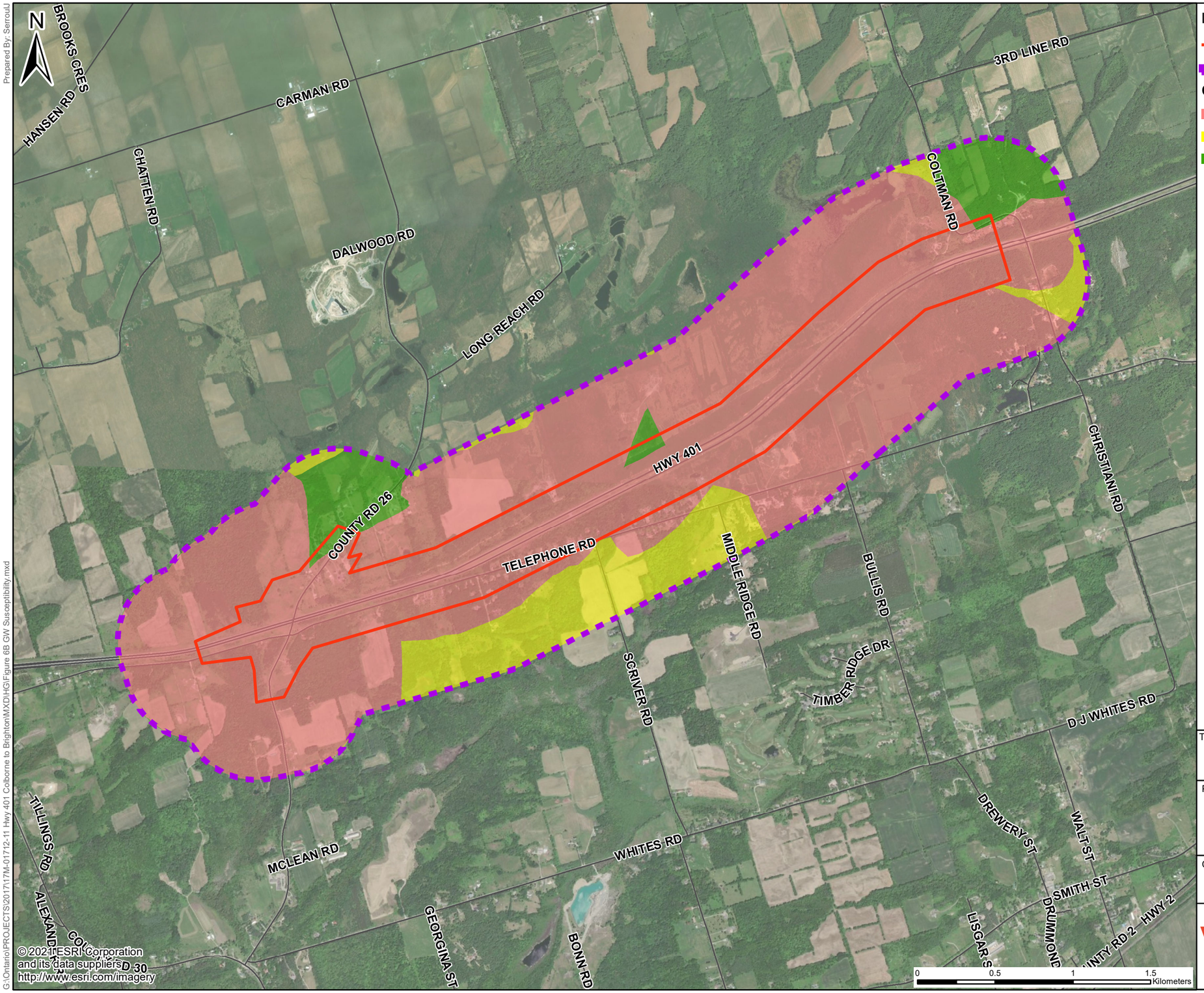
Prepared By: SerroulJ



LEGEND:

- STUDY LIMITS
- STUDY AREA B - 500m BUFFER

GROUNDWATER SUSCEPTIBILITY

- HIGH
- MODERATE
- LOW

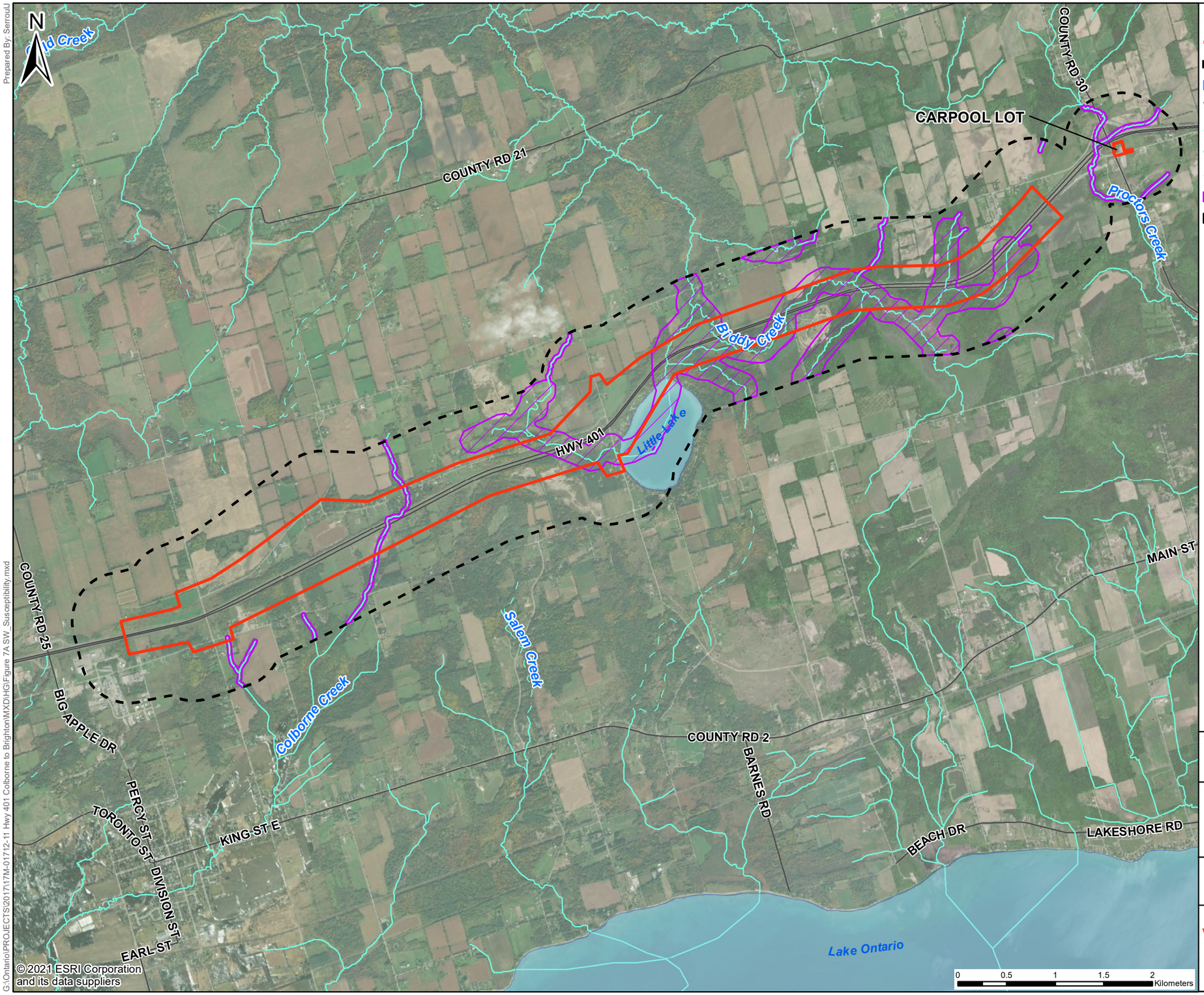
TITLE: **GROUNDWATER SUSCEPTIBILITY STUDY AREA B**

PROJECT: GROUNDWATER ASSESSMENT REPORT
HIGHWAY 401 PLANNING STUDY FROM
COLBORNE TO BRIGHTON
TOWNSHIP OF CRAMAHE, MUNICIPALITY OF BRIGHTON,
AND THE CITY OF QUINTE WEST, ONTARIO

CLIENT: ONTARIO MINISTRY OF TRANSPORTATION

PROJECT NO.:	REVIEWED BY:
17M-01712-11	NC
DATE: JULY 2021	FIGURE: 6B

G:\Ontario\PROJECTS\2017\17M-01712-11 Hwy 401 Colborne to Brighton\MXD\HGIFigure 6B GW Susceptibility.mxd



LEGEND:

- STUDY LIMITS
- STUDY AREA A - 500m BUFFER
- WATERBODIES

WATERCOURSES

- INTERMITTENT
- PERMANENT

SURFACE WATER SUSCEPTIBILITY

- HIGH
- LOW

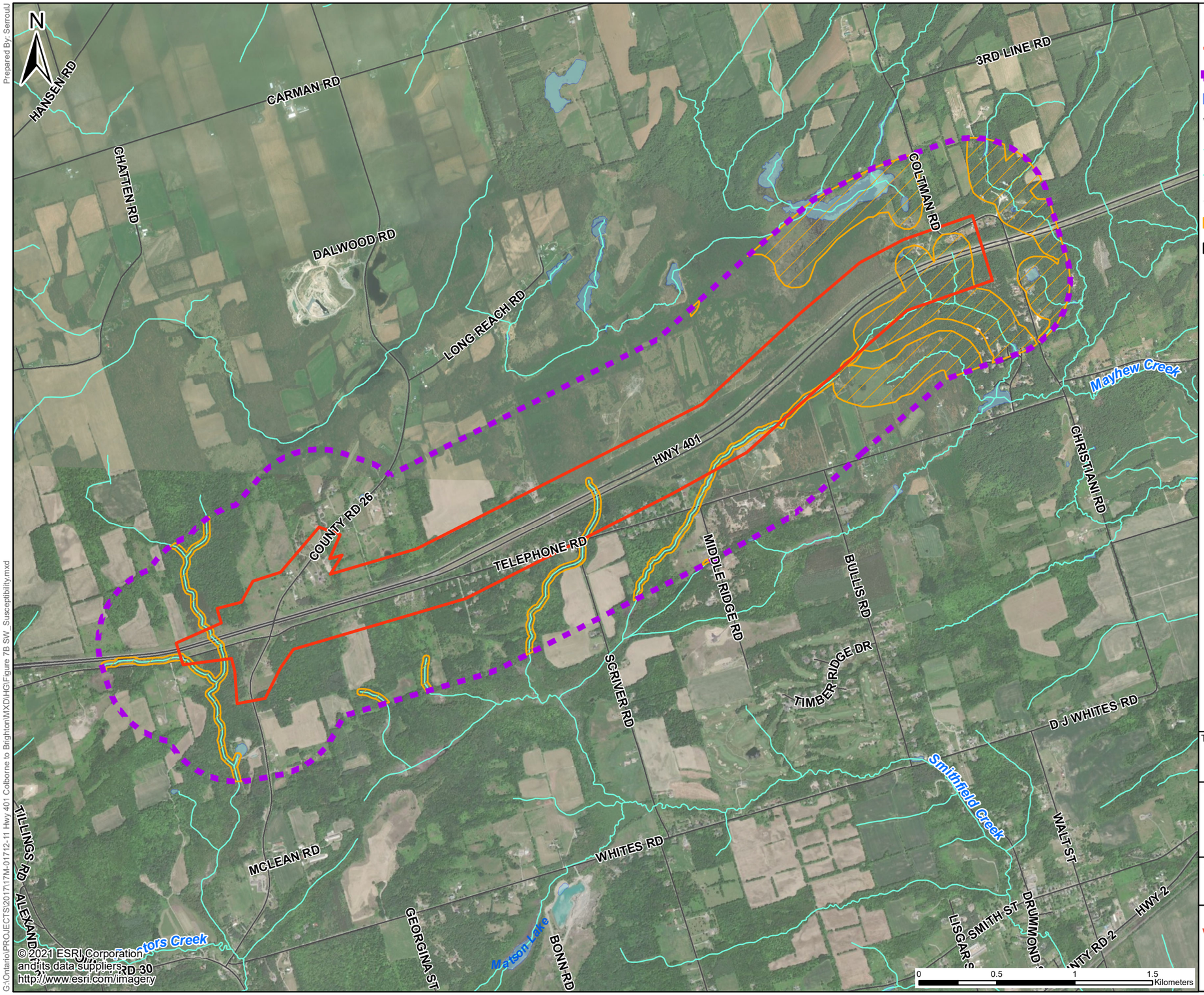
TITLE: **SURFACE WATER SUSCEPTIBILITY STUDY AREA A**

PROJECT: GROUNDWATER ASSESSMENT REPORT
HIGHWAY 401 PLANNING STUDY FROM
COLBORNE TO BRIGHTON
TOWNSHIP OF CRAMAHE, MUNICIPALITY OF BRIGHTON,
AND THE CITY OF QUINTE WEST, ONTARIO

CLIENT: ONTARIO MINISTRY OF TRANSPORTATION

PROJECT NO.:	REVIEWED BY:
17M-01712-11	NC
DATE: JULY 2021	FIGURE: **7A**

Prepared By: SerroulJ



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LEGEND:

- STUDY LIMITS
- STUDY AREA B - 500m BUFFER
- WATERBODIES

WATERCOURSES

- INTERMITTENT
- PERMANENT

SURFACE WATER SUSCEPTIBILITY

- HIGH
- LOW

TITLE: **SURFACE WATER SUSCEPTIBILITY STUDY AREA B**

PROJECT: GROUNDWATER ASSESSMENT REPORT
HIGHWAY 401 PLANNING STUDY FROM
COLBORNE TO BRIGHTON
TOWNSHIP OF CRAMAHE, MUNICIPALITY OF BRIGHTON,
AND THE CITY OF QUINTE WEST, ONTARIO

CLIENT: ONTARIO MINISTRY OF TRANSPORTATION

	PROJECT NO.:	REVIEWED BY:
wsp	17M-01712-11	NC
	DATE: JULY 2021	FIGURE: **7B**

G:\Ontario\PROJECTS\2017\17M-01712-11 Hwy 401 Colborne to Brighton\MXD\HGIFigure 7B SW_Susceptibility.mxd

Prepared By: SerroulJ

N

HONEY RD

HWY 401

HERLEY RD

448

110

PURDY RD

DURHAM ST N

0 50 100 150 200 Metres

LEGEND:

- STUDY LIMITS
- 500m STUDY AREA
- INTAKE PROTECTION ZONE 3
- HIGHLY VULNERABLE AQUIFERS
- SIGNIFICANT GROUNDWATER RECHARGE AREAS

WELLHEAD PROTECTION AREA

- WHPA - A
- WHPA - B
- WHPA - C
- WHPA - D

WATER QUALITY ISSUES (HEALTH RELATED)

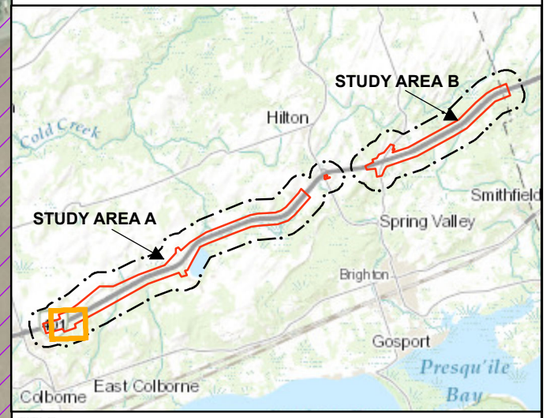
- SODIUM
- TOTAL COLIFORMS

WATER QUALITY (RESIDENT CONCERNS)

- HARDWATER
- IRON STAINING
- SEDIMENT

SURVEY PARTICIPATION

- PARTICIPATED
- NO PARTICIPATION
- NO RESPONSE



TITLE:

WATER WELL SURVEY RESULTS

PROJECT:

GROUNDWATER ASSESSMENT REPORT
HIGHWAY 401 PLANNING STUDY FROM
COLBORNE TO BRIGHTON
TOWNSHIP OF CRAMAHE, MUNICIPALITY OF BRIGHTON,
AND THE CITY OF QUINTE WEST, ONTARIO

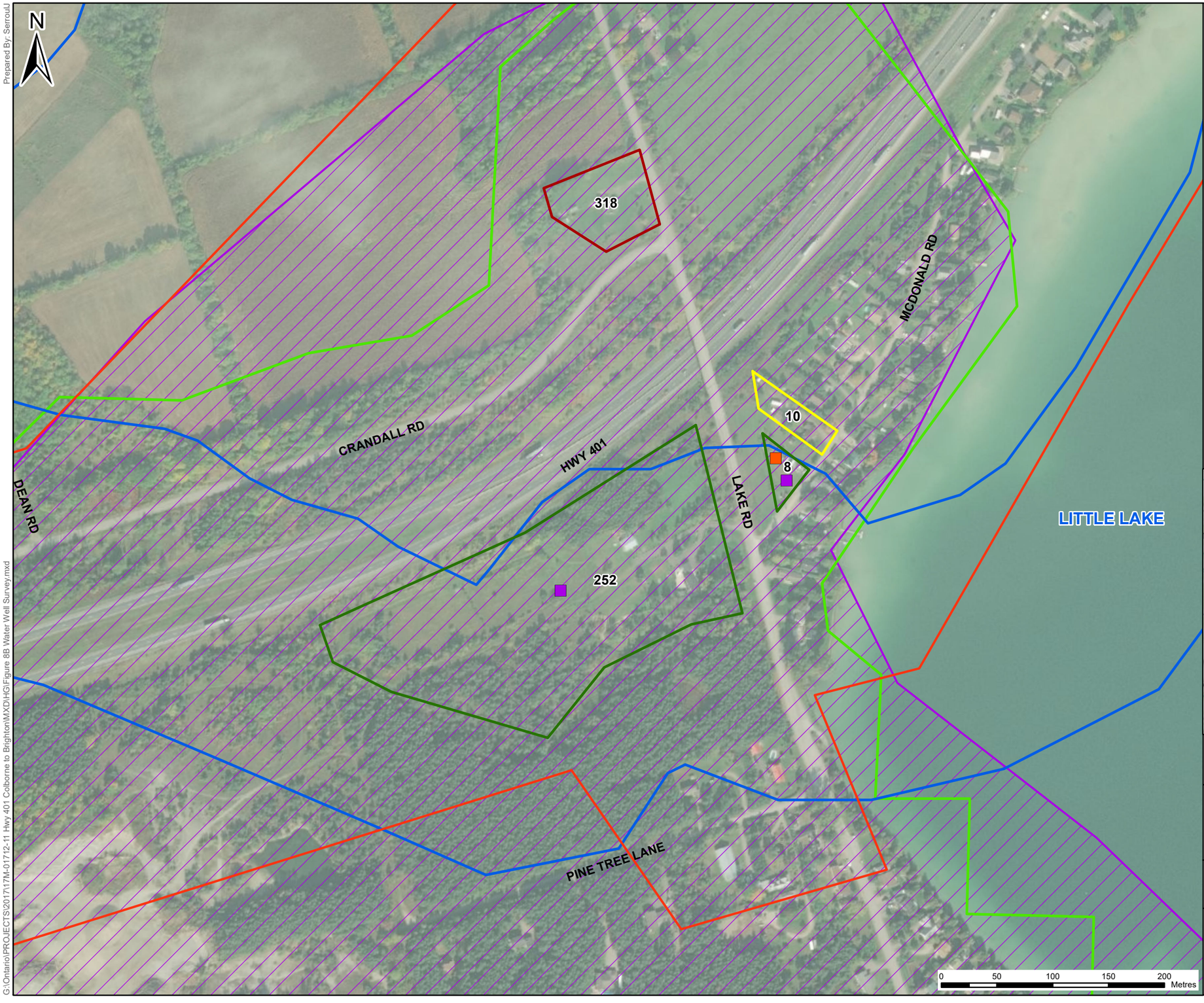
CLIENT:

ONTARIO MINISTRY OF TRANSPORTATION

PROJECT NO.:	REVIEWED BY:
17M-01712-11	NC
DATE: JULY 2021	FIGURE: **8A**

G:\Ontario\PROJECTS\2017\17M-01712-11 Hwy 401 Colborne to Brighton\MXD\HGIFigure 8A Water Well Survey.mxd

Prepared By: SerroulJ



LEGEND:

- STUDY LIMITS
- 500m STUDY AREA
- INTAKE PROTECTION ZONE 3
- HIGHLY VULNERABLE AQUIFERS
- SIGNIFICANT GROUNDWATER RECHARGE AREAS

WELLHEAD PROTECTION AREA

- WHPA - A
- WHPA - B
- WHPA - C
- WHPA - D

WATER QUALITY ISSUES (HEALTH RELATED)

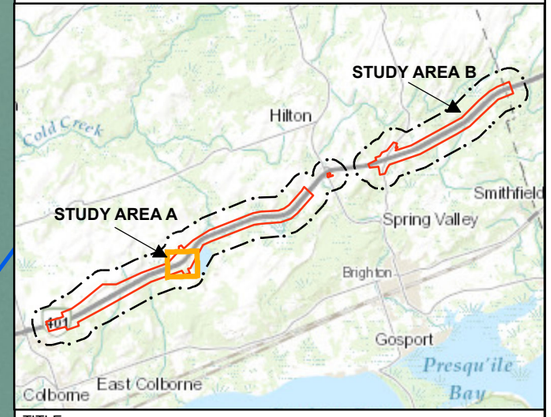
- SODIUM
- TOTAL COLIFORMS

WATER QUALITY (RESIDENT CONCERNS)

- HARDWATER
- IRON STAINING
- SEDIMENT

SURVEY PARTICIPATION

- PARTICIPATED
- NO PARTICIPATION
- NO RESPONSE



TITLE:

WATER WELL SURVEY RESULTS

PROJECT:

GROUNDWATER ASSESSMENT REPORT
HIGHWAY 401 PLANNING STUDY FROM
COLBORNE TO BRIGHTON
TOWNSHIP OF CRAMAHE, MUNICIPALITY OF BRIGHTON,
AND THE CITY OF QUINTE WEST, ONTARIO

CLIENT:

ONTARIO MINISTRY OF TRANSPORTATION

PROJECT NO.:	REVIEWED BY:
17M-01712-11	NC
DATE: JULY 2021	FIGURE: **8B**

G:\Ontario\PROJECTS\2017\17M-01712-11 Hwy 401 Colborne to Brighton\MXD\HGIFigure 8B Water Well Survey.mxd

Prepared By: SerroulJ

N

HWY 401

248

COCHRANE RD

0 50 100 150 200 Metres

LEGEND:

- STUDY LIMITS
- 500m STUDY AREA
- INTAKE PROTECTION ZONE 3
- HIGHLY VULNERABLE AQUIFERS
- SIGNIFICANT GROUNDWATER RECHARGE AREAS

WELLHEAD PROTECTION

- WHPA - A
- WHPA - B
- WHPA - C
- WHPA - D

WATER QUALITY ISSUES (HEALTH RELATED)

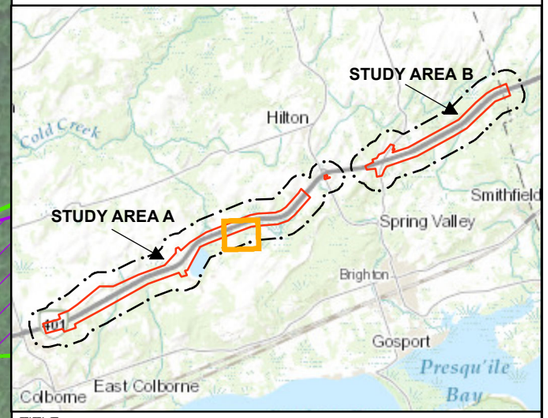
- SODIUM
- TOTAL COLIFORMS

WATER QUALITY (RESIDENT CONCERNS)

- HARDWATER
- IRON STAINING
- SEDIMENT

SURVEY PARTICIPATION

- PARTICIPATED
- NO PARTICIPATION
- NO RESPONSE



TITLE:

WATER WELL SURVEY RESULTS

PROJECT:

GROUNDWATER ASSESSMENT REPORT
HIGHWAY 401 PLANNING STUDY FROM
COLBORNE TO BRIGHTON
TOWNSHIP OF CRAMAHE, MUNICIPALITY OF BRIGHTON,
AND THE CITY OF QUINTE WEST, ONTARIO

CLIENT:

ONTARIO MINISTRY OF TRANSPORTATION

	PROJECT NO.:	REVIEWED BY:
wsp	17M-01712-11	NC
	DATE: JULY 2021	FIGURE: **8C**

G:\Ontario\PROJECTS\2017\17M-01712-11 Hwy 401 Colborne to Brighton\MXD\HGIFigure 8C Water Well Survey.mxd

Prepared By: SerroulJ

N

627

HWY 401

TELEPHONE RD

COUNTY RD 26

15791

15773

523

0 50 100 150 200 Metres

LEGEND:

- STUDY LIMITS
- 500m STUDY AREA
- INTAKE PROTECTION ZONE 3
- HIGHLY VULNERABLE AQUIFERS
- SIGNIFICANT GROUNDWATER RECHARGE AREAS

WELLHEAD PROTECTION AREA

- WHPA - A
- WHPA - B
- WHPA - C
- WHPA - D

WATER QUALITY ISSUES (HEALTH RELATED)

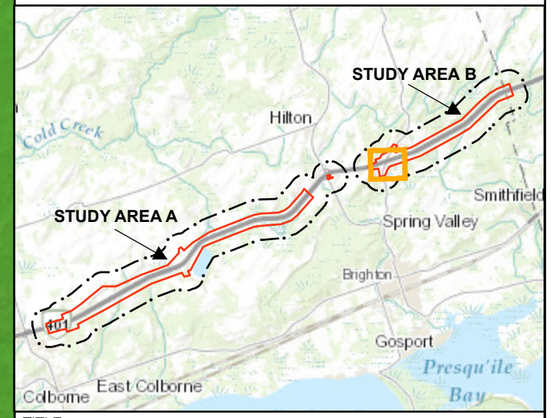
- SODIUM
- TOTAL COLIFORMS

WATER QUALITY (RESIDENT CONCERNS)

- HARDWATER
- IRON STAINING
- SEDIMENT

SURVEY PARTICIPATION

- PARTICIPATED
- NO PARTICIPATION
- NO RESPONSE



TITLE:

WATER WELL SURVEY RESULTS

PROJECT:

GROUNDWATER ASSESSMENT REPORT
HIGHWAY 401 PLANNING STUDY FROM
COLBORNE TO BRIGHTON
TOWNSHIP OF CRAMAHE, MUNICIPALITY OF BRIGHTON,
AND THE CITY OF QUINTE WEST, ONTARIO

CLIENT:

ONTARIO MINISTRY OF TRANSPORTATION

PROJECT NO.:	REVIEWED BY:
17M-01712-11	NC
DATE:	FIGURE:
JULY 2021	**8D**

G:\Ontario\PROJECTS\2017\17M-01712-11 Hwy 401 Colborne to Brighton\MXD\HGI\Figure 8D Water Well Survey.mxd

APPENDIX

A MECP WATER WELL RECORDS

Table 1A: Summary of MECP Water Well Records - Study Area A
Highway 401 Planning Study From Colborne to Brighton,
Township of Cramahe, Municipality of Brighton, and the City of Quinte West, Ontario

Well ID	Well Depth (m)	Final Status	Static Water Level (masl)	Date Completed	Well Type	Water Depth	Water Kind
4500237	27.13	Water Supply	0.91	13-Feb-61	Overburden	25.91	FRESH
4500239	110.64	Observation Wells	7.92	13-Oct-67	Bedrock	41.15	FRESH
4500241	24.69	Water Supply	3.66	23-Nov-67	Overburden	22.25	FRESH
4500242	43.89	Water Supply	10.67	13-Aug-65	Overburden	43.59	FRESH
4500243	45.42	Water Supply	38.10	28-Sep-65	Overburden	41.15	FRESH
4500260	56.08	Water Supply	9.45	24-Sep-65	Overburden	14.63	FRESH
4500263	31.09	Water Supply	13.72	11-Sep-58	Overburden	31.09	FRESH
4500395	11.28	Water Supply	0.30	15-Jul-60	Overburden	11.28	FRESH
4500397	24.69	Water Supply		26-Nov-57	Overburden	24.69	FRESH
4500398	10.06	Water Supply	-0.30	14-Sep-59	Overburden	10.06	FRESH
4500399	11.58	Water Supply		19-May-66	Overburden	11.58	FRESH
4500401	6.40	Water Supply	4.27	16-Jul-60	Overburden	6.40	FRESH
4500402	9.75	Water Supply	5.18	19-May-67	Overburden	5.18	FRESH
4500403	9.75	Water Supply	3.66	19-Sep-67	Overburden	3.66	FRESH
4500405	17.37	Water Supply	12.19	19-Mar-64	Overburden	12.80	FRESH
4500406	26.52	Water Supply	7.62	15-Apr-60	Overburden	26.21	FRESH
4500407	48.77	Water Supply	9.14	05-Nov-60	Overburden	48.77	FRESH
4500408	48.77	Water Supply	6.10	19-Nov-60	Overburden	48.77	FRESH
4500409	36.88	Water Supply	4.57	12-Oct-63	Overburden	36.58	FRESH
4500412	18.29	Water Supply	6.71	25-Apr-67	Overburden	17.37	FRESH
4500416	60.05	Water Supply	7.62	14-Nov-58	Overburden	59.44	FRESH
4502366	9.14	Water Supply	6.71	02-Jul-68	Overburden	6.71	FRESH
4502368	5.49	Water Supply	2.74	24-Jun-68	Overburden	2.74	FRESH
4502370	26.21	Water Supply	15.24	27-Nov-68	Overburden	26.21	FRESH
4502372	10.06	Water Supply	3.05	08-Nov-68	Overburden	6.10	FRESH
4502592	17.68	Water Supply	16.15	26-Nov-69	Overburden	17.37	FRESH
4502616	15.85	Water Supply	9.75	09-Feb-70	Overburden	9.75	FRESH
4502618	25.91	Water Supply	5.49	22-Dec-69	Overburden	25.91	FRESH
4502631	14.94	Water Supply	7.62	08-Apr-69	Overburden	13.72	FRESH
4502682	6.10	Water Supply	2.74	26-May-70	Overburden	2.74	FRESH
4502706	9.75	Water Supply	6.71	10-Jun-70	Overburden	6.71	FRESH
4503306	17.98	Water Supply	6.10	08-Sep-72	Overburden	12.19	FRESH
4503310	17.07	Water Supply	7.92	28-Jul-72	Overburden	15.54	FRESH
4503381	42.67	Water Supply	27.43	19-Jun-72	Overburden	10.67	FRESH
4503496	32.00	Water Supply	18.29	25-Jun-73	Overburden	30.48	FRESH
4503541	14.33	Water Supply	3.05	23-Jun-73	Overburden	13.72	FRESH
4503542	11.89	Water Supply	1.52	20-Jun-73	Overburden	10.67	FRESH
4503674	77.72	Test Hole	3.66	03-Sep-73	Overburden	3.66	FRESH
4503675	35.97	Test Hole		28-Aug-73	Bedrock		
4503676	86.56	Test Hole	3.05	10-Sep-73	Overburden	66.75	FRESH
4503714	45.11	Water Supply	12.19	09-Mar-74	Overburden	42.67	FRESH
4503739	17.07	Water Supply	9.14	25-Apr-74	Overburden	17.07	FRESH
4503844	16.76	Water Supply	10.67	28-Aug-74	Overburden	15.24	FRESH
4503847	14.02	Water Supply	0.00	30-Aug-74	Overburden	13.41	FRESH
4504099	13.41	Water Supply	7.62	13-Jun-75	Overburden	13.41	FRESH
4504100	17.98	Water Supply	9.14	16-Jun-75	Overburden	17.98	FRESH
4504329	69.19	Water Supply	30.48	03-Apr-76	Overburden	67.06	FRESH
4504345	10.67	Water Supply	3.66	28-May-76	Overburden	6.10	FRESH
4504399	9.45	Water Supply	4.57	15-May-76	Overburden	8.53	MINERIAL
4504400	18.59	Water Supply	12.19	15-May-76	Overburden	17.68	FRESH
4504407	9.14	Water Supply	4.88	17-Jun-76	Overburden	5.49	FRESH
4504669	16.15	Water Supply		06-Apr-77	Overburden	14.94	FRESH
4504702	32.31	Water Supply	6.10	11-Jul-77	Overburden	30.48	FRESH
4504746	35.05	Water Supply	21.34	08-Jul-77	Overburden	30.48	SALTY
4504778	19.81	Water Supply	9.14	25-Aug-77	Overburden	18.29	FRESH
4504816	15.85	Water Supply	6.10	26-Oct-77	Overburden	12.19	FRESH
4505026	24.38	Water Supply	12.19	14-Jul-78	Overburden	24.38	FRESH
4505110	50.90	Water Supply	5.49	03-Nov-78	Overburden	50.90	FRESH
4505119	11.58	Water Supply		11-May-78	Overburden	10.67	FRESH
4505129	62.18	Water Supply	29.87	31-Oct-78	Overburden	30.48	FRESH
4505207	24.69	Water Supply	15.24	09-Nov-78	Overburden	24.38	FRESH
4505342	19.81	Water Supply	7.62	04-Nov-79	Overburden	18.90	FRESH
4505787	49.07	Water Supply	18.90	09-Nov-81	Overburden	49.07	FRESH
4505800	9.14	Water Supply	0.00	16-Oct-82	Overburden	9.14	FRESH
4505848	35.05	Water Supply	30.48	10-Mar-83	Overburden	34.14	Not stated
4506041	17.07	Water Supply	8.53	27-Jun-84	Overburden	16.76	Not stated
4506129	32.00	Water Supply	9.14	13-Feb-85	Overburden	32.00	Not stated
4506262	20.42	Water Supply	1.22	18-Nov-85	Overburden	20.12	FRESH
4506490	28.65	Water Supply	9.14	03-Oct-86	Overburden	28.65	Not stated
4506504	11.58	Water Supply	4.57	07-Oct-86	Overburden	10.97	Not stated
4506699	7.62	Water Supply	3.66	10-Jun-87	Overburden	4.57	FRESH

Table 1A: Summary of MECP Water Well Records - Study Area A
Highway 401 Planning Study From Colborne to Brighton,
Township of Cramahe, Municipality of Brighton, and the City of Quinte West, Ontario

Well ID	Well Depth (m)	Final Status	Static Water Level (masl)	Date Completed	Well Type	Water Depth	Water Kind
4506700	11.28	Water Supply	3.05	10-Jun-87	Overburden	7.62	FRESH
4506702	47.24	Water Supply	25.91	10-Jun-87	Overburden	47.24	FRESH
4506745	47.85	Water Supply	32.92	17-Jun-87	Overburden	47.85	FRESH
4506890	23.16	Water Supply	9.14	19-Sep-87	Overburden	21.34	Not stated
4506892	37.49	Water Supply	12.19	02-Nov-87	Overburden	36.27	Not stated
4506999	10.97	Water Supply	6.71	09-Feb-88	Overburden	4.88	FRESH
4507315	17.37	Water Supply	9.14	27-Jul-88	Overburden	17.37	FRESH
4507332	19.20	Water Supply	13.11	14-Sep-88	Overburden	12.19	FRESH
4507407	18.29	Water Supply	9.14	24-Sep-88	Overburden	12.19	FRESH
4507463	7.01	Water Supply	5.49	26-Oct-88	Overburden	5.49	FRESH
4507621	6.40	Water Supply	3.35	07-Dec-88	Overburden	3.35	FRESH
4507622	6.10	Water Supply	0.91	05-Dec-88	Overburden	1.83	FRESH
4507741	32.92	Water Supply	6.10	21-Dec-88	Overburden	32.92	Not stated
4508007	11.28	Water Supply	4.57	12-Jul-89	Overburden	6.10	FRESH
4508029	37.49	Water Supply	23.77	01-Jun-89	Overburden	37.49	FRESH
4508191	31.70	Water Supply	11.89	18-Sep-89	Overburden	31.09	FRESH
4508192	36.58	Water Supply	29.26	19-Sep-89	Overburden	35.97	FRESH
4508239	9.45	Water Supply	3.05	26-Sep-89	Overburden	4.57	FRESH
4508398	36.58	Water Supply	10.67	12-Dec-89	Overburden	35.66	Not stated
4508406	12.50	Water Supply	3.66	28-Oct-89	Overburden	5.79	FRESH
4508422	9.45	Water Supply	3.05	08-Jan-90	Overburden	7.32	FRESH
4508477	28.04	Water Supply	10.67	16-Jan-90	Overburden	17.98	FRESH
4508478	8.84	Water Supply		10-Feb-90	Overburden	8.53	FRESH
4508771	9.45	Water Supply	5.49	20-Jun-90	Overburden	7.01	FRESH
4508787	21.34	Water Supply	6.10	11-Jul-90	Overburden	13.72	FRESH
4508940	29.57	Water Supply	14.63	16-Aug-90	Overburden	29.57	FRESH
4509089	38.10	Water Supply	28.96	21-Dec-90	Overburden	38.10	FRESH
4509297	11.89	Water Supply	5.49	12-Jul-91	Overburden	11.58	FRESH
4509323	36.27	Water Supply	14.33	31-Jul-91	Overburden	36.27	FRESH
4509362	11.58	Water Supply	8.53	03-Oct-91	Overburden	8.53	FRESH
4509425	14.02	Water Supply	7.62	04-Sep-91	Overburden	13.11	FRESH
4509427	21.03	Water Supply	14.94	19-Aug-91	Overburden	17.98	FRESH
4509428	10.06	Water Supply	5.79	21-Aug-91	Overburden	9.45	FRESH
4509545	10.67	Water Supply	4.88	29-Oct-91	Overburden	9.45	FRESH
4509611	51.21	Water Supply	33.53	03-Mar-92	Overburden	51.21	FRESH
4509775	28.65	Water Supply	9.14	07-Jul-92	Overburden	28.65	FRESH
4510055	36.58	Water Supply	7.62	01-Jul-93	Overburden	35.66	FRESH
4510127	15.54	Water Supply	6.71	20-Aug-93	Overburden	14.63	FRESH
4510128	13.72	Water Supply	5.49	26-Aug-93	Overburden	12.19	FRESH
4510213	4.27	Water Supply	2.13	15-Dec-93	Overburden	3.35	FRESH
4510359	29.26	Water Supply	6.40	26-Jul-94	Overburden	28.96	FRESH
4510598	3.35	Water Supply	2.13	19-Apr-95	Overburden	2.44	FRESH
4510649	6.40	Water Supply	-5.49	10-Jul-95	Overburden	6.40	Not stated
4510703	16.46	Water Supply	11.58	22-Sep-95	Overburden	16.46	FRESH
4510752	75.59			16-Sep-95	Overburden		
4510767	29.87	Water Supply	19.20	05-Oct-95	Overburden	24.99	FRESH
4510823		Water Supply	10.97	23-Jan-96			
4510826	20.42	Water Supply	10.67	30-Aug-95	Overburden	18.29	FRESH
4511070	28.35	Water Supply	21.95	02-Feb-96	Overburden	26.52	FRESH
4511151	29.26	Water Supply	6.71	26-May-97	Overburden		Not stated
4511168	7.62	Water Supply	4.27	09-Jul-97	Overburden	7.62	FRESH
4511176	22.56	Water Supply	5.79	10-Jun-97	Overburden	21.34	Not stated
4511193	14.63	Water Supply	8.84	13-Aug-97	Overburden	14.63	FRESH
4511216	65.23	Water Supply	29.26	23-Jul-97	Overburden	64.01	MINERIAL
4511241	23.77	Water Supply	3.35	18-Aug-97	Overburden	23.16	Not stated
4511353	41.15	Water Supply	6.10	03-Oct-97	Overburden	38.10	FRESH
4511354	34.14	Water Supply	14.02	09-Jun-97	Overburden	28.96	FRESH
4511393	35.97	Water Supply	21.34	12-Feb-98	Overburden	1.83	Not stated
4511408	10.67	Water Supply	3.66	18-Apr-98	Overburden	10.67	FRESH
4511455	31.09	Water Supply	11.58	25-Jun-98	Overburden	31.09	FRESH
4511458	20.42	Water Supply	7.01	15-Jun-98	Overburden	20.42	FRESH
4511537	32.00	Water Supply	22.86	13-Aug-98	Overburden	32.00	FRESH
4511659	9.14	Water Supply	0.30	27-Nov-98	Overburden	0.91	FRESH
4511883	16.76	Water Supply	7.32	20-Jul-99	Overburden	15.24	Not stated
4511887	37.80	Water Supply	23.16	14-Jul-99	Bedrock	29.57	FRESH
4511985	11.28	Water Supply	2.44	06-Oct-99	Overburden	11.28	FRESH
4511986	8.23	Water Supply	0.00	05-Oct-99	Overburden	8.23	FRESH
4511987	10.67	Water Supply	0.91	03-Oct-99	Overburden	10.67	FRESH
4512122	22.25	Water Supply	15.24	03-Feb-00	Overburden	22.25	FRESH
4512123	12.19	Water Supply	1.52	28-Jan-00	Overburden	5.79	FRESH
4512276	9.75	Water Supply		08-May-00	Overburden	8.53	FRESH

Table 1A: Summary of MECP Water Well Records - Study Area A
Highway 401 Planning Study From Colborne to Brighton,
Township of Cramahe, Municipality of Brighton, and the City of Quinte West, Ontario

Well ID	Well Depth (m)	Final Status	Static Water Level (masl)	Date Completed	Well Type	Water Depth	Water Kind
4512293	46.33	Water Supply	22.86	26-May-00	Overburden	20.12	Not stated
4512458	38.10	Water Supply	25.91	31-Oct-00	Overburden	38.10	FRESH
4512481	7.32	Water Supply	2.74	13-Dec-00	Overburden	7.32	FRESH
4512495	23.16	Water Supply	12.19	23-Jan-01	Overburden	23.16	FRESH
4512539	29.87	Water Supply	28.35	25-Nov-00	Overburden	28.35	FRESH
4512563	20.73	Water Supply	11.89	25-Jan-01	Overburden	20.73	FRESH
4512564	51.51	Water Supply	35.05	16-Feb-01	Overburden	51.51	FRESH
4512623	57.00	Water Supply	43.59	25-May-01	Overburden	57.00	FRESH
4512694	8.23	Water Supply	0.30	30-May-01	Overburden	8.23	FRESH
4512699	44.20	Water Supply	32.00	13-Jun-01	Bedrock	44.20	FRESH
4512762	16.15	Water Supply	7.62	17-Jul-01	Overburden	16.15	FRESH
4512773	20.42	Water Supply	3.05	15-Aug-01	Overburden	18.90	FRESH
4512831	9.14	Water Supply	5.18	19-Oct-01	Overburden	7.92	SULPHUR
4512875	10.67	Water Supply	3.66	10-Jan-02	Overburden	6.40	MINERIAL
4513011	16.46	Water Supply	10.67	30-Mar-02	Overburden	16.46	FRESH
4513128	16.15	Water Supply	7.62	17-Jul-01	Overburden	16.15	FRESH
4513412	48.77	Water Supply	36.58	30-Apr-03	Overburden	48.77	FRESH
4513512	15.85	Water Supply	8.53	15-Jul-03	Overburden	15.85	FRESH
4513784	9.75	Water Supply	0.63	30-Mar-04	Overburden	7.00	FRESH
4513832	8.99	Water Supply		13-May-04	Overburden	4.30	Not stated
4513890	21.60	Water Supply	20.60	19-May-04	Overburden	20.40	
4513986	6.10			21-Apr-04	Overburden		
4514047	34.70	Water Supply		22-Oct-04	Overburden	24.70	FRESH
4514193	10.37	Water Supply	1.10	19-Apr-05	Overburden	9.15	FRESH
4514200	19.80	Water Supply	13.10	14-Apr-05	Overburden	19.80	FRESH
4514227	11.59	Water Supply	1.06	10-May-05	Overburden	11.59	
4514405	9.76	Water Supply	3.34	25-Aug-05	Overburden	4.00	FRESH
4514412	72.60	Water Supply	35.80	07-Sep-05	Overburden	61.20	
4514418	8.84	Replacement Well	-0.79	17-Oct-05	Overburden	7.30	FRESH
4514421	11.27	Water Supply	4.25	06-Oct-05	Overburden	7.00	FRESH
4514557	11.28	Water Supply	3.93	11-Mar-06	Overburden	11.00	FRESH
4514613	22.80	Water Supply	13.70	07-Apr-06	Overburden	22.80	FRESH
4514617	14.30	Water Supply	5.40	23-Apr-06	Overburden	14.30	FRESH
4514810	16.46	Water Supply		07-May-06	Overburden	3.60	
7035732	5.30	Water Supply		10-Oct-06	Overburden	1.00	FRESH
7048756	13.72	Water Supply	4.59	27-Jul-07		12.50	FRESH
7050432	12.80	Water Supply	8.84	08-May-07		9.45	FRESH
7101842	17.98	Water Supply	3.35	13-Dec-07		17.68	FRESH
7108981	7.62	Water Supply	3.29	22-May-08		6.10	FRESH
7116999	6.30	Test Hole				3.60	FRESH
7119521	3.51	Monitoring and Test Hole		12-Jan-09			
7124571	10.06	Water Supply	-0.76	15-Jun-09		8.53	FRESH
7126112	14.94	Water Supply	4.57	26-Jun-09		14.94	FRESH
7128585	50.29	Water Supply	25.45	01-Jan-08		42.67	FRESH
7128636	27.13	Water Supply	6.52	30-Jul-09		7.32	FRESH
7132972		Test Hole		16-Sep-09			
7157165		Water Supply	5.49	04-Oct-10			
7171220	36.58	Water Supply	20.36	03-Nov-11		34.75	FRESH
7179120				22-Aug-11			
7180167	10.67	Water Supply	4.69	30-Mar-12		10.36	FRESH
7211356	26.21	Water Supply	18.29	22-Sep-13		26.21	Untested
7211357	38.10	Water Supply	27.43	25-Sep-13		38.10	Untested
7220241	50.60	Water Supply	6.43	02-Apr-14		15.24	FRESH
7220242	118.57			02-Apr-14			
7233183	54.25	Water Supply	13.92	23-Oct-14		54.25	FRESH
7241487	10.97	Water Supply	6.31	17-Apr-15		8.53	FRESH
7253920	74.10	Replacement Well	7.42	20-Nov-15		4.00	Untested
7256930	36.58	Water Supply	22.65	20-Nov-15		35.05	Untested
7265895	18.10	Monitoring and Test Hole		20-May-16			
7265922	30.00	Monitoring and Test Hole		17-May-16			
7302091	4.57	Observation Wells		04-Oct-17			
7310599	25.60	Water Supply	10.97	11-Jan-18		25.60	Untested
7332267				26-Apr-18			
7335852	23.77	Water Supply	5.73	23-May-19		21.34	FRESH

MECP Water Well Records

Well Record #

4500237 — **Lot** 004 **Conc** 03 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1961-02-13 **DD/MM/YYYY**

Elev 197.0 (masl) **Easting** 278231 **Northing** 4883651
/ Domestic Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found 25.9 (mbgs) 171.1 (masl) FRESH
Casing Diameter 7 inch **Casing Material:** STEEL
Top of Screen 25.9 (mbgs) **Bottom of Screen** 27.1 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 0.9 (mbgs) 196.1 (masl)
Pumping WL 6.1 (mbgs) 190.9 (masl)
Pump Rate 13.6 (LPM) 72 / 0
Spec. Cap. 2.63 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	197.0		
0.6	196.4		TOPSOIL / /
6.7	190.3		GRAVEL / FINE SAND /
9.8	187.3	BROWN	FINE SAND / /
25.9	171.1		HARDPAN / /
27.1	169.9	BROWN	FINE SAND / /

4500239 — **Lot** 004 **Conc** 03 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1967-10-13 **DD/MM/YYYY**

Elev 204.1 (masl) **Easting** 278353 **Northing** 4883578
/ Not Used Observation Wells **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found 41.1 (mbgs) 163.0 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 43.3 (mbgs) **Bottom of Screen** 44.2 (mbgs)
Screen Interval 0.9 (m)

Flowing? N
SWL 7.9 (mbgs) 196.2 (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	204.1		
0.3	203.8		TOPSOIL / /
4.6	199.6	BROWN	CLAY / /
12.2	192.0	GREY	CLAY / MEDIUM SAND / STONES
15.2	188.9		CLAY / MEDIUM SAND / GRAVEL
16.8	187.4		MEDIUM SAND / /
21.3	182.8		MEDIUM SAND / GRAVEL /
44.2	160.0		CLAY / /
45.7	158.4		MEDIUM SAND / GRAVEL /
109.1	95.0		CLAY / /
110.6	93.5		LIMESTONE / /

4500240 — **Lot** 004 **Conc** 03 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1967-11-03 **DD/MM/YYYY**

Elev 205.6 (masl) **Easting** 278372 **Northing** 4883562
/ Not Used Abandoned-Quality **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found 41.1 (mbgs) 164.5 (masl) FRESH
Casing Diameter 6 inch **Casing Material:**
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 4.3 (mbgs) 201.4 (masl)
Pumping WL 24.4 (mbgs) 181.3 (masl)
Pump Rate 68.2 (LPM) 8 / 0
Spec. Cap. 3.39 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	205.6		
0.3	205.3		TOPSOIL / /
3.0	202.6	BROWN	CLAY / /
15.2	190.4	BROWN	CLAY / STONES /
27.4	178.2		MEDIUM SAND / GRAVEL / STONES
41.5	164.2		CLAY / /
41.8	163.9		MEDIUM SAND / /
44.2	161.4		MEDIUM SAND / CLAY /

11-Nov-20
Record Count 3

Well Record #

4500241 — **Lot** 004 **Conc** 03 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1967-11-23 **DD/MM/YYYY**

Elev 205.1 (masl) **Easting** 278371 **Northing** 4883547
/ Commerical Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found 22.3 (mbgs) 182.9 (masl) FRESH
Casing Diameter 8 inch **Casing Material:** STEEL
Top of Screen 23.5 (mbgs) **Bottom of Screen** 24.1 (mbgs)
Screen Interval 0.6 (m)

Flowing? N
SWL 3.7 (mbgs) 201.5 (masl)
Pumping WL 21.3 (mbgs) 183.8 (masl)
Pump Rate 27.3 (LPM) /
Spec. Cap. 1.54 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	205.1				
0.3	204.8		TOPSOIL /		/
			TOPSOIL /		/
3.0	202.1	BROWN	CLAY /		/
		BROWN	CLAY /		/
15.2	189.9	BROWN	CLAY /	STONES	/
		BROWN	CLAY /	STONES	/
22.9	182.2		MEDIUM SAND /		/
			MEDIUM SAND /		/
23.2	181.9		COARSE SAND /		/
			COARSE SAND /		/
24.1	181.0		COARSE SAND /	GRAVEL	/
			COARSE SAND /	GRAVEL	/
24.4	180.7		MEDIUM SAND /	GRAVEL	/ CLAY
			MEDIUM SAND /	GRAVEL	/ CLAY
24.7	180.4		CLAY /		/
			CLAY /		/

4500242 — **Lot** 006 **Conc** 03 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1965-08-13 **DD/MM/YYYY**

Elev 207.6 (masl) **Easting** 277419 **Northing** 4883419
Domestic / Livestock Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found 43.6 (mbgs) 164.1 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 10.7 (mbgs) 197.0 (masl)
Pumping WL 34.7 (mbgs) 172.9 (masl)
Pump Rate 18.2 (LPM) 36 / 0
Spec. Cap. 0.76 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	207.6				
0.3	207.3		TOPSOIL /		/
7.6	200.0	BROWN	CLAY /		/
27.4	180.2	GREY	CLAY /	STONES	/
30.5	177.2	GREY	CLAY /	GRAVEL	/
43.6	164.1	GREY	CLAY /		/
43.9	163.8	BROWN	GRAVEL /		/

4500243 — **Lot** 007 **Conc** 03 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1965-09-28 **DD/MM/YYYY**

Elev 227.8 (masl) **Easting** 276941 **Northing** 4883248
Domestic / Livestock Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found 41.1 (mbgs) 186.7 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 44.2 (mbgs) **Bottom of Screen** 45.4 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 38.1 (mbgs) 189.7 (masl)
Pumping WL 43.3 (mbgs) 184.5 (masl)
Pump Rate 13.6 (LPM) 6 / 0
Spec. Cap. 2.63 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	227.8				
0.3	227.5		TOPSOIL /		/
7.3	220.5	BROWN	CLAY /	STONES	/
35.4	192.5	GREY	CLAY /		/
39.6	188.2	GREY	CLAY /	STONES	/
43.3	184.5	BROWN	GRAVEL /	MEDIUM SAND	/
45.4	182.4	BROWN	COARSE SAND /		/

11-Nov-20
Record Count 6

Well Record #

4500260 — **Lot** 004 **Conc** 04 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1965-09-24 **DD/MM/YYYY**

Elev 202.1 (masl) **Easting** 278237 **Northing** 4884238

Domestic / Livestock Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**

Water Found 14.6 (mbgs) 187.5 (masl) FRESH

Casing Diameter 6 inch **Casing Material:** STEEL

Top of Screen (mbgs) **Bottom of Screen** (mbgs)

Screen Interval (m)

Flowing? N

SWL	9.4 (mbgs)	192.6 (masl)	
Pumping WL	42.7 (mbgs)	159.4 (masl)	
Pump Rate	22.7 (LPM)	5 / 0	
Spec. Cap.	0.68 (LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	202.1				
0.3	201.8		TOPSOIL /		/
9.1	192.9	GREY	CLAY /	BOULDERS	/
12.2	189.9	GREY	CLAY /		/
12.5	189.6	BROWN	MEDIUM SAND /	CLAY	/
54.9	147.2	GREY	CLAY /	MEDIUM SAND	/
56.1	146.0		MEDIUM SAND /	GRAVEL	/

4500263 — **Lot** 010 **Conc** 04 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1958-09-11 **DD/MM/YYYY**

Elev 199.6 (masl) **Easting** 275700 **Northing** 4882987

/ Domestic Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**

Water Found 31.1 (mbgs) 168.5 (masl) FRESH

Casing Diameter 6 inch **Casing Material:** STEEL

Top of Screen (mbgs) **Bottom of Screen** (mbgs)

Screen Interval (m)

Flowing? N

SWL	13.7 (mbgs)	185.9 (masl)	
Pumping WL	17.4 (mbgs)	182.2 (masl)	
Pump Rate	9.1 (LPM)	2 / 0	
Spec. Cap.	2.49 (LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	199.6				
1.2	198.4		CLAY /		/
7.6	192.0		HARDPAN /		/
18.3	181.3	BROWN	CLAY /		/
24.4	175.2		QUICKSAND /		/
31.1	168.5		HARDPAN /		/

4500395 — **Lot** 015 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1960-07-15 **DD/MM/YYYY**

Elev 177.7 (masl) **Easting** 274151 **Northing** 4881179

/ Domestic Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**

Water Found 11.3 (mbgs) 166.4 (masl) FRESH

Casing Diameter 6 inch **Casing Material:** STEEL

Top of Screen (mbgs) **Bottom of Screen** (mbgs)

Screen Interval (m)

Flowing? N

SWL	0.3 (mbgs)	177.4 (masl)	
Pumping WL	5.5 (mbgs)	172.2 (masl)	
Pump Rate	22.7 (LPM)	1 / 0	
Spec. Cap.	4.39 (LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	177.7				
11.3	166.4		MEDIUM SAND /	QUICKSAND	/

4500397 — **Lot** 016 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1957-11-26 **DD/MM/YYYY**

Elev 172.9 (masl) **Easting** 273648 **Northing** 4881357

/ Domestic Water Supply **UTM RC** 9 **unknown UTM**

Water Found 24.7 (mbgs) 148.2 (masl) FRESH

Casing Diameter 6 inch **Casing Material:** STEEL

Top of Screen (mbgs) **Bottom of Screen** (mbgs)

Screen Interval (m)

Flowing? Y

SWL	(mbgs)	(masl)	
Pumping WL	0.0 (mbgs)	172.9 (masl)	
Pump Rate	77.3 (LPM)	1 / 0	
Spec. Cap.	(LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	172.9				
7.6	165.3	BLACK	MUCK /		/
24.7	148.2		MEDIUM SAND /	GRAVEL	/

Well Record #

4500398 — **Lot** 016 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1959-09-14 (DD/MM/YYYY) — **Elev** 172.7 (masl) — **Easting** 273396 — **Northing** 4881002 — **UTM RC** 5 — **margin of error : 100 m - 300 m**

/ Domestic — Water Supply

Water Found 10.1 (mbgs) 162.6 (masl) FRESH

Casing Diameter 6 inch — **Casing Material:** STEEL

Top of Screen (mbgs) — **Bottom of Screen** (mbgs)

Screen Interval (m)

Flowing? Y

SWL	-0.3	(mbgs)	173.0	(masl)
Pumping WL	4.6	(mbgs)	168.1	(masl)
Pump Rate	45.5	(LPM)	2	/ 0
Spec. Cap.	9.32	(LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	172.7		
6.1	166.6	BLACK	MUCK / /
9.1	163.5	BLUE	CLAY / /
10.1	162.6		GRAVEL / /

4500399 — **Lot** 016 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1966-05-19 (DD/MM/YYYY) — **Elev** 175.0 (masl) — **Easting** 273720 — **Northing** 4881620 — **UTM RC** 5 — **margin of error : 100 m - 300 m**

/ Domestic — Water Supply

Water Found 11.6 (mbgs) 163.4 (masl) FRESH

Casing Diameter 6 inch — **Casing Material:** STEEL

Top of Screen (mbgs) — **Bottom of Screen** (mbgs)

Screen Interval (m)

Flowing? Y

SWL		(mbgs)		(masl)
Pumping WL	6.1	(mbgs)	168.9	(masl)
Pump Rate	45.5	(LPM)	1	/ 0
Spec. Cap.		(LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	175.0		
1.2	173.8		TOPSOIL / /
9.1	165.9		CLAY / STONES /
11.6	163.4		GRAVEL / /

4500401 — **Lot** 017 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1960-07-16 (DD/MM/YYYY) — **Elev** 173.0 (masl) — **Easting** 273343 — **Northing** 4880503 — **UTM RC** 5 — **margin of error : 100 m - 300 m**

/ Domestic — Water Supply

Water Found 6.4 (mbgs) 166.6 (masl) FRESH

Casing Diameter 6 inch — **Casing Material:** STEEL

Top of Screen (mbgs) — **Bottom of Screen** (mbgs)

Screen Interval (m)

Flowing? N

SWL	4.3	(mbgs)	168.7	(masl)
Pumping WL	4.6	(mbgs)	168.4	(masl)
Pump Rate	22.7	(LPM)	0	/ 30
Spec. Cap.	74.57	(LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	173.0		
6.4	166.6		GRAVEL / /

4500402 — **Lot** 017 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1967-05-19 (DD/MM/YYYY) — **Elev** 195.7 (masl) — **Easting** 273118 — **Northing** 4881296 — **UTM RC** 5 — **margin of error : 100 m - 300 m**

/ Domestic — Water Supply

Water Found 5.2 (mbgs) 190.5 (masl) FRESH

Casing Diameter 30 inch — **Casing Material:** CONCRETE

Top of Screen 5.2 (mbgs) — **Bottom of Screen** 10.1 (mbgs)

Screen Interval 4.9 (m)

Flowing? N

SWL	5.2	(mbgs)	190.5	(masl)
Pumping WL		(mbgs)		(masl)
Pump Rate	9.1	(LPM)		/
Spec. Cap.		(LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	195.7		
5.2	190.5	BROWN	CLAY / STONES /
9.8	186.0	BROWN	CLAY / GRAVEL / STONES

4500403 — **Lot** 017 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1967-09-19 (DD/MM/YYYY) — **Elev** 173.7 (masl) — **Easting** 273273 — **Northing** 4880852 — **UTM RC** 5 — **margin of error : 100 m - 300 m**

/ Domestic — Water Supply

Water Found 3.7 (mbgs) 170.1 (masl) FRESH

Casing Diameter 30 inch — **Casing Material:** CONCRETE

Top of Screen (mbgs) — **Bottom of Screen** (mbgs)

Screen Interval (m)

Flowing? N

SWL	3.7	(mbgs)	170.1	(masl)
Pumping WL		(mbgs)		(masl)
Pump Rate	9.1	(LPM)		/
Spec. Cap.		(LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	173.7		

Well Record #

Depth (m)	Elev (masl)	Color	Soil Descriptions
3.7	170.1	BROWN	CLAY / STONES /
9.8	164.0	BROWN	CLAY / GRAVEL / STONES

4500405 **Lot** 024 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1964-03-19 **DD/MM/YYYY** **Elev** 203.2 (masl) Domestic / Livestock **Easting** 270324 Water Supply **Northing** 4880665 **UTM RC** 5 **margin of error : 100 m - 300 m**

Water Found 12.8 (mbgs) 190.4 (masl) FRESH

Casing Diameter 6 inch **Casing Material:** STEEL

Top of Screen 11.9 (mbgs) **Bottom of Screen** 17.4 (mbgs)

Screen Interval 5.5 (m)

Flowing? N
SWL 12.2 (mbgs) 191.0 (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	203.2		
12.8	190.4		PREVIOUSLY DUG / /
17.4	185.8		CLAY / MEDIUM SAND / GRAVEL

4500406 **Lot** 025 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1960-04-15 **DD/MM/YYYY** **Elev** 167.3 (masl) / Domestic **Easting** 270457 Water Supply **Northing** 4879168 **UTM RC** 5 **margin of error : 100 m - 300 m**

Water Found 26.2 (mbgs) 141.1 (masl) FRESH

Casing Diameter 6 inch **Casing Material:** STEEL

Top of Screen (mbgs) **Bottom of Screen** (mbgs)

Screen Interval (m)

Flowing? N
SWL 7.6 (mbgs) 159.7 (masl)
Pumping WL 20.1 (mbgs) 147.2 (masl)
Pump Rate 22.7 (LPM) 2 / 0
Spec. Cap. 1.82 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	167.3		
15.2	152.1	BROWN	CLAY / /
24.4	142.9		FINE SAND / /
26.5	140.8		GRAVEL / /

4500407 **Lot** 025 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1960-11-05 **DD/MM/YYYY** **Elev** 168.4 (masl) / Domestic **Easting** 270444 Water Supply **Northing** 4879204 **UTM RC** 5 **margin of error : 100 m - 300 m**

Water Found 48.8 (mbgs) 119.6 (masl) FRESH

Casing Diameter 6 inch **Casing Material:** STEEL

Top of Screen (mbgs) **Bottom of Screen** (mbgs)

Screen Interval (m)

Flowing? N
SWL 9.1 (mbgs) 159.3 (masl)
Pumping WL 18.3 (mbgs) 150.1 (masl)
Pump Rate 63.6 (LPM) 6 / 0
Spec. Cap. 6.96 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	168.4		
26.5	141.9		PREV. DRILLED / /
48.8	119.6		FINE SAND / /

4500408 **Lot** 025 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1960-11-19 **DD/MM/YYYY** **Elev** 167.7 (masl) / Domestic **Easting** 270486 Water Supply **Northing** 4879247 **UTM RC** 5 **margin of error : 100 m - 300 m**

Water Found 48.8 (mbgs) 118.9 (masl) FRESH

Casing Diameter 6 inch **Casing Material:** STEEL

Top of Screen (mbgs) **Bottom of Screen** (mbgs)

Screen Interval (m)

Flowing? N
SWL 6.1 (mbgs) 161.6 (masl)
Pumping WL 24.4 (mbgs) 143.3 (masl)
Pump Rate 22.7 (LPM) 4 / 0
Spec. Cap. 1.24 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	167.7		
26.5	141.2		PREV. DRILLED / /
48.8	118.9		FINE SAND / /

Well Record #

4500409 — **Lot** 027 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1963-10-12 **DD/MM/YYYY**

Elev 168.0 (masl) **Easting** 269677 **Northing** 4878998
/ Domestic Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found 36.6 (mbgs) 131.4 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 4.6 (mbgs) 163.4 (masl)
Pumping WL 7.6 (mbgs) 160.4 (masl)
Pump Rate 136.4 (LPM) 3 / 0
Spec. Cap. 44.74 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions	
0.0	168.0			
0.6	167.4		TOPSOIL /	/
3.0	165.0		BOULDERS /	/
19.5	148.5	WHITE	MEDIUM SAND /	/
36.9	131.1	BROWN	MEDIUM SAND / GRAVEL	/

4500411 — **Lot** 029 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1966-07-04 **DD/MM/YYYY**

Elev 167.0 (masl) **Easting** 269050 **Northing** 4878786
/ Not Used Abandoned-Supply **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found (mbgs) (masl)
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions	
0.0	167.0			
12.2	154.8		MEDIUM SAND /	/
67.7	99.3		QUICKSAND /	/

4500412 — **Lot** 031 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1967-04-25 **DD/MM/YYYY**

Elev 169.4 (masl) **Easting** 268170 **Northing** 4878514
/ Domestic Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found 17.4 (mbgs) 152.0 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 6.7 (mbgs) 162.7 (masl)
Pumping WL 18.3 (mbgs) 151.1 (masl)
Pump Rate 4.5 (LPM) 0 / 30
Spec. Cap. 0.39 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions	
0.0	169.4			
0.9	168.5		TOPSOIL /	/
18.3	151.1	BROWN	MEDIUM SAND /	/

4500416 — **Lot** 014 **Conc** 04 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1958-11-14 **DD/MM/YYYY**

Elev 166.1 (masl) **Easting** 274105 **Northing** 4882481
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 59.4 (mbgs) 106.6 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 7.6 (mbgs) 158.5 (masl)
Pumping WL 60.0 (mbgs) 106.0 (masl)
Pump Rate 9.1 (LPM) 1 / 0
Spec. Cap. 0.17 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions	
0.0	166.1			
0.9	165.2	BLACK	TOPSOIL /	/
10.7	155.4		MEDIUM SAND /	/
12.2	153.9	BLUE	CLAY /	/
14.0	152.1		MEDIUM SAND /	/
26.8	139.3		HARDPAN /	/
59.4	106.6	GREY	CLAY /	/
60.0	106.0		GRAVEL /	/

Well Record #

4502366 **Lot** 018 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1968-07-02 **DD/MM/YYYY**

Elev 180.8 (masl) **Easting** 273230 **Northing** 4880521
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 6.7 (mbgs) 174.1 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 6.7 (mbgs) 174.1 (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	180.8		
0.6	180.2		TOPSOIL / /
9.1	171.6		GRAVEL / /

4502368 **Lot** 030 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1968-06-24 **DD/MM/YYYY**

Elev 168.7 (masl) **Easting** 268430 **Northing** 4878621
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 2.7 (mbgs) 165.9 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 2.7 (mbgs) 165.9 (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	168.7		
0.6	168.1		TOPSOIL / /
5.5	163.2		MEDIUM SAND / /

4502370 **Lot** 016 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1968-11-27 **DD/MM/YYYY**

Elev 190.4 (masl) **Easting** 273330 **Northing** 4882021
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 26.2 (mbgs) 164.1 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 15.2 (mbgs) 175.1 (masl)
Pumping WL 21.3 (mbgs) 169.0 (masl)
Pump Rate 22.7 (LPM) 3 / 0
Spec. Cap. 3.73 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	190.4		
10.7	179.7		PREVIOUSLY DUG / /
24.4	166.0		MEDIUM SAND / GRAVEL /
26.2	164.1		GRAVEL / /

4502372 **Lot** 030 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1968-11-08 **DD/MM/YYYY**

Elev 167.8 (masl) **Easting** 268630 **Northing** 4878671
Domestic / Livestock Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 6.1 (mbgs) 161.7 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 3.0 (mbgs) 164.7 (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	167.8		
0.6	167.1		TOPSOIL / /
6.1	161.7	BLUE	CLAY / BOULDERS /
10.1	157.7		MEDIUM SAND / /

Well Record #

4502592 **Lot** 024 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1969-11-26 **DD/MM/YYYY**

Elev 179.7 (masl) **Easting** 270720 **Northing** 4880191
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 17.4 (mbgs) 162.3 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 16.2 (mbgs) 163.6 (masl)
Pumping WL 17.1 (mbgs) 162.7 (masl)
Pump Rate 27.3 (LPM) 1 / 0
Spec. Cap. 29.83 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	179.7		
16.5	163.3		MEDIUM SAND / /
17.7	162.0		HARDPAN / STONES /

4502616 **Lot** 017 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1970-02-09 **DD/MM/YYYY**

Elev 183.0 (masl) **Easting** 273480 **Northing** 4880171
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 9.8 (mbgs) 173.3 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 9.8 (mbgs) 173.3 (masl)
Pumping WL 10.7 (mbgs) 172.3 (masl)
Pump Rate 22.7 (LPM) 0 / 30
Spec. Cap. 24.86 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	183.0		
13.7	169.3		GRAVEL / /
15.8	167.2		MEDIUM SAND / GRAVEL /

4502618 **Lot** 018 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1969-12-22 **DD/MM/YYYY**

Elev 197.2 (masl) **Easting** 272830 **Northing** 4881801
Domestic / Livestock Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 25.9 (mbgs) 171.3 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 5.5 (mbgs) 191.7 (masl)
Pumping WL 22.9 (mbgs) 174.3 (masl)
Pump Rate 22.7 (LPM) 2 / 0
Spec. Cap. 1.31 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	197.2		
13.4	183.8		PREVIOUSLY DUG / /
19.8	177.4		CLAY / GRAVEL /
21.3	175.9		GRAVEL / /
25.9	171.3		MEDIUM SAND / GRAVEL /

4502631 **Lot** 017 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1969-04-08 **DD/MM/YYYY**

Elev 177.0 (masl) **Easting** 273330 **Northing** 4880971
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 13.7 (mbgs) 163.3 (masl) FRESH
Casing Diameter 5 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 7.6 (mbgs) 169.4 (masl)
Pumping WL 12.2 (mbgs) 164.8 (masl)
Pump Rate 18.2 (LPM) 4 / 0
Spec. Cap. 3.98 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	177.0		
10.7	166.3		GRAVEL / STONES / CLAY
11.6	165.4		MEDIUM SAND / GRAVEL /
12.2	164.8		HARDPAN / GRAVEL /
13.4	163.6		QUICKSAND / /
14.9	162.0		HARDPAN / GRAVEL /

Well Record #

4502682 **Lot** 030 **Conc** 02 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1970-05-26 **DD/MM/YYYY**

Elev 166.7 (masl) **Easting** 268430 **Northing** 4878481
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 2.7 (mbgs) 163.9 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 2.7 (mbgs) 163.9 (masl)
Pumping WL 5.5 (mbgs) 161.2 (masl)
Pump Rate 54.6 (LPM) 1 / 0
Spec. Cap. 19.89 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	166.7		
5.5	161.2		MEDIUM SAND / /
6.1	160.6		GRAVEL / /

4502706 **Lot** 025 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1970-06-10 **DD/MM/YYYY**

Elev 164.6 (masl) **Easting** 270570 **Northing** 4879221
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 6.7 (mbgs) 157.9 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 6.7 (mbgs) 157.9 (masl)
Pumping WL 9.1 (mbgs) 155.4 (masl)
Pump Rate 36.4 (LPM) 1 / 0
Spec. Cap. 14.91 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	164.6		
0.3	164.3		TOPSOIL / /
9.8	154.8		MEDIUM SAND / /

4503306 **Lot** 007 **Conc** 03 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1972-09-08 **DD/MM/YYYY**

Elev 223.4 (masl) **Easting** 277010 **Northing** 4882851
/ Commerical Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 12.2 (mbgs) 211.3 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 16.2 (mbgs) **Bottom of Screen** 17.4 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 6.1 (mbgs) 217.3 (masl)
Pumping WL 12.5 (mbgs) 210.9 (masl)
Pump Rate 113.7 (LPM) 2 / 30
Spec. Cap. 17.76 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	223.4		
0.3	223.1	BROWN	TOPSOIL / /
12.2	211.3	GREY	CLAY / GRAVEL /
18.0	205.5	BROWN	GRAVEL / SAND /

4503310 **Lot** 003 **Conc** 03 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1972-07-28 **DD/MM/YYYY**

Elev 211.6 (masl) **Easting** 278480 **Northing** 4883721
/ Commerical Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 15.5 (mbgs) 196.1 (masl) FRESH
Casing Diameter 8 inch **Casing Material:** STEEL
Top of Screen 15.8 (mbgs) **Bottom of Screen** 17.1 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 7.9 (mbgs) 203.7 (masl)
Pumping WL 14.0 (mbgs) 197.6 (masl)
Pump Rate 36.4 (LPM) 4 / 30
Spec. Cap. 5.97 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	211.6		
5.5	206.2	BROWN	CLAY / STONES / HARDPAN
15.5	196.1	GREY	CLAY / SAND /
17.1	194.6	BROWN	GRAVEL / SAND /

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4503381 **Lot** 007 **Conc** 04 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1972-06-19 **DD/MM/YYYY**

Elev 230.1 (masl) **Easting** 276980 **Northing** 4883351
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 10.7 (mbgs) 219.5 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 39.9 (mbgs) **Bottom of Screen** 42.7 (mbgs)
Screen Interval 2.7 (m)

Flowing? N

SWL	27.4 (mbgs)	202.7 (masl)	
Pumping WL	39.6 (mbgs)	190.5 (masl)	
Pump Rate	27.3 (LPM)	/	
Spec. Cap.	2.24 (LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	230.1		
0.6	229.5		TOPSOIL / /
10.7	219.5	GREY	CLAY / STONES /
12.2	217.9	BROWN	SAND / /
30.5	199.6	GREY	CLAY / STONES /
42.7	187.4	BROWN	SAND / GRAVEL /

4503496 **Lot** 026 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1973-06-25 **DD/MM/YYYY**

Elev 167.0 (masl) **Easting** 270156 **Northing** 4879119
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 30.5 (mbgs) 136.5 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 29.0 (mbgs) **Bottom of Screen** 31.1 (mbgs)
Screen Interval 2.1 (m)

Flowing? N

SWL	18.3 (mbgs)	148.7 (masl)	
Pumping WL	30.5 (mbgs)	136.5 (masl)	
Pump Rate	18.2 (LPM)	2 / 30	
Spec. Cap.	1.49 (LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	167.0		
9.1	157.9		SAND / PREVIOUSLY DUG /
30.5	136.5	GREY	SAND / BOULDERS /
32.0	135.0		SAND / GRAVEL /

4503541 **Lot** 017 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1973-06-23 **DD/MM/YYYY**

Elev 178.4 (masl) **Easting** 273227 **Northing** 4880874
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 13.7 (mbgs) 164.7 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N

SWL	3.0 (mbgs)	175.4 (masl)	
Pumping WL	11.3 (mbgs)	167.2 (masl)	
Pump Rate	22.7 (LPM)	5 / 20	
Spec. Cap.	2.76 (LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	178.4		
9.1	169.3	GREY	GRAVEL / /
13.1	165.3	GREY	CLAY / SAND /
14.3	164.1	GREY	GRAVEL / /

4503542 **Lot** 018 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1973-06-20 **DD/MM/YYYY**

Elev 178.8 (masl) **Easting** 273141 **Northing** 4880834
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 10.7 (mbgs) 168.1 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N

SWL	1.5 (mbgs)	177.3 (masl)	
Pumping WL	10.7 (mbgs)	168.1 (masl)	
Pump Rate	18.2 (LPM)	3 / 25	
Spec. Cap.	1.99 (LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	178.8		
7.6	171.2	GREY	SAND / STONES /
10.7	168.1	GREY	SAND / /
11.9	166.9	GREY	SAND / GRAVEL /

Well Record #

4503674 — **Lot** 030 **Conc** 02 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1973-09-03 **DD/MM/YYYY**

Elev 166.2 (masl) / Municipal **Easting** 268569 Test Hole **Northing** 4878523 **UTM RC** 4 **margin of error : 30 m - 100 m**

Water Found 3.7 (mbgs) 162.6 (masl) FRESH

Casing Diameter 6 inch **Casing Material:** STEEL

Top of Screen 67.1 (mbgs) **Bottom of Screen** 71.9 (mbgs)

Screen Interval 4.9 (m)

Flowing? N

SWL 3.7 (mbgs) 162.6 (masl)

Pumping WL (mbgs) (masl)

Pump Rate 181.8 (LPM) 16 / 0

Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	166.2		
4.6	161.7	BROWN	SAND / BOULDERS /
15.2	151.0	GREY	SAND / CLAY / STONES
29.0	137.3	BROWN	SAND /
32.3	133.9	GREY	CLAY / SAND /
33.2	133.0	BROWN	SAND /
74.7	91.6	GREY	SAND / MUCK /
77.7	88.5		CLAY /

4503675 — **Lot** 030 **Conc** 02 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1973-08-28 **DD/MM/YYYY**

Elev 167.1 (masl) / Municipal **Easting** 268554 Test Hole **Northing** 4878550 **UTM RC** 4 **margin of error : 30 m - 100 m**

Water Found (mbgs) (masl)

Casing Diameter **Casing Material:**

Top of Screen (mbgs) **Bottom of Screen** (mbgs)

Screen Interval (m)

Flowing?

SWL (mbgs) (masl)

Pumping WL (mbgs) (masl)

Pump Rate (LPM) /

Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	167.1		
7.0	160.1	BROWN	CLAY / GRAVEL / SAND
25.6	141.5	BROWN	GRAVEL / SAND /
27.1	139.9		GRAVEL / CLAY /
32.0	135.1		FINE SAND / /
36.0	131.1		SHALE / CLAY /

4503676 — **Lot** 030 **Conc** 02 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1973-09-10 **DD/MM/YYYY**

Elev 165.6 (masl) / Municipal **Easting** 268588 Test Hole **Northing** 4878502 **UTM RC** 4 **margin of error : 30 m - 100 m**

Water Found 66.8 (mbgs) 98.9 (masl) FRESH

Casing Diameter 6 inch **Casing Material:** STEEL

Top of Screen 66.8 (mbgs) **Bottom of Screen** 71.3 (mbgs)

Screen Interval 4.6 (m)

Flowing? N

SWL 3.0 (mbgs) 162.6 (masl)

Pumping WL 18.3 (mbgs) 147.4 (masl)

Pump Rate 568.3 (LPM) 24 / 0

Spec. Cap. 37.29 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	165.6		
3.0	162.6	BROWN	SAND / BOULDERS /
35.1	130.6	BROWN	SAND / CLAY /
54.9	110.8	GREY	SAND / CLAY /
71.6	94.0	GREY	SAND /
74.7	91.0	GREY	SAND / CLAY /
86.6	79.1	GREY	CLAY /

4503714 — **Lot** 025 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1974-03-09 **DD/MM/YYYY**

Elev 195.2 (masl) / Domestic **Easting** 270246 Water Supply **Northing** 4880177 **UTM RC** 4 **margin of error : 30 m - 100 m**

Water Found 42.7 (mbgs) 152.5 (masl) FRESH

Casing Diameter 6 inch **Casing Material:** STEEL

Top of Screen 43.6 (mbgs) **Bottom of Screen** 45.1 (mbgs)

Screen Interval 1.5 (m)

Flowing? N

SWL 12.2 (mbgs) 183.0 (masl)

Pumping WL 42.7 (mbgs) 152.5 (masl)

Pump Rate 31.8 (LPM) 4 / 30

Spec. Cap. 1.04 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	195.2		

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21.3	173.8		SAND /	PREVIOUSLY DUG	/
33.5	161.6		SAND /		/
38.1	157.1	WHITE	CLAY /	STONES	/
39.6	155.5		SAND /		/
45.1	150.1	BLACK	SAND /	GRAVEL	/

4503739 **Lot** 025 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1974-04-25 **DD/MM/YYYY**

Elev 199.3 (masl) **Easting** 270330 **Northing** 4880271

/ Domestic Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**

Water Found 17.1 (mbgs) 182.2 (masl) FRESH

Casing Diameter 6 inch **Casing Material:** STEEL

Top of Screen 15.2 (mbgs) **Bottom of Screen** 17.1 (mbgs)

Screen Interval 1.8 (m)

Flowing? N

SWL	9.1	(mbgs)	190.2	(masl)
Pumping WL	15.2	(mbgs)	184.1	(masl)
Pump Rate	36.4	(LPM)	2 / 30	
Spec. Cap.	5.97	(LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	199.3		
1.5	197.8		TOPSOIL / WOOD FRAGMENTS / SOFT
15.2	184.1		SAND / BOULDERS / HARD
17.1	182.2		SAND / FINE GRAVEL / HARD

4503844 **Lot** 022 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1974-08-28 **DD/MM/YYYY**

Elev 177.7 (masl) **Easting** 271430 **Northing** 4880371

/ Domestic Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**

Water Found 15.2 (mbgs) 162.5 (masl) FRESH

Casing Diameter 6 inch **Casing Material:** STEEL

Top of Screen (mbgs) **Bottom of Screen** (mbgs)

Screen Interval (m)

Flowing? N

SWL	10.7	(mbgs)	167.1	(masl)
Pumping WL	12.2	(mbgs)	165.5	(masl)
Pump Rate	68.2	(LPM)	4 / 30	
Spec. Cap.	44.74	(LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	177.7		
7.6	170.1	BROWN	SAND / CLAY /
13.7	164.0	BROWN	SAND / SILT /
15.2	162.5	BROWN	FINE SAND / WATER-BEARING /
16.8	161.0	BROWN	COARSE SAND / WATER-BEARING /

4503847 **Lot** 022 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1974-08-30 **DD/MM/YYYY**

Elev 177.8 (masl) **Easting** 271480 **Northing** 4880371

/ Domestic Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**

Water Found 13.4 (mbgs) 164.3 (masl) FRESH

Casing Diameter 6 inch **Casing Material:** STEEL

Top of Screen (mbgs) **Bottom of Screen** (mbgs)

Screen Interval (m)

Flowing? N

SWL	0.0	(mbgs)	177.8	(masl)
Pumping WL	4.9	(mbgs)	172.9	(masl)
Pump Rate	68.2	(LPM)	3 / 0	
Spec. Cap.	13.98	(LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	177.8		
12.2	165.6	GREY	CLAY / STONES /
13.4	164.3	GREY	SAND / GRAVEL /
14.0	163.7	GREY	GRAVEL / /

4504099 **Lot** 017 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1975-06-13 **DD/MM/YYYY**

Elev 173.3 (masl) **Easting** 273450 **Northing** 4880381

/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**

Water Found 13.4 (mbgs) 159.9 (masl) FRESH

Casing Diameter 6 inch **Casing Material:** STEEL

Top of Screen (mbgs) **Bottom of Screen** (mbgs)

Screen Interval (m)

Flowing? N

SWL	7.6	(mbgs)	165.7	(masl)
Pumping WL	7.6	(mbgs)	165.7	(masl)
Pump Rate	90.9	(LPM)	2 / 30	
Spec. Cap.	9,999.99	(LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	173.3		
12.2	161.2	BROWN	SAND / GRAVEL /
13.4	159.9	GREY	COARSE GRAVEL / /

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4504100 **Lot** 026 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1975-06-16 **DD/MM/YYYY**

Elev 189.9 (masl) **Easting** 269830 **Northing** 4879971
/ Domestic Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found 18.0 (mbgs) 172.0 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 9.1 (mbgs) 180.8 (masl)
Pumping WL 16.8 (mbgs) 173.2 (masl)
Pump Rate 22.7 (LPM) 2 / 30
Spec. Cap. 2.98 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	189.9		
2.4	187.5	BROWN	GRAVEL / /
17.4	172.6	BROWN	SAND / /
18.0	172.0	BROWN	COARSE GRAVEL / /

4504329 **Lot** 026 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1976-04-03 **DD/MM/YYYY**

Elev 191.6 (masl) **Easting** 269750 **Northing** 4879721
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 67.1 (mbgs) 124.6 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 66.1 (mbgs) **Bottom of Screen** 69.2 (mbgs)
Screen Interval 3.0 (m)

Flowing? N
SWL 30.5 (mbgs) 161.1 (masl)
Pumping WL 61.0 (mbgs) 130.7 (masl)
Pump Rate 22.7 (LPM) 2 / 30
Spec. Cap. 0.75 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	191.6		
10.1	181.6		PREVIOUSLY DUG / /
15.2	176.4		SAND / CLAY / LIGHT-COLOURED
68.6	123.0		SAND / HARD / LIGHT-COLOURED
69.2	122.4		SAND / FINE SAND / DARK-COLOURED

4504345 **Lot** 015 **Conc** 04 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1976-05-28 **DD/MM/YYYY**

Elev 167.8 (masl) **Easting** 274030 **Northing** 4882451
/ Domestic Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found 6.1 (mbgs) 161.7 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 3.7 (mbgs) 164.2 (masl)
Pumping WL 10.1 (mbgs) 157.8 (masl)
Pump Rate 45.5 (LPM) 1 / 0
Spec. Cap. 7.10 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	167.8		
0.3	167.5		TOPSOIL / /
6.7	161.1		HARDPAN / STONES /
10.7	157.2	GREY	CLAY / /

4504399 **Lot** 022 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1976-05-15 **DD/MM/YYYY**

Elev 179.3 (masl) **Easting** 271580 **Northing** 4880421
/ Livestock Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found 8.5 (mbgs) 170.7 (masl) MINERIAL
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 4.6 (mbgs) 174.7 (masl)
Pumping WL 5.8 (mbgs) 173.5 (masl)
Pump Rate 36.4 (LPM) 4 / 0
Spec. Cap. 29.83 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	179.3		
7.6	171.7	BROWN	GRAVEL / /
8.5	170.7		BOULDERS / /
9.4	169.8	BROWN	SAND / /

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4504400 **Lot** 022 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1976-05-15 **DD/MM/YYYY**

Elev 180.1 (masl) **Easting** 271530 **Northing** 4880421
/ Domestic Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found 17.7 (mbgs) 162.4 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 12.2 (mbgs) 167.9 (masl)
Pumping WL 12.2 (mbgs) 167.9 (masl)
Pump Rate 45.5 (LPM) 3 / 0
Spec. Cap. 9,999.99 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	180.1		
4.6	175.5	GREY	GRAVEL / STONES / DRY
15.2	164.9	GREY	CLAY / /
17.7	162.4	BROWN	SAND / /
18.6	161.5	BROWN	SAND / WATER-BEARING /

4504407 **Lot** 013 **Conc** 04 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1976-06-17 **DD/MM/YYYY**

Elev 183.7 (masl) **Easting** 274630 **Northing** 4882671
/ Domestic Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found 5.5 (mbgs) 178.2 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 4.9 (mbgs) 178.8 (masl)
Pumping WL 8.8 (mbgs) 174.8 (masl)
Pump Rate 31.8 (LPM) 1 / 0
Spec. Cap. 8.03 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	183.7		
0.3	183.4		TOPSOIL / /
5.5	178.2		HARDPAN / STONES /
7.9	175.8		COARSE SAND / /
9.1	174.5		FINE SAND / /

4504669 **Lot** 024 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1977-04-06 **DD/MM/YYYY**

Elev 179.7 (masl) **Easting** 270780 **Northing** 4880221
/ Domestic Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found 14.9 (mbgs) 164.8 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL (mbgs) (masl)
Pumping WL 7.6 (mbgs) 172.1 (masl)
Pump Rate 22.7 (LPM) 5 / 0
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	179.7		
10.7	169.0	BROWN	CLAY / BOULDERS /
14.9	164.8	BROWN	SAND / /
16.2	163.5	GREY	GRAVEL / /

4504702 **Lot** 029 **Conc** 02 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1977-07-11 **DD/MM/YYYY**

Elev 165.5 (masl) **Easting** 268910 **Northing** 4878601
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 30.5 (mbgs) 135.0 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 31.1 (mbgs) **Bottom of Screen** 32.3 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 6.1 (mbgs) 159.4 (masl)
Pumping WL 30.5 (mbgs) 135.0 (masl)
Pump Rate 36.4 (LPM) 5 / 30
Spec. Cap. 1.49 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	165.5		
0.6	164.9	BLACK	TOPSOIL / STONES / LOOSE
12.2	153.3	BROWN	CLAY / STONES / DENSE
30.5	135.0	BROWN	SAND / SILT / DENSE
32.3	133.2	GREY	CLAY / DENSE /
		GREY	SAND / LOOSE /

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4504746 — **Lot** 025 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1977-07-08 (DD/MM/YYYY)
Elev 199.5 (masl) / Domestic
Easting 270330 **Northing** 4880301
Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 30.5 (mbgs) 169.1 (masl) SALTY
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 21.3 (mbgs) 178.2 (masl)
Pumping WL (mbgs) (masl)
Pump Rate 18.2 (LPM) 3 / 0
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	199.5		
30.5	169.1	BROWN	CLAY / SAND /
35.1	164.5	GREY	GRAVEL / SAND /

4504778 — **Lot** 023 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1977-08-25 (DD/MM/YYYY)
Elev 178.7 (masl) / Domestic
Easting 270990 **Northing** 4880301
Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 18.3 (mbgs) 160.4 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 9.1 (mbgs) 169.6 (masl)
Pumping WL 13.7 (mbgs) 165.0 (masl)
Pump Rate 68.2 (LPM) 3 / 0
Spec. Cap. 14.91 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	178.7		
15.2	163.5	GREY	CLAY / BOULDERS /
19.8	158.9	BROWN	SAND / WATER-BEARING /

4504816 — **Lot** 004 **Conc** 03 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1977-10-26 (DD/MM/YYYY)
Elev 203.2 (masl) / Commerical
Easting 278350 **Northing** 4883641
Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 12.2 (mbgs) 191.0 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 11.6 (mbgs) **Bottom of Screen** 12.8 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 6.1 (mbgs) 197.1 (masl)
Pumping WL 13.4 (mbgs) 189.8 (masl)
Pump Rate 54.6 (LPM) 9 / 30
Spec. Cap. 7.46 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	203.2		
0.9	202.3	BLACK	TOPSOIL / LOOSE /
9.1	194.1	BROWN	CLAY / STONES / DENSE
12.2	191.0	BROWN	CLAY / GRAVEL / LAYERED
15.8	187.4	BROWN	SAND / LOOSE /
		BROWN	SAND / DENSE /

4505026 — **Lot** 027 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1978-07-14 (DD/MM/YYYY)
Elev 183.8 (masl) / Domestic
Easting 269430 **Northing** 4879481
Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 24.4 (mbgs) 159.4 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 12.2 (mbgs) 171.6 (masl)
Pumping WL 15.2 (mbgs) 168.6 (masl)
Pump Rate 90.9 (LPM) 4 / 30
Spec. Cap. 29.83 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	183.8		
0.3	183.5	BROWN	TOPSOIL / /
4.6	179.2	BROWN	TOPSOIL / SANDY /
15.2	168.6	BROWN	HARDPAN / /
21.3	162.5	GREY	FINE SAND / /
22.9	160.9	GREY	CLAY / /
24.4	159.4		COARSE GRAVEL / FINE SAND /

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4505110 **Lot** 029 **Conc** 02 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1978-11-03 **DD/MM/YYYY**

Elev 165.8 (masl) **Easting** 268930 **Northing** 4878681
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 50.9 (mbgs) 114.9 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 49.7 (mbgs) **Bottom of Screen** 50.9 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 5.5 (mbgs) 160.3 (masl)
Pumping WL 43.3 (mbgs) 122.5 (masl)
Pump Rate 68.2 (LPM) 5 / 0
Spec. Cap. 1.80 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	165.8				
32.3	133.5		PREV. DRILLED /		/
48.8	117.0	GREY	SAND /	SILT	/ DENSE
50.9	114.9	BROWN	SAND /	LOOSE	/
		BROWN	SAND /	DENSE	/

4505119 **Lot** 017 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1978-05-11 **DD/MM/YYYY**

Elev 178.9 (masl) **Easting** 273450 **Northing** 4880301
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 10.7 (mbgs) 168.2 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	178.9				
0.3	178.6		TOPSOIL /		/
5.5	173.4		COARSE SAND /	GRAVEL	/
11.6	167.3		STONES /	GRAVEL	/

4505129 **Lot** 027 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1978-10-31 **DD/MM/YYYY**

Elev 182.8 (masl) **Easting** 269550 **Northing** 4879901
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 30.5 (mbgs) 152.3 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 29.9 (mbgs) 153.0 (masl)
Pumping WL 45.7 (mbgs) 137.1 (masl)
Pump Rate 45.5 (LPM) /
Spec. Cap. 2.87 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	182.8				
59.4	123.4	BROWN	SAND /		/
60.4	122.5	GREY	SAND /		/
62.2	120.6	GREY	GRAVEL /		/

4505207 **Lot** 018 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1978-11-09 **DD/MM/YYYY**

Elev 183.2 (masl) **Easting** 273330 **Northing** 4880121
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 24.4 (mbgs) 158.9 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 15.2 (mbgs) 168.0 (masl)
Pumping WL 22.9 (mbgs) 160.4 (masl)
Pump Rate 18.2 (LPM) 2 / 0
Spec. Cap. 2.39 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	183.2				
0.9	182.3	BROWN	TOPSOIL /	SOFT	/
18.3	164.9	GREY	SAND /	GRAVEL	/ HARD
23.8	159.5	GREY	FINE SAND /	HARD	/
24.7	158.5	GREY	GRAVEL /	HARD	/ VERY

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4505342 **Lot** 027 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1979-11-04 **DD/MM/YYYY**

Elev 188.0 (masl) **Easting** 269570 **Northing** 4879521
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 18.9 (mbgs) 169.1 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 7.6 (mbgs) 180.4 (masl)
Pumping WL 15.2 (mbgs) 172.7 (masl)
Pump Rate 27.3 (LPM) 4 / 0
Spec. Cap. 3.58 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	188.0		
16.8	171.2	GREY	CLAY / BOULDERS /
18.3	169.7	GREY	SAND / CLAY /
19.8	168.2	GREY	GRAVEL / SAND /

4505787 **Lot** 026 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1981-11-09 **DD/MM/YYYY**

Elev 189.7 (masl) **Easting** 269807 **Northing** 4879990
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 49.1 (mbgs) 140.6 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 18.9 (mbgs) 170.8 (masl)
Pumping WL 46.0 (mbgs) 143.7 (masl)
Pump Rate 45.5 (LPM) 3 / 0
Spec. Cap. 1.68 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	189.7		
0.3	189.4		TOPSOIL /
13.1	176.6	WHITE	CLAY /
14.3	175.4	BROWN	FINE GRAVEL /
48.2	141.6	WHITE	CLAY /
49.1	140.6	BROWN	COARSE GRAVEL /

4505800 **Lot** 023 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1982-10-16 **DD/MM/YYYY**

Elev 159.0 (masl) **Easting** 271278 **Northing** 4879441
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 9.1 (mbgs) 149.8 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 0.0 (mbgs) 159.0 (masl)
Pumping WL 3.0 (mbgs) 155.9 (masl)
Pump Rate 45.5 (LPM) 4 / 0
Spec. Cap. 14.91 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	159.0		
0.6	158.4	BROWN	TOPSOIL / SOFT /
7.6	151.3	BROWN	CLAY / MEDIUM SAND /
9.1	149.8	GREY	GRAVEL / LOOSE /

4505848 **Lot** 025 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1983-03-10 **DD/MM/YYYY**

Elev 198.3 (masl) **Easting** 270299 **Northing** 4880336
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 34.1 (mbgs) 164.1 (masl) Not stated
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 32.3 (mbgs) **Bottom of Screen** 33.5 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 30.5 (mbgs) 167.8 (masl)
Pumping WL 32.9 (mbgs) 165.4 (masl)
Pump Rate 18.2 (LPM) 2 / 30
Spec. Cap. 7.46 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	198.3		
30.5	167.8	BROWN	CLAY / SAND /
35.1	163.2	GREY	GRAVEL / SAND /

Well Record #

4506041 **Lot** 018 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1984-06-27 **DD/MM/YYYY**

Elev 180.2 (masl) **Easting** 273188 **Northing** 4880439
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 16.8 (mbgs) 163.4 (masl) Not stated
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 15.8 (mbgs) **Bottom of Screen** 17.1 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 8.5 (mbgs) 171.7 (masl)
Pumping WL 14.9 (mbgs) 165.3 (masl)
Pump Rate 18.2 (LPM) 2 / 0
Spec. Cap. 2.84 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	180.2				
0.3	179.9	BROWN	TOPSOIL /	SOFT	/
6.7	173.5	BROWN	GRAVEL /	LOOSE	/
13.1	167.1	BROWN	SAND /	DRY	/ PACKED
16.8	163.4	BROWN	SAND /	WATER-BEARING	/ PACKED
17.1	163.1	BROWN	COARSE SAND /	WATER-BEARING	/ PACKED

4506129 **Lot** 017 **Conc** 02 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1985-02-13 **DD/MM/YYYY**

Elev 185.6 (masl) **Easting** 273557 **Northing** 4880149
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 32.0 (mbgs) 153.6 (masl) Not stated
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 29.6 (mbgs) **Bottom of Screen** 30.8 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 9.1 (mbgs) 176.5 (masl)
Pumping WL 22.9 (mbgs) 162.8 (masl)
Pump Rate 81.8 (LPM) 2 / 0
Spec. Cap. 5.97 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	185.6				
1.5	184.1		PREVIOUSLY DUG /		/
30.8	154.8	BROWN	GRAVEL /	STONES	/ DENSE
32.0	153.6	GREY	SAND /	LOOSE	/
		BROWN	CLAY /	DENSE	/

4506262 **Lot** 008 **Conc** 03 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1985-11-18 **DD/MM/YYYY**

Elev 194.7 (masl) **Easting** 757482 **Northing** 4883488
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 20.1 (mbgs) 174.5 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 1.2 (mbgs) 193.4 (masl)
Pumping WL 5.5 (mbgs) 189.2 (masl)
Pump Rate 90.9 (LPM) 1 /
Spec. Cap. 21.31 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	194.7				
2.4	192.2		SAND /		/
17.7	177.0		CLAY /		/
20.1	174.5		SAND /	GRAVEL	/
20.4	174.2		GRAVEL /		/

4506490 **Lot** 017 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1986-10-03 **DD/MM/YYYY**

Elev 178.3 (masl) **Easting** 273337 **Northing** 4881115
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 28.7 (mbgs) 149.6 (masl) Not stated
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 25.6 (mbgs) **Bottom of Screen** 26.8 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 9.1 (mbgs) 169.1 (masl)
Pumping WL 24.4 (mbgs) 153.9 (masl)
Pump Rate 54.6 (LPM) 5 / 0
Spec. Cap. 3.58 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	178.3				
0.3	178.0	BLACK	TOPSOIL /	STONES	/ LOOSE
7.6	170.7	BROWN	TOPSOIL /	GRAVEL	/ DENSE
27.4	150.8	BROWN	TOPSOIL /	DENSE	/
28.7	149.6	GREY	TOPSOIL /	LOOSE	/
		GREY	CLAY /	DENSE	/

Well Record #

4506504 **Lot** 017 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1986-10-07 **DD/MM/YYYY**

Elev 177.5 (masl) **Easting** 273275 **Northing** 4880898
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 11.0 (mbgs) 166.6 (masl) Not stated
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 4.6 (mbgs) 173.0 (masl)
Pumping WL 7.6 (mbgs) 169.9 (masl)
Pump Rate 27.3 (LPM) 4 / 0
Spec. Cap. 8.95 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	177.5		
6.7	170.8	BROWN	GRAVEL / STONES / HARD
11.0	166.6	BROWN	CLAY / GRAVEL / HARD
11.6	165.9	BROWN	SAND / GRAVEL / LOOSE

4506699 **Lot** 029 **Conc** 02 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1987-06-10 **DD/MM/YYYY**

Elev 164.8 (masl) **Easting** 269058 **Northing** 4878700
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 4.6 (mbgs) 160.2 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** OPEN HOLE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 3.7 (mbgs) 161.1 (masl)
Pumping WL 3.7 (mbgs) 161.1 (masl)
Pump Rate 36.4 (LPM) 1 / 0
Spec. Cap. 9,999.99 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	164.8		
0.3	164.5		TOPSOIL / /
3.0	161.7	BROWN	CLAY / /
4.6	160.2		SAND / WATER-BEARING /
7.6	157.2		HARDPAN / STONES /

4506700 **Lot** 025 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1987-06-10 **DD/MM/YYYY**

Elev 190.8 (masl) **Easting** 270170 **Northing** 4880195
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 7.6 (mbgs) 183.2 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 3.0 (mbgs) 187.7 (masl)
Pumping WL 5.5 (mbgs) 185.3 (masl)
Pump Rate 36.4 (LPM) 1 / 0
Spec. Cap. 14.91 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	190.8		
0.3	190.5		TOPSOIL / /
6.1	184.7	BROWN	CLAY / STONES /
7.6	183.2	GREEN	CLAY / STONES /
11.3	179.5		HARDPAN / /

4506702 **Lot** 025 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1987-06-10 **DD/MM/YYYY**

Elev 190.7 (masl) **Easting** 270195 **Northing** 4880158
Livestock / Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 47.2 (mbgs) 143.4 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 46.0 (mbgs) **Bottom of Screen** 47.2 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 25.9 (mbgs) 164.7 (masl)
Pumping WL 33.5 (mbgs) 157.1 (masl)
Pump Rate 68.2 (LPM) 2 / 45
Spec. Cap. 8.95 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	190.7		
0.3	190.3	BROWN	TOPSOIL / SOFT /
7.3	183.3	BROWN	CLAY / GRAVEL / SAND
14.9	175.7	BROWN	CLAY / SANDY / STONES
42.1	148.6	BROWN	SAND / DRY / PACKED
47.2	143.4	BROWN	SAND / WATER-BEARING / LOOSE

Well Record #

4506745 **Lot** 025 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1987-06-17 **DD/MM/YYYY**

Elev 202.3 (masl) **Easting** 270236 **Northing** 4880635
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 47.9 (mbgs) 154.5 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 46.6 (mbgs) **Bottom of Screen** 47.9 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 32.9 (mbgs) 169.4 (masl)
Pumping WL 44.8 (mbgs) 157.5 (masl)
Pump Rate 22.7 (LPM) 2 / 45
Spec. Cap. 1.91 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	202.3		
0.3	202.0	BROWN	TOPSOIL / SOFT /
13.7	188.6	BROWN	CLAY / GRAVEL / STONES
25.0	177.3	BROWN	GRAVEL / CLAY / SAND
35.1	167.3	BROWN	SAND / GRAVEL / PACKED
42.1	160.3	BROWN	SAND / PACKED /
46.6	155.7	BROWN	SAND / LOOSE /
47.9	154.5	BROWN	COARSE SAND / WATER-BEARING / LOOSE

4506890 **Lot** 027 **Conc** 02 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1987-09-19 **DD/MM/YYYY**

Elev 164.9 (masl) **Easting** 269763 **Northing** 4878689
/ Livestock Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 21.3 (mbgs) 143.6 (masl) Not stated
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 20.4 (mbgs) **Bottom of Screen** 21.6 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 9.1 (mbgs) 155.8 (masl)
Pumping WL 21.3 (mbgs) 143.6 (masl)
Pump Rate 13.6 (LPM) 2 / 30
Spec. Cap. 1.12 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	164.9		
3.0	161.9	BROWN	MEDIUM SAND / CLAY /
21.3	143.6	BROWN	MEDIUM SAND / /
23.2	141.7	BROWN	FINE SAND / MEDIUM SAND /

4506892 **Lot** 027 **Conc** 02 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1987-11-02 **DD/MM/YYYY**

Elev 164.9 (masl) **Easting** 269751 **Northing** 4878702
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 36.3 (mbgs) 128.7 (masl) Not stated
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 35.1 (mbgs) **Bottom of Screen** 36.3 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 12.2 (mbgs) 152.7 (masl)
Pumping WL 33.5 (mbgs) 131.4 (masl)
Pump Rate 22.7 (LPM) 3 / 0
Spec. Cap. 1.07 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	164.9		
23.2	141.8		PREV. DRILLED / /
36.3	128.7	BROWN	MEDIUM SAND / CLAY /
37.5	127.4	BROWN	COARSE SAND / GRAVEL /

4506999 **Lot** 014 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1988-02-09 **DD/MM/YYYY**

Elev 191.6 (masl) **Easting** 275406 **Northing** 4882813
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 4.9 (mbgs) 186.7 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 6.7 (mbgs) 184.9 (masl)
Pumping WL 9.1 (mbgs) 182.4 (masl)
Pump Rate (LPM) 1 / 0
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	191.6		
0.3	191.3		TOPSOIL / /
3.0	188.5	BROWN	CLAY / /
4.6	187.0		GRAVEL / /
11.0	180.6		CLAY / /

Well Record #

4507315 **Lot** 025 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1988-07-27 **DD/MM/YYYY**

Elev 182.1 (masl) **Easting** 269988 **Northing** 4880431
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 17.4 (mbgs) 164.7 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 9.1 (mbgs) 172.9 (masl)
Pumping WL 10.4 (mbgs) 171.7 (masl)
Pump Rate 54.6 (LPM) 2 / 0
Spec. Cap. 44.74 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	182.1		
2.4	179.7	BROWN	SAND / SOFT /
8.2	173.9	BROWN	CLAY / SAND / STONES
15.2	166.9	BROWN	GRAVEL / SAND / CLAY
17.1	165.0	BROWN	GRAVEL / SANDY / PACKED
17.4	164.7	BROWN	COARSE GRAVEL / SAND / WATER-BEARING

4507332 **Lot** 024 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1988-09-14 **DD/MM/YYYY**

Elev 176.4 (masl) **Easting** 270587 **Northing** 4880147
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 12.2 (mbgs) 164.2 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 13.1 (mbgs) 163.3 (masl)
Pumping WL 15.5 (mbgs) 160.8 (masl)
Pump Rate 36.4 (LPM) 1 / 0
Spec. Cap. 14.91 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	176.4		
0.3	176.1		TOPSOIL / /
12.2	164.2		SAND / GRAVEL / LAYERED
16.8	159.6		CLAY / SAND /
19.2	157.2		COARSE SAND / /

4507407 **Lot** 018 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1988-09-24 **DD/MM/YYYY**

Elev 179.6 (masl) **Easting** 273254 **Northing** 4880488
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 12.2 (mbgs) 167.4 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 17.1 (mbgs) **Bottom of Screen** 18.3 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 9.1 (mbgs) 170.4 (masl)
Pumping WL 13.1 (mbgs) 166.5 (masl)
Pump Rate 81.8 (LPM) 2 / 0
Spec. Cap. 20.65 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	179.6		
11.6	168.0	BROWN	COARSE GRAVEL / /
18.3	161.3	BROWN	MEDIUM SAND / /

4507463 **Lot** 018 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1988-10-26 **DD/MM/YYYY**

Elev 179.7 (masl) **Easting** 273124 **Northing** 4880594
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 5.5 (mbgs) 174.2 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 5.5 (mbgs) 174.2 (masl)
Pumping WL (mbgs) (masl)
Pump Rate 36.4 (LPM) 1 / 0
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	179.7		
0.3	179.4		TOPSOIL / /
5.5	174.2		SAND / GRAVEL /
7.0	172.7		GRAVEL / WATER-BEARING /

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4507621 **Lot** 015 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1988-12-07 **DD/MM/YYYY**

Elev 176.2 (masl) **Easting** 273860 **Northing** 4882186
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 3.4 (mbgs) 172.9 (masl) FRESH
Casing Diameter 36 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 3.4 (mbgs) 172.9 (masl)
Pumping WL 5.5 (mbgs) 170.7 (masl)
Pump Rate 77.3 (LPM) 1 / 0
Spec. Cap. 36.22 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	176.2		
0.3	175.9	BLACK	TOPSOIL / DENSE /
0.9	175.3	YELLOW	SAND / DENSE /
3.4	172.9	GREY	CLAY / HARD /
4.6	171.6	BROWN	GRAVEL / LOOSE / STONES
6.4	169.8	GREY	CLAY / VERY / HARD

4507622 **Lot** 027 **Conc** 02 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1988-12-05 **DD/MM/YYYY**

Elev 167.9 (masl) **Easting** 269690 **Northing** 4878922
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 1.8 (mbgs) 166.1 (masl) FRESH
Casing Diameter 36 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 0.9 (mbgs) 167.0 (masl)
Pumping WL 5.2 (mbgs) 162.8 (masl)
Pump Rate 40.9 (LPM) 1 / 0
Spec. Cap. 9.59 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	167.9		
0.6	167.3	BLACK	TOPSOIL / /
3.0	164.9	WHITE	CLAY / GRAVEL /
6.1	161.8	GREY	CLAY / GRAVEL /

4507741 **Lot** 025 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1988-12-21 **DD/MM/YYYY**

Elev 188.9 (masl) **Easting** 270124 **Northing** 4880084
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 32.9 (mbgs) 156.0 (masl) Not stated
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 6.1 (mbgs) 182.8 (masl)
Pumping WL 25.9 (mbgs) 163.0 (masl)
Pump Rate 90.9 (LPM) 5 / 0
Spec. Cap. 4.59 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	188.9		
15.2	173.6	BROWN	SAND / /
30.5	158.4	BROWN	QUICKSAND / /
32.9	156.0	GREY	GRAVEL / COARSE-GRAINED /

4508007 **Lot** 029 **Conc** 02 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1989-07-12 **DD/MM/YYYY**

Elev 164.7 (masl) **Easting** 269040 **Northing** 4878707
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 6.1 (mbgs) 158.6 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 4.6 (mbgs) 160.1 (masl)
Pumping WL 7.0 (mbgs) 157.7 (masl)
Pump Rate 36.4 (LPM) 1 / 0
Spec. Cap. 14.91 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	164.7		
0.3	164.4		TOPSOIL / /
6.1	158.6	BROWN	CLAY / /
7.6	157.1	BROWN	CLAY / GRAVEL / WATER-BEARING
10.7	154.0	BLUE	CLAY / STONES / HARD
11.3	153.4	GREY	SAND / WATER-BEARING / STONES

Well Record #

4508029 — **Lot** 026 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1989-06-01 **DD/MM/YYYY**

Elev 191.2 (masl) **Easting** 270026 **Northing** 4880085
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 37.5 (mbgs) 153.7 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 36.3 (mbgs) **Bottom of Screen** 37.5 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 23.8 (mbgs) 167.4 (masl)
Pumping WL 26.8 (mbgs) 164.4 (masl)
Pump Rate 45.5 (LPM) 2 / 30
Spec. Cap. 14.91 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	191.2		
12.2	179.0	BROWN	SAND / CLAY / GRAVEL
27.4	163.8	GREY	SAND / GRAVEL / CLAY
36.3	154.9	BROWN	SAND / PACKED /
37.5	153.7	BROWN	COARSE SAND / WATER-BEARING / LOOSE

4508191 — **Lot** 027 **Conc** 02 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1989-09-18 **DD/MM/YYYY**

Elev 167.4 (masl) **Easting** 269676 **Northing** 4878911
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 31.1 (mbgs) 136.3 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 11.9 (mbgs) 155.5 (masl)
Pumping WL 14.3 (mbgs) 153.1 (masl)
Pump Rate 22.7 (LPM) 1 / 30
Spec. Cap. 9.32 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	167.4		
0.3	167.1	BROWN	TOPSOIL / SAND / LOOSE
2.4	165.0	BROWN	CLAY / GRAVEL / SOFT
15.2	152.2	BROWN	SAND / CLAY / SOFT
31.1	136.3	GREY	CLAY / SAND / SOFT
31.7	135.7	GREY	GRAVEL / /

4508192 — **Lot** 025 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1989-09-19 **DD/MM/YYYY**

Elev 197.2 (masl) **Easting** 270275 **Northing** 4880275
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 36.0 (mbgs) 161.3 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 29.3 (mbgs) 168.0 (masl)
Pumping WL 29.3 (mbgs) 168.0 (masl)
Pump Rate 31.8 (LPM) 3 / 0
Spec. Cap. 9,999.99 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	197.2		
0.3	196.9	BROWN	TOPSOIL / SAND / LOOSE
11.6	185.7	GREY	CLAY / SAND / SOFT
36.0	161.3	BROWN	SAND / GRAVEL / SOFT
36.6	160.7	GREY	GRAVEL / SOFT /

4508239 — **Lot** 028 **Conc** 02 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1989-09-26 **DD/MM/YYYY**

Elev 167.0 (masl) **Easting** 269738 **Northing** 4878828
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 4.6 (mbgs) 162.5 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 3.0 (mbgs) 164.0 (masl)
Pumping WL 5.5 (mbgs) 161.6 (masl)
Pump Rate 36.4 (LPM) 1 / 0
Spec. Cap. 14.91 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	167.0		
0.3	166.7		TOPSOIL / /
4.6	162.5	BROWN	CLAY / /
6.1	161.0		GRAVEL / WATER-BEARING /
9.4	157.6	GREY	CLAY / HARD / STONES

Well Record #

4508398 — **Lot** 027 **Conc** 02 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1989-12-12 **DD/MM/YYYY**

Elev 167.7 (masl) **Easting** 269721 **Northing** 4878901
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 35.7 (mbgs) 132.0 (masl) Not stated
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 35.7 (mbgs) **Bottom of Screen** 46.6 (mbgs)
Screen Interval 11.0 (m)

Flowing? N
SWL 10.7 (mbgs) 157.0 (masl)
Pumping WL 24.4 (mbgs) 143.3 (masl)
Pump Rate 18.2 (LPM) 2 / 0
Spec. Cap. 1.33 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	167.7		
0.3	167.4	BROWN	TOPSOIL / /
9.1	158.5	GREY	CLAY / SAND / SOFT
22.6	145.1	GREY	CLAY / GRAVEL / SOFT
36.6	131.1	BROWN	SAND / CLAY / SOFT

4508406 — **Lot** 017 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1989-10-28 **DD/MM/YYYY**

Elev 177.7 (masl) **Easting** 273269 **Northing** 4880892
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 5.8 (mbgs) 171.9 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 3.7 (mbgs) 174.0 (masl)
Pumping WL 9.1 (mbgs) 168.5 (masl)
Pump Rate 113.7 (LPM) 1 / 0
Spec. Cap. 20.71 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	177.7		
2.4	175.2	BROWN	CLAY / SAND / GRAVEL
5.8	171.9	BROWN	SAND / CLAY /
9.1	168.5	GREY	CLAY / GRAVEL /
11.9	165.8	GREY	CLAY / SAND / GRAVEL
12.5	165.2	BROWN	SAND / GRAVEL /

4508422 — **Lot** 024 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1990-01-08 **DD/MM/YYYY**

Elev 164.6 (masl) **Easting** 269034 **Northing** 4878699
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 7.3 (mbgs) 157.3 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 3.0 (mbgs) 161.6 (masl)
Pumping WL 4.9 (mbgs) 159.8 (masl)
Pump Rate 36.4 (LPM) 1 / 0
Spec. Cap. 19.89 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	164.6		
0.3	164.3		TOPSOIL / /
1.2	163.4	BROWN	CLAY / /
7.3	157.3	BROWN	CLAY / STONES / HARD
7.9	156.7		GRAVEL / WATER-BEARING /
9.4	155.2		QUICKSAND / WATER-BEARING /

4508477 — **Lot** 018 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1990-01-16 **DD/MM/YYYY**

Elev 180.4 (masl) **Easting** 272805 **Northing** 4880423
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 18.0 (mbgs) 162.4 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 10.7 (mbgs) 169.7 (masl)
Pumping WL 24.4 (mbgs) 156.0 (masl)
Pump Rate 9.1 (LPM) 1 / 0
Spec. Cap. 0.66 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	180.4		
0.6	179.8	BROWN	CLAY / SAND / GRAVEL
4.3	176.1	BROWN	GRAVEL / SAND /
5.8	174.6	BROWN	SAND / GRAVEL /
18.0	162.4	BROWN	FINE SAND / /

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21.3	159.1	BROWN	FINE SAND /	SILT	/ CLAY
21.9	158.5	BROWN	CLAY /	SAND	/
25.6	154.8	GREY	SAND /	CLAY	/
28.0	152.4	BROWN	FINE SAND /	SILT	/

4508478 **Lot** 016 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1990-02-10 **DD/MM/YYYY**

Elev 173.7 (masl) **Easting** 273809 **Northing** 4881485
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 8.5 (mbgs) 165.2 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? Y
SWL (mbgs) (masl)
Pumping WL 8.5 (mbgs) 165.2 (masl)
Pump Rate 45.5 (LPM) 1 / 0
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	173.7		
0.9	172.8	BROWN	SAND / CLAY / WOOD FRAGMENTS
1.8	171.9	BROWN	CLAY / /
7.9	165.8	GREY	CLAY / /
8.5	165.2	GREY	CLAY / GRAVEL /
8.8	164.9	BROWN	SAND / GRAVEL /

4508771 **Lot** 025 **Conc** 02 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1990-06-20 **DD/MM/YYYY**

Elev 165.2 (masl) **Easting** 269009 **Northing** 4878701
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 7.0 (mbgs) 158.2 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 5.5 (mbgs) 159.7 (masl)
Pumping WL 7.9 (mbgs) 157.3 (masl)
Pump Rate 36.4 (LPM) 1 / 0
Spec. Cap. 14.91 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	165.2		
0.3	164.9		TOPSOIL / /
7.0	158.2	BROWN	CLAY / STONES /
7.6	157.6	GREY	SAND / STONES /
8.5	156.7	BROWN	CLAY / /
9.4	155.8		SAND / WATER-BEARING /

4508787 **Lot** 018 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1990-07-11 **DD/MM/YYYY**

Elev 178.9 (masl) **Easting** 272966 **Northing** 4880460
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 13.7 (mbgs) 165.2 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 18.6 (mbgs) **Bottom of Screen** 19.5 (mbgs)
Screen Interval 0.9 (m)

Flowing? N
SWL 6.1 (mbgs) 172.8 (masl)
Pumping WL 19.2 (mbgs) 159.7 (masl)
Pump Rate 13.6 (LPM) 2 / 0
Spec. Cap. 1.04 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	178.9		
13.7	165.2	BROWN	SAND / GRAVEL / CLAY
21.3	157.6	BROWN	FINE SAND / /

4508940 **Lot** 024 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1990-08-16 **DD/MM/YYYY**

Elev 176.4 (masl) **Easting** 270612 **Northing** 4880150
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 29.6 (mbgs) 146.8 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 29.6 (mbgs) **Bottom of Screen** 30.5 (mbgs)
Screen Interval 0.9 (m)

Flowing? N
SWL 14.6 (mbgs) 161.7 (masl)
Pumping WL 16.8 (mbgs) 159.6 (masl)
Pump Rate 63.6 (LPM) 1 / 0
Spec. Cap. 29.83 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	176.4		
29.6	146.8	BROWN	SAND / /

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4509089 **Lot** 022 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1990-12-21 **DD/MM/YYYY**

Elev 184.8 (masl) **Easting** 271365 **Northing** 4880464
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 38.1 (mbgs) 146.7 (masl) FRESH
Casing Diameter 7 inch **Casing Material:** STEEL
Top of Screen 36.3 (mbgs) **Bottom of Screen** 38.1 (mbgs)
Screen Interval 1.8 (m)

Flowing? N
SWL 29.0 (mbgs) 155.8 (masl)
Pumping WL 37.2 (mbgs) 147.6 (masl)
Pump Rate 13.6 (LPM) 4 / 0
Spec. Cap. 1.66 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	184.8		
0.9	183.9	BROWN	TOPSOIL / SOFT /
36.6	148.2	GREY	SAND / GRAVEL / HARD
38.1	146.7	GREY	SAND / GRAVEL / CLAY

4509297 **Lot** 017 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1991-07-12 **DD/MM/YYYY**

Elev 178.3 (masl) **Easting** 273337 **Northing** 4881115
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 11.6 (mbgs) 166.7 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 5.5 (mbgs) 172.8 (masl)
Pumping WL 7.6 (mbgs) 170.7 (masl)
Pump Rate 63.6 (LPM) 1 / 0
Spec. Cap. 29.83 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	178.3		
3.0	175.2	BROWN	CLAY / SAND / GRAVEL
11.6	166.7	BROWN	SAND / GRAVEL / CLAY
11.9	166.4	BROWN	SAND / GRAVEL /

4509323 **Lot** 022 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1991-07-31 **DD/MM/YYYY**

Elev 184.8 (masl) **Easting** 271365 **Northing** 4880464
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 36.3 (mbgs) 148.5 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 14.3 (mbgs) 170.5 (masl)
Pumping WL 31.1 (mbgs) 153.7 (masl)
Pump Rate 31.8 (LPM) 1 / 50
Spec. Cap. 1.90 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	184.8		
0.3	184.5	BROWN	TOPSOIL / /
22.6	162.2	BROWN	GRAVEL / STONES /
36.0	148.8	GREY	GRAVEL / STONES /
36.3	148.5	GREY	COARSE GRAVEL / /

4509362 **Lot** 023 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1991-10-03 **DD/MM/YYYY**

Elev 182.6 (masl) **Easting** 270976 **Northing** 4880347
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 8.5 (mbgs) 174.1 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 8.5 (mbgs) 174.1 (masl)
Pumping WL (mbgs) (masl)
Pump Rate 36.4 (LPM) 1 / 0
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	182.6		
0.3	182.3	BLACK	TOPSOIL / /
1.2	181.4	BROWN	SAND / STONES /
8.5	174.1	BROWN	SAND / /
10.7	171.9	BROWN	SAND / WATER-BEARING /
11.6	171.0	BROWN	SAND / GRAVEL / WATER-BEARING

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4509425 **Lot** 017 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1991-09-04 **DD/MM/YYYY**

Elev 178.3 (masl) **Easting** 273337 **Northing** 4881115
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 13.1 (mbgs) 165.2 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 7.6 (mbgs) 170.7 (masl)
Pumping WL 10.4 (mbgs) 167.9 (masl)
Pump Rate 63.6 (LPM) 1 / 0
Spec. Cap. 23.20 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	178.3		
0.3	178.0		STONES / FILL /
0.9	177.4	BROWN	CLAY / SAND /
3.0	175.2	GREY	CLAY / GRAVEL / SAND
13.1	165.2	GREY	CLAY / GRAVEL / SAND
13.7	164.6	BROWN	SAND / GRAVEL /
14.0	164.3	GREY	CLAY / GRAVEL /

4509427 **Lot** 020 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1991-08-19 **DD/MM/YYYY**

Elev 181.0 (masl) **Easting** 272152 **Northing** 4880704
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 18.0 (mbgs) 163.0 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 20.1 (mbgs) **Bottom of Screen** 21.0 (mbgs)
Screen Interval 0.9 (m)

Flowing? N
SWL 14.9 (mbgs) 166.1 (masl)
Pumping WL 18.3 (mbgs) 162.7 (masl)
Pump Rate 18.2 (LPM) 1 / 0
Spec. Cap. 5.42 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	181.0		
2.1	178.9	BROWN	CLAY / SAND / GRAVEL
8.8	172.2	BROWN	CLAY / SAND /
14.3	166.7	BROWN	SAND / CLAY /
18.0	163.0	BROWN	CLAY / SAND / GRAVEL
21.0	160.0	BROWN	SAND / GRAVEL / SILT

4509428 **Lot** 017 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1991-08-21 **DD/MM/YYYY**

Elev 178.3 (masl) **Easting** 273337 **Northing** 4881115
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 9.4 (mbgs) 168.8 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 5.8 (mbgs) 172.5 (masl)
Pumping WL 6.4 (mbgs) 171.9 (masl)
Pump Rate 31.8 (LPM) 1 / 0
Spec. Cap. 52.20 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	178.3		
0.9	177.4	BROWN	TOPSOIL / /
9.4	168.8	BROWN	SAND / GRAVEL / CLAY
10.1	168.2	BROWN	SAND / GRAVEL /

4509545 **Lot** 017 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1991-10-29 **DD/MM/YYYY**

Elev 178.3 (masl) **Easting** 273337 **Northing** 4881115
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 9.4 (mbgs) 168.8 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 4.9 (mbgs) 173.4 (masl)
Pumping WL 6.4 (mbgs) 171.9 (masl)
Pump Rate 31.8 (LPM) 1 / 0
Spec. Cap. 20.88 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	178.3		
0.9	177.4	BROWN	GRAVEL / FILL /
5.5	172.8	BROWN	CLAY / SAND / GRAVEL
9.4	168.8	BROWN	GRAVEL / SAND / CLAY
10.7	167.6	BROWN	SAND / GRAVEL / SILT

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4509611 — **Lot** 028 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1992-03-03 **DD/MM/YYYY**

Elev 185.6 (masl) **Easting** 269008 **Northing** 4879759
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 51.2 (mbgs) 134.4 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 48.8 (mbgs) **Bottom of Screen** 51.2 (mbgs)
Screen Interval 2.4 (m)

Flowing? N
SWL 33.5 (mbgs) 152.1 (masl)
Pumping WL 48.8 (mbgs) 136.8 (masl)
Pump Rate 27.3 (LPM) 2 / 30
Spec. Cap. 1.79 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	185.6		
4.6	181.0	BROWN	CLAY / STONES / MEDIUM-GRAINED
50.0	135.6	BROWN	MEDIUM SAND / CLAY /
51.2	134.4	BROWN	SAND / /

4509775 — **Lot** 023 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1992-07-07 **DD/MM/YYYY**

Elev 182.6 (masl) **Easting** 270976 **Northing** 4880347
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 28.7 (mbgs) 154.0 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 9.1 (mbgs) 173.5 (masl)
Pumping WL 9.4 (mbgs) 173.2 (masl)
Pump Rate 13.6 (LPM) 2 / 20
Spec. Cap. 44.74 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	182.6		
0.3	182.3	BROWN	TOPSOIL / /
1.8	180.8	BROWN	CLAY / STONES /
9.8	172.9	BROWN	SAND / GRAVEL / STONES
28.3	154.3	BROWN	SAND / /
28.7	154.0	BROWN	COARSE SAND / /

4510055 — **Lot** 024 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1993-07-01 **DD/MM/YYYY**

Elev 193.8 (masl) **Easting** 270587 **Northing** 4880224
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 35.7 (mbgs) 158.1 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 7.6 (mbgs) 186.1 (masl)
Pumping WL 18.3 (mbgs) 175.5 (masl)
Pump Rate 45.5 (LPM) 2 / 30
Spec. Cap. 4.26 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	193.8		
0.3	193.5		TOPSOIL / /
21.3	172.4	BROWN	SAND / /
35.7	158.1	GREY	SAND / /
36.6	157.2		GRAVEL / /

4510127 — **Lot** 018 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1993-08-20 **DD/MM/YYYY**

Elev 196.6 (masl) **Easting** 272941 **Northing** 4880967
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 14.6 (mbgs) 182.0 (masl) FRESH
Casing Diameter 4 inch **Casing Material:** PLASTIC
Top of Screen 14.6 (mbgs) **Bottom of Screen** 15.5 (mbgs)
Screen Interval 0.9 (m)

Flowing? N
SWL 6.7 (mbgs) 189.9 (masl)
Pumping WL 6.7 (mbgs) 189.9 (masl)
Pump Rate 13.6 (LPM) 1 / 0
Spec. Cap. 9,999.99 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	196.6		
0.3	196.3	BROWN	TOPSOIL / /
5.5	191.1	BROWN	SAND / CLAY / PACKED
14.6	182.0	BROWN	SAND / CLAY / GRAVEL
15.5	181.0	BROWN	SAND / SOFT /

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4510128 **Lot** 017 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1993-08-26 **DD/MM/YYYY**

Elev 178.3 (masl) **Easting** 273337 **Northing** 4881115
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 12.2 (mbgs) 166.1 (masl) FRESH
Casing Diameter 4 inch **Casing Material:** PLASTIC
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 5.5 (mbgs) 172.8 (masl)
Pumping WL 5.5 (mbgs) 172.8 (masl)
Pump Rate 22.7 (LPM) 1 / 0
Spec. Cap. 9,999.99 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	178.3		
12.2	166.1	BROWN	SAND / GRAVEL / LOOSE
13.7	164.6	BROWN	GRAVEL / LOOSE /

4510213 **Lot** 020 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1993-12-15 **DD/MM/YYYY**

Elev 181.0 (masl) **Easting** 272152 **Northing** 4880704
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 3.4 (mbgs) 177.7 (masl) FRESH
Casing Diameter 36 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 2.1 (mbgs) 178.9 (masl)
Pumping WL 1.5 (mbgs) 179.5 (masl)
Pump Rate 31.8 (LPM) 2 / 0
Spec. Cap. -52.20 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	181.0		
0.3	180.7	BROWN	TOPSOIL / PACKED /
1.8	179.2	BROWN	SAND / PACKED /
3.4	177.7	GREY	CLAY / PACKED /
4.3	176.8	GREY	GRAVEL / LAYERED /

4510359 **Lot** 024 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1994-07-26 **DD/MM/YYYY**

Elev 193.8 (masl) **Easting** 270587 **Northing** 4880224
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 29.0 (mbgs) 164.8 (masl) FRESH
Casing Diameter 5 inch **Casing Material:** PLASTIC
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 6.4 (mbgs) 187.4 (masl)
Pumping WL 29.0 (mbgs) 164.8 (masl)
Pump Rate 13.6 (LPM) 1 / 0
Spec. Cap. 0.60 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	193.8		
0.3	193.5	BROWN	TOPSOIL / LOOSE /
29.0	164.8	BROWN	SAND / CLAY / LOOSE
29.3	164.5	GREY	SAND / GRAVEL / LOOSE

4510598 **Lot** 020 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1995-04-19 **DD/MM/YYYY**

Elev 181.0 (masl) **Easting** 272152 **Northing** 4880704
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 2.4 (mbgs) 178.6 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** GALVANIZED
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 2.1 (mbgs) 178.9 (masl)
Pumping WL 3.4 (mbgs) 177.7 (masl)
Pump Rate 18.2 (LPM) 1 / 10
Spec. Cap. 14.91 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	181.0		
0.3	180.7	BROWN	TOPSOIL / /
0.6	180.4	RED	CLAY / SAND /
3.4	177.7		UNKNOWN TYPE / /

Well Record #

4510649 — **Lot** 016 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1995-07-10 **DD/MM/YYYY**

Elev 172.3 (masl) **Easting** 273754 **Northing** 4881245
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 6.4 (mbgs) 165.9 (masl) Not stated
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? Y
SWL -5.5 (mbgs) 177.7 (masl)
Pumping WL 1.5 (mbgs) 170.7 (masl)
Pump Rate 18.2 (LPM) 1 / 0
Spec. Cap. 2.59 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	172.3		
1.8	170.4		TOPSOIL / /
5.5	166.8	BROWN	SAND / /
6.1	166.2	GREY	CLAY / /
6.4	165.9	GREY	SAND / GRAVEL /

4510703 — **Lot** 027 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1995-09-22 **DD/MM/YYYY**

Elev 177.9 (masl) **Easting** 269412 **Northing** 4879871
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 16.5 (mbgs) 161.5 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 11.6 (mbgs) 166.4 (masl)
Pumping WL 15.2 (mbgs) 162.7 (masl)
Pump Rate 36.4 (LPM) 3 / 0
Spec. Cap. 9.94 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	177.9		
4.9	173.1	BROWN	SAND / /
6.4	171.5	BROWN	CLAY / SAND /
12.8	165.1	GREY	CLAY / GRAVEL /
15.5	162.4	GREY	SAND / GRAVEL /
16.5	161.5	GREY	GRAVEL / /

4510752 — **Lot** 015 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1995-09-16 **DD/MM/YYYY**

Elev 178.0 (masl) **Easting** 274138 **Northing** 4881376
/ Not Used **UTM RC** 9 **unknown UTM**
Water Found (mbgs) (masl)
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	178.0		
0.3	177.7		TOPSOIL / /
2.1	175.9	BROWN	SAND / /
17.7	160.3	BROWN	SAND / CLAY / BOULDERS
20.4	157.6	GREY	SAND / /
36.6	141.4	BROWN	SAND / /
39.3	138.7	GREY	SAND / CLAY / SILT
63.4	114.6	GREY	CLAY / /
67.1	110.9	GREY	SAND / /
75.6	102.4	GREY	CLAY / SILT /

4510767 — **Lot** 014 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1995-10-05 **DD/MM/YYYY**

Elev 188.0 (masl) **Easting** 274555 **Northing** 4881502
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 25.0 (mbgs) 163.0 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 29.0 (mbgs) **Bottom of Screen** 29.9 (mbgs)
Screen Interval 0.9 (m)

Flowing? N
SWL 19.2 (mbgs) 168.8 (masl)
Pumping WL 27.4 (mbgs) 160.5 (masl)
Pump Rate 18.2 (LPM) 1 / 0
Spec. Cap. 2.21 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	188.0		

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25.0	163.0		PREV. DRILLED /		/
29.9	158.1	BROWN	SAND /	SILT	/ GRAVEL

4510823 — **Lot** 016 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1996-01-23 (DD/MM/YYYY)
Elev 172.3 (masl) **Easting** 273754 **Northing** 4881245
Municipal / Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found (mbgs) (masl)
Casing Diameter **Casing Material:**
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 11.0 (mbgs) 161.3 (masl)
Pumping WL 18.3 (mbgs) 154.0 (masl)
Pump Rate 22.7 (LPM) 1 / 0
Spec. Cap. 3.11 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	172.3		/ /

4510826 — **Lot** 024 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1995-08-30 (DD/MM/YYYY)
Elev 172.4 (masl) **Easting** 270624 **Northing** 4880076
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 18.3 (mbgs) 154.1 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 10.7 (mbgs) 161.8 (masl)
Pumping WL 15.2 (mbgs) 157.2 (masl)
Pump Rate 45.5 (LPM) 2 / 0
Spec. Cap. 9.94 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	172.4		
		GREY	CLAY / /
0.3	172.1	BROWN	TOPSOIL / /
17.4	155.1	BROWN	GRAVEL / CLAY / SANDY
20.4	152.0	BROWN	SAND / /

4511070 — **Lot** 022 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1996-02-02 (DD/MM/YYYY)
Elev 180.7 (masl) **Easting** 271373 **Northing** 4880416
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 26.5 (mbgs) 154.1 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 21.9 (mbgs) 158.7 (masl)
Pumping WL 21.9 (mbgs) 158.7 (masl)
Pump Rate 68.2 (LPM) 2 / 0
Spec. Cap. 9,999.99 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	180.7		
0.3	180.4	BROWN	TOPSOIL / /
4.3	176.4	BROWN	CLAY / STONES / PREVIOUSLY DUG
26.5	154.1	GREY	CLAY / STONES / PREVIOUSLY DUG
28.3	152.3	BROWN	SAND / /

4511151 — **Lot** 023 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1997-05-26 (DD/MM/YYYY)
Elev 173.9 (masl) **Easting** 271013 **Northing** 4880228
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found (mbgs) (masl) Not stated
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 6.7 (mbgs) 167.2 (masl)
Pumping WL 7.0 (mbgs) 166.8 (masl)
Pump Rate 45.5 (LPM) 1 / 30
Spec. Cap. 149.15 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	173.9		
29.3	144.6		PREVIOUSLY DUG / /

Well Record #

4511168 **Lot** 027 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1997-07-09 **DD/MM/YYYY**

Elev 177.9 (masl) **Easting** 269412 **Northing** 4879871
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 7.6 (mbgs) 170.3 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 4.3 (mbgs) 173.7 (masl)
Pumping WL 6.1 (mbgs) 171.9 (masl)
Pump Rate 45.5 (LPM) 2 / 0
Spec. Cap. 24.86 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	177.9		
0.6	177.3	BROWN	TOPSOIL / SOFT /
1.8	176.1	BROWN	CLAY / STONES / LOOSE
7.3	170.6	BROWN	GRAVEL / CLAY / PACKED
7.6	170.3	BROWN	COARSE GRAVEL / COARSE SAND / WATER-BEARING

4511176 **Lot** 024 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1997-06-10 **DD/MM/YYYY**

Elev 178.0 (masl) **Easting** 270389 **Northing** 4880076
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 21.3 (mbgs) 156.7 (masl) Not stated
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 21.6 (mbgs) **Bottom of Screen** 22.6 (mbgs)
Screen Interval 0.9 (m)

Flowing? N
SWL 5.8 (mbgs) 172.3 (masl)
Pumping WL 6.1 (mbgs) 172.0 (masl)
Pump Rate 45.5 (LPM) 2 / 30
Spec. Cap. 149.15 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	178.0		
0.3	177.7	BLACK	TOPSOIL / /
3.0	175.0	BROWN	SAND / STONES /
10.7	167.4	BROWN	SAND / /
12.8	165.2	GREY	SAND / /
13.7	164.3	GREY	SAND / GRAVEL /
15.2	162.8	GREY	GRAVEL / /
21.3	156.7	BROWN	SAND / GRAVEL /
22.6	155.5	GREY	GRAVEL / /

4511193 **Lot** 027 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1997-08-13 **DD/MM/YYYY**

Elev 169.6 (masl) **Easting** 269758 **Northing** 4879006
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 14.6 (mbgs) 155.0 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 8.8 (mbgs) 160.8 (masl)
Pumping WL 12.2 (mbgs) 157.4 (masl)
Pump Rate 31.8 (LPM) 6 / 30
Spec. Cap. 9.49 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	169.6		
7.0	162.6	GREY	SAND / GRAVEL / STONES
13.7	155.9	GREY	CLAY / SAND / GRAVEL
14.6	155.0	GREY	CLAY / SAND /

4511216 **Lot** 027 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1997-07-23 **DD/MM/YYYY**

Elev 209.6 (masl) **Easting** 268741 **Northing** 4879814
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 64.0 (mbgs) 145.6 (masl) MINERIAL
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 64.0 (mbgs) **Bottom of Screen** 65.2 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 29.3 (mbgs) 180.4 (masl)
Pumping WL 40.2 (mbgs) 169.4 (masl)
Pump Rate 36.4 (LPM) 4 / 0
Spec. Cap. 3.31 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	209.6		
2.4	207.2	BROWN	CLAY / STONES / SOFT
17.4	192.3	BROWN	CLAY / SAND / SOFT
29.3	180.4	GREY	CLAY / SAND / SOFT

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61.0	148.7	BROWN	SILT /	SAND	/ HARD
65.2	144.4	BROWN	COARSE SAND /	HARD	/

4511241 **Lot** 029 **Conc** 02 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1997-08-18 **DD/MM/YYYY**

Elev 152.6 (masl) **Easting** 269176 **Northing** 4878243
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 23.2 (mbgs) 129.5 (masl) Not stated
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 3.4 (mbgs) 149.3 (masl)
Pumping WL 21.9 (mbgs) 130.7 (masl)
Pump Rate 22.7 (LPM) 1 / 0
Spec. Cap. 1.22 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	152.6		
0.3	152.3	BLACK	TOPSOIL / /
4.6	148.1	BROWN	CLAY / STONES /
13.7	138.9	GREY	CLAY / STONES /
18.3	134.3	GREY	CLAY / GRAVEL /
23.8	128.9	GREY	CLAY / SAND / GRAVEL

4511353 **Lot** 024 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1997-10-03 **DD/MM/YYYY**

Elev 193.8 (masl) **Easting** 270587 **Northing** 4880224
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 38.1 (mbgs) 155.7 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 38.7 (mbgs) **Bottom of Screen** 41.1 (mbgs)
Screen Interval 2.4 (m)

Flowing? N
SWL 6.1 (mbgs) 187.7 (masl)
Pumping WL 35.1 (mbgs) 158.7 (masl)
Pump Rate 18.2 (LPM) 0 / 0
Spec. Cap. 0.63 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	193.8		
0.3	193.5	BROWN	TOPSOIL / /
27.4	166.3	BROWN	CLAY / SANDY /
41.1	152.6	BROWN	SAND / /

4511354 **Lot** 024 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1997-06-09 **DD/MM/YYYY**

Elev 193.8 (masl) **Easting** 270587 **Northing** 4880224
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 29.0 (mbgs) 164.8 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 32.3 (mbgs) **Bottom of Screen** 34.4 (mbgs)
Screen Interval 2.1 (m)

Flowing? N
SWL 14.0 (mbgs) 179.7 (masl)
Pumping WL 23.8 (mbgs) 170.0 (masl)
Pump Rate 45.5 (LPM) 2 / 0
Spec. Cap. 4.66 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	193.8		
0.3	193.5	BROWN	TOPSOIL / /
12.5	181.3	BROWN	CLAY / SANDY / STONES
25.6	168.2	GREY	CLAY / /
34.1	159.6		SAND / /

4511393 **Lot** 006 **Conc** 03 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1998-02-12 **DD/MM/YYYY**

Elev 211.3 (masl) **Easting** 758248 **Northing** 4883782
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 1.8 (mbgs) 209.5 (masl) Not stated
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 21.3 (mbgs) 190.0 (masl)
Pumping WL 30.5 (mbgs) 180.9 (masl)
Pump Rate 13.6 (LPM) 17 / 0
Spec. Cap. 1.49 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	211.3		
0.3	211.0	BROWN	TOPSOIL / /
4.9	206.5	BROWN	CLAY / STONES / GRAVEL
8.8	202.5	BROWN	CLAY / GRAVEL / BOULDERS
16.2	195.2	GREY	CLAY / SAND / BOULDERS

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19.5	191.8	GREY	CLAY /	SAND	/ GRAVEL
24.7	186.7	BROWN	CLAY /	FINE SAND	/ GRAVEL
28.3	183.0	BROWN	SILT /	CLAY	/ FINE SAND
29.0	182.4	BROWN	SAND /	SILT	/ GRAVEL
29.9	181.5	BROWN	CLAY /	SAND	/ SILT
32.0	179.3	BROWN	SILT /		/
34.7	176.6	BROWN	SILT /	GRAVEL	/ SAND
36.0	175.4	BROWN	CLAY /	SAND	/ SILT

4511408 **Lot** 027 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1998-04-18 **DD/MM/YYYY**

Elev 177.9 (masl) **Easting** 269412 **Northing** 4879871
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 10.7 (mbgs) 167.3 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 8.5 (mbgs) **Bottom of Screen** 9.8 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 3.7 (mbgs) 174.3 (masl)
Pumping WL 6.1 (mbgs) 171.9 (masl)
Pump Rate 90.9 (LPM) 1 / 0
Spec. Cap. 37.29 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	177.9				
0.3	177.6	BROWN	CLAY /	TOPSOIL	/ SOFT
6.7	171.2	BROWN	SAND /	GRAVEL	/ HARD
10.7	167.3	BROWN	MEDIUM SAND /	HARD	/

4511455 **Lot** 026 **Conc** 02 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1998-06-25 **DD/MM/YYYY**

Elev 170.3 (masl) **Easting** 269822 **Northing** 4878964
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 31.1 (mbgs) 139.2 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 30.2 (mbgs) **Bottom of Screen** 31.1 (mbgs)
Screen Interval 0.9 (m)

Flowing? N
SWL 11.6 (mbgs) 158.7 (masl)
Pumping WL 22.9 (mbgs) 147.4 (masl)
Pump Rate 36.4 (LPM) 2 / 0
Spec. Cap. 3.22 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	170.3				
1.2	169.1	BROWN	TOPSOIL /		/
6.4	163.9	BROWN	SAND /	GRAVEL	/
26.8	143.5	BROWN	SAND /		/
29.9	140.4	GREY	CLAY /	SAND	/
31.1	139.2	BROWN	SAND /	COARSE-GRAINED	/

4511458 **Lot** 024 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1998-06-15 **DD/MM/YYYY**

Elev 173.1 (masl) **Easting** 270606 **Northing** 4880087
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 20.4 (mbgs) 152.7 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 18.3 (mbgs) **Bottom of Screen** 19.5 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 7.0 (mbgs) 166.1 (masl)
Pumping WL 18.0 (mbgs) 155.1 (masl)
Pump Rate 36.4 (LPM) 4 / 0
Spec. Cap. 3.31 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	173.1				
0.6	172.5	BROWN	TOPSOIL /	SOFT	/
18.3	154.8	BROWN	FINE SAND /	SOFT	/
20.4	152.7	BROWN	COARSE SAND /	HARD	/

Well Record #

4511537 — **Lot** 025 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1998-08-13 **DD/MM/YYYY**

Elev 188.7 (masl) **Easting** 270131 **Northing** 4880122
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 32.0 (mbgs) 156.6 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 29.3 (mbgs) **Bottom of Screen** 32.0 (mbgs)
Screen Interval 2.7 (m)

Flowing? N
SWL 22.9 (mbgs) 165.8 (masl)
Pumping WL 29.0 (mbgs) 159.7 (masl)
Pump Rate 36.4 (LPM) 4 / 0
Spec. Cap. 5.97 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	188.7		
0.6	188.0	BROWN	TOPSOIL / SOFT /
15.2	173.4	BROWN	SAND / STONES / HARD
29.0	159.7	BROWN	SAND / GRAVEL / HARD
32.0	156.6	BROWN	COARSE SAND / HARD /

4511659 — **Lot** 015 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1998-11-27 **DD/MM/YYYY**

Elev 170.0 (masl) **Easting** 273886 **Northing** 4882279
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 0.9 (mbgs) 169.0 (masl) FRESH
Casing Diameter 8 inch **Casing Material:** OPEN HOLE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 0.3 (mbgs) 169.6 (masl)
Pumping WL 0.3 (mbgs) 169.6 (masl)
Pump Rate 4.5 (LPM) 1 / 20
Spec. Cap. 9,999.99 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	170.0		
1.2	168.7	BROWN	CLAY / SANDY / TOPSOIL
3.0	166.9	BROWN	CLAY / SILT / SILT
5.5	164.5	BROWN	SAND / GRAVEL / SILT
7.9	162.0	BROWN	SAND / GRAVEL / SILT
9.1	160.8	GREEN	UNKNOWN TYPE / DENSE /

4511862 — **Lot** 019 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1999-08-12 **DD/MM/YYYY**

Elev 181.2 (masl) **Easting** 272544 **Northing** 4880831
/ Not Used Abandoned-Other **UTM RC** 9 **unknown UTM**
Water Found (mbgs) (masl)
Casing Diameter **Casing Material:**
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	181.2		
9.8	171.4		UNKNOWN TYPE / /

4511863 — **Lot** 019 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1999-08-12 **DD/MM/YYYY**

Elev 181.2 (masl) **Easting** 272544 **Northing** 4880831
/ Not Used Abandoned-Other **UTM RC** 9 **unknown UTM**
Water Found (mbgs) (masl)
Casing Diameter **Casing Material:**
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	181.2		
8.8	172.3		UNKNOWN TYPE / /

Well Record #

4511883 **Lot** 018 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1999-07-20 **DD/MM/YYYY**

Elev 180.4 (masl) **Easting** 273158 **Northing** 4880597
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 15.2 (mbgs) 165.2 (masl) Not stated
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 15.5 (mbgs) **Bottom of Screen** 16.8 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 7.3 (mbgs) 173.1 (masl)
Pumping WL 8.5 (mbgs) 171.9 (masl)
Pump Rate 31.8 (LPM) 2 / 30
Spec. Cap. 26.10 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	180.4		
0.3	180.1	BLACK	TOPSOIL / /
13.7	166.7	BROWN	SAND / GRAVEL /
16.8	163.6	GREY	SAND / GRAVEL /

4511887 **Lot** 025 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1999-07-14 **DD/MM/YYYY**

Elev 190.0 (masl) **Easting** 270187 **Northing** 4880122
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 29.6 (mbgs) 160.4 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 35.4 (mbgs) **Bottom of Screen** 37.5 (mbgs)
Screen Interval 2.1 (m)

Flowing? N
SWL 23.2 (mbgs) 166.8 (masl)
Pumping WL 33.5 (mbgs) 156.5 (masl)
Pump Rate 31.8 (LPM) 4 / 0
Spec. Cap. 3.07 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	190.0		
4.3	185.7	BROWN	SAND / FLINT /
8.8	181.1	BROWN	GRAVEL / STONES / FINE SAND
15.8	174.1	BROWN	CLAY / FINE SAND /
37.8	152.2	BROWN	FINE SAND / /

4511985 **Lot** 016 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1999-10-06 **DD/MM/YYYY**

Elev 173.3 (masl) **Easting** 273600 **Northing** 4881384
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 11.3 (mbgs) 162.1 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 2.4 (mbgs) 170.9 (masl)
Pumping WL 1.8 (mbgs) 171.5 (masl)
Pump Rate 27.3 (LPM) 4 / 0
Spec. Cap. -44.74 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	173.3		
1.8	171.5	BLACK	TOPSOIL / WOOD FRAGMENTS /
2.4	170.9	BROWN	CLAY / /
8.2	165.1	GREY	CLAY / /
8.8	164.5	GREY	CLAY / FINE SAND /
11.3	162.1	BROWN	SAND / GRAVEL /

4511986 **Lot** 016 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1999-10-05 **DD/MM/YYYY**

Elev 173.5 (masl) **Easting** 273769 **Northing** 4881508
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 8.2 (mbgs) 165.3 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 0.0 (mbgs) 173.5 (masl)
Pumping WL 3.7 (mbgs) 169.8 (masl)
Pump Rate 18.2 (LPM) 2 / 0
Spec. Cap. 4.97 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	173.5		
0.6	172.9	BROWN	CLAY / GRAVEL / STONES
2.4	171.0	BLACK	CLAY / WOOD FRAGMENTS / SAND
6.1	167.4	GREY	SILT / CLAY /
7.9	165.6	GREY	CLAY / GRAVEL /
8.2	165.3	GREY	GRAVEL / COARSE SAND /

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4511987 — **Lot** 016 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 1999-10-03 **DD/MM/YYYY**

Elev 173.5 (masl) **Easting** 273768 **Northing** 4881507
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 10.7 (mbgs) 162.8 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 0.9 (mbgs) 172.5 (masl)
Pumping WL 6.4 (mbgs) 167.1 (masl)
Pump Rate 18.2 (LPM) 4 / 0
Spec. Cap. 3.31 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	173.5		
0.6	172.9	BROWN	CLAY / GRAVEL / STONES
2.1	171.3	BLACK	CLAY / SAND / WOOD FRAGMENTS
6.1	167.4	GREY	CLAY / SILT /
8.8	164.6	GREY	CLAY / GRAVEL /
10.1	163.4	GREY	GRAVEL / SILT / SAND
10.7	162.8	GREY	GRAVEL / SAND /

4512122 — **Lot** 015 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2000-02-03 **DD/MM/YYYY**

Elev 178.0 (masl) **Easting** 754780 **Northing** 4882430
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 22.3 (mbgs) 155.7 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 21.3 (mbgs) **Bottom of Screen** 22.3 (mbgs)
Screen Interval 0.9 (m)

Flowing? N
SWL 15.2 (mbgs) 162.7 (masl)
Pumping WL 19.2 (mbgs) 158.8 (masl)
Pump Rate 40.9 (LPM) 1 / 0
Spec. Cap. 10.33 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	178.0		
2.7	175.2	BROWN	CLAY / /
3.4	174.6	BROWN	CLAY / BOULDERS / GRAVEL
6.7	171.3	BROWN	CLAY / SILT /
11.6	166.4	BROWN	FINE SAND / /
14.3	163.7	BROWN	CLAY / SILT / GRAVEL
19.2	158.8	GREY	CLAY / GRAVEL / SILT
21.3	156.7	BROWN	SAND / SILT / GRAVEL
22.3	155.7	BROWN	COARSE SAND / GRAVEL /

4512123 — **Lot** 016 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2000-01-28 **DD/MM/YYYY**

Elev 172.3 (masl) **Easting** 754406 **Northing** 4882272
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 5.8 (mbgs) 166.5 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 11.3 (mbgs) **Bottom of Screen** 12.2 (mbgs)
Screen Interval 0.9 (m)

Flowing? N
SWL 1.5 (mbgs) 170.7 (masl)
Pumping WL 11.3 (mbgs) 161.0 (masl)
Pump Rate 22.7 (LPM) 1 / 0
Spec. Cap. 2.33 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	172.3		
4.6	167.7	BROWN	CLAY / STONES /
5.8	166.5	BROWN	SAND / CLAY / GRAVEL
10.4	161.9	BROWN	CLAY / SAND / GRAVEL
12.2	160.1	BROWN	SAND / GRAVEL /

4512276 — **Lot** 023 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2000-05-08 **DD/MM/YYYY**

Elev 183.1 (masl) **Easting** 751698 **Northing** 4881175
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 8.5 (mbgs) 174.5 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL (mbgs) (masl)
Pumping WL 8.2 (mbgs) 174.8 (masl)
Pump Rate 31.8 (LPM) 2 /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	183.1		

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0.3	182.8	BROWN	TOPSOIL /		/
3.7	179.4	BLACK	CLAY /		/
8.5	174.5	BROWN	SAND /	CLAY	/ GRAVEL
9.8	173.3	GREY	GRAVEL /	SAND	/

4512293 **Lot** 007 **Conc** 03 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2000-05-26 **DD/MM/YYYY**

Elev 204.9 (masl) **Easting** 757870 **Northing** 4883630
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 20.1 (mbgs) 184.8 (masl) Not stated
Casing Diameter 5 inch **Casing Material:** STEEL
Top of Screen 44.5 (mbgs) **Bottom of Screen** 45.7 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 22.9 (mbgs) 182.1 (masl)
Pumping WL 44.5 (mbgs) 160.4 (masl)
Pump Rate 22.7 (LPM) 9 /
Spec. Cap. 1.05 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	204.9				
2.1	202.8	BROWN	CLAY /	STONES	/ GRAVEL
12.2	192.7	BROWN	CLAY /	BOULDERS	/ GRAVEL
15.2	189.7	BROWN	SAND /	SILT	/ GRAVEL
20.1	184.8	BROWN	CLAY /	FINE SAND	/ SILT
20.4	184.5	BROWN	CLAY /	SAND	/ GRAVEL
23.8	181.2	BROWN	FINE SAND /	SILT	/
25.9	179.0	BROWN	CLAY /	GRAVEL	/
26.2	178.7	BROWN	SAND /	SILT	/
30.8	174.1	GREY	CLAY /	GRAVEL	/
45.1	159.8	GREY	CLAY /	SAND	/ SILT
45.4	159.5	GREY	SAND /	GRAVEL	/ SILT
46.3	158.6	GREY	CLAY /	GRAVEL	/

4512458 **Lot** 029 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2000-10-31 **DD/MM/YYYY**

Elev 212.2 (masl) **Easting** 749391 **Northing** 4880290
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 38.1 (mbgs) 174.1 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 36.0 (mbgs) **Bottom of Screen** 38.4 (mbgs)
Screen Interval 2.4 (m)

Flowing? N
SWL 25.9 (mbgs) 186.3 (masl)
Pumping WL 36.6 (mbgs) 175.7 (masl)
Pump Rate 22.7 (LPM) 4 / 0
Spec. Cap. 2.13 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	212.2				
0.6	211.6	BROWN	TOPSOIL /	SOFT	/
38.1	174.1	BROWN	FINE SAND /	HARD	/

4512481 **Lot** 015 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2000-12-13 **DD/MM/YYYY**

Elev 177.9 (masl) **Easting** 754777 **Northing** 4882431
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 7.3 (mbgs) 170.6 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 6.4 (mbgs) **Bottom of Screen** 7.3 (mbgs)
Screen Interval 0.9 (m)

Flowing? N
SWL 2.7 (mbgs) 175.2 (masl)
Pumping WL 3.0 (mbgs) 174.9 (masl)
Pump Rate 50.0 (LPM) 1 / 0
Spec. Cap. 164.06 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	177.9				
4.6	173.4		PREVIOUSLY DUG /		/
7.3	170.6	BROWN	SAND /	GRAVEL	/

Well Record #

4512495 **Lot** 019 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2001-01-23 **DD/MM/YYYY**

Elev 181.0 (masl) **Easting** 753226 **Northing** 4881772
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 23.2 (mbgs) 157.9 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 12.2 (mbgs) 168.8 (masl)
Pumping WL 21.9 (mbgs) 159.1 (masl)
Pump Rate 22.7 (LPM) 3 /
Spec. Cap. 2.33 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	181.0		
1.2	179.8	BROWN	TOPSOIL / SOFT /
4.6	176.5	BROWN	SAND / GRAVEL / PACKED
22.9	158.2	GREY	SAND / GRAVEL / PACKED
23.2	157.9	BROWN	COARSE GRAVEL / COARSE SAND / LOOSE

4512539 **Lot** 025 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2000-11-25 **DD/MM/YYYY**

Elev 190.6 (masl) **Easting** 750943 **Northing** 4880873
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 28.3 (mbgs) 162.3 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 1.8 (mbgs) **Bottom of Screen** 4.0 (mbgs)
Screen Interval 2.1 (m)

Flowing? N
SWL 28.3 (mbgs) 162.3 (masl)
Pumping WL 27.4 (mbgs) 163.2 (masl)
Pump Rate 22.7 (LPM) 2 /
Spec. Cap. -24.86 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	190.6		
5.5	185.2	BROWN	SAND / CLAY / GRAVEL
8.5	182.1	BROWN	COARSE SAND / /
9.8	180.9	BROWN	SAND / COARSE GRAVEL /
29.9	160.8	BROWN	COARSE SAND / /

4512563 **Lot** 017 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2001-01-25 **DD/MM/YYYY**

Elev 178.4 (masl) **Easting** 753998 **Northing** 4882114
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 20.7 (mbgs) 157.7 (masl) FRESH
Casing Diameter 5 inch **Casing Material:** STEEL
Top of Screen 19.5 (mbgs) **Bottom of Screen** 20.7 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 11.9 (mbgs) 166.5 (masl)
Pumping WL 18.3 (mbgs) 160.1 (masl)
Pump Rate 31.8 (LPM) 1 /
Spec. Cap. 4.97 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	178.4		
0.9	177.5	BROWN	TOPSOIL / SOFT /
18.3	160.1	BROWN	SAND / GRAVEL / PACKED
20.7	157.7	BROWN	COARSE SAND / LOOSE /

4512564 **Lot** 025 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2001-02-16 **DD/MM/YYYY**

Elev 190.6 (masl) **Easting** 750943 **Northing** 4880873
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 51.5 (mbgs) 139.1 (masl) FRESH
Casing Diameter 5 inch **Casing Material:** STEEL
Top of Screen 50.3 (mbgs) **Bottom of Screen** 51.5 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 35.1 (mbgs) 155.6 (masl)
Pumping WL 48.8 (mbgs) 141.9 (masl)
Pump Rate 22.7 (LPM) 2 /
Spec. Cap. 1.66 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	190.6		
21.3	169.3	BROWN	SAND / CLAY / PACKED
50.3	140.4	BROWN	SAND / PACKED /
51.5	139.1	BROWN	COARSE SAND / LOOSE /

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4512623 **Lot** 024 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2001-05-25 **DD/MM/YYYY**

Elev 194.2 (masl) **Easting** 751318 **Northing** 4881023
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 57.0 (mbgs) 137.2 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 55.8 (mbgs) **Bottom of Screen** 57.0 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 43.6 (mbgs) 150.6 (masl)
Pumping WL 53.9 (mbgs) 140.3 (masl)
Pump Rate 31.8 (LPM) 2 /
Spec. Cap. 3.07 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	194.2		
0.6	193.6	BROWN	TOPSOIL / SOFT /
48.8	145.5	BROWN	SAND / GRAVEL / PACKED
49.7	144.5	BROWN	SAND / PREV. DRILLED /
57.0	137.2	BROWN	SAND / LOOSE /

4512694 **Lot** 015 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2001-05-30 **DD/MM/YYYY**

Elev 177.9 (masl) **Easting** 754777 **Northing** 4882431
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 8.2 (mbgs) 169.7 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 7.3 (mbgs) **Bottom of Screen** 8.2 (mbgs)
Screen Interval 0.9 (m)

Flowing? N
SWL 0.3 (mbgs) 177.6 (masl)
Pumping WL 3.7 (mbgs) 174.3 (masl)
Pump Rate 40.9 (LPM) 1 / 0
Spec. Cap. 12.20 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	177.9		
0.3	177.6	BROWN	TOPSOIL / /
0.9	177.0	GREY	SAND / CLAY /
5.5	172.4	BROWN	CLAY / SAND /
6.1	171.8	GREY	SAND / GRAVEL / CLAY
8.2	169.7	BROWN	COARSE SAND / GRAVEL /

4512699 **Lot** 028 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2001-06-13 **DD/MM/YYYY**

Elev 185.8 (masl) **Easting** 749778 **Northing** 4880444
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 44.2 (mbgs) 141.6 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 42.1 (mbgs) **Bottom of Screen** 44.2 (mbgs)
Screen Interval 2.1 (m)

Flowing? N
SWL 32.0 (mbgs) 153.8 (masl)
Pumping WL 41.1 (mbgs) 144.7 (masl)
Pump Rate 36.4 (LPM) 4 / 0
Spec. Cap. 3.98 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	185.8		
0.6	185.2	BROWN	TOPSOIL / SOFT /
7.6	178.2	GREY	CLAY / SANDSTONE / HARD
44.2	141.6	BROWN	FINE SAND / HARD /

4512762 **Lot** 018 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2001-07-17 **DD/MM/YYYY**

Elev 196.6 (masl) **Easting** 753613 **Northing** 4881936
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 16.2 (mbgs) 180.5 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 14.0 (mbgs) **Bottom of Screen** 15.2 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 7.6 (mbgs) 189.0 (masl)
Pumping WL 9.1 (mbgs) 187.5 (masl)
Pump Rate 90.9 (LPM) 1 / 0
Spec. Cap. 59.66 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	196.6		
7.6	189.0	BROWN	FINE SAND / GRAVEL / STONES
10.7	185.9	BROWN	FINE SAND / SOFT /
12.2	184.4	GREY	FINE SAND / SOFT /
13.7	182.9	GREY	COARSE SAND / COARSE GRAVEL / STONES
16.2	180.5	BROWN	FINE SAND / SOFT /

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4512773 — **Lot** 020 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2001-08-15 **DD/MM/YYYY**

Elev 181.1 (masl) **Easting** 752845 **Northing** 4881616
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 18.9 (mbgs) 162.2 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 18.6 (mbgs) **Bottom of Screen** 20.1 (mbgs)
Screen Interval 1.5 (m)

Flowing? N
SWL 3.0 (mbgs) 178.0 (masl)
Pumping WL 15.8 (mbgs) 165.2 (masl)
Pump Rate 18.2 (LPM) 2 / 0
Spec. Cap. 1.42 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	181.1		
6.7	174.3	BROWN	COARSE GRAVEL / SAND /
13.7	167.3	GREY	FINE SAND / GRAVEL /
18.9	162.2	GREY	CLAY / SOFT /
20.4	160.6	BROWN	SAND / GRAVEL /

4512831 — **Lot** 020 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2001-10-19 **DD/MM/YYYY**

Elev 181.1 (masl) **Easting** 752845 **Northing** 4881616
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 7.9 (mbgs) 173.1 (masl) SULPHUR
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 5.2 (mbgs) 175.9 (masl)
Pumping WL 6.4 (mbgs) 174.7 (masl)
Pump Rate 40.9 (LPM) 2 / 0
Spec. Cap. 33.56 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	181.1		
0.3	180.7	BROWN	TOPSOIL / /
5.2	175.9	GREY	GRAVEL / MEDIUM SAND /
6.1	175.0	BROWN	GRAVEL / CLAY / FINE SAND
7.6	173.4	GREY	FINE SAND / CLAY / GRAVEL
9.1	171.9	GREY	GRAVEL / MEDIUM SAND / FINE SAND

4512875 — **Lot** 020 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2002-01-10 **DD/MM/YYYY**

Elev 181.1 (masl) **Easting** 752845 **Northing** 4881616
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 6.4 (mbgs) 174.7 (masl) MINERIAL
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 9.8 (mbgs) **Bottom of Screen** 10.7 (mbgs)
Screen Interval 0.9 (m)

Flowing? N
SWL 3.7 (mbgs) 177.4 (masl)
Pumping WL 8.5 (mbgs) 172.5 (masl)
Pump Rate 36.4 (LPM) 1 / 30
Spec. Cap. 7.46 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	181.1		
0.3	180.7	BROWN	TOPSOIL / GRAVEL /
10.7	170.4	BROWN	MEDIUM SAND / GRAVEL / DENSE

4512978 — **Lot** 020 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2002-04-26 **DD/MM/YYYY**

Elev 181.1 (masl) **Easting** 752845 **Northing** 4881616
/ Not Used Abandoned-Supply **UTM RC** 9 **unknown UTM**
Water Found (mbgs) (masl)
Casing Diameter **Casing Material:**
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	181.1		
			/ /

Well Record #

4513011 **Lot** 018 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2002-03-30 **DD/MM/YYYY**

Elev 196.6 (masl) **Easting** 753613 **Northing** 4881936
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 16.5 (mbgs) 180.1 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 14.6 (mbgs) **Bottom of Screen** 16.8 (mbgs)
Screen Interval 2.1 (m)

Flowing? N
SWL 10.7 (mbgs) 185.9 (masl)
Pumping WL 12.5 (mbgs) 184.1 (masl)
Pump Rate 45.5 (LPM) 4 / 0
Spec. Cap. 24.86 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	196.6		
0.6	196.0	BROWN	TOPSOIL / SOFT /
7.6	189.0	BROWN	SAND / STONES / HARD
13.7	182.9	BROWN	SAND / CLAY / HARD
16.5	180.1	BROWN	COARSE SAND / HARD /

4513128 **Lot** 018 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2001-07-17 **DD/MM/YYYY**

Elev 177.5 (masl) **Easting** 753743 **Northing** 4881411
/ Domestic Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found 16.2 (mbgs) 161.4 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 14.0 (mbgs) **Bottom of Screen** 15.2 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 7.6 (mbgs) 169.9 (masl)
Pumping WL 9.1 (mbgs) 168.4 (masl)
Pump Rate 90.9 (LPM) 1 / 0
Spec. Cap. 59.66 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	177.5		
7.6	169.9	BROWN	FINE SAND / GRAVEL / HARD
10.7	166.9	BROWN	FINE SAND / SOFT /
12.2	165.3	GREY	FINE SAND / SOFT /
13.7	163.8	GREY	COARSE SAND / GRAVEL / HARD
16.2	161.4	BROWN	FINE SAND / SOFT /

4513412 **Lot** 029 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2003-04-30 **DD/MM/YYYY**

Elev 212.3 (masl) **Easting** 749390 **Northing** 4880290
/ Domestic Water Supply **UTM RC** 7 **margin of error : 1 km - 3 km**
Water Found 48.8 (mbgs) 163.5 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 46.6 (mbgs) **Bottom of Screen** 48.8 (mbgs)
Screen Interval 2.1 (m)

Flowing? N
SWL 36.6 (mbgs) 175.7 (masl)
Pumping WL 42.7 (mbgs) 169.6 (masl)
Pump Rate 36.4 (LPM) 4 / 0
Spec. Cap. 5.97 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	212.3		
0.6	211.7	BROWN	TOPSOIL / SOFT /
9.1	203.1	BROWN	SAND / GRAVEL / SOFT
48.8	163.5	BROWN	FINE SAND / HARD /

4513512 **Lot** 023 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2003-07-15 **DD/MM/YYYY**

Elev 183.1 (masl) **Easting** 751698 **Northing** 4881175
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 15.8 (mbgs) 167.3 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 13.4 (mbgs) **Bottom of Screen** 15.8 (mbgs)
Screen Interval 2.4 (m)

Flowing? N
SWL 8.5 (mbgs) 174.6 (masl)
Pumping WL 14.3 (mbgs) 168.8 (masl)
Pump Rate 27.3 (LPM) 2 / 30
Spec. Cap. 4.71 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	183.1		
0.3	182.8		TOPSOIL / /
11.0	172.2	GREY	SAND / /
15.8	167.3	BROWN	SAND / /

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4513784 — **Lot** 015 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2004-03-30 **DD/MM/YYYY**

Elev 173.7 (masl) **Easting** 273954 **Northing** 4881367
/ Domestic Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found 7.0 (mbgs) 166.7 (masl) FRESH
Casing Diameter 16 cm **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL 0.6 (mbgs) 173.0 (masl)
Pumping WL 4.6 (mbgs) 169.0 (masl)
Pump Rate 22.7 (LPM) 1 / 25
Spec. Cap. 5.68 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	173.7		
3.7	170.0	GREY	FINE SAND / FINE GRAVEL /
5.5	168.2	GREY	CLAY / FINE SAND / SILT
7.0	166.7	GREY	FINE GRAVEL / FINE SAND /
7.6	166.1	GREY	CLAY / GRAVEL /
9.8	163.9	GREY	CLAY / GRAVEL / SAND

4513832 — **Lot** 017 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2004-05-13 **DD/MM/YYYY**

Elev 173.4 (masl) **Easting** 273451 **Northing** 4881225
/ Domestic Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found 4.3 (mbgs) 169.1 (masl) Not stated
Casing Diameter 16 cm **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL 4.6 (mbgs) 168.8 (masl)
Pump Rate 56.8 (LPM) 14 / 0
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	173.4		
0.6	172.8	BROWN	TOPSOIL / /
2.4	171.0	BROWN	CLAY / SAND / GRAVEL
4.3	169.1	GREY	CLAY / SAND /
8.2	165.2	GREY	CLAY / SILT / SAND
8.5	164.9	BROWN	CLAY / GRAVEL / SAND
9.0	164.4	BROWN	SAND / GRAVEL / SILT

4513833 — **Lot** 016 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2004-05-07 **DD/MM/YYYY**

Elev 173.6 (masl) **Easting** 273466 **Northing** 4881266
/ Not Used Abandoned-Other **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found (mbgs) (masl)
Casing Diameter **Casing Material:**
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	173.6		
			/ /

4513890 — **Lot** 027 **Conc** 02 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2004-05-19 **DD/MM/YYYY**

Elev 161.7 (masl) **Easting** 269539 **Northing** 4878757
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 20.4 (mbgs) 141.3 (masl)
Casing Diameter 16 cm **Casing Material:** STEEL
Top of Screen 20.4 (mbgs) **Bottom of Screen** 21.6 (mbgs)
Screen Interval 1.2 (m)

Flowing?
SWL 20.6 (mbgs) 141.1 (masl)
Pumping WL 19.7 (mbgs) 142.0 (masl)
Pump Rate 13.6 (LPM) 1 / 0
Spec. Cap. -14.83 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	161.7		
0.3	161.4	BLACK	TOPSOIL / /
0.7	161.0	BROWN	SAND / /
21.1	140.6	GREY	CLAY / SAND / GRAVEL
21.6	140.1	BROWN	SAND / GRAVEL /

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4513986 **Lot** 004 **Conc** 04 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2004-04-21 **DD/MM/YYYY**

Elev 199.1 (masl) **Easting** 278064 **Northing** 4884264 **UTM RC** 3 **margin of error : 10 - 30 m**

/

Water Found (mbgs) (masl)

Casing Diameter inch **Casing Material:** STEEL

Top of Screen 3.0 (mbgs) **Bottom of Screen** 6.1 (mbgs)

Screen Interval 3.0 (m)

Flowing?

SWL		(mbgs)		(masl)
Pumping WL		(mbgs)		(masl)
Pump Rate		(LPM)		/
Spec. Cap.		(LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	199.1		
6.1	193.0	BROWN	CLAY / SAND /

4514047 **Lot** 002 **Conc** 26 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2004-10-22 **DD/MM/YYYY**

Elev 163.5 (masl) **Easting** 270265 **Northing** 4878974 **UTM RC** 3 **margin of error : 10 - 30 m**

/ Domestic Water Supply

Water Found 24.7 (mbgs) 138.8 (masl) FRESH

Casing Diameter 15 cm **Casing Material:** STEEL

Top of Screen 33.5 (mbgs) **Bottom of Screen** 34.7 (mbgs)

Screen Interval 1.2 (m)

Flowing?

SWL		(mbgs)		(masl)
Pumping WL	28.9	(mbgs)	134.6	(masl)
Pump Rate	22.5	(LPM)	3 / 0	
Spec. Cap.		(LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	163.5		
32.0	131.5	BROWN	CLAY / SAND / SOFT
34.7	128.8	BROWN	FINE SAND / HARD /

4514193 **Lot** 017 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2005-04-19 **DD/MM/YYYY**

Elev 174.1 (masl) **Easting** 273363 **Northing** 4881001 **UTM RC** 4 **margin of error : 30 m - 100 m**

/ Domestic Water Supply

Water Found 9.1 (mbgs) 164.9 (masl) FRESH

Casing Diameter 16 cm **Casing Material:** STEEL

Top of Screen 8.8 (mbgs) **Bottom of Screen** 10.1 (mbgs)

Screen Interval 1.2 (m)

Flowing?

SWL	1.1	(mbgs)	173.0	(masl)
Pumping WL	5.5	(mbgs)	168.6	(masl)
Pump Rate	24.0	(LPM)	1 / 0	
Spec. Cap.	5.43	(LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	174.1		
0.6	173.5	BROWN	TOPSOIL / STONES /
4.9	169.2	BROWN	SAND / GRAVEL / LOOSE
6.4	167.7	BROWN	SAND / CLAY /
9.1	164.9	BROWN	CLAY / SOFT /
10.4	163.7	BROWN	SAND / GRAVEL /

4514200 **Lot** 026 **Conc** 02 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2005-04-14 **DD/MM/YYYY**

Elev 175.8 (masl) **Easting** 269344 **Northing** 4879736 **UTM RC** 4 **margin of error : 30 m - 100 m**

/ Domestic Water Supply

Water Found 19.8 (mbgs) 156.0 (masl) FRESH

Casing Diameter 15 cm **Casing Material:** STEEL

Top of Screen 18.2 (mbgs) **Bottom of Screen** 19.8 (mbgs)

Screen Interval 1.6 (m)

Flowing?

SWL	13.1	(mbgs)	162.7	(masl)
Pumping WL	13.7	(mbgs)	162.1	(masl)
Pump Rate	27.0	(LPM)	2 / 0	
Spec. Cap.	45.00	(LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	175.8		
18.2	157.6	BROWN	SAND / STONES / HARD
19.8	156.0	BROWN	COARSE SAND / HARD /

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4514227 **Lot** 028 **Conc** 02 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2005-05-10 **DD/MM/YYYY**

Elev 157.8 (masl) **Easting** 269301 **Northing** 4878601
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 11.6 (mbgs) 146.2 (masl)
Casing Diameter 16 cm **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL 1.1 (mbgs) 156.7 (masl)
Pumping WL 7.9 (mbgs) 149.9 (masl)
Pump Rate 13.6 (LPM) 1 /
Spec. Cap. 1.98 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	157.8		
0.3	157.5	BLACK	TOPSOIL / /
2.4	155.4	BROWN	SAND / /
5.6	152.2	GREY	SAND / /
11.6	146.2	GREY	CLAY / SAND / GRAVEL

4514405 **Lot** 020 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2005-08-25 **DD/MM/YYYY**

Elev 180.1 (masl) **Easting** 271952 **Northing** 4880782
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 4.0 (mbgs) 176.1 (masl) FRESH
Casing Diameter 16 cm **Casing Material:** STEEL
Top of Screen 8.5 (mbgs) **Bottom of Screen** 9.8 (mbgs)
Screen Interval 1.2 (m)

Flowing?
SWL 3.3 (mbgs) 176.8 (masl)
Pumping WL 7.9 (mbgs) 172.2 (masl)
Pump Rate 32.0 (LPM) 1 / 10
Spec. Cap. 6.97 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	180.1		
8.2	171.9	BROWN	GRAVEL / SAND / STONES
9.8	170.3	BROWN	SAND / /

4514412 **Lot** 021 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2005-09-07 **DD/MM/YYYY**

Elev 208.8 (masl) **Easting** 271265 **Northing** 4880553
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 61.2 (mbgs) 147.6 (masl)
Casing Diameter 15 cm **Casing Material:** STEEL
Top of Screen 70.2 (mbgs) **Bottom of Screen** 71.1 (mbgs)
Screen Interval 0.9 (m)

Flowing?
SWL 35.8 (mbgs) 173.0 (masl)
Pumping WL 57.0 (mbgs) 151.8 (masl)
Pump Rate 13.2 (LPM) 1 /
Spec. Cap. 0.62 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	208.8		
0.6	208.2	BROWN	SAND / /
5.4	203.4	GREY	SAND / CLAY / GRAVEL
18.6	190.2	GREY	FINE SAND / GRAVEL / PACKED
43.2	165.6	GREY	CLAY / GRAVEL / THICK
61.3	147.5	GREY	GRAVEL / SAND /
72.6	136.2	GREY	FINE SAND / CLAY / LOOSE

4514418 **Lot** 170 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2005-10-17 **DD/MM/YYYY**

Elev 173.9 (masl) **Easting** 273371 **Northing** 4881028
/ Domestic Replacement Well **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 7.3 (mbgs) 166.6 (masl) FRESH
Casing Diameter 16 cm **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? Y
SWL -0.8 (mbgs) 174.7 (masl)
Pumping WL 2.5 (mbgs) 171.4 (masl)
Pump Rate 34.1 (LPM) 1 / 0
Spec. Cap. 10.33 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	173.9		
1.2	172.7	BROWN	CLAY / SILT / STONES
7.9	166.0	BROWN	SILT / SAND /
8.8	165.1	BROWN	GRAVEL / SAND /

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4514419 — **Lot** 017 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2005-10-17 **DD/MM/YYYY**

Elev 173.8 (masl) **Easting** 273372 **Northing** 4881028
/ Not Used Abandoned-Other **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found (mbgs) (masl)
Casing Diameter 81 cm **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	173.8		

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

/ /

4514420 — **Lot** 017 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2005-10-17 **DD/MM/YYYY**

Elev 174.9 (masl) **Easting** 273370 **Northing** 4881054
/ Not Used Abandoned-Other **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found (mbgs) (masl)
Casing Diameter 81 cm **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	174.9		

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

/ /

4514421 — **Lot** 017 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2005-10-06 **DD/MM/YYYY**

Elev 179.2 (masl) **Easting** 273328 **Northing** 4881046
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 7.0 (mbgs) 172.2 (masl) FRESH
Casing Diameter 16 cm **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	179.2		
4.3	175.0	BROWN	SAND / STONES / GRAVEL
7.0	172.2	BROWN	SAND / GRAVEL /
9.1	170.1	BROWN	GRAVEL / SILT /
11.3	167.9	BROWN	GRAVEL / SAND /

Flowing?
SWL 4.3 (mbgs) 175.0 (masl)
Pumping WL 7.6 (mbgs) 171.6 (masl)
Pump Rate 30.3 (LPM) 1 / 30
Spec. Cap. 8.93 (LPM/m) Hour / Minute

4514557 — **Lot** 003 **Conc** 01 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2006-03-11 **DD/MM/YYYY**

Elev 221.0 (masl) **Easting** 278610 **Northing** 4883791
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 11.0 (mbgs) 210.0 (masl) FRESH
Casing Diameter 16 cm **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	221.0		
0.6	220.4	BROWN	TOPSOIL / /
5.2	215.8	BROWN	SAND / CLAY / GRAVEL
11.0	210.0	BROWN	SAND / GRAVEL / CLAY
11.3	209.7	BROWN	GRAVEL / SAND /

Flowing?
SWL 3.9 (mbgs) 217.1 (masl)
Pumping WL 8.6 (mbgs) 212.4 (masl)
Pump Rate 10.0 (LPM) 1 / 0
Spec. Cap. 2.14 (LPM/m) Hour / Minute

Well Record #

4514613 — **Lot** 023 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2006-04-07 **DD/MM/YYYY**

Elev 178.4 (masl) **Easting** 270971 **Northing** 4880417
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 22.8 (mbgs) 155.6 (masl) FRESH
Casing Diameter 15 cm **Casing Material:** STEEL
Top of Screen 21.3 (mbgs) **Bottom of Screen** 22.8 (mbgs)
Screen Interval 1.5 (m)

Flowing?
SWL 13.7 (mbgs) 164.7 (masl)
Pumping WL 19.8 (mbgs) 158.6 (masl)
Pump Rate 31.5 (LPM) 2 / 0
Spec. Cap. 5.16 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	178.4		
1.0	177.4	BROWN	TOPSOIL / SOFT /
18.2	160.2	BROWN	SAND / CLAY / HARD
22.8	155.6	BROWN	FINE SAND / HARD /

4514617 — **Lot** 019 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2006-04-23 **DD/MM/YYYY**

Elev 186.1 (masl) **Easting** 272529 **Northing** 4881275
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 14.3 (mbgs) 171.8 (masl) FRESH
Casing Diameter 15 cm **Casing Material:** STEEL
Top of Screen 13.1 (mbgs) **Bottom of Screen** 14.3 (mbgs)
Screen Interval 1.2 (m)

Flowing?
SWL 5.4 (mbgs) 180.7 (masl)
Pumping WL 10.6 (mbgs) 175.5 (masl)
Pump Rate 36.0 (LPM) 2 / 0
Spec. Cap. 6.92 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	186.1		
1.0	185.1	BROWN	TOPSOIL / SOFT /
9.1	177.0	BROWN	GRAVEL / STONES / HARD
10.6	175.5	GREY	CLAY / SOFT /
14.3	171.8	GREY	COARSE SAND / /

4514810 — **Lot** 016 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2006-05-07 **DD/MM/YYYY**

Elev 173.3 (masl) **Easting** 273500 **Northing** 4881256
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 3.6 (mbgs) 169.7 (masl)
Casing Diameter 16 cm **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? Y
SWL (mbgs) (masl)
Pumping WL 15.0 (mbgs) 158.4 (masl)
Pump Rate 45.4 (LPM) 1 / 0
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	173.3		
0.6	172.7	BROWN	SAND / GRAVEL /
1.2	172.1	BROWN	CLAY / MUCK /
3.7	169.7	BROWN	CLAY / GRAVEL / SAND
4.9	168.5	BROWN	SAND / GRAVEL / CLAY
5.8	167.6	GREY	SILT / CLAY /
9.1	164.2	BROWN	SILT / CLAY / GRAVEL
9.8	163.6	GREY	CLAY / GRAVEL / SAND
11.0	162.4	GREY	SILT / CLAY / FINE SAND
12.5	160.8	GREY	GRAVEL / CLAY / SILT
13.1	160.2	BROWN	SILT / GRAVEL / SAND
16.1	157.2	GREY	SILT / CLAY / GRAVEL
16.5	156.9	BROWN	FINE SAND / SILT / CLAY

Well Record #

7035732 — **Lot** 004 **Conc** 08 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2006-10-10 **DD/MM/YYYY**

Elev 201.6 (masl) **Easting** 275097 **Northing** 4881648
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 1.0 (mbgs) 200.6 (masl) FRESH
Casing Diameter 90 cm **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? Y
SWL (mbgs) (masl)
Pumping WL 5.0 (mbgs) 196.6 (masl)
Pump Rate (LPM) 1 /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	201.6		
0.3	201.3	BROWN	TOPSOIL / /
0.6	201.0	BROWN	CLAY / /
5.3	196.3	BLUE	CLAY / SOFT /

7048756 — **Lot** 011 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2007-07-27 **DD/MM/YYYY**

Elev 191.8 (masl) **Easting** 275325 **Northing** 4882775
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 12.5 (mbgs) 179.3 (masl) FRESH
Casing Diameter 16 cm **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 4.6 (mbgs) 187.2 (masl)
Pumping WL 8.8 (mbgs) 183.0 (masl)
Pump Rate 38.0 (LPM) 1 / 0
Spec. Cap. 9.09 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	191.8		
1.8	190.0	BROWN	TOPSOIL / TOPSOIL /
4.9	186.9	GREY	CLAY / SAND /
6.4	185.4	GREY	CLAY / SAND / GRAVEL
8.8	183.0	BROWN	FINE SAND / SILT /
12.5	179.3	GREY	CLAY / GRAVEL / LAYERED
13.7	178.1	BROWN	GRAVEL / SAND /

7050432 — **Lot** 018 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2007-05-08 **DD/MM/YYYY**

Elev 181.4 (masl) **Easting** 273315 **Northing** 4880342
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 9.4 (mbgs) 172.0 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 11.5 (mbgs) **Bottom of Screen** 12.7 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 8.8 (mbgs) 172.6 (masl)
Pumping WL 10.6 (mbgs) 170.8 (masl)
Pump Rate 50.0 (LPM) 1 / 0
Spec. Cap. 27.95 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	181.4		
1.5	179.9	BROWN	STONES / CLAY /
5.5	176.0	GREY	GRAVEL / STONES / SAND
12.8	168.6	BROWN	COARSE SAND / GRAVEL /

7101842 — **Lot** 029 **Conc** 02 — COLBORNE VILLAGE (CRAMAHE) / NORTHUMBERLAND

Date 2007-12-13 **DD/MM/YYYY**

Elev 166.1 (masl) **Easting** 268840 **Northing** 4878562
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 17.7 (mbgs) 148.4 (masl) FRESH
Casing Diameter **Casing Material:**
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL 3.4 (mbgs) 162.8 (masl)
Pumping WL 13.6 (mbgs) 152.6 (masl)
Pump Rate 36.4 (LPM) 1 / 0
Spec. Cap. 3.56 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	166.1		
0.3	165.8	BROWN	TOPSOIL / / SOFT
7.6	158.5	BROWN	CLAY / GRAVEL / STONES
16.5	149.7	BROWN	SAND / / LOOSE
17.7	148.4	BROWN	SAND / / WATER-BEARING
18.0	148.1	BROWN	CLAY / / DENSE

Well Record #

7108981 — **Lot** 017 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2008-05-22 **DD/MM/YYYY**

Elev 174.6 (masl) **Easting** 273330 **Northing** 4880477
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 6.1 (mbgs) 168.5 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 6.3 (mbgs) **Bottom of Screen** 7.5 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 3.3 (mbgs) 171.3 (masl)
Pumping WL 5.0 (mbgs) 169.6 (masl)
Pump Rate 68.2 (LPM) 1 / 0
Spec. Cap. 39.74 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	174.6		
0.3	174.3	BROWN	TOPSOIL / /
7.6	167.0	BROWN	SAND / GRAVEL /

7111634 — **Lot** 017 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2008-08-13 **DD/MM/YYYY**

Elev 173.5 (masl) **Easting** 273336 **Northing** 4880490
/ Not Used Abandoned-Other **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found (mbgs) (masl)
Casing Diameter 36 inch **Casing Material:**
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL 3.3 (mbgs) 170.2 (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	173.5		
0.5	173.0	BROWN	TOPSOIL / /
0.6	172.9	GREY	/ /
3.8	169.7	GREY	/ /
4.1	169.4	GREY	/ /

7116999 — **Lot** 004 **Conc** 04 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date **DD/MM/YYYY**

Elev 193.8 (masl) **Easting** 278200 **Northing** 4883907
/ Monitoring and Te Test Hole **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 3.6 (mbgs) 190.2 (masl) FRESH
Casing Diameter 5 cm **Casing Material:** PLASTIC
Top of Screen 3.5 (mbgs) **Bottom of Screen** 5.0 (mbgs)
Screen Interval 1.5 (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	193.8		
3.2	190.6	BROWN	SILT / SAND / LOOSE
4.8	189.0	BROWN	SAND / GRAVEL / PACKED
6.3	187.5	GREY	SILT / / DENSE

7119521 — **Lot** 004 **Conc** 04 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2009-01-12 **DD/MM/YYYY**

Elev 197.2 (masl) **Easting** 278253 **Northing** 4884120
/ Monitoring and Te Monitoring and Test Hole **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found (mbgs) (masl)
Casing Diameter 2 inch **Casing Material:** PLASTIC
Top of Screen 2.0 (mbgs) **Bottom of Screen** 3.5 (mbgs)
Screen Interval 1.5 (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	197.2		
2.4	194.8	BROWN	SAND / SILT / GRAVEL
2.7	194.5	BROWN	SILT / CLAY / GRAVEL
3.5	193.7	GREY	SILT / CLAY / GRAVEL

Well Record #

7124571 — **Lot** 016 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2009-06-15 **DD/MM/YYYY**

Elev 175.8 (masl) **Easting** 273598 **Northing** 4882212
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 8.5 (mbgs) 167.3 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 7.8 (mbgs) **Bottom of Screen** 8.4 (mbgs)
Screen Interval 0.6 (m)

Flowing?
SWL -0.8 (mbgs) 176.6 (masl)
Pumping WL 6.5 (mbgs) 169.3 (masl)
Pump Rate 18.2 (LPM) 1 / 0
Spec. Cap. 2.50 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	175.8		
0.6	175.2	BROWN	TOPSOIL / /
		BROWN	TOPSOIL / /
1.5	174.3	BROWN	TOPSOIL / /
		BROWN	TOPSOIL / /
3.4	172.4	BROWN	CLAY / / SOFT
		BROWN	CLAY / / SOFT
5.2	170.6	BROWN	GRAVEL / SAND /
		BROWN	GRAVEL / SAND /
8.5	167.3	BROWN	SAND / CLAY / DENSE
		BROWN	SAND / CLAY / DENSE
10.1	165.7	BROWN	SAND / /
		BROWN	SAND / /

7126112 — **Lot** 018 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2009-06-26 **DD/MM/YYYY**

Elev 179.1 (masl) **Easting** 272964 **Northing** 4880470
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 14.9 (mbgs) 164.2 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 13.7 (mbgs) **Bottom of Screen** 14.9 (mbgs)
Screen Interval 1.2 (m)

Flowing?
SWL 4.6 (mbgs) 174.5 (masl)
Pumping WL 12.5 (mbgs) 166.6 (masl)
Pump Rate 45.5 (LPM) 1 / 0
Spec. Cap. 5.74 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	179.1		
0.3	178.8	BROWN	TOPSOIL / / SOFT
7.3	171.8	GREY	GRAVEL / SAND / CLAY
14.9	164.2	BROWN	FINE SAND / / LOOSE

7128585 — **Lot** 026 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2008-01-01 **DD/MM/YYYY**

Elev 188.8 (masl) **Easting** 270008 **Northing** 4879976
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 42.7 (mbgs) 146.1 (masl) FRESH
Casing Diameter 16 cm **Casing Material:** STEEL
Top of Screen 45.7 (mbgs) **Bottom of Screen** 46.9 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 25.5 (mbgs) 163.3 (masl)
Pumping WL 40.2 (mbgs) 148.5 (masl)
Pump Rate 40.9 (LPM) 6 /
Spec. Cap. 2.77 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	188.8		
0.6	188.2	BLACK	TOPSOIL / /
24.4	164.4	BROWN	SAND / /
25.3	163.5	BROWN	SAND / GRAVEL /
42.7	146.1	BROWN	SAND / /
50.3	138.5	BROWN	SAND / /

Well Record #

7128636 **Lot** 023 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2009-07-30 **DD/MM/YYYY**

Elev 174.8 (masl) **Easting** 270920 **Northing** 4880187
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 7.3 (mbgs) 167.5 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 25.6 (mbgs) **Bottom of Screen** 26.8 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 6.5 (mbgs) 168.3 (masl)
Pumping WL 15.7 (mbgs) 159.1 (masl)
Pump Rate 68.2 (LPM) 1 /
Spec. Cap. 7.41 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	174.8		
0.6	174.2	BROWN	TOPSOIL / /
4.9	169.9	BROWN	CLAY / STONES / BOULDERS
26.5	148.3	BROWN	SAND / /
27.1	147.7	BROWN	SAND / CLAY /

7132972 **Lot** **Conc** BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2009-09-16 **DD/MM/YYYY**

Elev 199.6 (masl) **Easting** 277781 **Northing** 4883258
/ Test Hole Test Hole **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found (mbgs) (masl)
Casing Diameter 2 inch **Casing Material:** PLASTIC
Top of Screen 3.0 (mbgs) **Bottom of Screen** 4.6 (mbgs)
Screen Interval 1.5 (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	199.6		
			/ /

7157165 **Lot** 017 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2010-10-04 **DD/MM/YYYY**

Elev 178.6 (masl) **Easting** 273407 **Northing** 4880346
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found (mbgs) (masl)
Casing Diameter 5 inch **Casing Material:** PLASTIC
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL 5.5 (mbgs) 173.1 (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	178.6		
			/ /

7171220 **Lot** 025 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2011-11-03 **DD/MM/YYYY**

Elev 189.5 (masl) **Easting** 270180 **Northing** 4880124
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 34.7 (mbgs) 154.8 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 35.4 (mbgs) **Bottom of Screen** 36.3 (mbgs)
Screen Interval 0.9 (m)

Flowing? N
SWL 20.4 (mbgs) 169.2 (masl)
Pumping WL 34.5 (mbgs) 155.0 (masl)
Pump Rate 81.8 (LPM) 3 / 0
Spec. Cap. 5.79 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	189.5		
0.3	189.2	BROWN	TOPSOIL / /
2.7	186.8	BROWN	SAND / GRAVEL / STONES
22.3	167.3	BROWN	SAND / /
36.6	153.0	BROWN	SAND / SILT / DENSE

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7179120 **Lot** 004 **Conc** 04 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2011-08-22 **DD/MM/YYYY**

Elev 215.6 (masl) **Easting** 278054 **Northing** 4884089 **UTM RC** 4 **margin of error : 30 m - 100 m**

/

Water Found (mbgs) (masl)

Casing Diameter **Casing Material:**

Top of Screen (mbgs) **Bottom of Screen** (mbgs)

Screen Interval (m)

Flowing?

SWL		(mbgs)		(masl)
Pumping WL		(mbgs)		(masl)
Pump Rate		(LPM)		/
Spec. Cap.		(LPM/m)		Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	215.6		

/ /

7180167 **Lot** 018 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2012-03-30 **DD/MM/YYYY**

Elev 177.5 (masl) **Easting** 273027 **Northing** 4880438 **UTM RC** 4 **margin of error : 30 m - 100 m**

/ Domestic Water Supply

Water Found 10.4 (mbgs) 167.1 (masl) FRESH

Casing Diameter 6 inch **Casing Material:** STEEL

Top of Screen 9.4 (mbgs) **Bottom of Screen** 10.4 (mbgs)

Screen Interval 0.9 (m)

Flowing?

SWL	4.7	(mbgs)	172.8	(masl)
Pumping WL	7.1	(mbgs)	170.4	(masl)
Pump Rate	45.5	(LPM)	1	/
Spec. Cap.	19.02	(LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	177.5		
4.6	172.9	BROWN	SAND / GRAVEL /
10.4	167.1	BROWN	SAND / /
10.7	166.8	BROWN	SAND / CLAY /

7185394 **Lot** 017 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2012-08-09 **DD/MM/YYYY**

Elev 173.4 (masl) **Easting** 273421 **Northing** 4881166 **UTM RC** 4 **margin of error : 30 m - 100 m**

/ Abandoned-Other

Water Found (mbgs) (masl)

Casing Diameter **Casing Material:**

Top of Screen (mbgs) **Bottom of Screen** (mbgs)

Screen Interval (m)

Flowing?

SWL		(mbgs)	(masl)
Pumping WL		(mbgs)	(masl)
Pump Rate		(LPM)	/
Spec. Cap.		(LPM/m)	Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	173.4		

/ /

7211356 **Lot** **Conc** CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2013-09-22 **DD/MM/YYYY**

Elev 181.6 (masl) **Easting** 271251 **Northing** 4880410 **UTM RC** 4 **margin of error : 30 m - 100 m**

/ Domestic Water Supply

Water Found 26.2 (mbgs) 155.4 (masl) Untested

Casing Diameter 6 inch **Casing Material:** STEEL

Top of Screen 24.4 (mbgs) **Bottom of Screen** 26.2 (mbgs)

Screen Interval 1.8 (m)

Flowing?

SWL	18.3	(mbgs)	163.3	(masl)
Pumping WL	24.4	(mbgs)	157.2	(masl)
Pump Rate	22.7	(LPM)	1 / 0	
Spec. Cap.	3.73	(LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	181.6		
0.6	181.0	BROWN	TOPSOIL / SOFT /
21.3	160.3	GREY	CLAY / STONES / HARD
26.2	155.4	GREY	FINE SAND / HARD /

7211357 **Lot** **Conc** CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2013-09-25 **DD/MM/YYYY**

Elev 184.3 (masl) **Easting** 271312 **Northing** 4880448 **UTM RC** 4 **margin of error : 30 m - 100 m**

/ Domestic Water Supply

Water Found 38.1 (mbgs) 146.2 (masl) Untested

Casing Diameter 6 inch **Casing Material:** STEEL

Top of Screen 36.6 (mbgs) **Bottom of Screen** 38.1 (mbgs)

Screen Interval 1.5 (m)

Flowing?

SWL	27.4	(mbgs)	156.8	(masl)
Pumping WL	35.1	(mbgs)	149.2	(masl)
Pump Rate	22.7	(LPM)	1 / 0	
Spec. Cap.	2.98	(LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	184.3		
0.6	183.7	BROWN	TOPSOIL / SOFT /

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33.5	150.7	GREY	CLAY /	STONES	/ HARD
38.1	146.2	GREY	FINE SAND /	HARD	/

7220232 **Lot** 033 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2014-03-06 **DD/MM/YYYY**

Elev 167.2 (masl) **Easting** 267943 **Northing** 4878415
/ Abandoned-Other **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found (mbgs) (masl)
Casing Diameter **Casing Material:**
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	167.2		

/ /

7220241 **Lot** 003 **Conc** 01 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2014-04-02 **DD/MM/YYYY**

Elev 206.9 (masl) **Easting** 278451 **Northing** 4883760
/ Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 15.2 (mbgs) 191.6 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 16.3 (mbgs) **Bottom of Screen** 19.1 (mbgs)
Screen Interval 2.7 (m)

Flowing?
SWL 6.4 (mbgs) 200.5 (masl)
Pumping WL 11.8 (mbgs) 195.1 (masl)
Pump Rate 113.7 (LPM) 6 /
Spec. Cap. 21.31 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	206.9		
1.8	205.1	BROWN	SAND / /
7.6	199.3	GREY	SAND / GRAVEL /
13.7	193.2	GREY	CLAY / SAND /
15.2	191.6	BROWN	SAND / GRAVEL / CLAY
18.9	188.0	BROWN	GRAVEL / SAND /
35.7	171.2	GREY	CLAY / GRAVEL /
36.9	170.0	BROWN	SAND / /
44.8	162.1	GREY	CLAY / SAND /
50.6	156.3	GREY	CLAY / / HARD

7220242 **Lot** 003 **Conc** 01 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2014-04-02 **DD/MM/YYYY**

Elev 206.9 (masl) **Easting** 278451 **Northing** 4883760
/ **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found (mbgs) (masl)
Casing Diameter **Casing Material:**
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	206.9		
58.5	148.4	GREY	CLAY / GRAVEL /
59.7	147.1	GREY	SAND / CLAY / GRAVEL
113.7	93.2	GREY	CLAY / / WATER-BEARING
118.6	88.3	GREY	LIMESTONE / /

7233183 **Lot** 027 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2014-10-23 **DD/MM/YYYY**

Elev 182.7 (masl) **Easting** 269540 **Northing** 4879912
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 54.3 (mbgs) 128.5 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 53.3 (mbgs) **Bottom of Screen** 54.3 (mbgs)
Screen Interval 0.9 (m)

Flowing? N
SWL 13.9 (mbgs) 168.8 (masl)
Pumping WL 22.1 (mbgs) 160.6 (masl)
Pump Rate 54.6 (LPM) 1 / 0
Spec. Cap. 6.65 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	182.7		
2.4	180.3	BROWN	TOPSOIL / SOFT /
24.4	158.3	BROWN	SAND / GRAVEL / BOULDERS

Well Record #

53.3	129.4	BROWN	SAND /	FINE SAND	/
54.3	128.5	BROWN	FINE SAND /	LOOSE	/

7241487 **Lot** 018 **Conc** 03 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2015-04-17 (DD/MM/YYYY)
Elev 178.8 (masl) **Easting** 273111 **Northing** 4880459
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 8.5 (mbgs) 170.3 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 9.8 (mbgs) **Bottom of Screen** 11.0 (mbgs)
Screen Interval 1.2 (m)

Flowing?
SWL 6.3 (mbgs) 172.5 (masl)
Pumping WL 7.6 (mbgs) 171.2 (masl)
Pump Rate 54.6 (LPM) 1 / 0
Spec. Cap. 41.33 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	178.8				
6.4	172.4	BROWN	SAND /	GRAVEL	/
8.5	170.3	BROWN	SAND /	GRAVEL	/ PACKED
11.0	167.9	BROWN	SAND /		/

7251943 **Lot** 017 **Conc** 03 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2015-10-19 (DD/MM/YYYY)
Elev 200.2 (masl) **Easting** 277273 **Northing** 4882956
Commerical / Domestic Alteration **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found (mbgs) (masl)
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	200.2				
			/		/

7253920 **Lot** 030 **Conc** 02 — CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2015-11-20 (DD/MM/YYYY)
Elev 167.5 (masl) **Easting** 268538 **Northing** 4878561
/ Municipal Replacement Well **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 4.0 (mbgs) 163.5 (masl) Untested
Casing Diameter 39 cm **Casing Material:** STEEL
Top of Screen 67.2 (mbgs) **Bottom of Screen** 73.8 (mbgs)
Screen Interval 6.6 (m)

Flowing? N
SWL 7.4 (mbgs) 160.0 (masl)
Pumping WL 11.1 (mbgs) 156.3 (masl)
Pump Rate 760.0 (LPM) 1 / 0
Spec. Cap. 203.75 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	167.5				
0.6	166.9		TOPSOIL /	TOPSOIL	/
6.4	161.1	BROWN	FINE SAND /		/
13.7	153.8	BROWN	COARSE SAND /	CLAY	/
18.6	148.9	BROWN	CLAY /	SAND	/ SOFT
24.4	143.1	BROWN	FINE SAND /		/
38.4	129.1	GREY	CLAY /	SOFT	/
61.2	106.3	GREY	FINE SAND /		/
67.1	100.4	GREY	MEDIUM SAND /	GRAVEL	/
74.1	93.4	GREY	COARSE SAND /	GRAVEL	/

7256930 **Lot** 003 **Conc** 03 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2015-11-20 (DD/MM/YYYY)
Elev 220.2 (masl) **Easting** 278593 **Northing** 4883768
/ Commerical Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 35.1 (mbgs) 185.1 (masl) Untested
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 33.8 (mbgs) **Bottom of Screen** 35.1 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 22.6 (mbgs) 197.5 (masl)
Pumping WL 28.4 (mbgs) 191.8 (masl)
Pump Rate 54.6 (LPM) 2 /
Spec. Cap. 9.52 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	220.2				
0.3	219.9	BLACK	TOPSOIL /		/
		BLACK	TOPSOIL /		/
3.7	216.5	BROWN	GRAVEL /	CLAY	/ STONES

Well Record #

3.7	216.5	BROWN	GRAVEL /	CLAY	/ STONES
9.4	210.7	GREY	GRAVEL /	CLAY	/ STONES
		GREY	GRAVEL /	CLAY	/ STONES
11.0	209.2	BROWN	GRAVEL /	SAND	/ CLAY
		BROWN	GRAVEL /	SAND	/ CLAY
21.9	198.2	GREY	GRAVEL /	CLAY	/
		GREY	GRAVEL /	CLAY	/
34.1	186.0	BROWN	SAND /		/
		BROWN	SAND /		/
35.1	185.1	BROWN	SAND /	GRAVEL	/
		BROWN	SAND /	GRAVEL	/
36.6	183.6	GREY	GRAVEL /	CLAY	/
		GREY	GRAVEL /	CLAY	/

7265893 **Lot** **Conc** BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2016-05-16 **DD/MM/YYYY**

Elev 212.6 (masl) **Easting** 278526 **Northing** 4883608
/ Monitoring and Te Abandoned-Other **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found (mbgs) (masl)
Casing Diameter 5 cm **Casing Material:** PLASTIC
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	212.6		/ /

7265894 **Lot** **Conc** BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2016-05-16 **DD/MM/YYYY**

Elev 200.6 (masl) **Easting** 278955 **Northing** 4883608
/ Monitoring and Te Abandoned-Other **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found (mbgs) (masl)
Casing Diameter 5 cm **Casing Material:** PLASTIC
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	200.6		/ /

7265895 **Lot** **Conc** BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2016-05-20 **DD/MM/YYYY**

Elev 213.6 (masl) **Easting** 278492 **Northing** 4883686
/ Monitoring and Te Monitoring and Test Hole **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found (mbgs) (masl)
Casing Diameter 5 cm **Casing Material:** PLASTIC
Top of Screen 14.9 (mbgs) **Bottom of Screen** 18.1 (mbgs)
Screen Interval 3.2 (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	213.6		
15.2	198.4	BROWN	SAND / GRAVEL / DRY
18.1	195.5	BROWN	SILT / FINE SAND / WATER-BEARING

7265922 **Lot** **Conc** BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2016-05-17 **DD/MM/YYYY**

Elev 207.4 (masl) **Easting** 278444 **Northing** 4883580
/ Monitoring and Test Hole **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found (mbgs) (masl)
Casing Diameter 2 cm **Casing Material:** PLASTIC
Top of Screen 20.0 (mbgs) **Bottom of Screen** 30.0 (mbgs)
Screen Interval 10.0 (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	207.4		
1.0	206.4	BROWN	TOPSOIL / / SOFT

Well Record #

10.0	197.4	BROWN	SAND /	SILT	/ SOFT
20.0	187.4	BROWN	CLAY /	SILT	/ DENSE
30.0	177.4	GREY	SILT /	CLAY	/ SOFT

7278025 **Lot** 032 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2016-05-25 **DD/MM/YYYY**

Elev 166.4 (masl) **Easting** 268093 **Northing** 4878316

Monitoring / Not Used Abandoned-Other **UTM RC** 4 **margin of error : 30 m - 100 m**

Water Found (mbgs) (masl)

Casing Diameter 2 inch **Casing Material:** OPEN HOLE

Top of Screen 4.3 (mbgs) **Bottom of Screen** 5.8 (mbgs)

Screen Interval 1.5 (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	166.4		

/ /

7280424 **Lot** **Conc** BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2016-09-14 **DD/MM/YYYY**

Elev 206.7 (masl) **Easting** 278455 **Northing** 4883774

/ Abandoned-Other **UTM RC** 4 **margin of error : 30 m - 100 m**

Water Found (mbgs) (masl)

Casing Diameter **Casing Material:**

Top of Screen (mbgs) **Bottom of Screen** (mbgs)

Screen Interval (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	206.7		

/ /

7302091 **Lot** **Conc** BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2017-10-04 **DD/MM/YYYY**

Elev 227.0 (masl) **Easting** 276963 **Northing** 4882851

Monitoring / Test Hole Observation Wells **UTM RC** 4 **margin of error : 30 m - 100 m**

Water Found (mbgs) (masl)

Casing Diameter 5 cm **Casing Material:** PLASTIC

Top of Screen 1.5 (mbgs) **Bottom of Screen** 4.6 (mbgs)

Screen Interval 3.1 (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	227.0		
1.2	225.8	BROWN	SAND / GRAVEL /
4.6	222.4	BROWN	SAND / GRAVEL /

7310599 **Lot** 012 **Conc** 03 CRAMAHE TOWNSHIP / NORTHUMBERLAND

Date 2018-01-11 **DD/MM/YYYY**

Elev (masl) **Easting** 274931 **Northing** 4882573

/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**

Water Found 25.6 (mbgs) (masl) Untested

Casing Diameter 6 Inch **Casing Material:** STEEL

Top of Screen 24.4 (mbgs) **Bottom of Screen** 23.5 (mbgs)

Screen Interval -0.9 (m)

Flowing? N
SWL 11.0 (mbgs) (masl)
Pumping WL 16.5 (mbgs) (masl)
Pump Rate 31.8 (LPM) 1 /
Spec. Cap. 5.74 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
0.9		BROWN	CLAY / SAND / PACKED
		BROWN	CLAY / SAND / PACKED
2.7		BROWN	SAND / / LOOSE
		BROWN	SAND / / LOOSE
15.2		BROWN	CLAY / TILL / PACKED
		BROWN	CLAY / TILL / PACKED
21.6		GREY	CLAY / GRANITE / PACKED
		GREY	CLAY / GRANITE / PACKED
24.7		BROWN	SAND / GRAVEL / PACKED
		BROWN	SAND / GRAVEL / PACKED
25.6		BROWN	GRAVEL / SAND / PACKED

Well Record #

									25.6	BROWN	GRAVEL /	SAND	/ PACKED	
7317194	**Lot** 017	**Conc** 03			CRAMAHE TOWNSHIP / NORTHUMBERLAND						**Flowing?**			
Date 2018-08-14	**Elev**	(masl)	**Easting** 273268		**Northing** 4880972						**SWL**	(mbgs)	(masl)	
DD/MM/YYYY	/		Abandoned-Other		**UTM RC** 4	**margin of error : 30 m - 100 m**					**Pumping WL**	(mbgs)	(masl)	
	Water Found	(mbgs)	(masl)								**Pump Rate**	(LPM)	/	
	Casing Diameter		**Casing Material:**					**Depth (m)**	**Elev (masl)**		**Spec. Cap.**	(LPM/m)	Hour / Minute	
	Top of Screen	(mbgs)	**Bottom of Screen**	(mbgs)				0.0		**Color**		**Soil Descriptions**		
	Screen Interval	(m)												
											/		/	
7332267	**Lot** 004	**Conc** 03			BRIGHTON TOWNSHIP / NORTHUMBERLAND						**Flowing?**			
Date 2018-04-26	**Elev**	(masl)	**Easting** 278159		**Northing** 4883689						**SWL**	(mbgs)	(masl)	
DD/MM/YYYY	/				**UTM RC** 4	**margin of error : 30 m - 100 m**					**Pumping WL**	(mbgs)	(masl)	
	Water Found	(mbgs)	(masl)								**Pump Rate**	(LPM)	/	
	Casing Diameter		**Casing Material:**					**Depth (m)**	**Elev (masl)**		**Spec. Cap.**	(LPM/m)	Hour / Minute	
	Top of Screen	(mbgs)	**Bottom of Screen**	(mbgs)				0.0		**Color**		**Soil Descriptions**		
	Screen Interval	(m)												
											/		/	
7335852	**Lot** 017	**Conc** 03			CRAMAHE TOWNSHIP / NORTHUMBERLAND						**Flowing?** N			
Date 2019-05-23	**Elev**	(masl)	**Easting** 273282		**Northing** 4880986						**SWL**	5.7	(mbgs)	(masl)
DD/MM/YYYY	/ Domestic		Water Supply		**UTM RC** 4	**margin of error : 30 m - 100 m**					**Pumping WL**	10.4	(mbgs)	(masl)
	Water Found	21.3 (mbgs)	(masl)	FRESH							**Pump Rate**	22.7	(LPM)	1 /
	Casing Diameter	6 Inch	**Casing Material:**	STEEL				**Depth (m)**	**Elev (masl)**		**Spec. Cap.**	4.91	(LPM/m)	Hour / Minute
	Top of Screen	(mbgs)	**Bottom of Screen**	(mbgs)				0.0		**Color**		**Soil Descriptions**		
	Screen Interval	(m)												
								0.6		BROWN	TOPSOIL /		/	
								21.3		BROWN	SAND /	GRAVEL	/ OTHER	
								22.9		BROWN	GRANITE /	SAND	/ WATER-BEARING	
								23.8		BROWN	GRAVEL /	SAND	/ STONES	

Table 1B: Summary of MECP Water Well Records - Study Area B
Highway 401 Planning Study From Colborne to Brighton,
Township of Cramahe, Municipality of Brighton, and the City of Quinte West, Ontario

Well ID	Well Depth (m)	Final Status	Static Water Level (masl)	Date Completed	Well Type	Water Depth (m)	Water Kind
4500226	29.87	Water Supply	3.66	28-Sep-59	Overburden	27.43	FRESH
4511658	23.47	Water Supply	0.00	25-Nov-98	Overburden	21.34	Not Stated
4501560	29.26	Water Supply	9.14	20-Jul-66	Overburden	18.29	FRESH
4502355	31.39	Water Supply	21.34	30-Nov-68	Overburden	27.43	FRESH
4503332	24.38	Water Supply	1.22	14-Nov-72	Overburden	24.08	FRESH
4503407	36.58	Water Supply	19.81	08-Dec-72	Overburden	33.53	FRESH
4504462	22.86	Water Supply	9.14	08-Sep-76	Overburden	22.86	FRESH
4504616	18.29	Water Supply	9.14	05-Jan-77	Overburden	16.76	FRESH
4505240	59.44	Water Supply	12.19	06-Apr-79	Overburden	59.44	FRESH
4505393	49.38	Water Supply	0.61	06-Nov-79	Bedrock	48.77	SULPHUR
4506056	43.28	Water Supply	10.97	20-Jun-84	Bedrock	3.66	Not stated
4506247	13.72	Water Supply	1.83	01-Oct-85	Overburden	16.76	Not stated
4506400	56.39	Water Supply	6.10	28-May-86	Bedrock	42.67	Not stated
4507534	12.50	Water Supply	6.10	07-Dec-88	Bedrock	7.62	FRESH
4509430	39.62	Water Supply	5.49	06-Jun-91	Overburden	38.10	FRESH
4509640	36.58	Water Supply	4.57	25-Mar-92	Overburden	36.58	FRESH
4509644	42.67	Water Supply	3.66	27-Mar-92	Overburden	39.62	FRESH
4509645	39.62	Water Supply	8.53	26-Mar-92	Overburden	36.58	FRESH
4509702	17.07	Water Supply	28.65	26-May-92	Overburden	13.72	FRESH
4509703	15.24	Water Supply	28.65	22-May-92	Overburden	13.72	FRESH
4509781	16.15	Water Supply	0.91	22-Jul-92	Overburden	15.24	FRESH
4509975	6.71	Water Supply	4.27	17-May-93	Overburden	3.05	FRESH
4510058	43.28	Water Supply		15-Jun-93			
4510272	59.13	Water Supply	9.14	07-Jun-94	Bedrock	58.52	Not stated
4510273	60.05	Water Supply	12.19	06-Jun-94	Bedrock	59.44	Not stated
4510294	45.42	Water Supply	9.14	19-Apr-94	Overburden	19.20	FRESH
4510872	61.57	Water Supply	4.27	06-May-96	Bedrock	6.10	FRESH
4511001	16.15	Water Supply	13.41	02-Sep-96	Overburden	13.41	FRESH
4512097	36.58	Water Supply	16.76	08-Jul-99	Overburden	36.58	Not stated
4512628	18.29	Water Supply	8.53	07-Jun-01	Overburden	17.07	FRESH
4513090	38.71	Water Supply	32.00	24-Jun-02	Overburden	38.71	FRESH
4513207	48.77	Water Supply	9.14	22-Oct-02	Bedrock	45.72	FRESH
4513263	39.93	Water Supply	1.83	11-Nov-02	Overburden		
4513868	335.30	Observation Wells	1.80	10-May-04	Overburden	34.10	
4513869	21.60	Observation Wells	2.80	10-May-04	Overburden	18.60	
4513870	54.90	Observation Wells	2.70	10-May-04	Overburden	2.70	FRESH
4513871	35.30	Observation Wells	0.40	10-May-04	Overburden	34.10	FRESH
4513875	21.60	Observation Wells	2.10	10-May-04	Overburden	18.60	
4513876	5.80	Observation Wells	2.00	10-May-04	Overburden		
4513877	36.30	Observation Wells	0.40	10-May-04	Overburden	35.10	FRESH
4513885	27.30	Water Supply	0.72	09-Jul-04	Overburden	26.70	
4513886	8.10	Water Supply	1.02	14-Jul-04	Overburden	8.10	
4513977	20.70	Water Supply	9.10	09-Jul-04	Overburden	21.00	
4513978	15.20	Water Supply	9.70	12-Aug-04	Overburden	15.00	
4514319	12.10	Water Supply	7.75	06-May-05	Overburden	12.10	
4514716	21.90	Water Supply	8.80	04-Jul-06	Overburden	21.90	
7040557	24.70	Water Supply	5.95	24-Jan-07	Overburden	24.00	FRESH
7047456	5.18	Water Supply		12-Jul-07		3.00	FRESH
7128042	36.58	Water Supply	0.03	24-Jun-09		22.56	Other
7130978	4.57	Water Supply		05-Sep-09		3.05	FRESH
7140329	2.90	Water Supply	1.68	28-Dec-09		1.83	Untested
7141091	8.23	Water Supply		21-Feb-10		3.05	FRESH
7149035	28.65	Water Supply	22.13	08-Apr-10		28.65	Untested
7211570	33.83	Water Supply	24.32	23-Aug-13		32.61	FRESH
7218894	6.40	Water Supply	3.33	23-Jul-13		6.00	Untested
7222599	5.18	Water Supply		09-Jun-14		0.61	FRESH
7232266	6.10	Water Supply		10-Nov-14		2.44	FRESH
7233088	16.15	Replacement Well	8.61	28-Oct-14		16.15	FRESH
7233208	11.89	Water Supply	7.92	20-Jun-14		11.58	FRESH
7262268	11.89	Water Supply	2.99	15-Apr-16		9.14	FRESH
7262268	11.89	Water Supply	2.99	15-Apr-16		9.14	FRESH
7328883	11.89	Water Supply	4.70	15-Feb-19		11.89	

MECP Water Well Records

Well Record #

4500225 — **Lot** 028 **Conc** 02 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1959-09-28 **DD/MM/YYYY**

Elev 175.7 (masl) **Easting** 282965 **Northing** 4885197
/ Abandoned-Supply **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found (mbgs) (masl)
Casing Diameter **Casing Material:**
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	175.7		
1.2	174.5		TOPSOIL / /
32.6	143.1	BLUE	BOULDERS / /

4500226 — **Lot** 028 **Conc** 02 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1959-09-28 **DD/MM/YYYY**

Elev 181.1 (masl) **Easting** 282624 **Northing** 4885241
/ Commerical Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found 27.4 (mbgs) 153.6 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 3.7 (mbgs) 177.4 (masl)
Pumping WL 7.6 (mbgs) 173.4 (masl)
Pump Rate 45.5 (LPM) 2 / 0
Spec. Cap. 11.47 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	181.1		
4.6	176.5	BLUE	CLAY / BOULDERS /
18.3	162.8		HARDPAN / /
29.9	151.2		MEDIUM SAND / GRAVEL /

4500227 — **Lot** 028 **Conc** 02 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1959-09-30 **DD/MM/YYYY**

Elev 175.2 (masl) **Easting** 282964 **Northing** 4885167
/ Abandoned-Supply **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found (mbgs) (masl)
Casing Diameter 6 inch **Casing Material:**
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	175.2		
1.2	174.0		TOPSOIL / /
21.3	153.9	BLUE	CLAY / BOULDERS /

4500228 — **Lot** 028 **Conc** 02 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1959-10-02 **DD/MM/YYYY**

Elev 176.6 (masl) **Easting** 282944 **Northing** 4885167
/ Abandoned-Supply **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found (mbgs) (masl)
Casing Diameter 6 inch **Casing Material:**
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	176.6		
1.2	175.4		TOPSOIL / /
24.4	152.3	BLUE	CLAY / BOULDERS /

Well Record #

4501560 **Lot** 022 **Conc** 02 MURRAY TOWNSHIP / NORTHUMBERLAND

Date 1966-07-20 **DD/MM/YYYY**

Elev 179.0 (masl) **Easting** 285159 **Northing** 4886639
/ Domestic Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found 18.3 (mbgs) 160.8 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 9.1 (mbgs) 169.9 (masl)
Pumping WL 29.3 (mbgs) 149.8 (masl)
Pump Rate 18.2 (LPM) 3 / 0
Spec. Cap. 0.90 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	179.0		
1.8	177.2		MEDIUM SAND / /
18.3	160.8		HARDPAN / GRAVEL /
29.3	149.8		GRAVEL / MEDIUM SAND /

4502355 **Lot** 032 **Conc** 02 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1968-11-30 **DD/MM/YYYY**

Elev 224.5 (masl) **Easting** 281230 **Northing** 4885171
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 27.4 (mbgs) 197.1 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 21.3 (mbgs) 203.2 (masl)
Pumping WL 24.4 (mbgs) 200.1 (masl)
Pump Rate 22.7 (LPM) 5 / 0
Spec. Cap. 7.46 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	224.5		
1.5	223.0		TOPSOIL / /
6.1	218.4		MEDIUM SAND / BOULDERS /
31.4	193.1		FINE SAND / GRAVEL /

4503332 **Lot** 022 **Conc** 02 MURRAY TOWNSHIP / NORTHUMBERLAND

Date 1972-11-14 **DD/MM/YYYY**

Elev 151.9 (masl) **Easting** 285190 **Northing** 4886091
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 24.1 (mbgs) 127.8 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 1.2 (mbgs) 150.6 (masl)
Pumping WL 24.4 (mbgs) 127.5 (masl)
Pump Rate 13.6 (LPM) 1 / 0
Spec. Cap. 0.59 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	151.9		
3.0	148.8		SAND / CLAY /
9.1	142.7		CLAY / BOULDERS /
24.1	127.8		HARDPAN / BOULDERS /
24.4	127.5		GRAVEL / /

4503407 **Lot** 031 **Conc** 02 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1972-12-08 **DD/MM/YYYY**

Elev 230.6 (masl) **Easting** 281090 **Northing** 4885021
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 33.5 (mbgs) 197.1 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 19.8 (mbgs) 210.8 (masl)
Pumping WL 36.6 (mbgs) 194.0 (masl)
Pump Rate (LPM) 1 / 30
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	230.6		
13.7	216.9	BROWN	CLAY / GRAVEL / BOULDERS
22.9	207.7	BROWN	SAND / GRAVEL /
29.0	201.7	WHITE	SAND / /
36.6	194.0	BLACK	GRAVEL / STONES /

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4504462 — **Lot** 032 **Conc** 02 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1976-09-08 (DD/MM/YYYY)
Elev 229.5 (masl) **Easting** 281070 **Northing** 4885101
/ Livestock Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 22.9 (mbgs) 206.6 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 20.1 (mbgs) **Bottom of Screen** 21.3 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 9.1 (mbgs) 220.3 (masl)
Pumping WL 21.6 (mbgs) 207.8 (masl)
Pump Rate 22.7 (LPM) 4 / 0
Spec. Cap. 1.82 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	229.5		
0.6	228.9	BROWN	TOPSOIL / SOFT /
16.8	212.7	GREY	CLAY / GRAVEL / BOULDERS
22.9	206.6	GREY	SAND / SOFT /

4504616 — **Lot** 022 **Conc** 02 — MURRAY TOWNSHIP / NORTHUMBERLAND

Date 1977-01-05 (DD/MM/YYYY)
Elev 186.0 (masl) **Easting** 285050 **Northing** 4886841
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 16.8 (mbgs) 169.2 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 9.1 (mbgs) 176.9 (masl)
Pumping WL 15.2 (mbgs) 170.8 (masl)
Pump Rate 45.5 (LPM) 2 / 0
Spec. Cap. 7.46 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	186.0		
4.9	181.1	GREY	CLAY / /
8.2	177.8		COARSE GRAVEL / /
16.8	169.2		SAND / /
18.3	167.7		FINE GRAVEL / /

4505240 — **Lot** 034 **Conc** 02 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1979-04-06 (DD/MM/YYYY)
Elev 201.9 (masl) **Easting** 280730 **Northing** 4884741
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 59.4 (mbgs) 142.5 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 12.2 (mbgs) 189.7 (masl)
Pumping WL 12.2 (mbgs) 189.7 (masl)
Pump Rate 90.9 (LPM) 4 / 0
Spec. Cap. 9,999.99 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	201.9		
9.1	192.8	BROWN	SAND / STONES /
36.3	165.6	GREY	CLAY / /
41.1	160.8	GREY	CLAY / SAND /
42.7	159.2	BROWN	SAND / THIN /
45.7	156.2	BROWN	CLAY / GRAVEL / SANDY
57.9	144.0	BROWN	SAND / THIN /
59.4	142.5	GREY	GRAVEL / /

4505393 — **Lot** 022 **Conc** 02 — MURRAY TOWNSHIP / NORTHUMBERLAND

Date 1979-11-06 (DD/MM/YYYY)
Elev 157.6 (masl) **Easting** 285130 **Northing** 4886221
/ Domestic Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found 48.8 (mbgs) 108.8 (masl) SULPHUR
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 0.6 (mbgs) 157.0 (masl)
Pumping WL 49.4 (mbgs) 108.2 (masl)
Pump Rate 136.4 (LPM) 4 / 0
Spec. Cap. 2.80 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	157.6		
48.8	108.8	BROWN	SAND / GRAVEL / BOULDERS
49.4	108.2	GREY	LIMESTONE / LAYERED /

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4506056 **Lot** 022 **Conc** 02 MURRAY TOWNSHIP / NORTHUMBERLAND

Date 1984-06-20 **DD/MM/YYYY**

Elev 182.7 (masl) **Easting** 285176 **Northing** 4886648
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 3.7 (mbgs) 179.0 (masl) Not stated
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 11.0 (mbgs) 171.7 (masl)
Pumping WL 40.2 (mbgs) 142.4 (masl)
Pump Rate 18.2 (LPM) 4 / 0
Spec. Cap. 0.62 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	182.7		
0.3	182.4	BROWN	TOPSOIL / SOFT /
6.7	176.0	BROWN	SAND / SOFT /
11.0	171.7	BROWN	SANDSTONE / BOULDERS / PACKED
43.0	139.7	GREY	CLAY / GRAVEL / HARDPAN
43.3	139.4	BROWN	COARSE GRAVEL / WATER-BEARING / LOOSE

4506247 **Lot** 027 **Conc** 02 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1985-10-01 **DD/MM/YYYY**

Elev 195.0 (masl) **Easting** 763225 **Northing** 4887852
/ Livestock Water Supply **UTM RC** 9 **unknown UTM**
Water Found 16.8 (mbgs) 178.2 (masl) Not stated
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 1.8 (mbgs) 193.1 (masl)
Pumping WL 12.2 (mbgs) 182.8 (masl)
Pump Rate 81.8 (LPM) 3 / 30
Spec. Cap. 7.90 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	195.0		
0.9	194.0	BROWN	SAND / TOPSOIL / FINE SAND
3.4	191.6	GREY	CLAY / STONES / BOULDERS
13.7	181.2	GREY	GRAVEL / COARSE-GRAINED / LOOSE
		GREY	CLAY / GRAVEL / DENSE

4506400 **Lot** 024 **Conc** 02 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1986-05-28 **DD/MM/YYYY**

Elev 217.7 (masl) **Easting** 764409 **Northing** 4888284
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 42.7 (mbgs) 175.0 (masl) Not stated
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 6.1 (mbgs) 211.6 (masl)
Pumping WL 54.9 (mbgs) 162.8 (masl)
Pump Rate 4.5 (LPM) 3 / 0
Spec. Cap. 0.09 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	217.7		
0.6	217.0	BROWN	TOPSOIL / MEDIUM-GRAINED /
22.9	194.8	BROWN	CLAY / SANDSTONE / DENSE
56.4	161.3	GREY	LIMESTONE / POROUS /

4507534 **Lot** 024 **Conc** 02 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 1988-12-07 **DD/MM/YYYY**

Elev 217.7 (masl) **Easting** 764409 **Northing** 4888284
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 7.6 (mbgs) 210.0 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 6.1 (mbgs) 211.6 (masl)
Pumping WL 8.2 (mbgs) 209.4 (masl)
Pump Rate 36.4 (LPM) 1 / 0
Spec. Cap. 17.05 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	217.7		
0.3	217.3		TOPSOIL / /
4.6	213.1	BROWN	CLAY / /
12.5	205.2		HARDPAN / ROCK /

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4509430 **Lot** 022 **Conc** 02 MURRAY TOWNSHIP / NORTHUMBERLAND

Date 1991-06-06 **DD/MM/YYYY**

Elev 184.0 (masl) **Easting** 284942 **Northing** 4886748
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 38.1 (mbgs) 145.9 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 5.5 (mbgs) 178.5 (masl)
Pumping WL 21.3 (mbgs) 162.6 (masl)
Pump Rate 54.6 (LPM) 1 /
Spec. Cap. 3.44 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	184.0		
1.8	182.1		TOPSOIL / SANDY /
34.1	149.8		GRAVEL / /
35.7	148.3		CLAY / SAND /
39.6	144.3		GRAVEL / /

4509640 **Lot** 022 **Conc** 02 MURRAY TOWNSHIP / NORTHUMBERLAND

Date 1992-03-25 **DD/MM/YYYY**

Elev 184.0 (masl) **Easting** 284942 **Northing** 4886748
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 36.6 (mbgs) 147.4 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 4.6 (mbgs) 179.4 (masl)
Pumping WL 33.5 (mbgs) 150.4 (masl)
Pump Rate 36.4 (LPM) 4 / 0
Spec. Cap. 1.26 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	184.0		
4.6	179.4	BROWN	GRAVEL / /
36.6	147.4	GREY	CLAY / BOULDERS / HARD

4509644 **Lot** 022 **Conc** 02 MURRAY TOWNSHIP / NORTHUMBERLAND

Date 1992-03-27 **DD/MM/YYYY**

Elev 184.0 (masl) **Easting** 284942 **Northing** 4886748
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 39.6 (mbgs) 144.3 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 3.7 (mbgs) 180.3 (masl)
Pumping WL 39.6 (mbgs) 144.3 (masl)
Pump Rate 27.3 (LPM) 4 /
Spec. Cap. 0.76 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	184.0		
3.0	180.9	BROWN	GRAVEL / /
42.7	141.3	GREY	CLAY / BOULDERS / GRAVEL

4509645 **Lot** 022 **Conc** 02 MURRAY TOWNSHIP / NORTHUMBERLAND

Date 1992-03-26 **DD/MM/YYYY**

Elev 184.0 (masl) **Easting** 284942 **Northing** 4886748
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 36.6 (mbgs) 147.4 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 8.5 (mbgs) 175.4 (masl)
Pumping WL 39.6 (mbgs) 144.3 (masl)
Pump Rate 54.6 (LPM) 4 /
Spec. Cap. 1.75 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	184.0		
4.6	179.4	BROWN	GRAVEL / /
39.6	144.3	GREY	CLAY / BOULDERS / HARD

Well Record #

4509702 **Lot** 022 **Conc** 02 MURRAY TOWNSHIP / NORTHUMBERLAND

Date 1992-05-26 **DD/MM/YYYY**

Elev 184.0 (masl) **Easting** 284942 **Northing** 4886748
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 13.7 (mbgs) 170.2 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** CONCRETE
Top of Screen 14.0 (mbgs) **Bottom of Screen** 14.3 (mbgs)
Screen Interval 0.3 (m)

Flowing? N
SWL 28.7 (mbgs) 155.3 (masl)
Pumping WL 12.2 (mbgs) 171.8 (masl)
Pump Rate 36.4 (LPM) 1 /
Spec. Cap. -2.21 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	184.0		
0.3	183.7	BROWN	TOPSOIL / /
13.7	170.2	BROWN	SAND / /
17.1	166.9	BROWN	QUICKSAND / /

4509703 **Lot** 022 **Conc** 02 MURRAY TOWNSHIP / NORTHUMBERLAND

Date 1992-05-22 **DD/MM/YYYY**

Elev 184.0 (masl) **Easting** 284942 **Northing** 4886748
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 13.7 (mbgs) 170.2 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** CONCRETE
Top of Screen 12.2 (mbgs) **Bottom of Screen** 15.2 (mbgs)
Screen Interval 3.0 (m)

Flowing? N
SWL 28.7 (mbgs) 155.3 (masl)
Pumping WL 12.2 (mbgs) 171.8 (masl)
Pump Rate 36.4 (LPM) 1 /
Spec. Cap. -2.21 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	184.0		
0.3	183.7	BROWN	TOPSOIL / /
10.7	173.3	BROWN	SAND / /
15.2	168.7	BROWN	QUICKSAND / /

4509781 **Lot** 021 **Conc** 02 MURRAY TOWNSHIP / NORTHUMBERLAND

Date 1992-07-22 **DD/MM/YYYY**

Elev 181.8 (masl) **Easting** 285339 **Northing** 4886862
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 15.2 (mbgs) 166.6 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 0.9 (mbgs) 180.9 (masl)
Pumping WL 13.4 (mbgs) 168.4 (masl)
Pump Rate 27.3 (LPM) 3 / 0
Spec. Cap. 2.18 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	181.8		
0.9	180.9	BROWN	SAND / GRAVEL / FILL
1.8	180.0	BLACK	CLAY / TOPSOIL /
12.2	169.6	GREY	GRAVEL / CLAY / WATER-BEARING
15.2	166.6	GREY	CLAY / /
16.2	165.6	GREY	GRAVEL / CLAY / WATER-BEARING

4509975 **Lot** 021 **Conc** 02 MURRAY TOWNSHIP / NORTHUMBERLAND

Date 1993-05-17 **DD/MM/YYYY**

Elev 181.8 (masl) **Easting** 285339 **Northing** 4886862
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 3.0 (mbgs) 178.8 (masl) FRESH
Casing Diameter 36 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 4.3 (mbgs) 177.5 (masl)
Pumping WL 6.7 (mbgs) 175.1 (masl)
Pump Rate 54.6 (LPM) 1 /
Spec. Cap. 22.37 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	181.8		
0.6	181.2	BLACK	TOPSOIL / LOOSE / PACKED
3.0	178.8	BROWN	/ LOOSE /
6.7	175.1	GREY	CLAY / HARD /

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4510058 **Lot** 022 **Conc** 02 MURRAY TOWNSHIP / NORTHUMBERLAND

Date 1993-06-15 **DD/MM/YYYY**

Elev 184.0 (masl) **Easting** 284942 **Northing** 4886748
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found (mbgs) (masl)
Casing Diameter 6 inch **Casing Material:**
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate 31.8 (LPM) 2 /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	184.0		
43.3	140.7	UNKNOWN TYPE /	/

4510272 **Lot** 022 **Conc** 02 MURRAY TOWNSHIP / NORTHUMBERLAND

Date 1994-06-07 **DD/MM/YYYY**

Elev 184.0 (masl) **Easting** 284942 **Northing** 4886748
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 58.5 (mbgs) 125.4 (masl) Not stated
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 9.1 (mbgs) 174.8 (masl)
Pumping WL 45.7 (mbgs) 138.2 (masl)
Pump Rate 181.8 (LPM) 5 / 0
Spec. Cap. 4.97 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	184.0		
6.4	177.6	BROWN	SAND / /
24.4	159.6	GREY	CLAY / /
29.0	155.0	GREY	CLAY / GRAVEL /
54.9	129.1	GREY	CLAY / /
57.9	126.0	GREY	GRAVEL / CLAY /
59.1	124.8	GREY	LIMESTONE / /

4510273 **Lot** 022 **Conc** 02 MURRAY TOWNSHIP / NORTHUMBERLAND

Date 1994-06-06 **DD/MM/YYYY**

Elev 184.0 (masl) **Easting** 284942 **Northing** 4886748
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 59.4 (mbgs) 124.5 (masl) Not stated
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 12.2 (mbgs) 171.8 (masl)
Pumping WL 48.8 (mbgs) 135.2 (masl)
Pump Rate 181.8 (LPM) 3 / 0
Spec. Cap. 4.97 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	184.0		
12.2	171.8	BROWN	SAND / /
24.4	159.6	GREY	CLAY / /
25.3	158.7	GREY	GRAVEL / CLAY /
48.8	135.2	GREY	CLAY / /
59.4	124.5	GREY	GRAVEL / SAND /
60.0	123.9	GREY	LIMESTONE / /

4510294 **Lot** 021 **Conc** 02 MURRAY TOWNSHIP / NORTHUMBERLAND

Date 1994-04-19 **DD/MM/YYYY**

Elev 181.8 (masl) **Easting** 285339 **Northing** 4886862
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 19.2 (mbgs) 162.6 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 9.1 (mbgs) 172.7 (masl)
Pumping WL 36.6 (mbgs) 145.2 (masl)
Pump Rate 22.7 (LPM) 4 / 5
Spec. Cap. 0.83 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	181.8		
0.3	181.5	BROWN	TOPSOIL / /
3.0	178.8	BROWN	SAND / GRAVEL / BOULDERS
19.2	162.6	BROWN	CLAY / SAND / GRAVEL
24.4	157.4	GREY	CLAY / GRAVEL /
29.3	152.5	GREY	CLAY / GRAVEL / SAND

Well Record #

Depth (m)	Elev (masl)	Color	Soil Descriptions		
29.9	151.9	GREY	CLAY /	GRAVEL	/ SILT
42.1	139.7	GREY	GRAVEL /	CLAY	/
43.0	138.8	GREY	SAND /	SILT	/ CLAY
45.4	136.4	GREY	CLAY /	GRAVEL	/

4510872 **Lot** 022 **Conc** 02 MURRAY TOWNSHIP / NORTHUMBERLAND

Date 1996-05-06 **DD/MM/YYYY**
Elev 158.4 (masl) **Easting** 285337 **Northing** 4886128
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 6.1 (mbgs) 152.3 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 4.3 (mbgs) 154.1 (masl)
Pumping WL 61.6 (mbgs) 96.8 (masl)
Pump Rate 4.5 (LPM) 6 / 0
Spec. Cap. 0.08 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	158.4				
5.5	152.9	BROWN	SAND /	SOFT	/
12.2	146.2	GREY	SAND /	CLAY	/ SOFT
18.3	140.1	GREY	CLAY /		/
45.1	113.2	GREY	CLAY /	BOULDERS	/
61.6	96.8	GREY	LIMESTONE /		/

4511001 **Lot** 022 **Conc** 02 MURRAY TOWNSHIP / NORTHUMBERLAND

Date 1996-09-02 **DD/MM/YYYY**
Elev 176.1 (masl) **Easting** 285131 **Northing** 4886405
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 13.4 (mbgs) 162.7 (masl) FRESH
Casing Diameter 30 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 13.4 (mbgs) 162.7 (masl)
Pumping WL 15.8 (mbgs) 160.2 (masl)
Pump Rate 54.6 (LPM) 2 / 30
Spec. Cap. 22.37 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	176.1				
14.6	161.5		UNKNOWN TYPE /		/
16.2	159.9	BROWN	SAND /		/

4511658 **Lot** 022 **Conc** 02 MURRAY TOWNSHIP / NORTHUMBERLAND

Date 1998-11-25 **DD/MM/YYYY**
Elev 189.8 (masl) **Easting** 285100 **Northing** 4886933
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 21.3 (mbgs) 168.4 (masl) Not stated
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 0.0 (mbgs) 189.8 (masl)
Pumping WL 4.9 (mbgs) 184.9 (masl)
Pump Rate 36.4 (LPM) 5 / 0
Spec. Cap. 7.46 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	189.8				
0.3	189.5	BLACK	TOPSOIL /		/
3.7	186.1	GREY	GRAVEL /	BOULDERS	/
18.3	171.5	GREY	CLAY /	STONES	/
21.3	168.4	GREY	CLAY /	SAND	/ GRAVEL
23.5	166.3	BROWN	SAND /	GRAVEL	/

4512097 **Lot** 022 **Conc** 02 MURRAY TOWNSHIP / NORTHUMBERLAND

Date 1999-07-08 **DD/MM/YYYY**
Elev 184.0 (masl) **Easting** 765166 **Northing** 4888576
/ Domestic Water Supply **UTM RC** 9 **unknown UTM**
Water Found 36.6 (mbgs) 147.4 (masl) Not stated
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 16.8 (mbgs) 167.2 (masl)
Pumping WL 35.1 (mbgs) 148.9 (masl)
Pump Rate 18.2 (LPM) 2 / 0
Spec. Cap. 0.99 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	184.0				
18.9	165.1	BROWN	SAND /	LOOSE	/
32.0	152.0	GREY	CLAY /	SAND	/ PACKED

Depth (m)	Elev (masl)	Color	Soil Descriptions		
36.6	147.4	GREY	SAND /	GRAVEL	/ PACKED

4512628 **Lot** 022 **Conc** 02 MURRAY TOWNSHIP / NORTHUMBERLAND

Date 2001-06-07 **DD/MM/YYYY**
Elev 184.1 (masl) / Domestic **Easting** 765164 Water Supply **Northing** 4888577 **UTM RC** 9 **unknown UTM**
Water Found 17.1 (mbgs) 167.0 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 17.1 (mbgs) **Bottom of Screen** 18.3 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 8.5 (mbgs) 175.6 (masl)
Pumping WL 12.2 (mbgs) 171.9 (masl)
Pump Rate 27.3 (LPM) 1 /
Spec. Cap. 7.46 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	184.1				
9.1	175.0	BROWN	CLAY /	SAND	/ PACKED
15.2	168.9	GREY	CLAY /	SAND	/ PACKED
18.3	165.8	BROWN	SAND /	LOOSE	/

4513090 **Lot** 033 **Conc** 01 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2002-06-24 **DD/MM/YYYY**
Elev 204.8 (masl) / Domestic **Easting** 760932 Water Supply **Northing** 4885741 **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found 38.7 (mbgs) 166.1 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 37.5 (mbgs) **Bottom of Screen** 38.7 (mbgs)
Screen Interval 1.2 (m)

Flowing? N
SWL 32.0 (mbgs) 172.8 (masl)
Pumping WL 35.1 (mbgs) 169.7 (masl)
Pump Rate 27.3 (LPM) 1 / 30
Spec. Cap. 8.95 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	204.8				
0.9	203.9	BLACK	TOPSOIL /	SOFT	/
4.6	200.2	BROWN	CLAY /	SAND	/ PACKED
11.9	192.9	BROWN	SAND /	GRAVEL	/ LOOSE
16.2	188.6	GREY	GRAVEL /	SAND	/ LOOSE
26.2	178.6	BROWN	SAND /	LOOSE	/
29.9	174.9	GREY	CLAY /	GRAVEL	/ PACKED
32.6	172.2	GREY	CLAY /	DENSE	/
35.7	169.1	BROWN	CLAY /	SAND	/ PACKED
38.7	166.1	BROWN	SAND /	LOOSE	/

4513207 **Lot** 022 **Conc** 02 MURRAY TOWNSHIP / NORTHUMBERLAND

Date 2002-10-22 **DD/MM/YYYY**
Elev 184.1 (masl) / Domestic **Easting** 765163 Water Supply **Northing** 4888577 **UTM RC** 9 **unknown UTM**
Water Found 45.7 (mbgs) 138.4 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 9.1 (mbgs) 175.0 (masl)
Pumping WL 47.9 (mbgs) 136.2 (masl)
Pump Rate 13.6 (LPM) 4 / 0
Spec. Cap. 0.35 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	184.1				
0.6	183.5	BROWN	TOPSOIL /	SOFT	/
30.5	153.6	GREY	CLAY /	SILT	/ SOFT
38.1	146.0	GREY	CLAY /	BOULDERS	/ HARD
45.7	138.4	GREY	CLAY /	STONES	/ HARD
48.8	135.3	GREY	ROCK /	HARD	/

4513263 **Lot** 034 **Conc** 01 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2002-11-11 **DD/MM/YYYY**
Elev 192.0 (masl) / Municipal **Easting** 760634 Water Supply **Northing** 4885651 **UTM RC** 5 **margin of error : 100 m - 300 m**
Water Found (mbgs) (masl)
Casing Diameter 10 inch **Casing Material:** STEEL
Top of Screen 32.9 (mbgs) **Bottom of Screen** 39.0 (mbgs)
Screen Interval 6.1 (m)

Flowing? N
SWL 1.8 (mbgs) 190.1 (masl)
Pumping WL 7.9 (mbgs) 184.0 (masl)
Pump Rate 1591.1 (LPM) 72 /
Spec. Cap. 261.01 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	192.0		

Well Record #

2.7	189.2	BROWN	BOULDERS /	SAND	/ CLAY
6.1	185.9		SAND /	GRAVEL	/
10.1	181.9		GRAVEL /	BOULDERS	/ SAND
17.4	174.6		MEDIUM GRAVEL /	COARSE GRAVEL	/
18.9	173.1	BROWN	GRAVEL /	SAND	/ SANDY
23.5	168.5	BROWN	GRAVEL /	SAND	/
25.3	166.7		SAND /	GRAVEL	/ LOOSE
33.2	158.7		GRAVEL /	BOULDERS	/ COARSE SAND
37.5	154.5		MEDIUM GRAVEL /		/
39.3	152.6		GRAVEL /	CLAY	/
39.9	152.0		SAND /	CLAY	/

4513868 **Lot** 034 **Conc** 01 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2004-05-10 **DD/MM/YYYY**

Elev 162.8 (masl) / Not Used **Easting** 280214 **Northing** 4883528 Observation Wells **UTM RC** 3 **margin of error : 10 - 30 m**

Water Found 34.1 (mbgs) 128.7 (masl)

Casing Diameter 16 cm **Casing Material:** STEEL

Top of Screen 34.1 (mbgs) **Bottom of Screen** 35.3 (mbgs)

Screen Interval 1.2 (m)

Flowing?
SWL 1.8 (mbgs) 161.0 (masl)
Pumping WL 3.0 (mbgs) 159.8 (masl)
Pump Rate 378.5 (LPM) 1 /
Spec. Cap. 315.42 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	162.8		
2.7	160.1	BROWN	SAND / SILTY / GRAVEL
6.1	156.7	BROWN	SAND / GRAVEL / WATER-BEARING
24.1	138.7	BROWN	GRAVEL / SAND / BOULDERS
26.0	136.8	BROWN	COARSE GRAVEL / SAND / WATER-BEARING
27.8	135.0	BROWN	GRAVEL / SAND / CLAY
29.0	133.8	BROWN	SAND / GRAVEL / WATER-BEARING
31.1	131.7	BROWN	GRAVEL / SAND / BOULDERS
32.2	130.6	BROWN	SAND / GRAVEL / WATER-BEARING
335.3	-172.5	BROWN	GRAVEL / SAND / WATER-BEARING

4513869 **Lot** 034 **Conc** 01 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2004-05-10 **DD/MM/YYYY**

Elev 161.7 (masl) / Not Used **Easting** 280214 **Northing** 4883520 Observation Wells **UTM RC** 3 **margin of error : 10 - 30 m**

Water Found 18.6 (mbgs) 143.1 (masl)

Casing Diameter 5 cm **Casing Material:** PLASTIC

Top of Screen 18.6 (mbgs) **Bottom of Screen** 21.6 (mbgs)

Screen Interval 3.0 (m)

Flowing?
SWL 2.8 (mbgs) 158.9 (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	161.7		
2.7	159.0	BROWN	SAND / SILTY / GRAVEL
6.1	155.6	BROWN	SAND / GRAVEL / WATER-BEARING
21.6	140.1	BROWN	GRAVEL / SAND / WATER-BEARING

4513870 **Lot** 034 **Conc** 01 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2004-05-10 **DD/MM/YYYY**

Elev 163.3 (masl) / Not Used **Easting** 280190 **Northing** 4883526 Observation Wells **UTM RC** 3 **margin of error : 10 - 30 m**

Water Found 2.7 (mbgs) 160.6 (masl) FRESH

Casing Diameter 5 cm **Casing Material:** PLASTIC

Top of Screen 1.8 (mbgs) **Bottom of Screen** 4.9 (mbgs)

Screen Interval 3.1 (m)

Flowing?
SWL 2.7 (mbgs) 160.6 (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	163.3		
2.7	160.6	BROWN	SAND / SILTY / GRAVEL
54.9	108.4	BROWN	SAND / GRAVEL / WATER-BEARING

Well Record #

4513871 **Lot** 034 **Conc** 01 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2004-05-10 **DD/MM/YYYY**

Elev 163.9 (masl) **Easting** 280232 **Northing** 4883536
/ Not Used Observation Wells **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 34.1 (mbgs) 129.8 (masl) FRESH
Casing Diameter 16 cm **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL 0.4 (mbgs) 163.5 (masl)
Pumping WL (mbgs) (masl)
Pump Rate 302.8 (LPM) 1 /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	163.9		
0.3	163.6	BLACK	TOPSOIL / /
1.5	162.4	BROWN	SAND / SILTY / GRAVEL
6.7	157.2	BROWN	SAND / GRAVEL / WATER-BEARING
9.8	154.1	BROWN	GRAVEL / SAND / WATER-BEARING
12.5	151.4	BROWN	SAND / GRAVEL / WATER-BEARING
24.1	139.8	BROWN	GRAVEL / SAND / WATER-BEARING
25.9	138.0	BROWN	SAND / GRAVEL / WATER-BEARING
29.0	134.9	BROWN	GRAVEL / SAND / WATER-BEARING
32.0	131.9	BROWN	SAND / GRAVEL / WATER-BEARING
35.3	128.6	BROWN	SAND / GRAVEL / WATER-BEARING

4513873 **Lot** 034 **Conc** 01 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2004-05-10 **DD/MM/YYYY**

Elev 162.9 (masl) **Easting** 280250 **Northing** 4883444
/ Abandoned-Other **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found (mbgs) (masl)
Casing Diameter **Casing Material:**
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	162.9		
2.4	160.5	BROWN	SAND / SILTY / GRAVEL
4.6	158.3	BROWN	SAND / SILTY / CLAY
5.8	157.1	BROWN	GRAVEL / SILTY / SAND
6.7	156.2	GREY	CLAY / SANDY / GRAVEL
8.8	154.1	BROWN	SAND / SILTY / GRAVEL
14.0	148.9	BROWN	SAND / WATER-BEARING /
24.4	138.5	BROWN	SAND / GRAVEL / WATER-BEARING
27.4	135.5	BROWN	SAND / WATER-BEARING /
29.3	133.6	BROWN	SAND / SILTY / CLAY
35.7	127.2	GREY	CLAY / SANDY / GRAVEL
36.3	126.6	GREY	SAND / CLAY /
51.2	111.7	GREY	CLAY / SANDY / GRAVEL

4513875 **Lot** 034 **Conc** 01 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2004-05-10 **DD/MM/YYYY**

Elev 162.9 (masl) **Easting** 280249 **Northing** 4883442
/ Not Used Observation Wells **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 18.6 (mbgs) 144.3 (masl)
Casing Diameter 5 cm **Casing Material:** PLASTIC
Top of Screen 18.2 (mbgs) **Bottom of Screen** 21.3 (mbgs)
Screen Interval 3.1 (m)

Flowing?
SWL 2.1 (mbgs) 160.8 (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	162.9		
2.4	160.5	BROWN	SAND / SILTY / GRAVEL
4.6	158.3	BROWN	SAND / SILTY / CLAY
5.8	157.1	BROWN	GRAVEL / SILTY / SAND
6.7	156.2	GREY	CLAY / SANDY / GRAVEL
8.8	154.1	BROWN	SAND / GRAVEL / CLAY
13.1	149.8	BROWN	SAND / WATER-BEARING /

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14.3	148.6	BROWN	GRAVEL /	SAND	/ WATER-BEARING
15.5	147.4	BROWN	SAND /	GRAVEL	/ WATER-BEARING
21.6	141.3	BROWN	GRAVEL /	SILTY	/ SAND

4513876 — **Lot** 034 **Conc** 01 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2004-05-10 (DD/MM/YYYY)

Elev 162.7 (masl) / Not Used — **Easting** 280247 — **Northing** 4883442 — **UTM RC** 3 — **margin of error : 10 - 30 m**

Observation Wells

Water Found (mbgs) (masl)

Casing Diameter 5 cm — **Casing Material:** PLASTIC

Top of Screen 2.8 (mbgs) — **Bottom of Screen** 5.8 (mbgs)

Screen Interval 3.1 (m)

Flowing?

SWL 2.0 (mbgs) 160.7 (masl)

Pumping WL (mbgs) (masl)

Pump Rate (LPM) /

Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	162.7		
2.4	160.3	BROWN	SAND / SILTY / GRAVEL
4.6	158.1	BROWN	SAND / SILTY / CLAY
5.8	156.9	BROWN	GRAVEL / SILTY / SAND

4513877 — **Lot** 034 **Conc** 01 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2004-05-10 (DD/MM/YYYY)

Elev 162.3 (masl) / Not Used — **Easting** 280243 — **Northing** 4883435 — **UTM RC** 3 — **margin of error : 10 - 30 m**

Observation Wells

Water Found 35.1 (mbgs) 127.2 (masl) FRESH

Casing Diameter 16 cm — **Casing Material:** STEEL

Top of Screen 34.7 (mbgs) — **Bottom of Screen** 36.0 (mbgs)

Screen Interval 1.3 (m)

Flowing?

SWL 0.4 (mbgs) 161.9 (masl)

Pumping WL (mbgs) (masl)

Pump Rate (LPM) 1 /

Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	162.3		
2.4	159.9	BROWN	SAND / SILTY /
4.6	157.7	BROWN	SAND / SILTY / GRAVEL
5.5	156.8	BROWN	SAND / SILTY / CLAY
5.9	156.4	GREY	GRAVEL / WATER-BEARING /
6.1	156.2	GREY	CLAY / SANDY / GRAVEL
8.5	153.8	BROWN	GRAVEL / SAND / SILTY
10.7	151.6	BROWN	SAND / GRAVEL /
16.2	146.1	BROWN	SAND / /
21.0	141.3	BROWN	COARSE SAND / GRAVEL /
24.1	138.2	BROWN	SAND / GRAVEL / CLAY
30.2	132.1	BROWN	SAND / WATER-BEARING /
31.1	131.2	BROWN	SAND / SILTY / GRAVEL
32.0	130.3	BROWN	SAND / GRAVEL / WATER-BEARING
34.1	128.2	BROWN	SAND / SILTY / WATER-BEARING
35.0	127.3	BROWN	SAND / SILTY /
36.0	126.3	BROWN	SAND / SILTY / CLAY
36.3	126.0	BROWN	SAND / SILTY / GRAVEL

4513885 — **Lot** 030 **Conc** 01 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2004-07-09 (DD/MM/YYYY)

Elev 161.2 (masl) / Domestic — **Easting** 281934 — **Northing** 4884423 — **UTM RC** 3 — **margin of error : 10 - 30 m**

Water Supply

Water Found 26.7 (mbgs) 134.5 (masl)

Casing Diameter 16 cm — **Casing Material:** STEEL

Top of Screen 26.1 (mbgs) — **Bottom of Screen** 27.3 (mbgs)

Screen Interval 1.2 (m)

Flowing?

SWL 0.7 (mbgs) 160.5 (masl)

Pumping WL 9.3 (mbgs) 151.9 (masl)

Pump Rate 22.7 (LPM) 1 / 0

Spec. Cap. 2.64 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	161.2		
0.4	160.8	BLACK	TOPSOIL / /
4.2	157.0	BROWN	SAND / /
4.7	156.5	BROWN	SAND / GRAVEL /
8.1	153.1	GREY	SAND / SILT /
15.6	145.6	BROWN	SAND / /

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18.7	142.5	GREY	SAND /	/	
26.4	134.8	BROWN	SAND /	/	
27.3	133.9	GREY	SAND /	GRAVEL	/

4513886 — **Lot** 030 **Conc** 01 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2004-07-14 (DD/MM/YYYY)
Elev 161.3 (masl) **Easting** 281905 **Northing** 4884421
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 8.1 (mbgs) 153.2 (masl)
Casing Diameter 16 cm **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL 1.0 (mbgs) 160.3 (masl)
Pumping WL 1.7 (mbgs) 159.6 (masl)
Pump Rate 59.0 (LPM) 1 / 0
Spec. Cap. 89.39 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	161.3				
0.3	161.1	BLACK	TOPSOIL /		/
2.4	158.9	BROWN	SAND /		/
3.6	157.7	BROWN	CLAY /	SAND	/
8.0	153.3	GREY	CLAY /	GRAVEL	/
8.1	153.2	GREY	GRAVEL /		/

4513977 — **Lot** 031 **Conc** 01 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2004-07-09 (DD/MM/YYYY)
Elev 181.1 (masl) **Easting** 281273 **Northing** 4884464
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 21.0 (mbgs) 160.1 (masl)
Casing Diameter 16 cm **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL 9.1 (mbgs) 172.0 (masl)
Pumping WL 10.6 (mbgs) 170.5 (masl)
Pump Rate 36.4 (LPM) 2 / 30
Spec. Cap. 24.27 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions			
0.0	181.1					
1.2	179.9	BROWN	SAND /	GRAVEL	/ BOULDERS	
12.2	168.9	BROWN	SAND /	PACKED	/ BOULDERS	
19.8	161.3	GREY	SAND /	PACKED	/ BOULDERS	
20.7	160.4	GREY	COARSE SAND /	GRAVEL	/ PACKED	

4513978 — **Lot** 031 **Conc** 01 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2004-08-12 (DD/MM/YYYY)
Elev 183.0 (masl) **Easting** 281214 **Northing** 4884440
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 15.0 (mbgs) 168.0 (masl)
Casing Diameter 16 cm **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL 9.7 (mbgs) 173.3 (masl)
Pumping WL 10.7 (mbgs) 172.3 (masl)
Pump Rate 36.4 (LPM) 2 / 30
Spec. Cap. 36.40 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions			
0.0	183.0					
3.0	180.0	GREY	SAND /	GRAVEL	/ STONES	
9.1	173.9	GREY	HARDPAN /	CLAY	/ BOULDERS	
12.2	170.8	BROWN	FINE SAND /	BOULDERS	/ HARD	
14.3	168.7		GRAVEL /	PACKED	/	
15.2	167.8	GREY	COARSE SAND /	STONES	/ HARD	

4514319 — **Lot** 030 **Conc** 02 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2005-05-06 (DD/MM/YYYY)
Elev 176.3 (masl) **Easting** 282254 **Northing** 4884847
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 12.1 (mbgs) 164.2 (masl)
Casing Diameter 16 cm **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL 7.8 (mbgs) 168.5 (masl)
Pumping WL 11.4 (mbgs) 164.9 (masl)
Pump Rate 36.3 (LPM) 1 / 0
Spec. Cap. 9.95 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	176.3				
0.9	175.4	BROWN	CLAY /	SAND	/ LOOSE

Well Record #

7.3	169.0	BROWN	CLAY /	STONES	/ PACKED
10.0	166.3	BROWN	COARSE SAND /	COARSE GRAVEL	/ PACKED
11.5	164.8	BROWN	SAND /	PACKED	/
12.1	164.2	BROWN	COARSE GRAVEL /		/

4514716 **Lot** 030 **Conc** 02 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2006-07-04 **DD/MM/YYYY**

Elev 175.8 (masl) **Easting** 282199 **Northing** 4884847
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 21.9 (mbgs) 153.9 (masl)
Casing Diameter 16 cm **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL 8.8 (mbgs) 167.0 (masl)
Pumping WL 20.7 (mbgs) 155.1 (masl)
Pump Rate 22.7 (LPM) 1 / 0
Spec. Cap. 1.91 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	175.8				
3.0	172.8	BROWN	CLAY /	SAND	/ PACKED
12.2	163.6	BROWN	SAND /	LOOSE	/
21.0	154.8	BROWN	CLAY /	GRAVEL	/ PACKED
21.9	153.9	GREY	COARSE GRAVEL /	COARSE SAND	/

7040557 **Lot** 028 **Conc** 01 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2007-01-24 **DD/MM/YYYY**

Elev 173.2 (masl) **Easting** 282731 **Northing** 4884839
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 24.0 (mbgs) 149.2 (masl) FRESH
Casing Diameter 16 cm **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL 5.9 (mbgs) 167.3 (masl)
Pumping WL (mbgs) (masl)
Pump Rate 16.0 (LPM) 1 / 0
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	173.2				
4.9	168.3	BROWN	CLAY /	SAND	/ STONES
24.7	148.5	GREY	GRAVEL /	CLAY	/ BOULDERS

7047456 **Lot** 022 **Conc** 02 MURRAY TOWNSHIP / NORTHUMBERLAND

Date 2007-07-12 **DD/MM/YYYY**

Elev 155.0 (masl) **Easting** 285163 **Northing** 4886062
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 3.0 (mbgs) 152.0 (masl) FRESH
Casing Diameter 90 cm **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL (mbgs) (masl)
Pumping WL 5.0 (mbgs) 150.0 (masl)
Pump Rate 225.0 (LPM) 1 / 0
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	155.0				
0.3	154.7	BROWN	TOPSOIL /		/
0.6	154.4	RED	SAND /		/
3.0	151.9		SAND /		/
5.2	149.8	BLUE	CLAY /		/

7050005 **Lot** 026 **Conc** 02 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2007-04-02 **DD/MM/YYYY**

Elev 171.9 (masl) **Easting** 283593 **Northing** 4885274
/ Domestic Unfinished **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found (mbgs) (masl)
Casing Diameter 16 cm **Casing Material:**
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	171.9				
2.1	169.8	BROWN	SAND /		/ LOOSE
18.2	153.7	BROWN	SAND /	CLAY	/ PACKED
34.4	137.5	GREY	SAND /		/ LOOSE
38.1	133.8	GREY	STONES /	SAND	/ LOOSE

Well Record #

68.0	103.9	GREY	CLAY /	GRAVEL	/ PACKED	
76.2	95.7		LIMESTONE /		/ HARD	

7128042 **Lot** 028 **Conc** 01 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2009-06-24 **DD/MM/YYYY**

Elev 159.1 (masl) **Easting** 282663 **Northing** 4884614
/ Domestic Water Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found 22.6 (mbgs) 136.6 (masl) Other
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 0.0 (mbgs) 159.1 (masl)
Pumping WL 2.9 (mbgs) 156.2 (masl)
Pump Rate 27.3 (LPM) 1 / 10
Spec. Cap. 9.41 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	159.1				
0.6	158.5	BROWN	CLAY /		/
6.1	153.0	BROWN	CLAY /	SAND	/ GRAVEL
11.0	148.1	GREY	CLAY /	GRAVEL	/ SAND
22.6	136.6	GREY	CLAY /	GRAVEL	/ SAND
29.3	129.9	GREY	SILT /	CLAY	/ FINE SAND
36.6	122.5	GREY	CLAY /	GRAVEL	/

7130978 **Lot** 030 **Conc** 03 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2009-09-05 **DD/MM/YYYY**

Elev 175.2 (masl) **Easting** 282143 **Northing** 4884821
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 3.0 (mbgs) 172.1 (masl) FRESH
Casing Diameter 36 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? Y
SWL (mbgs) (masl)
Pumping WL 2.1 (mbgs) 173.0 (masl)
Pump Rate 136.4 (LPM) 1 / 0
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	175.2				
0.3	174.9		TOPSOIL /		/
0.9	174.3	RED	SAND /		/
1.8	173.3	WHITE	CLAY /		/
4.6	170.6	WHITE	CLAY /	STONES	/

7136911 **Lot** 030 **Conc** 02 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2009-08-20 **DD/MM/YYYY**

Elev 175.6 (masl) **Easting** 282116 **Northing** 4884801
/ Not Used Abandoned-Supply **UTM RC** 3 **margin of error : 10 - 30 m**
Water Found (mbgs) (masl)
Casing Diameter **Casing Material:**
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	175.6				
1.2	174.4	BROWN	CLAY /	SAND	/ PACKED
27.4	148.1	BROWN	SAND /	STONES	/ LOOSE

7140329 **Lot** 035 **Conc** 01 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2009-12-28 **DD/MM/YYYY**

Elev 195.9 (masl) **Easting** 279762 **Northing** 4883997
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 1.8 (mbgs) 194.1 (masl) Untested
Casing Diameter 36 inch **Casing Material:** STEEL
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL 1.7 (mbgs) 194.3 (masl)
Pumping WL 2.3 (mbgs) 193.7 (masl)
Pump Rate 22.7 (LPM) 1 / 0
Spec. Cap. 39.25 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	195.9				
0.3	195.6	BLACK	TOPSOIL /		/
1.5	194.4	BROWN	SAND /		/
2.9	193.0	GREY	GRAVEL /	CLAY	/ SILT

Well Record #

7141091 — **Lot** 028 **Conc** 01 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2010-02-21 (DD/MM/YYYY)

Elev 174.9 (masl) **Easting** 282757 **Northing** 4884881

/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**

Water Found 3.0 (mbgs) 171.9 (masl) FRESH

Casing Diameter 36 inch **Casing Material:** CONCRETE

Top of Screen (mbgs) **Bottom of Screen** (mbgs)

Screen Interval (m)

Flowing?

SWL		(mbgs)		(masl)
Pumping WL	5.5	(mbgs)	169.4	(masl)
Pump Rate	272.8	(LPM)	1 / 0	
Spec. Cap.		(LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	174.9		
0.3	174.6	BROWN	TOPSOIL / /
0.6	174.3	RED	SAND / /
3.7	171.3	BLUE	SAND / STONES /
8.2	166.7	BLUE	STONES / /

7149035 — **Lot** 034 **Conc** 01 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2010-04-08 (DD/MM/YYYY)

Elev 194.3 (masl) **Easting** 280405 **Northing** 4884046

/ Domestic Water Supply **UTM RC** 5 **margin of error : 100 m - 300 m**

Water Found 28.7 (mbgs) 165.6 (masl) Untested

Casing Diameter 6 inch **Casing Material:** STEEL

Top of Screen (mbgs) **Bottom of Screen** (mbgs)

Screen Interval (m)

Flowing?

SWL	22.1	(mbgs)	172.1	(masl)
Pumping WL	25.4	(mbgs)	168.8	(masl)
Pump Rate	45.5	(LPM)	2 / 0	
Spec. Cap.	13.81	(LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	194.3		
5.2	189.1	BROWN	SAND / GRAVEL / LOOSE
15.2	179.0	BROWN	CLAY / GRAVEL / PACKED
16.2	178.1	GREY	GRAVEL / SAND / PACKED
25.3	169.0	GREY	CLAY / GRAVEL / PACKED
28.7	165.6	GREY	GRAVEL / SAND / COARSE-GRAINED

7157163 — **Lot** 034 **Conc** 01 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2010-12-07 (DD/MM/YYYY)

Elev 172.1 (masl) **Easting** 280469 **Northing** 4883446

/ Not Used Abandoned-Supply **UTM RC** 3 **margin of error : 10 - 30 m**

Water Found (mbgs) (masl)

Casing Diameter 4 inch **Casing Material:** STEEL

Top of Screen (mbgs) **Bottom of Screen** (mbgs)

Screen Interval (m)

Flowing?

SWL	6.1	(mbgs)	166.0	(masl)
Pumping WL		(mbgs)		(masl)
Pump Rate		(LPM)	/	
Spec. Cap.		(LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	172.1		
			/ /

7211570 — **Lot** 032 **Conc** 02 — BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2013-08-23 (DD/MM/YYYY)

Elev 230.8 (masl) **Easting** 281077 **Northing** 4885032

/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**

Water Found 32.6 (mbgs) 198.2 (masl) FRESH

Casing Diameter 6 inch **Casing Material:** STEEL

Top of Screen 32.6 (mbgs) **Bottom of Screen** 33.8 (mbgs)

Screen Interval 1.2 (m)

Flowing?

SWL	24.3	(mbgs)	206.5	(masl)
Pumping WL	29.7	(mbgs)	201.0	(masl)
Pump Rate	31.8	(LPM)	1 /	
Spec. Cap.	5.87	(LPM/m)	Hour / Minute	

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	230.8		
21.3	209.4	BROWN	SAND / CLAY / BOULDERS
30.5	200.3	BROWN	SAND / /
33.8	196.9	BROWN	GRAVEL / SAND /

Well Record #

7218894 **Lot** 030 **Conc** 01 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2013-07-23 **DD/MM/YYYY**

Elev 158.9 (masl) **Easting** 281739 **Northing** 4884248
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 6.0 (mbgs) 152.9 (masl) Untested
Casing Diameter 91 cm **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? N
SWL 3.3 (mbgs) 155.6 (masl)
Pumping WL 3.7 (mbgs) 155.2 (masl)
Pump Rate 38.0 (LPM) 1 / 0
Spec. Cap. 100.53 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	158.9		
0.2	158.7	BROWN	TOPSOIL / / LOOSE
1.5	157.4	RED	SAND / / LOOSE
6.4	152.5	GREY	CLAY / STONES / PACKED

7222599 **Lot** 030 **Conc** 01 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2014-06-09 **DD/MM/YYYY**

Elev 173.5 (masl) **Easting** 281818 **Northing** 4884614
/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 0.6 (mbgs) 172.9 (masl) FRESH
Casing Diameter 36 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing? Y
SWL (mbgs) (masl)
Pumping WL 4.0 (mbgs) 169.6 (masl)
Pump Rate 181.8 (LPM) 1 /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	173.5		
0.3	173.2	BROWN	TOPSOIL / /
0.9	172.6	RED	SAND / /
5.2	168.4		SAND / /

7232266 **Lot** 030 **Conc** 01 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2014-11-10 **DD/MM/YYYY**

Elev 171.9 (masl) **Easting** 281726 **Northing** 4884370
/ Public Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 2.4 (mbgs) 169.5 (masl) FRESH
Casing Diameter 36 inch **Casing Material:** CONCRETE
Top of Screen (mbgs) **Bottom of Screen** (mbgs)
Screen Interval (m)

Flowing?
SWL (mbgs) (masl)
Pumping WL 5.2 (mbgs) 166.8 (masl)
Pump Rate 363.7 (LPM) 1 /
Spec. Cap. (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	171.9		
0.3	171.6	BROWN	TOPSOIL / /
0.9	171.0	BROWN	SAND / /
2.1	169.8	BROWN	CLAY / /
2.4	169.5	BROWN	SAND / /
5.2	166.8		CLAY / /
6.1	165.8		SAND / GRAVEL / STONES

7233088 **Lot** 031 **Conc** 01 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Date 2014-10-28 **DD/MM/YYYY**

Elev 180.2 (masl) **Easting** 281311 **Northing** 4884482
/ Domestic Replacement Well **UTM RC** 4 **margin of error : 30 m - 100 m**
Water Found 16.2 (mbgs) 164.1 (masl) FRESH
Casing Diameter 6 inch **Casing Material:** STEEL
Top of Screen 14.9 (mbgs) **Bottom of Screen** 16.0 (mbgs)
Screen Interval 1.0 (m)

Flowing? N
SWL 8.6 (mbgs) 171.6 (masl)
Pumping WL 13.9 (mbgs) 166.4 (masl)
Pump Rate 36.4 (LPM) 1 / 42
Spec. Cap. 6.94 (LPM/m) Hour / Minute

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	180.2		
6.1	174.1	BROWN	SAND / CLAY / STONES
8.2	172.0	BROWN	SAND / BOULDERS / GRAVEL
11.0	169.2	BROWN	SAND / GRAVEL / CLAY
16.2	164.1	BROWN	SAND / SILT /

Well Record #

7233208 **Lot** **Conc** BRIGHTON TOWNSHIP / NORTHUMBERLAND

Flowing? N

Date 2014-06-20 **DD/MM/YYYY**

Elev 178.6 (masl) **Easting** 281384 **Northing** 4884493

/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**

Water Found 11.6 (mbgs) 167.0 (masl) FRESH

Casing Diameter 6 inch **Casing Material:** STEEL

Top of Screen 10.4 (mbgs) **Bottom of Screen** 11.6 (mbgs)

Screen Interval 1.2 (m)

	SWL	7.9	(mbgs)	170.7	(masl)
	Pumping WL	10.7	(mbgs)	167.9	(masl)
	Pump Rate	54.6	(LPM)	1 / 0	
	Spec. Cap.	19.89	(LPM/m)	Hour / Minute	

Depth (m)	**Elev (masl)**	**Color**	**Soil Descriptions**
0.0	178.6		
7.0	171.6	BROWN	CLAY / STONES / GRAVEL
11.6	167.0	BROWN	SAND / GRAVEL / CLAY
11.9	166.7	GREY	CLAY / GRAVEL /

7241709 **Lot** 031 **Conc** 01 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Flowing?

Date 2014-10-30 **DD/MM/YYYY**

Elev 180.3 (masl) **Easting** 281310 **Northing** 4884482

/ Not Used Abandoned-Supply **UTM RC** 4 **margin of error : 30 m - 100 m**

Water Found (mbgs) (masl)

Casing Diameter 6 inch **Casing Material:** STEEL

Top of Screen (mbgs) **Bottom of Screen** (mbgs)

Screen Interval (m)

	SWL		(mbgs)		(masl)
	Pumping WL		(mbgs)		(masl)
	Pump Rate		(LPM)	/	
	Spec. Cap.		(LPM/m)	Hour / Minute	

Depth (m)	**Elev (masl)**	**Color**	**Soil Descriptions**
0.0	180.3		
			/ /

7262268 **Lot** 034 **Conc** 01 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Flowing? N

Date 2016-04-15 **DD/MM/YYYY**

Elev 174.2 (masl) **Easting** 280568 **Northing** 4883754

/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**

Water Found 9.1 (mbgs) 165.0 (masl) FRESH

Casing Diameter 6 inch **Casing Material:** STEEL

Top of Screen 9.2 (mbgs) **Bottom of Screen** 10.1 (mbgs)

Screen Interval 0.8 (m)

	SWL	3.0	(mbgs)	171.2	(masl)
	Pumping WL	8.6	(mbgs)	165.6	(masl)
	Pump Rate	27.3	(LPM)	1 / 30	
	Spec. Cap.	4.88	(LPM/m)	Hour / Minute	

Depth (m)	**Elev (masl)**	**Color**	**Soil Descriptions**
0.0	174.2		
4.9	169.3	BROWN	SAND / CLAY /
		BROWN	SAND / CLAY /
8.8	165.3	GREY	SAND / GRAVEL / CLAY
		GREY	SAND / GRAVEL / CLAY
11.9	162.3	BROWN	SAND / /
		BROWN	SAND / /

7328883 **Lot** 033 **Conc** 01 BRIGHTON TOWNSHIP / NORTHUMBERLAND

Flowing? N

Date 2019-02-15 **DD/MM/YYYY**

Elev (masl) **Easting** 280536 **Northing** 4883819

/ Domestic Water Supply **UTM RC** 4 **margin of error : 30 m - 100 m**

Water Found 11.9 (mbgs) (masl)

Casing Diameter 0.3 Inch **Casing Material:** STEEL

Top of Screen (mbgs) **Bottom of Screen** (mbgs)

Screen Interval (m)

	SWL	4.7	(mbgs)		(masl)
	Pumping WL	5.9	(mbgs)		(masl)
	Pump Rate	22.7	(LPM)	1 / 0	
	Spec. Cap.	18.64	(LPM/m)	Hour / Minute	

Depth (m)	**Elev (masl)**	**Color**	**Soil Descriptions**
0.0			
7.0		BROWN	SAND / HARD / PACKED
7.6			OTHER / /
11.0		GREY	CLAY / /
11.9			GRAVEL / /

APPENDIX

B

SOLICITATION LETTERS AND WELL SURVEY FORMS

October 5, 2020

RE: Request for Completion of Water Well Survey
Highway 401 Planning Study from Colborne to Brighton
Preliminary Design Study and Class Environmental Assessment
Township of Cramahe, Municipality of Brighton, and the City of Quinte West
(G.W.P. 4054-17-00)

Dear Sir/Madam:

The Ontario Ministry of Transportation (MTO) has retained WSP Canada Group Limited (WSP) to undertake a Planning, Preliminary Design and Class Environmental Assessment (Class EA) Study on Highway 401 for the replacement and rehabilitation of structures, establishing the future Highway 401 footprint for an interim six lanes and ultimate eight lanes to address current and future transportation needs, and commuter parking lot improvements from 0.8 km east of Percy Street to 0.4 km west of Christiani Road. The approximate length of the project alignment is 16 km, located in the Township of Cramahe, Municipality of Brighton, and the City of Quinte West (please see Figure 1).

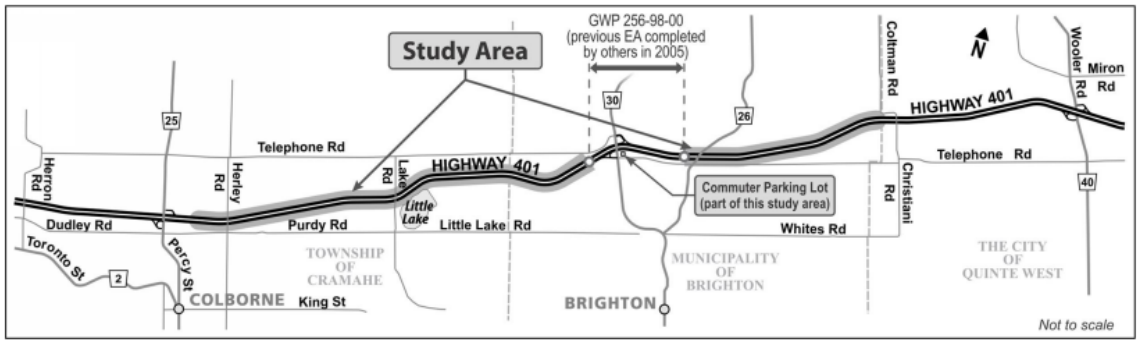

Figure 1: Key Plan

Well Survey

As a part of the project, on behalf of the MTO, WSP is conducting a survey of water wells on properties located in proximity to the project alignment. The purpose of this survey is to identify current groundwater water users and document the groundwater conditions in water wells as baseline information in advance of construction. Groundwater levels at existing water wells will be assessed and samples of untreated well water may be collected at selected locations for water quality characterization to provide this baseline information. In addition, the location and current condition of any

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surface water features (dug ponds, creeks, or wetlands) on these properties will also be documented.

Given the current COVID-19 situation, WSP will complete the interview with a well owner by phone and send a copy of the water well survey form to the property owner via e-mail. During the interview, WSP will discuss whether raw groundwater can be sampled from a garden tap and whether water level in a private well can be measured by WSP staff with minimal supervision from the well owner/property tenant. As part of our health and safety procedure and equipment disinfection protocol, WSP staff will wear nitrile gloves while handling the outdoor water tap and any hose connections to collect the water sample, changing gloves immediately before and after handling the tap and any hose connections.

In the event that an adverse water quality result is obtained during the analysis of collected well water samples, we will notify you by phone immediately upon receipt of the result from the laboratory. We will also provide you with copies of all water quality results along with a brief interpretation.

Your participation in this groundwater and surface water monitoring program will ensure that accurate information about your water supply and any surface water features on your property are documented in advance of construction.

Monitoring of water wells and surface water features during construction may be completed by other specialists, as necessary.

If your residence or business is supplied by a private well or has a surface water feature, please contact Haley Spennato by phone or email to arrange for a well survey (or decline your participation) before **October 20, 2020.**

Ms. Haley Spennato, M. Sc.
Environmental Scientist
Tel: 289-825-0207
Cell: 289-380-0361
E-mail: Haley.Spennato@wsp.com

Should you require further information regarding this study, please contact the undersigned at (905) 823-8500 or by email at project-team@Highway401colbornebrighton.ca.

Yours sincerely,

WSP Canada Group Limited

Brent Gotts, P.Eng.
Consultant Project Manager

cc: Muhammad Waseem, MTO, Project Manager
Erin Pipe, MTO, Environmental Planner
J.A.(Sandy) Nairn, WSP, Consultant Environmental Planner
Natalia Codoban, WSP, Senior Hydrogeologist

2019-10-21

Water Well Owner

Subject: **Request for Water Well Survey**
Highway 401 Planning Study from Colborne to Brighton
Preliminary Design Study and Class Environmental Assessment
Township of Cramahe, Municipality of Brighton and the City of Quinte West

Dear Madam/Sir:

WSP Canada Inc. (WSP) visited your property on October 21, 2020 and no one was home. Attached is the initial letter that was dropped off on October 5, 2020 regarding this Water Well Survey.

If you are interested in the program, please contact Ms. Haley Spennato at 289-825-0207 or 289-380-0361.

Yours sincerely,

Haley Spennato, M.Sc.
Environmental Scientist

Natalia Codoban, M.Eng, P.Eng.
Senior Hydrogeologist

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ID #

WATER WELL SURVEY FORM

Project Number: _____
Project Name: _____
Field Personnel: _____ _____

Date of Visit: _____ Owner available? _____ Notification Letter Left? _____ (Y or N)
Follow-Up Visit: _____ _____
Follow-Up Visit: _____ _____

Personal Information

Interviewee Name(s): _____
Primary Phone #: _____
Secondary Phone #: _____

(complete this section if interviewee is not property owner)
Owner Name(s): _____
Owner Phone #: _____

Interviewee is: Owner or Tenant/Resident (circle one)
Has owner provided permission to conduct well survey?: Yes or No (do not proceed unless owner permission is granted)

Survey Results Notification Preference: ☐ Regular Mail ☐ Electronic (Email)
If electronic, provide email address: _____

Property Information

Property Address: _____ _____ _____
Notification Mailing Address: _____ (☐ check if same as property address) _____ _____

House age: _____ # of wells on property: _____
# of occupants: _____ # of wells in use: _____
Other water sources or natural features (e.g., cistern, pond, creek, etc.): _____
Septic system: _____
Fuel/chemical storage (e.g., heating oil tank, natural gas / propane tank, etc.): _____
Tile drains: _____

Property Use (Check all that apply): ☐ Residential ☐ Agriculture ☐ Commercial/Industrial ☐ Government/Public ☐ Livestock ☐ Vacant Lot/Abandoned

Property Notes: _____

Annual Sampling Program

Is Well Water Supplemented? **Yes___ No___**
Is Well Water Accessible for Water Levels? **Yes___ No___**
Permission to Obtain Water Samples? **Yes___ No___**

Well 1	Well 2
Water Usage and Quantity	
Well Use: ☐ Residential (Drinking) ☐ Residential (Non-Drinking) ☐ Livestock ☐ Irrigation ☐ Commercial/Industrial ☐ **Well Not in Use** (Check all that apply)	Well Use: ☐ Residential (Drinking) ☐ Residential (Non-Drinking) ☐ Livestock ☐ Irrigation ☐ Commercial/Industrial ☐ **Well Not in Use** (Check all that apply)
Has well ever run dry?: Satisfied with current water supply?:	Has well ever run dry?: Satisfied with current water supply?:
Comments on Water Supply Quantity: (e.g., loss of water, interference from other users, etc.)	Comments on Water Supply Quantity: (e.g., loss of water, interference from other users, etc.)
Water Quality	
Has your water well ever been tested for water quality?:	Has your water well ever been tested for water quality?:
Date of last test: Parameters tested: ☐ bacteria ☐ nitrate ☐ other:	Date of last test: Parameters tested: ☐ bacteria ☐ nitrate ☐ other:
Any problems Identified?:	Any problems Identified?:
Is well ever chlorinated, if so when and how often?:	Is well ever chlorinated, if so when and how often?:
Comments on Water Quality: (e.g., appearance (clear, cloudy), taste / odour (sulphurous), hardness, staining on fixtures (scale, rust), etc.)	Comments on Water Quality: (e.g., appearance (clear, cloudy), taste / odour (sulphurous), hardness, staining on fixtures (scale, rust), etc.)
Well Construction Details (based on interviewee's knowledge)	
Does owner have a copy of the Well Record?	Does owner have a copy of the Well Record?
if yes, MOE Well #: Date Constructed:	if yes, MOE Well #: Date Constructed:
Well type: ☐ Drilled ☐ Bored ☐ Dug ☐ Drive-Point ☐ Other:	Well type: ☐ Drilled ☐ Bored ☐ Dug ☐ Drive-Point ☐ Other:
Well completed into: ☐ Overburden ☐ Bedrock ☐ Unknown	Well completed into: ☐ Overburden ☐ Bedrock ☐ Unknown
Well depth: ☐ Known ☐ Estimated ☐ Unknown	Well depth: ☐ Known ☐ Estimated ☐ Unknown
Typical water level (range): ☐ Known ☐ Estimated ☐ Unknown	Typical water level (range): ☐ Known ☐ Estimated ☐ Unknown
Water Treatment, Pump, and Distribution System	
Treatment: ☐ Water Softener ☐ UV Filter ☐ Reverse Osmosis ☐ Iron Filter ☐ Activated Carbon ☐ Sediment Filter ☐ **No Treatment** ☐ Other:	Treatment: ☐ Water Softener ☐ UV Filter ☐ Reverse Osmosis ☐ Iron Filter ☐ Activated Carbon ☐ Sediment Filter ☐ **No Treatment** ☐ Other:
Treatment notes:	Treatment notes:
Pump type: ☐ Submersible ☐ Jet pump with one pipe (Shallow) ☐ Jet pump with two pipes (Deep) ☐ Piston ☐ Other:	Pump type: ☐ Submersible ☐ Jet pump with one pipe (Shallow) ☐ Jet pump with two pipes (Deep) ☐ Piston ☐ Other:
Pumping rate (gpm): Depth of intake:	Pumping rate (gpm): Depth of intake:
Pressure Tank capacity (gal / liter): or ☐ No Pressure Tank	Pressure Tank capacity (gal / liter): or ☐ No Pressure Tank
Field Measurements and Well Condition Survey Do not attempt to access well if located in confined space, in precarious terrain, or other danger is present.	
UTM - E: Zone: Datum:	GPS Coordinates Datum:
UTM - N: Elevation (m):	UTM - E: UTM - N: Elevation (m):
Stick-Up (m ags): Static Water Level (m btoc):	Stick-Up (m ags): Static Water Level (m btoc):
Well Diameter (m): Well Bottom (m btoc):	Well Diameter (m): Well Bottom (m btoc):
Photo Inventory (list jpg file names):	Photo Inventory (list jpg file names):
Condition of Well: ☐ Cracked/Damaged Casing or Cap ☐ No Well Cap/Cover ☐ Loose Cap/Bolts ☐ Not Vermin Proof ☐ Contamination Source Near Well ☐ Exposed Electrical ☐ Corrosion ☐ Poor Ground Drainage/Ponding ☐ Biofilm/Slime ☐ Mineral Scale/Incrustation ☐ Inaccessible	Condition of Well: ☐ Cracked/Damaged Casing or Cap ☐ No Well Cap/Cover ☐ Loose Cap/Bolts ☐ Not Vermin Proof ☐ Contamination Source Near Well ☐ Exposed Electrical ☐ Corrosion ☐ Poor Ground Drainage/Ponding ☐ Biofilm/Slime ☐ Mineral Scale/Incrustation ☐ Inaccessible
Notes on Well Condition:	Notes on Well Condition:
Interviewee informed of well condition: ☐ Yes ☐ No	Interviewee informed of well condition: ☐ Yes ☐ No
Water Sample Remove aerator and disinfect tap. Purge cold water for at least 5 minutes. Continuously measure temperature, pH, and EC until stable, then sample. SAMPLE UPSTREAM OF WATER TREATMENT when possible.	
Sample location:	Sample location:
Sample Type: ☐ Raw (Direct from Well) ☐ Pre-Treatment ☐ Post-Treatment	Sample Type: ☐ Raw (Direct from Well) ☐ Pre-Treatment ☐ Post-Treatment
Temp (°C): pH: EC (µS/cm): TDS (ppm):	Temp (°C): pH: EC (µS/cm): TDS (ppm):
Sample ID (as labeled on sample bottles):	Sample ID (as labeled on sample bottles):
Sample Notes:	Sample Notes:

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ID #

WATER WELL SURVEY FORM

Diagram (sketch locations of wells, roads, structures, surface water features, septic systems, fuel storage tanks, tile drains, and north direction)

measure or estimate distance of septic system and fuel storage tank(s) to well(s)

indicate north direction

Survey Notes

Water Quality Notification Record (to be completed after the initial well survey, upon receipt of adverse water quality results from laboratory)

Parameter	Concentration	Units	Notification Date	Communication Method	Name of Resident Contacted	WSP Staff Name	Conversation Notes

Terms of Use

The information recorded on this survey form by WSP Canada Group Limited (WSP) on behalf of their client, is used to identify water well users near a location of proposed or ongoing work, activities, or land uses that have the potential to affect groundwater quantity (levels) and quality. This information may assist to prevent or resolve potential water supply interruptions or quality concerns arising from the works.

Contact information, address, and well survey results may be shared with WSP project staff, the WSP client, and government agencies, including but not limited to municipalities, environmental regulatory authorities, or public health units.

Acknowledgement

The Undersigned acknowledges that the services (“Water Well Survey”) provided by WSP Canada Group Limited (WSP) on behalf of their client are not intended to replace conventional water well safeguards such as regular water quality testing and well/treatment system maintenance. Information provided by WSP to the Undersigned, or to any third party (including but not limited to information related to well condition, treatment system condition, or notification of water quality results) is not a guarantee of safe water quality.

Signature

The information on this form is correct and complete to the best of my knowledge and I understand that the information will be managed in accordance with the Terms of Use and Acknowledgment.

Interviewee Signature Date

WSP Representative Signature Date

APPENDIX

C

DETAILS OF COMPLETED WATER WELL SURVEYS

Table C-1: Highway 401 Planning Study from Colborne to Brighton
Water Well Condition Survey Summary Table - 2020

Address		Survey Documentation Results					Last Visit Date	Comments	Water Quality Results	Status	Water Quality Issues as Reported by Residents During Water Well Survey Interviews
	Resident/Owner	Well Type	No of Wells	Water Level (mbgs)	Well depth (mbgs)	Sampled					
523 County Road 26	Owner	Drilled	1	25.10	Unknown	Yes	21-Oct-20	Survey completed and sample was collected.	Sodium	Participated	None
15773 Telephone Road	Owner	Drilled	1	29.23	Unknown	Yes	21-Oct-20	Survey was completed and sample was collected. Owner noted that they would like for well to produce more water for their supply needs.	Meets ODWS	Participated	Hard water, sediment
15791 Telephone Road	Owner	Drilled	1	31.73	Unknown	Yes	28-Oct-20	Survey was compelted and sample was collected.	Exeeds ODWS for Sodium	Participated	Hard water, iron staining
627 County Road 26	Owner	Drilled	1	18.05	Unknown	Yes	21-Oct-20	Survey was completed and sample was collected from the basement tap (connected to the drilled well) inside the house. The sample was collected by the well owner, due to COVID-19 restrictions, following WSP's disinfection protocol.	Meets ODWS	Participated	None
		Dug	1	Not Measured	Unknown	No			N/A		N/A
248 Cochrane Road	N/A	Unknown	Unknown	Not Measured	No	No	21-Oct-20	No answer after 3 visits.	N/A	No response	N/A
8 McDonald Road	Owner	Dug	1	4.85	Unknown	Yes	21-Oct-20	Survey was completed and sample was collected.	Exceed ODWS for Sodium, Total Coliforms	Participated	None
10 McDonald Road	N/A	Unknown	Unknown	Not Measured	Unknown	No	28-Oct-20	No answer after 3 visits.	N/A	No response	N/A
252 Lake road	Owner	1	1	Not Measured	Unknown	Yes	28-Oct-20	Survey completed and sample was collected.	Exceeds ODWS for Total Coliforms	Participated	None
318 Lake Road	Owner	Unknown	Unknown	Not Measured	Unknown	No	21-Oct-20	Resident not interested in the survey.	N/A	Did not wish to participate	N/A
448 Purdy Road	Owner	Unknown	Unknown	Not Measured	Unknown	No	21-Oct-20	Resident not interested in the survey.	N/A	Did not wish to participate	N/A
110 Durham Road	N/A	Unknown	Unknown	Not Measured	Unknown	No	28-Oct-20	No answer after 3 visits.	N/A	No response	N/A

Notes:
N/A: Not applicable

APPENDIX

D

WATER WELL SURVEY RESULTS LETTERS AND LABORATORY CERTIFICATES OF ANALYSES

November 9, 2020

Mr. Brian Beckett
8 McDonald Road
Colborne, ON, K0K 1S0

Dear Mr. Brian Beckett,

Re: Water Well Sampling Results – 8 McDonald Road, Colborne, ON

As part of the private well survey completed on behalf of the Ontario Ministry of Transportation (MTO) for the replacement and rehabilitation of structures, establishing the future Highway 401 footprint for an interim six lanes and ultimate eight lanes to address current and future transportation needs, and commuter parking lot improvements from 0.8 km east of Percy Street to 0.4 km west of Christiani Road, a water sample was collected from your property at 8 McDonald Road on October 21, 2020, for baseline information on the quality of your water. The water well survey was completed by WSP Canada Group Limited (WSP).

The water sample was collected at a point that represents raw water quality before treatment. The water sample was submitted for analyses of selected parameters to AGAT Laboratories in Mississauga, a Canadian Association for Laboratory Accreditation (CALA) accredited laboratory. The results of the analyses are included in the attached Certificate of Analysis and have been compared to the Ontario Drinking Water Quality Standards, Objectives and Guidelines[1] (ODWS).

Under the ODWS, there are two broad groups of water quality parameters: health-related and non-health related. Health-related parameters have standards that are reported as Maximum Acceptable Concentrations and as Interim Maximum Acceptable Concentrations, shown in the **MAC** or **IMC** columns on the attached Certificate of Analysis. Non-health related parameters are either Aesthetic Objectives or Operational Guidelines. Aesthetic objectives are established for water treatment purposes. Aesthetic objectives and operational guidelines are shown in parenthesis in the **A/O** column of the attached Certificate of Analysis.

The laboratory analytical results for initial samples indicate that concentrations of health-related parameters meet the Ministry of Environment, Conservation and Parks (MECP) ODWS and O. Reg. 153/04, with exception of sodium and Total Coliforms.

Health-related parameters exceeded the ODWS are listed below:

- **Sodium (Na; 21.94 mg/L)**;
- **Total Coliforms**.

There were no exceedances of ODWS non-health related parameters in the water sample.

For the aforementioned ODWS exceedances, WSP would like to inform you of the following:

Sodium (inorganic)

The aesthetic objective for sodium in drinking water is 200 mg/L, at which it can be detected by a salty taste. Sodium is not toxic. Consumption of sodium in excess of 10 grams per day by normal

[1] Ontario Regulation (O. Reg.) 169/03; latest amendment: O. Reg. 327/08.

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adults does not result in any apparent adverse health effects. In addition, the average intake for sodium from water is only a small fraction of that consumed in a normal diet. A maximum acceptable concentration for sodium in drinking water has, therefore, not been specified. Persons suffering from hypertension or congestive heart disease may require a sodium-restricted diet, in which case, the intake of sodium from drinking water could become significant. It is, therefore, recommended that the measurement of sodium levels be included in routine monitoring programs of water supplies. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L, so that this information may be passed on to local physicians.

Softening using a domestic water softener increases the sodium level in drinking water and may contribute a significant percentage to the daily sodium intake for a consumer on a sodium restricted diet. It is recommended that a separate unsoftened supply be retained for cooking and drinking purposes.

Total Coliforms (microbiological)

Coliform organisms are a group of bacteria that are commonly found in the environment, and are an indicator of the safety of your water. Coliform bacteria are not harmful, but their presence tells you that other disease-causing organisms may be in your water supply. The presence of more than five coliform bacteria in a water sample usually means that surface water has washed contaminants into the well.

The presence of any total coliform bacteria in water leaving a treatment plant or in any treated water immediately post treatment signifies inadequate treatment and is unacceptable. Corrective action needs to be taken.

Yours Sincerely,

Natalia Codoban, P.Eng.
Senior Hydrogeologist

Encl. AGAT Laboratories Certificate of Analysis
cc: Haliburton, Kawartha, Pine Ridge District Health Unit; Muhammad Waseem, MTO; Brent Gotts, WSP
WSP ref.: 17M-01712-11

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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FAX (905)712-5122
http://www.agatlabs.com

CLIENT NAME: WSP Canada Inc.
610 Chartwell Rd, Suite 300
Oakville, ON L6J 4A5
905-823-8500
ATTENTION TO: Haley Spennato
PROJECT: 17M-01712-11-460-GW1
AGAT WORK ORDER: 20T667171
MICROBIOLOGY ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer
WATER ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician
DATE REPORTED: Oct 30, 2020
PAGES (INCLUDING COVER): 13
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days following analysis, unless expressly agreed otherwise in writing. Please contact your Client Project Manager if you require additional sample storage time.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
- *The test results reported herewith relate only to the samples as received by the laboratory.*
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- *All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.*

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Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. Measurement Uncertainty is not taken into consideration when stating conformity with a specified requirement.

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Certificate of Analysis

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Heterotrophic Plate Count in Water

DATE RECEIVED: 2020-10-22

DATE REPORTED: 2020-10-30

			SAMPLE DESCRIPTION:	8 McDonald Rd
			SAMPLE TYPE:	Water
			DATE SAMPLED:	2020-10-21 10:10
Parameter	**Unit**	**G / S**	**RDL**	**1587377**
Heterotrophic Plate Count	CFU/1ml		5	35

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

1587377 ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Total Coliforms & E.Coli and BCC (Using DC Agar)

DATE RECEIVED: 2020-10-22

DATE REPORTED: 2020-10-30

				SAMPLE DESCRIPTION:	8 McDonald Rd
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2020-10-21 10:10
Parameter	**Unit**	**G / S**	**RDL**	**1587377**	
Escherichia coli - DC Agar	CFU/100mL	0	**1**	ND	
Total Coliforms - DC Agar	CFU/100mL	0	**1**	**2**	
Background Colony Count - DC Agar	CFU/100mL		1	197	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

1587377 ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

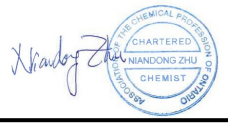
Water Quality Assessment (mg/L)

DATE RECEIVED: 2020-10-22

DATE REPORTED: 2020-10-30

		SAMPLE DESCRIPTION:		8 McDonald Rd
		SAMPLE TYPE:		Water
		DATE SAMPLED:		2020-10-21 10:10
Parameter	**Unit**	**G / S**	**RDL**	**1587377**
Electrical Conductivity	µS/cm		2	623
pH	pH Units		NA	7.81
Saturation pH (Calculated)				7.04
Langelier Index (Calculated)				0.772
Hardness (as CaCO3) (Calculated)	mg/L		0.5	270
Total Dissolved Solids	mg/L		20	344
Alkalinity (as CaCO3)	mg/L		5	246
Bicarbonate (as CaCO3)	mg/L		5	246
Carbonate (as CaCO3)	mg/L		5	<5
Hydroxide (as CaCO3)	mg/L		5	<5
Fluoride	mg/L	1.5	0.05	<0.05
Chloride	mg/L		0.20	48.0
Nitrate as N	mg/L	10.0	0.10	5.76
Nitrite as N	mg/L	1.0	0.10	<0.10
Bromide	mg/L		0.10	<0.10
Sulphate	mg/L		0.20	19.6
Ortho Phosphate as P	mg/L		0.20	<0.20
Reactive Silica	mg/L		0.05	15.6
Ammonia as N	mg/L		0.02	<0.02
Total Phosphorus	mg/L		0.02	<0.02
Total Organic Carbon	mg/L		0.5	1.0
True Colour	TCU		5	<5
Turbidity	NTU		0.5	<0.5
Total Calcium	mg/L		0.25	75.34
Total Magnesium	mg/L		0.25	19.90
Total Potassium	mg/L		0.25	1.30
Total Sodium	mg/L	20	0.25	**21.94**
Total Aluminum	mg/L		0.010	0.019
Total Antimony	mg/L	0.006	0.003	<0.003

Certified By:



Results relate only to the items tested. Results apply to samples as received.

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http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment (mg/L)

DATE RECEIVED: 2020-10-22

DATE REPORTED: 2020-10-30

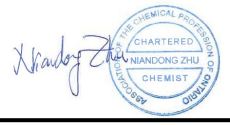
				SAMPLE DESCRIPTION:	8 McDonald Rd
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2020-10-21 10:10
Parameter	Unit	G / S	RDL	1587377	
Total Arsenic	mg/L	0.01	0.003	<0.003	
Total Barium	mg/L	1.0	0.002	0.104	
Total Beryllium	mg/L		0.001	<0.001	
Total Boron	mg/L	5.0	0.010	0.010	
Total Cadmium	mg/L	0.005	0.001	<0.001	
Total Chromium	mg/L	0.05	0.003	<0.003	
Total Cobalt	mg/L		0.001	<0.001	
Total Copper	mg/L		0.003	<0.003	
Total Iron	mg/L		0.010	<0.010	
Total Lead	mg/L	0.010	0.001	<0.001	
Total Manganese	mg/L		0.002	<0.002	
Total Mercury	mg/L	0.001	0.0001	<0.0001	
Total Molybdenum	mg/L		0.002	<0.002	
Total Nickel	mg/L		0.003	<0.003	
Total Selenium	mg/L	0.05	0.004	<0.004	
Total Silver	mg/L		0.002	<0.002	
Total Strontium	mg/L		0.005	0.266	
Total Thallium	mg/L		0.006	<0.006	
Total Tin	mg/L		0.002	<0.002	
Total Titanium	mg/L		0.002	<0.002	
Total Tungsten	mg/L		0.010	<0.010	
Total Uranium	mg/L	0.02	0.002	<0.002	
Total Vanadium	mg/L		0.002	<0.002	
Total Zinc	mg/L		0.005	0.011	
Total Zirconium	mg/L		0.004	<0.004	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

1587377 Dilution required, RDL has been increased accordingly.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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AGAT Laboratories

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Exceedance Summary

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
1587377	8 McDonald Rd	ON 169/03 MAC/IMAC	Total Coliforms & E.Coli and BCC (Using DC Agar)	Total Coliforms - DC Agar	CFU/100mL	0	2
1587377	8 McDonald Rd	ON 169/03 MAC/IMAC	Water Quality Assessment (mg/L)	Total Sodium	mg/L	20	21.94

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Quality Assurance

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Microbiology Analysis

RPT Date: Oct 30, 2020			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Coliforms & E.Coli and BCC (Using DC Agar)															
Escherichia coli - DC Agar	1587445		ND	ND	NA	< 1									
Total Coliforms - DC Agar	1587445		ND	ND	NA	< 1									
Background Colony Count - DC Agar	1587445		ND	ND	NA	< 1									
Heterotrophic Plate Count in Water															
Heterotrophic Plate Count	1587445		ND	ND	NA	< 5									

Comments: ND - Not Detected, NA - % RPD Not Applicable

Certified By:

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Quality Assurance

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Water Analysis

RPT Date: Oct 30, 2020

PARAMETER	Batch	Sample Id	DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Water Quality Assessment (mg/L)															
Electrical Conductivity	1589793		1120	1120	0.0%	< 2	98%	90%	110%						
pH	1589793		7.66	7.68	0.3%	NA	100%	90%	110%						
Total Dissolved Solids	1587377	1587377	344	338	1.8%	< 20	102%	80%	120%						
Alkalinity (as CaCO3)	1589793		381	385	1.0%	< 5	100%	80%	120%						
Bicarbonate (as CaCO3)	1589793		381	385	1.0%	< 5									
Carbonate (as CaCO3)	1589793		<5	<5	NA	< 5									
Hydroxide (as CaCO3)	1589793		<5	<5	NA	< 5									
Fluoride	1587161		<0.05	<0.05	NA	< 0.05	93%	90%	110%	90%	90%	110%	98%	85%	115%
Chloride	1587161		12.4	12.0	3.3%	< 0.10	94%	70%	130%	102%	80%	120%	105%	70%	130%
Nitrate as N	1587161		<0.25	<0.25	NA	< 0.05	96%	70%	130%	107%	80%	120%	110%	70%	130%
Nitrite as N	1587161		<0.25	<0.25	NA	< 0.05	102%	70%	130%	101%	80%	120%	110%	70%	130%
Bromide	1587161		<0.25	<0.25	NA	< 0.05	102%	90%	110%	93%	90%	110%	92%	85%	115%
Sulphate	1587161		34.7	35.1	1.1%	< 0.10	91%	70%	130%	96%	80%	120%	98%	70%	130%
Ortho Phosphate as P	1587161		<0.50	<0.50	NA	< 0.10	108%	70%	130%	99%	80%	120%	97%	70%	130%
Reactive Silica	1585854		11.1	11.8	6.1%	< 0.05	100%	90%	110%	104%	90%	110%	NA	80%	120%
Ammonia as N	1590932		<0.02	<0.02	NA	< 0.02	102%	70%	130%	100%	80%	120%	96%	70%	130%
Total Phosphorus	1581191		0.03	0.03	NA	< 0.02	102%	70%	130%	101%	80%	120%	108%	70%	130%
Total Organic Carbon	1587377	1587377	1.0	1.0	NA	< 0.5	95%	90%	110%	105%	90%	110%	97%	80%	120%
True Colour	1588807		<5	<5	NA	< 5	100%	90%	110%						
Turbidity	1589350		1.1	1.2	NA	< 0.5	98%	80%	120%						
Total Calcium	1587377	1587377	75.34	81.98	8.4%	< 0.05	95%	70%	130%	91%	80%	120%	100%	70%	130%
Total Magnesium	1587377	1587377	19.90	21.98	9.9%	< 0.05	95%	70%	130%	91%	80%	120%	100%	70%	130%
Total Potassium	1587377	1587377	1.30	1.41	8.1%	< 0.05	93%	70%	130%	90%	80%	120%	96%	70%	130%
Total Sodium	1587377	1587377	21.94	23.89	8.5%	< 0.05	96%	70%	130%	92%	80%	120%	99%	70%	130%
Total Aluminum	1587377	1587377	0.019	0.020	NA	< 0.010	109%	70%	130%	111%	80%	120%	109%	70%	130%
Total Antimony	1587377	1587377	<0.003	<0.003	NA	< 0.003	106%	70%	130%	103%	80%	120%	107%	70%	130%
Total Arsenic	1587377	1587377	<0.003	<0.003	NA	< 0.003	99%	70%	130%	103%	80%	120%	109%	70%	130%
Total Barium	1587377	1587377	0.104	0.108	3.8%	< 0.002	99%	70%	130%	98%	80%	120%	102%	70%	130%
Total Beryllium	1587377	1587377	<0.001	<0.001	NA	< 0.001	106%	70%	130%	102%	80%	120%	111%	70%	130%
Total Boron	1587377	1587377	0.010	0.012	NA	< 0.010	108%	70%	130%	106%	80%	120%	112%	70%	130%
Total Cadmium	1587377	1587377	<0.001	<0.001	NA	< 0.001	103%	70%	130%	100%	80%	120%	104%	70%	130%
Total Chromium	1587377	1587377	<0.003	<0.003	NA	< 0.003	104%	70%	130%	105%	80%	120%	110%	70%	130%
Total Cobalt	1587377	1587377	<0.001	<0.001	NA	< 0.001	103%	70%	130%	108%	80%	120%	111%	70%	130%
Total Copper	1587377	1587377	<0.003	<0.003	NA	< 0.003	104%	70%	130%	108%	80%	120%	110%	70%	130%
Total Iron	1587377	1587377	<0.010	<0.010	NA	< 0.010	101%	70%	130%	109%	80%	120%	111%	70%	130%
Total Lead	1587377	1587377	<0.001	<0.001	NA	< 0.001	106%	70%	130%	103%	80%	120%	104%	70%	130%
Total Manganese	1587377	1587377	<0.002	<0.002	NA	< 0.002	106%	70%	130%	108%	80%	120%	109%	70%	130%
Total Mercury	1587377	1587377	<0.0001	<0.0001	NA	< 0.0001	103%	70%	130%	102%	80%	120%	102%	70%	130%
Total Molybdenum	1587377	1587377	<0.002	<0.002	NA	< 0.002	100%	70%	130%	107%	80%	120%	115%	70%	130%

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Quality Assurance

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

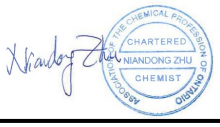
SAMPLED BY:

Water Analysis (Continued)

RPT Date: Oct 30, 2020			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Nickel	1587377	1587377	<0.003	<0.003	NA	< 0.003	105%	70%	130%	105%	80%	120%	108%	70%	130%
Total Selenium	1587377	1587377	<0.004	<0.004	NA	< 0.004	101%	70%	130%	108%	80%	120%	116%	70%	130%
Total Silver	1587377	1587377	<0.002	<0.002	NA	< 0.002	103%	70%	130%	107%	80%	120%	110%	70%	130%
Total Strontium	1587377	1587377	0.266	0.256	3.8%	< 0.005	104%	70%	130%	105%	80%	120%	107%	70%	130%
Total Thallium	1587377	1587377	<0.006	<0.006	NA	< 0.006	104%	70%	130%	103%	80%	120%	105%	70%	130%
Total Tin	1587377	1587377	<0.002	<0.002	NA	< 0.002	97%	70%	130%	102%	80%	120%	106%	70%	130%
Total Titanium	1587377	1587377	<0.002	<0.002	NA	< 0.002	107%	70%	130%	107%	80%	120%	111%	70%	130%
Total Tungsten	1587377	1587377	<0.010	<0.010	NA	< 0.010	88%	70%	130%	91%	80%	120%	98%	70%	130%
Total Uranium	1587377	1587377	<0.002	<0.002	NA	< 0.002	109%	70%	130%	104%	80%	120%	106%	70%	130%
Total Vanadium	1587377	1587377	<0.002	<0.002	NA	< 0.002	104%	70%	130%	109%	80%	120%	111%	70%	130%
Total Zinc	1587377	1587377	0.011	0.009	NA	< 0.005	104%	70%	130%	103%	80%	120%	108%	70%	130%
Total Zirconium	1587377	1587377	<0.004	<0.004	NA	< 0.004	103%	70%	130%	103%	80%	120%	109%	70%	130%

Comments: NA Signifies Not Applicable.
Duplicate NA: results are under 5X the RDL and will not be calculated.
Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:



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Method Summary

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Heterotrophic Plate Count	MIC-93- 7020	SM 9215 C	INCUBATOR
Escherichia coli - DC Agar	MIC-93-7010	MOE Method E3407	MF/INCUBATOR
Total Coliforms - DC Agar	MIC-93-7010	EPA 1604	MF/INCUBATOR
Background Colony Count - DC Agar	MIC-93-7010	MOE Method E3407	MF-Incubator

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Method Summary

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Saturation pH (Calculated)		SM 2320 B	CALCULATION
Langelier Index (Calculated)		SM 2330B	CALCULATION
Hardness (as CaCO3) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684,ON MOECC E3139,SM 2540C,D	BALANCE
Alkalinity (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Bicarbonate (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Carbonate (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Hydroxide (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Reactive Silica	INOR-93-6070	QuickChem 10-114-27-1-A & SM 4500 Si-F	LACHAT FIA
Ammonia as N	INOR-93-6059	modified from SM 4500-NH3 H	LACHAT FIA
Total Phosphorus	INOR-93-6057	modified from LACHAT 10-115-01-3A	LACHAT FIA
Total Organic Carbon	INOR-93-6049	modified from EPA 415.1 & SM 5310 B	SHIMADZU CARBON ANALYZER
True Colour	INOR-93-6046	SM 2120 B	SPECTROPHOTOMETER
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Total Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Aluminum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Barium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Beryllium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Boron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Iron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS

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Method Summary

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Manganese	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Strontium	INOR-93-6003	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Thallium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tin	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Titanium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tungsten	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Uranium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Vanadium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zirconium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS

Results relate only to the items tested. Results apply to samples as received.

November 9, 2020

Mr. David Tong
252 Lake Road
Colborne, ON, K0K 1S0

Dear Mr. David Tong,

Re: Water Well Sampling Results – 252 Lake Road, Colborne, ON

As part of the private well survey completed on behalf of the Ontario Ministry of Transportation (MTO) for the replacement and rehabilitation of structures, establishing the future Highway 401 footprint for an interim six lanes and ultimate eight lanes to address current and future transportation needs, and commuter parking lot improvements from 0.8 km east of Percy Street to 0.4 km west of Christiani Road, a water sample was collected from your property at 252 Lake Road on October 28, 2020, for baseline information on the quality of your water. The water well survey was completed by WSP Canada Group Limited (WSP).

The water sample was collected at a point that represents raw water quality before treatment. The water sample was submitted for analyses of selected parameters to AGAT Laboratories in Mississauga, a Canadian Association for Laboratory Accreditation (CALA) accredited laboratory. The results of the analyses are included in the attached Certificate of Analysis and have been compared to the Ontario Drinking Water Quality Standards, Objectives and Guidelines[1] (ODWS) and selected parameters of Table 2 of Ontario Regulation (O. Reg.) 153/04[2].

Under the ODWS, there are two broad groups of water quality parameters: health-related and non-health related. Health-related parameters have standards that are reported as Maximum Acceptable Concentrations and as Interim Maximum Acceptable Concentrations, shown in the **MAC** or **IMC** columns on the attached Certificate of Analysis. Non-health related parameters are either Aesthetic Objectives or Operational Guidelines. Aesthetic objectives are established for water treatment purposes. Aesthetic objectives and operational guidelines are shown in parenthesis in the **A/O** column of the attached Certificate of Analysis.

The laboratory analytical results for initial samples indicate that concentrations of health-related parameters meet the Ministry of Environment, Conservation and Parks (MECP) ODWS and O. Reg. 153/04, with exception of Total Coliforms.

Health-related parameters exceeded the ODWS are listed below:

- **Total Coliforms**.

There were no exceedances of ODWS non-health related parameters in the water sample.

For the aforementioned ODWS exceedances, WSP would like to inform you of the following:

[1] Ontario Regulation (O. Reg.) 169/03; latest amendment: O. Reg. 327/08.
[2] Table 2 of the Ministry of Environment "Soil, Ground Water and Sediment Standards for use Under Part XV.1 of the Environmental Protection Act" March 9, 2004, amended as of July 1, 2011.

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Total Coliforms (microbiological)

Coliform organisms are a group of bacteria that are commonly found in the environment, and are an indicator of the safety of your water. Coliform bacteria are not harmful, but their presence tells you that other disease-causing organisms may be in your water supply. The presence of more than five coliform bacteria in a water sample usually means that surface water has washed contaminants into the well.

The presence of any total coliform bacteria in water leaving a treatment plant or in any treated water immediately post treatment signifies inadequate treatment and is unacceptable. Corrective action needs to be taken.

Yours Sincerely,

Natalia Codoban, P.Eng.
Senior Hydrogeologist

Encl. AGAT Laboratories Certificate of Analysis
cc: Haliburton, Kawartha, Pine Ridge District Health Unit; Muhammad Waseem, MTO; Brent Gotts, WSP
WSP ref.: 17M-01712-11

AGAT Laboratories

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CLIENT NAME: **WSP Canada Inc.**
610 Chartwell Rd, Suite 300
Oakville, ON L6J 4A5
905-823-8500

ATTENTION TO: **Haley Spennato**

PROJECT: **17M-01712-11-GW1**

AGAT WORK ORDER: **20T670366**

MICROBIOLOGY ANALYSIS REVIEWED BY: **Nivine Basily, Inorganics Report Writer**

TRACE ORGANICS REVIEWED BY: **Oksana Gushyla, Trace Organics Lab Supervisor**

WATER ANALYSIS REVIEWED BY: **Yris Verastegui, Report Reviewer**

DATE REPORTED: **Nov 09, 2020**

PAGES (INCLUDING COVER): **16**

VERSION*: **1**

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days following analysis, unless expressly agreed otherwise in writing. Please contact your Client Project Manager if you require additional sample storage time.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
- *The test results reported herewith relate only to the samples as received by the laboratory.*
- *Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.*
- *All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.*

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. Measurement Uncertainty is not taken into consideration when stating conformity with a specified requirement.

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Certificate of Analysis

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Heterotrophic Plate Count in Water

DATE RECEIVED: 2020-10-29

DATE REPORTED: 2020-11-09

			SAMPLE DESCRIPTION:	252 Lake Rd
			SAMPLE TYPE:	Water
			DATE SAMPLED:	2020-10-28 11:50
Parameter	**Unit**	**G / S**	**RDL**	**1615476**
Heterotrophic Plate Count	CFU/1ml		5	5

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Total Coliforms & E.Coli and BCC (Using DC Agar)

DATE RECEIVED: 2020-10-29

DATE REPORTED: 2020-11-09

				SAMPLE DESCRIPTION:	252 Lake Rd
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2020-10-28 11:50
Parameter	**Unit**	**G / S**	**RDL**	**1615476**	
Escherichia coli - DC Agar	CFU/100mL	0	**1**	ND	
Total Coliforms - DC Agar	CFU/100mL	0	**1**	**1**	
Background Colony Count - DC Agar	CFU/100mL		1	39	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

1615476 ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PHCs F1 - F4 (Water)

DATE RECEIVED: 2020-10-29

DATE REPORTED: 2020-11-09

				SAMPLE DESCRIPTION:	252 Lake Rd
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2020-10-28 11:50
Parameter	**Unit**	**G / S**	**RDL**	**1615476**	
Benzene	µg/L	1.0	0.20	<0.20	
Toluene	µg/L	60	0.20	<0.20	
Ethylbenzene	µg/L	140	0.10	<0.10	
m & p-Xylene	µg/L		0.20	<0.20	
o-Xylene	µg/L		0.10	<0.10	
Xylenes (Total)	µg/L		0.20	<0.20	
F1 (C6 - C10)	µg/L		25	<25	
F1 (C6 to C10) minus BTEX	µg/L		25	<25	
F2 (C10 to C16)	µg/L		100	<100	
F3 (C16 to C34)	µg/L		100	<100	
F4 (C34 to C50)	µg/L		100	<100	
Gravimetric Heavy Hydrocarbons	µg/L		500	NA	
Sediment				No	
Surrogate	**Unit**	**Acceptable Limits**			
Terphenyl	%	60-140		70	

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PHCs F1 - F4 (Water)

DATE RECEIVED: 2020-10-29 **DATE REPORTED: 2020-11-09**

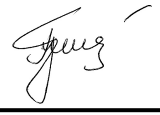
Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

1615476 The C6-C10 fraction is calculated using Toluene response factor.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and nC34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16 - C50 and are only determined if the chromatogram of the C34 - C50 Hydrocarbons indicated that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6-C50 results are corrected for BTEX contribution.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153/04, results are considered valid without determining the PAH contribution if not requested by the client.
NA = Not Applicable

Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment (mg/L)

DATE RECEIVED: 2020-10-29

DATE REPORTED: 2020-11-09

		SAMPLE DESCRIPTION:		252 Lake Rd
		SAMPLE TYPE:		Water
		DATE SAMPLED:		2020-10-28 11:50
Parameter	**Unit**	**G / S**	**RDL**	**1615476**
Electrical Conductivity	µS/cm		2	583
pH	pH Units		NA	7.89
Saturation pH (Calculated)				7.02
Langelier Index (Calculated)				0.867
Hardness (as CaCO3) (Calculated)	mg/L		0.5	280
Total Dissolved Solids	mg/L		20	344
Alkalinity (as CaCO3)	mg/L		5	245
Bicarbonate (as CaCO3)	mg/L		5	245
Carbonate (as CaCO3)	mg/L		5	<5
Hydroxide (as CaCO3)	mg/L		5	<5
Fluoride	mg/L	1.5	0.05	<0.05
Chloride	mg/L		0.10	34.8
Nitrate as N	mg/L	10.0	0.05	2.48
Nitrite as N	mg/L	1.0	0.05	<0.05
Bromide	mg/L		0.05	<0.05
Sulphate	mg/L		0.10	18.9
Ortho Phosphate as P	mg/L		0.10	<0.10
Reactive Silica	mg/L		0.05	15.2
Ammonia as N	mg/L		0.02	<0.02
Total Phosphorus	mg/L		0.02	<0.02
Total Organic Carbon	mg/L		0.5	0.7
True Colour	TCU		5	<5
Turbidity	NTU		0.5	1.3
Total Calcium	mg/L		0.25	75.65
Total Magnesium	mg/L		0.25	22.24
Total Potassium	mg/L		0.25	1.73
Total Sodium	mg/L	20	0.25	15.66
Total Aluminum	mg/L		0.010	0.018
Total Antimony	mg/L	0.006	0.003	<0.003

Certified By: Iris Verástegui

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Certificate of Analysis

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment (mg/L)

DATE RECEIVED: 2020-10-29

DATE REPORTED: 2020-11-09

		SAMPLE DESCRIPTION:		252 Lake Rd
		SAMPLE TYPE:		Water
		DATE SAMPLED:		2020-10-28 11:50
Parameter	**Unit**	**G / S**	**RDL**	**1615476**
Total Arsenic	mg/L	0.01	0.003	<0.003
Total Barium	mg/L	1.0	0.002	0.119
Total Beryllium	mg/L		0.001	<0.001
Total Boron	mg/L	5.0	0.010	<0.010
Total Cadmium	mg/L	0.005	0.001	<0.001
Total Chromium	mg/L	0.05	0.003	<0.003
Total Cobalt	mg/L		0.001	<0.001
Total Copper	mg/L		0.003	<0.003
Total Iron	mg/L		0.010	0.152
Total Lead	mg/L	0.010	0.001	<0.001
Total Manganese	mg/L		0.002	0.003
Total Mercury	mg/L	0.001	0.0001	<0.0001
Total Molybdenum	mg/L		0.002	<0.002
Total Nickel	mg/L		0.003	<0.003
Total Selenium	mg/L	0.05	0.004	<0.004
Total Silver	mg/L		0.002	<0.002
Total Strontium	mg/L		0.005	0.265
Total Thallium	mg/L		0.006	<0.006
Total Tin	mg/L		0.002	<0.002
Total Titanium	mg/L		0.002	0.007
Total Tungsten	mg/L		0.010	<0.010
Total Uranium	mg/L	0.02	0.002	<0.002
Total Vanadium	mg/L		0.002	<0.002
Total Zinc	mg/L		0.005	0.021
Total Zirconium	mg/L		0.004	<0.004

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

1615476 Dilution required, RDL has been increased accordingly.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: Iris Verástegui

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Exceedance Summary

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
1615476	252 Lake Rd	ON 169/03 MAC/IMAC	Total Coliforms & E.Coli and BCC (Using DC Agar)	Total Coliforms - DC Agar	CFU/100mL	0	1

Results relate only to the items tested. Results apply to samples as received.

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Quality Assurance

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Microbiology Analysis

RPT Date: Nov 09, 2020			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Coliforms & E.Coli and BCC (Using DC Agar)															
Escherichia coli - DC Agar	1615475	1615475	ND	ND	NA	< 1									
Total Coliforms - DC Agar	1615475	1615475	ND	ND	NA	< 1									
Background Colony Count - DC Agar	1615475	1615475	ND	ND	NA	< 1									
Heterotrophic Plate Count in Water															
Heterotrophic Plate Count	1615475	1615475	ND	ND	NA	< 5									

Comments: ND - Not Detected, NA - % RPD Not Applicable

Certified By:

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Results relate only to the items tested. Results apply to samples as received.

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Quality Assurance

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date: Nov 09, 2020			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - PHCs F1 - F4 (Water)															
Benzene	1619828		21	24	13.3%	< 0.20	97%	50%	140%	97%	60%	130%	101%	50%	140%
Toluene	1619828		< 0.20	< 0.20	NA	< 0.20	118%	50%	140%	95%	60%	130%	95%	50%	140%
Ethylbenzene	1619828		6.2	6.7	7.8%	< 0.10	111%	50%	140%	120%	60%	130%	112%	50%	140%
m & p-Xylene	1619828		0.64	0.69	NA	< 0.20	97%	50%	140%	117%	60%	130%	110%	50%	140%
o-Xylene	1619828		2.5	2.8	11.3%	< 0.10	95%	50%	140%	98%	60%	130%	98%	50%	140%
Xylenes (Total)	1619828		3.1	3.5	12.1%	< 0.20	96%	50%	140%	108%	60%	130%	104%	50%	140%
F1 (C6 - C10)	1619828		77	74	NA	< 25	84%	60%	140%	111%	60%	140%	109%	60%	140%
F2 (C10 to C16)	1616149		< 100	< 100	NA	< 100	105%	60%	140%	85%	60%	140%	90%	60%	140%
F3 (C16 to C34)	1616149		< 100	< 100	NA	< 100	89%	60%	140%	84%	60%	140%	85%	60%	140%
F4 (C34 to C50)	1616149		< 100	< 100	NA	< 100	94%	60%	140%	97%	60%	140%	113%	60%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:

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Quality Assurance

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Water Analysis

RPT Date: Nov 09, 2020

PARAMETER	Batch	Sample Id	DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Water Quality Assessment (mg/L)															
Electrical Conductivity	1611298		1310	1320	0.8%	< 2	95%	90%	110%						
pH	1611298		7.87	7.88	0.1%	NA	100%	90%	110%						
Total Dissolved Solids	1615475	1615475	718	722	0.6%	< 20	106%	80%	120%						
Alkalinity (as CaCO3)	1611298		365	368	0.8%	< 5	97%	80%	120%						
Bicarbonate (as CaCO3)	1611298		365	368	0.8%	< 5	NA								
Carbonate (as CaCO3)	1611298		<5	<5	NA	< 5	NA								
Hydroxide (as CaCO3)	1611298		<5	<5	NA	< 5	NA								
Fluoride	1610391		<0.05	<0.05	NA	< 0.05	93%	90%	110%	104%	90%	110%	99%	85%	115%
Chloride	1610391		150	150	0.0%	< 0.10	91%	70%	130%	107%	80%	120%	NA	70%	130%
Nitrate as N	1610391		<0.05	<0.05	NA	< 0.05	97%	70%	130%	108%	80%	120%	105%	70%	130%
Nitrite as N	1610391		<0.05	<0.05	NA	< 0.05	98%	70%	130%	107%	80%	120%	108%	70%	130%
Bromide	1610391		<0.05	<0.05	NA	< 0.05	107%	90%	110%	110%	90%	110%	108%	85%	115%
Sulphate	1610391		2.33	2.32	0.4%	< 0.10	97%	70%	130%	105%	80%	120%	103%	70%	130%
Ortho Phosphate as P	1610391		<0.10	<0.10	NA	< 0.10	105%	70%	130%	108%	80%	120%	106%	70%	130%
Reactive Silica	1645123		1.14	1.15	0.9%	< 0.05	101%	90%	110%	110%	90%	110%	106%	80%	120%
Ammonia as N	1610094		<0.02	<0.02	NA	< 0.02	98%	70%	130%	100%	80%	120%	92%	70%	130%
Total Phosphorus	1620472		0.10	0.09	NA	< 0.02	102%	70%	130%	104%	80%	120%	101%	70%	130%
Total Organic Carbon	1615475	1615475	1.4	1.4	NA	< 0.5	103%	90%	110%	103%	90%	110%	96%	80%	120%
True Colour	1620582		<5	<5	NA	< 5	98%	90%	110%						
Turbidity	1614813		4.8	4.8	0.0%	< 0.5	100%	80%	120%						
Total Calcium	1615475	1615475	81.08	84.21	3.8%	< 0.05	99%	70%	130%	97%	80%	120%	108%	70%	130%
Total Magnesium	1615475	1615475	11.22	11.58	3.2%	< 0.05	102%	70%	130%	101%	80%	120%	108%	70%	130%
Total Potassium	1615475	1615475	1.14	1.24	8.4%	< 0.05	96%	70%	130%	94%	80%	120%	100%	70%	130%
Total Sodium	1615475	1615475	191.43	199.15	4.0%	< 0.05	103%	70%	130%	101%	80%	120%	106%	70%	130%
Total Aluminum	1615475	1615475	0.026	0.022	NA	0.012	101%	70%	130%	101%	80%	120%	107%	70%	130%
Total Antimony	1615475	1615475	<0.003	<0.003	NA	< 0.003	100%	70%	130%	94%	80%	120%	97%	70%	130%
Total Arsenic	1615475	1615475	<0.003	<0.003	NA	< 0.003	103%	70%	130%	98%	80%	120%	111%	70%	130%
Total Barium	1615475	1615475	0.154	0.153	0.6%	< 0.002	102%	70%	130%	98%	80%	120%	98%	70%	130%
Total Beryllium	1615475	1615475	<0.001	<0.001	NA	< 0.001	97%	70%	130%	97%	80%	120%	107%	70%	130%
Total Boron	1615475	1615475	0.025	0.027	NA	< 0.010	107%	70%	130%	99%	80%	120%	103%	70%	130%
Total Cadmium	1615475	1615475	<0.001	<0.001	NA	< 0.001	100%	70%	130%	99%	80%	120%	103%	70%	130%
Total Chromium	1615475	1615475	0.006	0.006	NA	< 0.003	100%	70%	130%	97%	80%	120%	102%	70%	130%
Total Cobalt	1615475	1615475	<0.001	<0.001	NA	< 0.001	95%	70%	130%	93%	80%	120%	99%	70%	130%
Total Copper	1615475	1615475	0.014	0.013	NA	< 0.003	100%	70%	130%	100%	80%	120%	101%	70%	130%
Total Iron	1615475	1615475	9.28	9.27	0.1%	< 0.010	98%	70%	130%	100%	80%	120%	NA	70%	130%
Total Lead	1615475	1615475	<0.001	<0.001	NA	< 0.001	103%	70%	130%	101%	80%	120%	99%	70%	130%
Total Manganese	1615475	1615475	0.203	0.202	0.2%	< 0.002	98%	70%	130%	97%	80%	120%	100%	70%	130%
Total Mercury	1616299		<0.0001	<0.0001	NA	< 0.0001	102%	70%	130%	98%	80%	120%	97%	70%	130%
Total Molybdenum	1615475	1615475	<0.002	<0.002	NA	< 0.002	98%	70%	130%	96%	80%	120%	103%	70%	130%

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Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories
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http://www.agatlabs.com

Quality Assurance

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Water Analysis (Continued)

RPT Date: Nov 09, 2020			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Nickel	1615475	1615475	<0.003	<0.003	NA	< 0.003	100%	70%	130%	97%	80%	120%	100%	70%	130%
Total Selenium	1615475	1615475	<0.004	<0.004	NA	< 0.004	101%	70%	130%	94%	80%	120%	107%	70%	130%
Total Silver	1615475	1615475	<0.002	<0.002	NA	< 0.002	101%	70%	130%	98%	80%	120%	99%	70%	130%
Total Strontium	1615475	1615475	0.227	0.229	0.9%	< 0.005	101%	70%	130%	96%	80%	120%	104%	70%	130%
Total Thallium	1615475	1615475	<0.006	<0.006	NA	< 0.006	NA	70%	130%	101%	80%	120%	99%	70%	130%
Total Tin	1615475	1615475	<0.002	<0.002	NA	< 0.002	99%	70%	130%	96%	80%	120%	102%	70%	130%
Total Titanium	1615475	1615475	<0.002	<0.002	NA	< 0.002	93%	70%	130%	94%	80%	120%	103%	70%	130%
Total Tungsten	1615475	1615475	<0.010	<0.010	NA	< 0.010	98%	70%	130%	96%	80%	120%	104%	70%	130%
Total Uranium	1615475	1615475	<0.002	<0.002	NA	< 0.002	NA	70%	130%	95%	80%	120%	99%	70%	130%
Total Vanadium	1615475	1615475	0.003	0.002	NA	< 0.002	93%	70%	130%	91%	80%	120%	100%	70%	130%
Total Zinc	1615475	1615475	0.018	0.018	NA	< 0.005	99%	70%	130%	102%	80%	120%	103%	70%	130%
Total Zirconium	1615475	1615475	<0.004	<0.004	NA	< 0.004	101%	70%	130%	99%	80%	120%	107%	70%	130%

Comments: NA signifies Not Applicable.
If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By: Iris Verástegui

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Method Summary

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Heterotrophic Plate Count	MIC-93- 7020	SM 9215 C	INCUBATOR
Escherichia coli - DC Agar	MIC-93-7010	MOE Method E3407	MF/INCUBATOR
Total Coliforms - DC Agar	MIC-93-7010	EPA 1604	MF/INCUBATOR
Background Colony Count - DC Agar	MIC-93-7010	MOE Method E3407	MF-Incubator
Trace Organics Analysis			
Benzene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
Toluene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
m & p-Xylene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
F1 (C6 - C10)	VOL-91- 5010	modified from MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	modified from MOE PHC-E3421	(P&T)GC/FID
F2 (C10 to C16)	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
F4 (C34 to C50)	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	modified from MOE PHC-E3421	BALANCE
Terphenyl	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
Sediment			

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Method Summary

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Saturation pH (Calculated)		SM 2320 B	CALCULATION
Langelier Index (Calculated)		SM 2330B	CALCULATION
Hardness (as CaCO3) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684,ON MOECC E3139,SM 2540C,D	BALANCE
Alkalinity (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Bicarbonate (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Carbonate (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Hydroxide (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Reactive Silica	INOR-93-6070	QuickChem 10-114-27-1-A & SM 4500 Si-F	LACHAT FIA
Ammonia as N	INOR-93-6059	modified from SM 4500-NH3 H	LACHAT FIA
Total Phosphorus	INOR-93-6057	modified from LACHAT 10-115-01-3A	LACHAT FIA
Total Organic Carbon	INOR-93-6049	modified from SM 5310 B	SHIMADZU CARBON ANALYZER
True Colour	INOR-93-6046	SM 2120 B	SPECTROPHOTOMETER
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Total Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Aluminum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Barium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Beryllium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Boron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Iron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS

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AGAT Laboratories

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http://www.agatlabs.com

Method Summary

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Manganese	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Strontium	INOR-93-6003	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Thallium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tin	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Titanium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tungsten	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Uranium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Vanadium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zirconium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS

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November 9, 2020

Mr. Sid Vanderwilt
523 County Road 26
Brighton, ON, K0K 1H0

Dear Mr. Sid Vanderwilt,

Re: Water Well Sampling Results – 523 County Road 26, Brighton, ON

As part of the private well survey completed on behalf of the Ontario Ministry of Transportation (MTO) for the replacement and rehabilitation of structures, establishing the future Highway 401 footprint for an interim six lanes and ultimate eight lanes to address current and future transportation needs, and commuter parking lot improvements from 0.8 km east of Percy Street to 0.4 km west of Christiani Road, a water sample was collected from your property at 523 County Road 26 on October 21, 2020, for baseline information on the quality of your water. The water well survey was completed by WSP Canada Group Limited (WSP).

The water sample was collected at a point that represents raw water quality before treatment. The water sample was submitted for analyses of selected parameters to AGAT Laboratories in Mississauga, a Canadian Association for Laboratory Accreditation (CALA) accredited laboratory. The results of the analyses are included in the attached Certificate of Analysis and have been compared to the Ontario Drinking Water Quality Standards, Objectives and Guidelines[1] (ODWS).

Under the ODWS, there are two broad groups of water quality parameters: health-related and non-health related. Health-related parameters have standards that are reported as Maximum Acceptable Concentrations and as Interim Maximum Acceptable Concentrations, shown in the **MAC** or **IMC** columns on the attached Certificate of Analysis. Non-health related parameters are either Aesthetic Objectives or Operational Guidelines. Aesthetic objectives are established for water treatment purposes. Aesthetic objectives and operational guidelines are shown in parenthesis in the **A/O** column of the attached Certificate of Analysis.

The laboratory analytical results for initial samples indicate that concentrations of health-related parameters meet the Ministry of Environment, Conservation and Parks (MECP) ODWS and O. Reg. 153/04, with exception of sodium.

Health-related parameters exceeded the ODWS are listed below:

- **Sodium (Na; 23.97 mg/L)**.

There were no exceedances of ODWS non-health related parameters in the water sample.

For the aforementioned ODWS exceedances, WSP would like to inform you of the following:

[1] Ontario Regulation (O. Reg.) 169/03; latest amendment: O. Reg. 327/08.

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wsp.com

Sodium (inorganic)

The aesthetic objective for sodium in drinking water is 200 mg/L, at which it can be detected by a salty taste. Sodium is not toxic. Consumption of sodium in excess of 10 grams per day by normal adults does not result in any apparent adverse health effects. In addition, the average intake for sodium from water is only a small fraction of that consumed in a normal diet. A maximum acceptable concentration for sodium in drinking water has, therefore, not been specified. Persons suffering from hypertension or congestive heart disease may require a sodium-restricted diet, in which case, the intake of sodium from drinking water could become significant. It is, therefore, recommended that the measurement of sodium levels be included in routine monitoring programs of water supplies. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L, so that this information may be passed on to local physicians.

Softening using a domestic water softener increases the sodium level in drinking water and may contribute a significant percentage to the daily sodium intake for a consumer on a sodium restricted diet. It is recommended that a separate unsoftened supply be retained for cooking and drinking purposes.

Yours Sincerely,

Natalia Codoban, P.Eng.
Senior Hydrogeologist

Encl. AGAT Laboratories Certificate of Analysis
cc: Haliburton, Kawartha, Pine Ridge District Health Unit; Muhammad Waseem, MTO; Brent Gotts, WSP
WSP ref.: 17M-01712-11

AGAT Laboratories

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CLIENT NAME: WSP Canada Inc.
610 Chartwell Rd, Suite 300
Oakville, ON L6J 4A5
905-823-8500
ATTENTION TO: Haley Spennato
PROJECT: 17M-01712-11-460-GW1
AGAT WORK ORDER: 20T667171
MICROBIOLOGY ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer
WATER ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician
DATE REPORTED: Oct 30, 2020
PAGES (INCLUDING COVER): 14
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days following analysis, unless expressly agreed otherwise in writing. Please contact your Client Project Manager if you require additional sample storage time.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
- *The test results reported herewith relate only to the samples as received by the laboratory.*
- *Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.*
- *All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.*

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Certificate of Analysis

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Heterotrophic Plate Count in Water

DATE RECEIVED: 2020-10-22

DATE REPORTED: 2020-10-30

			SAMPLE DESCRIPTION:	**523 County Rd 26**
			SAMPLE TYPE:	**Water**
			DATE SAMPLED:	**2020-10-21 11:15**
Parameter	**Unit**	**G / S**	**RDL**	**1587379**
Heterotrophic Plate Count	CFU/1ml		5	ND

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

1587379 ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Total Coliforms & E.Coli and BCC (Using DC Agar)

DATE RECEIVED: 2020-10-22

DATE REPORTED: 2020-10-30

				SAMPLE DESCRIPTION:	SAMPLE TYPE:	DATE SAMPLED:
				523 County Rd		
				26	Water	2020-10-21 11:15
Parameter	**Unit**	**G / S**	**RDL**	**1587379**		
Escherichia coli - DC Agar	CFU/100mL	0	**1**	ND		
Total Coliforms - DC Agar	CFU/100mL	0	**1**	ND		
Background Colony Count - DC Agar	CFU/100mL		1	ND		

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

1587379 ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

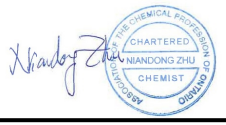
Water Quality Assessment (mg/L)

DATE RECEIVED: 2020-10-22

DATE REPORTED: 2020-10-30

				SAMPLE DESCRIPTION:	523 County Rd 26
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2020-10-21 11:15
Parameter	**Unit**	**G / S**	**RDL**		**1587379**
Electrical Conductivity	µS/cm		2		628
pH	pH Units		NA		7.77
Saturation pH (Calculated)					6.98
Langelier Index (Calculated)					0.785
Hardness (as CaCO3) (Calculated)	mg/L		0.5		276
Total Dissolved Solids	mg/L		20		328
Alkalinity (as CaCO3)	mg/L		5		272
Bicarbonate (as CaCO3)	mg/L		5		272
Carbonate (as CaCO3)	mg/L		5		<5
Hydroxide (as CaCO3)	mg/L		5		<5
Fluoride	mg/L	1.5	0.05		<0.05
Chloride	mg/L		0.20		48.4
Nitrate as N	mg/L	10.0	0.10		0.33
Nitrite as N	mg/L	1.0	0.10		<0.10
Bromide	mg/L		0.10		<0.10
Sulphate	mg/L		0.20		10.7
Ortho Phosphate as P	mg/L		0.20		<0.20
Reactive Silica	mg/L		0.05		12.6
Ammonia as N	mg/L		0.02		<0.02
Total Phosphorus	mg/L		0.02		<0.02
Total Organic Carbon	mg/L		0.5		0.9
True Colour	TCU		5		<5
Turbidity	NTU		0.5		<0.5
Total Calcium	mg/L		0.25		88.57
Total Magnesium	mg/L		0.25		13.30
Total Potassium	mg/L		0.25		0.97
Total Sodium	mg/L	20	0.25		**23.97**
Total Aluminum	mg/L		0.010		0.024

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

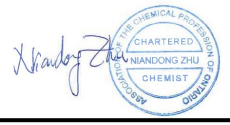
Water Quality Assessment (mg/L)

DATE RECEIVED: 2020-10-22

DATE REPORTED: 2020-10-30

				SAMPLE DESCRIPTION:	523 County Rd 26
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2020-10-21 11:15
Parameter	Unit	G / S	RDL		1587379
Total Antimony	mg/L	0.006	0.003		<0.003
Total Arsenic	mg/L	0.01	0.003		<0.003
Total Barium	mg/L	1.0	0.002		0.084
Total Beryllium	mg/L		0.001		<0.001
Total Boron	mg/L	5.0	0.010		0.012
Total Cadmium	mg/L	0.005	0.001		<0.001
Total Chromium	mg/L	0.05	0.003		<0.003
Total Cobalt	mg/L		0.001		<0.001
Total Copper	mg/L		0.003		0.004
Total Iron	mg/L		0.010		0.014
Total Lead	mg/L	0.010	0.001		<0.001
Total Manganese	mg/L		0.002		0.003
Total Mercury	mg/L	0.001	0.0001		<0.0001
Total Molybdenum	mg/L		0.002		<0.002
Total Nickel	mg/L		0.003		<0.003
Total Selenium	mg/L	0.05	0.004		<0.004
Total Silver	mg/L		0.002		<0.002
Total Strontium	mg/L		0.005		0.204
Total Thallium	mg/L		0.006		<0.006
Total Tin	mg/L		0.002		<0.002
Total Titanium	mg/L		0.002		<0.002
Total Tungsten	mg/L		0.010		<0.010
Total Uranium	mg/L	0.02	0.002		<0.002
Total Vanadium	mg/L		0.002		<0.002
Total Zinc	mg/L		0.005		0.010
Total Zirconium	mg/L		0.004		<0.004

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment (mg/L)

DATE RECEIVED: 2020-10-22

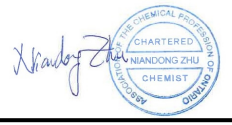
DATE REPORTED: 2020-10-30

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

1587379 Dilution required, RDL has been increased accordingly.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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Exceedance Summary

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
1587379	523 County Rd 26	ON 169/03 MAC/IMAC	Water Quality Assessment (mg/L)	Total Sodium	mg/L	20	23.97

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Quality Assurance

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Microbiology Analysis

RPT Date: Oct 30, 2020			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Coliforms & E.Coli and BCC (Using DC Agar)															
Escherichia coli - DC Agar	1587445		ND	ND	NA	< 1									
Total Coliforms - DC Agar	1587445		ND	ND	NA	< 1									
Background Colony Count - DC Agar	1587445		ND	ND	NA	< 1									
Heterotrophic Plate Count in Water															
Heterotrophic Plate Count	1587445		ND	ND	NA	< 5									

Comments: ND - Not Detected, NA - % RPD Not Applicable

Certified By:

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Quality Assurance

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Water Analysis

RPT Date: Oct 30, 2020

PARAMETER	Batch	Sample Id	DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Water Quality Assessment (mg/L)															
Electrical Conductivity	1589793		1120	1120	0.0%	< 2	98%	90%	110%						
pH	1589793		7.66	7.68	0.3%	NA	100%	90%	110%						
Total Dissolved Solids	1587377	1587377	344	338	1.8%	< 20	102%	80%	120%						
Alkalinity (as CaCO3)	1589793		381	385	1.0%	< 5	100%	80%	120%						
Bicarbonate (as CaCO3)	1589793		381	385	1.0%	< 5									
Carbonate (as CaCO3)	1589793		<5	<5	NA	< 5									
Hydroxide (as CaCO3)	1589793		<5	<5	NA	< 5									
Fluoride	1587161		<0.05	<0.05	NA	< 0.05	93%	90%	110%	90%	90%	110%	98%	85%	115%
Chloride	1587161		12.4	12.0	3.3%	< 0.10	94%	70%	130%	102%	80%	120%	105%	70%	130%
Nitrate as N	1587161		<0.25	<0.25	NA	< 0.05	96%	70%	130%	107%	80%	120%	110%	70%	130%
Nitrite as N	1587161		<0.25	<0.25	NA	< 0.05	102%	70%	130%	101%	80%	120%	110%	70%	130%
Bromide	1587161		<0.25	<0.25	NA	< 0.05	102%	90%	110%	93%	90%	110%	92%	85%	115%
Sulphate	1587161		34.7	35.1	1.1%	< 0.10	91%	70%	130%	96%	80%	120%	98%	70%	130%
Ortho Phosphate as P	1587161		<0.50	<0.50	NA	< 0.10	108%	70%	130%	99%	80%	120%	97%	70%	130%
Reactive Silica	1585854		11.1	11.8	6.1%	< 0.05	100%	90%	110%	104%	90%	110%	NA	80%	120%
Ammonia as N	1590932		<0.02	<0.02	NA	< 0.02	102%	70%	130%	100%	80%	120%	96%	70%	130%
Total Phosphorus	1581191		0.03	0.03	NA	< 0.02	102%	70%	130%	101%	80%	120%	108%	70%	130%
Total Organic Carbon	1587377	1587377	1.0	1.0	NA	< 0.5	95%	90%	110%	105%	90%	110%	97%	80%	120%
True Colour	1588807		<5	<5	NA	< 5	100%	90%	110%						
Turbidity	1589350		1.1	1.2	NA	< 0.5	98%	80%	120%						
Total Calcium	1587377	1587377	75.34	81.98	8.4%	< 0.05	95%	70%	130%	91%	80%	120%	100%	70%	130%
Total Magnesium	1587377	1587377	19.90	21.98	9.9%	< 0.05	95%	70%	130%	91%	80%	120%	100%	70%	130%
Total Potassium	1587377	1587377	1.30	1.41	8.1%	< 0.05	93%	70%	130%	90%	80%	120%	96%	70%	130%
Total Sodium	1587377	1587377	21.94	23.89	8.5%	< 0.05	96%	70%	130%	92%	80%	120%	99%	70%	130%
Total Aluminum	1587377	1587377	0.019	0.020	NA	< 0.010	109%	70%	130%	111%	80%	120%	109%	70%	130%
Total Antimony	1587377	1587377	<0.003	<0.003	NA	< 0.003	106%	70%	130%	103%	80%	120%	107%	70%	130%
Total Arsenic	1587377	1587377	<0.003	<0.003	NA	< 0.003	99%	70%	130%	103%	80%	120%	109%	70%	130%
Total Barium	1587377	1587377	0.104	0.108	3.8%	< 0.002	99%	70%	130%	98%	80%	120%	102%	70%	130%
Total Beryllium	1587377	1587377	<0.001	<0.001	NA	< 0.001	106%	70%	130%	102%	80%	120%	111%	70%	130%
Total Boron	1587377	1587377	0.010	0.012	NA	< 0.010	108%	70%	130%	106%	80%	120%	112%	70%	130%
Total Cadmium	1587377	1587377	<0.001	<0.001	NA	< 0.001	103%	70%	130%	100%	80%	120%	104%	70%	130%
Total Chromium	1587377	1587377	<0.003	<0.003	NA	< 0.003	104%	70%	130%	105%	80%	120%	110%	70%	130%
Total Cobalt	1587377	1587377	<0.001	<0.001	NA	< 0.001	103%	70%	130%	108%	80%	120%	111%	70%	130%
Total Copper	1587377	1587377	<0.003	<0.003	NA	< 0.003	104%	70%	130%	108%	80%	120%	110%	70%	130%
Total Iron	1587377	1587377	<0.010	<0.010	NA	< 0.010	101%	70%	130%	109%	80%	120%	111%	70%	130%
Total Lead	1587377	1587377	<0.001	<0.001	NA	< 0.001	106%	70%	130%	103%	80%	120%	104%	70%	130%
Total Manganese	1587377	1587377	<0.002	<0.002	NA	< 0.002	106%	70%	130%	108%	80%	120%	109%	70%	130%
Total Mercury	1587377	1587377	<0.0001	<0.0001	NA	< 0.0001	103%	70%	130%	102%	80%	120%	102%	70%	130%
Total Molybdenum	1587377	1587377	<0.002	<0.002	NA	< 0.002	100%	70%	130%	107%	80%	120%	115%	70%	130%

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Quality Assurance

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

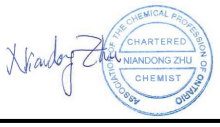
SAMPLED BY:

Water Analysis (Continued)

RPT Date: Oct 30, 2020			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Nickel	1587377	1587377	<0.003	<0.003	NA	< 0.003	105%	70%	130%	105%	80%	120%	108%	70%	130%
Total Selenium	1587377	1587377	<0.004	<0.004	NA	< 0.004	101%	70%	130%	108%	80%	120%	116%	70%	130%
Total Silver	1587377	1587377	<0.002	<0.002	NA	< 0.002	103%	70%	130%	107%	80%	120%	110%	70%	130%
Total Strontium	1587377	1587377	0.266	0.256	3.8%	< 0.005	104%	70%	130%	105%	80%	120%	107%	70%	130%
Total Thallium	1587377	1587377	<0.006	<0.006	NA	< 0.006	104%	70%	130%	103%	80%	120%	105%	70%	130%
Total Tin	1587377	1587377	<0.002	<0.002	NA	< 0.002	97%	70%	130%	102%	80%	120%	106%	70%	130%
Total Titanium	1587377	1587377	<0.002	<0.002	NA	< 0.002	107%	70%	130%	107%	80%	120%	111%	70%	130%
Total Tungsten	1587377	1587377	<0.010	<0.010	NA	< 0.010	88%	70%	130%	91%	80%	120%	98%	70%	130%
Total Uranium	1587377	1587377	<0.002	<0.002	NA	< 0.002	109%	70%	130%	104%	80%	120%	106%	70%	130%
Total Vanadium	1587377	1587377	<0.002	<0.002	NA	< 0.002	104%	70%	130%	109%	80%	120%	111%	70%	130%
Total Zinc	1587377	1587377	0.011	0.009	NA	< 0.005	104%	70%	130%	103%	80%	120%	108%	70%	130%
Total Zirconium	1587377	1587377	<0.004	<0.004	NA	< 0.004	103%	70%	130%	103%	80%	120%	109%	70%	130%

Comments: NA Signifies Not Applicable.
Duplicate NA: results are under 5X the RDL and will not be calculated.
Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:



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Method Summary

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Heterotrophic Plate Count	MIC-93- 7020	SM 9215 C	INCUBATOR
Escherichia coli - DC Agar	MIC-93-7010	MOE Method E3407	MF/INCUBATOR
Total Coliforms - DC Agar	MIC-93-7010	EPA 1604	MF/INCUBATOR
Background Colony Count - DC Agar	MIC-93-7010	MOE Method E3407	MF-Incubator

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Method Summary

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Saturation pH (Calculated)		SM 2320 B	CALCULATION
Langelier Index (Calculated)		SM 2330B	CALCULATION
Hardness (as CaCO3) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684,ON MOECC E3139,SM 2540C,D	BALANCE
Alkalinity (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Bicarbonate (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Carbonate (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Hydroxide (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Reactive Silica	INOR-93-6070	QuickChem 10-114-27-1-A & SM 4500 Si-F	LACHAT FIA
Ammonia as N	INOR-93-6059	modified from SM 4500-NH3 H	LACHAT FIA
Total Phosphorus	INOR-93-6057	modified from LACHAT 10-115-01-3A	LACHAT FIA
Total Organic Carbon	INOR-93-6049	modified from EPA 415.1 & SM 5310 B	SHIMADZU CARBON ANALYZER
True Colour	INOR-93-6046	SM 2120 B	SPECTROPHOTOMETER
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Total Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Aluminum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Barium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Beryllium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Boron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Iron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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http://www.agatlabs.com

Method Summary

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Manganese	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Strontium	INOR-93-6003	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Thallium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tin	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Titanium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tungsten	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Uranium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Vanadium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zirconium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS

Results relate only to the items tested. Results apply to samples as received.

November 9, 2020

Joe Mate
627 County Road 26
Brighton, ON, K0K 1H0

Dear Mr. Joe Mate,

Re: Water Well Sampling Results – 627 County Road 26, Brighton, ON

As part of the private well survey completed on behalf of the Ontario Ministry of Transportation (MTO) for the replacement and rehabilitation of structures, establishing the future Highway 401 footprint for an interim six lanes and ultimate eight lanes to address current and future transportation needs, and commuter parking lot improvements from 0.8 km east of Percy Street to 0.4 km west of Christiani Road, a water sample was collected from your property at 627 County Road 26 on October 21, 2020, for baseline information on the quality of your water. The water well survey was completed by WSP Canada Group Limited (WSP).

The water sample was collected at a point that represents raw water quality before treatment. The water sample was submitted for analyses of selected parameters to AGAT Laboratories in Mississauga, a Canadian Association for Laboratory Accreditation (CALA) accredited laboratory. The results of the analyses are included in the attached Certificate of Analysis and have been compared to the Ontario Drinking Water Quality Standards, Objectives and Guidelines[1] (ODWS).

Under the ODWS, there are two broad groups of water quality parameters: health-related and non-health related. Health-related parameters have standards that are reported as Maximum Acceptable Concentrations and as Interim Maximum Acceptable Concentrations, shown in the **MAC** or **IMC** columns on the attached Certificate of Analysis. Non-health related parameters are either Aesthetic Objectives or Operational Guidelines. Aesthetic objectives are established for water treatment purposes. Aesthetic objectives and operational guidelines are shown in parenthesis in the **A/O** column of the attached Certificate of Analysis.

The laboratory analytical results for initial samples indicate that concentrations of health-related and non-related parameters meet the Ministry of Environment, Conservation and Parks (MECP) ODWS.

[1] Ontario Regulation (O. Reg.) 169/03; latest amendment: O. Reg. 327/08.

610 Chartwell Road
Suite 300
Oakville, ON, Canada L6J 4A5

T: +1 905-823-8500
F: +1 905-823-8503
wsp.com

Yours Sincerely,

Natalia Codoban, P.Eng.
Senior Hydrogeologist

Encl. AGAT Laboratories Certificate of Analysis
cc: Haliburton, Kawartha, Pine Ridge District Health Unit; Muhammad Waseem, MTO; Brent Gotts, WSP
WSP ref.: 17M-01712-11

AGAT Laboratories

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CLIENT NAME: WSP Canada Inc.
610 Chartwell Rd, Suite 300
Oakville, ON L6J 4A5
905-823-8500
ATTENTION TO: Haley Spennato
PROJECT: 17M-01712-11-460-GW1
AGAT WORK ORDER: 20T667171
MICROBIOLOGY ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer
WATER ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician
DATE REPORTED: Oct 30, 2020
PAGES (INCLUDING COVER): 13
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days following analysis, unless expressly agreed otherwise in writing. Please contact your Client Project Manager if you require additional sample storage time.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
- *The test results reported herewith relate only to the samples as received by the laboratory.*
- *Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.*
- *All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.*

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. Measurement Uncertainty is not taken into consideration when stating conformity with a specified requirement.

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Certificate of Analysis

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Heterotrophic Plate Count in Water

DATE RECEIVED: 2020-10-22

DATE REPORTED: 2020-10-30

				627 County Rd
			SAMPLE DESCRIPTION:	**26**
			SAMPLE TYPE:	**Water**
			DATE SAMPLED:	**2020-10-21 12:10**
Parameter	**Unit**	**G / S**	**RDL**	**1587378**
Heterotrophic Plate Count	CFU/1ml		5	ND

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

1587378 ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Total Coliforms & E.Coli and BCC (Using DC Agar)

DATE RECEIVED: 2020-10-22

DATE REPORTED: 2020-10-30

				SAMPLE DESCRIPTION:	SAMPLE TYPE:	DATE SAMPLED:
				627 County Rd		
				26	Water	2020-10-21 12:10
Parameter	**Unit**	**G / S**	**RDL**	**1587378**		
Escherichia coli - DC Agar	CFU/100mL	0	**1**	ND		
Total Coliforms - DC Agar	CFU/100mL	0	**1**	ND		
Background Colony Count - DC Agar	CFU/100mL		1	12		

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

1587378 ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

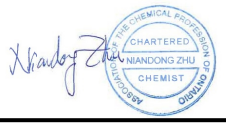
Water Quality Assessment (mg/L)

DATE RECEIVED: 2020-10-22

DATE REPORTED: 2020-10-30

				SAMPLE DESCRIPTION:	627 County Rd 26
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2020-10-21 12:10
Parameter	Unit	G / S	RDL		1587378
Electrical Conductivity	µS/cm		2		263
pH	pH Units		NA		7.54
Saturation pH (Calculated)					7.56
Langelier Index (Calculated)					-0.0155
Hardness (as CaCO3) (Calculated)	mg/L		0.5		111
Total Dissolved Solids	mg/L		20		140
Alkalinity (as CaCO3)	mg/L		5		147
Bicarbonate (as CaCO3)	mg/L		5		147
Carbonate (as CaCO3)	mg/L		5		<5
Hydroxide (as CaCO3)	mg/L		5		<5
Fluoride	mg/L	1.5	0.05		0.08
Chloride	mg/L		0.10		0.69
Nitrate as N	mg/L	10.0	0.05		<0.05
Nitrite as N	mg/L	1.0	0.05		<0.05
Bromide	mg/L		0.05		<0.05
Sulphate	mg/L		0.10		9.34
Ortho Phosphate as P	mg/L		0.10		<0.10
Reactive Silica	mg/L		0.05		14.5
Ammonia as N	mg/L		0.02		0.13
Total Phosphorus	mg/L		0.02		<0.02
Total Organic Carbon	mg/L		0.5		1.4
True Colour	TCU		5		<5
Turbidity	NTU		0.5		2.0
Total Calcium	mg/L		0.25		14.70
Total Magnesium	mg/L		0.25		18.16
Total Potassium	mg/L		0.25		0.52
Total Sodium	mg/L	20	0.25		15.67
Total Aluminum	mg/L		0.010		0.016

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

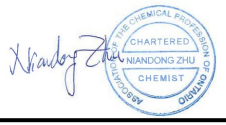
Water Quality Assessment (mg/L)

DATE RECEIVED: 2020-10-22

DATE REPORTED: 2020-10-30

				SAMPLE DESCRIPTION:	627 County Rd 26
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2020-10-21 12:10
Parameter	Unit	G / S	RDL		1587378
Total Antimony	mg/L	0.006	0.003		<0.003
Total Arsenic	mg/L	0.01	0.003		0.003
Total Barium	mg/L	1.0	0.002		0.050
Total Beryllium	mg/L		0.001		<0.001
Total Boron	mg/L	5.0	0.010		0.053
Total Cadmium	mg/L	0.005	0.001		<0.001
Total Chromium	mg/L	0.05	0.003		<0.003
Total Cobalt	mg/L		0.001		<0.001
Total Copper	mg/L		0.003		0.030
Total Iron	mg/L		0.010		0.267
Total Lead	mg/L	0.010	0.001		0.002
Total Manganese	mg/L		0.002		0.009
Total Mercury	mg/L	0.001	0.0001		<0.0001
Total Molybdenum	mg/L		0.002		<0.002
Total Nickel	mg/L		0.003		<0.003
Total Selenium	mg/L	0.05	0.004		<0.004
Total Silver	mg/L		0.002		<0.002
Total Strontium	mg/L		0.005		0.840
Total Thallium	mg/L		0.006		<0.006
Total Tin	mg/L		0.002		<0.002
Total Titanium	mg/L		0.002		<0.002
Total Tungsten	mg/L		0.010		<0.010
Total Uranium	mg/L	0.02	0.002		<0.002
Total Vanadium	mg/L		0.002		<0.002
Total Zinc	mg/L		0.005		0.043
Total Zirconium	mg/L		0.004		<0.004

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment (mg/L)

DATE RECEIVED: 2020-10-22

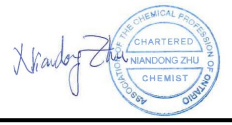
DATE REPORTED: 2020-10-30

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

1587378 Dilution required, RDL has been increased accordingly.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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Quality Assurance

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Microbiology Analysis

RPT Date: Oct 30, 2020			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Coliforms & E.Coli and BCC (Using DC Agar)															
Escherichia coli - DC Agar	1587445		ND	ND	NA	< 1									
Total Coliforms - DC Agar	1587445		ND	ND	NA	< 1									
Background Colony Count - DC Agar	1587445		ND	ND	NA	< 1									
Heterotrophic Plate Count in Water															
Heterotrophic Plate Count	1587445		ND	ND	NA	< 5									

Comments: ND - Not Detected, NA - % RPD Not Applicable

Certified By:

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Results relate only to the items tested. Results apply to samples as received.

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Quality Assurance

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Water Analysis

RPT Date: Oct 30, 2020

PARAMETER	Batch	Sample Id	DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Water Quality Assessment (mg/L)															
Electrical Conductivity	1589793		1120	1120	0.0%	< 2	98%	90%	110%						
pH	1589793		7.66	7.68	0.3%	NA	100%	90%	110%						
Total Dissolved Solids	1587377	1587377	344	338	1.8%	< 20	102%	80%	120%						
Alkalinity (as CaCO3)	1589793		381	385	1.0%	< 5	100%	80%	120%						
Bicarbonate (as CaCO3)	1589793		381	385	1.0%	< 5									
Carbonate (as CaCO3)	1589793		<5	<5	NA	< 5									
Hydroxide (as CaCO3)	1589793		<5	<5	NA	< 5									
Fluoride	1587161		<0.05	<0.05	NA	< 0.05	93%	90%	110%	90%	90%	110%	98%	85%	115%
Chloride	1587161		12.4	12.0	3.3%	< 0.10	94%	70%	130%	102%	80%	120%	105%	70%	130%
Nitrate as N	1587161		<0.25	<0.25	NA	< 0.05	96%	70%	130%	107%	80%	120%	110%	70%	130%
Nitrite as N	1587161		<0.25	<0.25	NA	< 0.05	102%	70%	130%	101%	80%	120%	110%	70%	130%
Bromide	1587161		<0.25	<0.25	NA	< 0.05	102%	90%	110%	93%	90%	110%	92%	85%	115%
Sulphate	1587161		34.7	35.1	1.1%	< 0.10	91%	70%	130%	96%	80%	120%	98%	70%	130%
Ortho Phosphate as P	1587161		<0.50	<0.50	NA	< 0.10	108%	70%	130%	99%	80%	120%	97%	70%	130%
Reactive Silica	1585854		11.1	11.8	6.1%	< 0.05	100%	90%	110%	104%	90%	110%	NA	80%	120%
Ammonia as N	1590932		<0.02	<0.02	NA	< 0.02	102%	70%	130%	100%	80%	120%	96%	70%	130%
Total Phosphorus	1581191		0.03	0.03	NA	< 0.02	102%	70%	130%	101%	80%	120%	108%	70%	130%
Total Organic Carbon	1587377	1587377	1.0	1.0	NA	< 0.5	95%	90%	110%	105%	90%	110%	97%	80%	120%
True Colour	1588807		<5	<5	NA	< 5	100%	90%	110%						
Turbidity	1589350		1.1	1.2	NA	< 0.5	98%	80%	120%						
Total Calcium	1587377	1587377	75.34	81.98	8.4%	< 0.05	95%	70%	130%	91%	80%	120%	100%	70%	130%
Total Magnesium	1587377	1587377	19.90	21.98	9.9%	< 0.05	95%	70%	130%	91%	80%	120%	100%	70%	130%
Total Potassium	1587377	1587377	1.30	1.41	8.1%	< 0.05	93%	70%	130%	90%	80%	120%	96%	70%	130%
Total Sodium	1587377	1587377	21.94	23.89	8.5%	< 0.05	96%	70%	130%	92%	80%	120%	99%	70%	130%
Total Aluminum	1587377	1587377	0.019	0.020	NA	< 0.010	109%	70%	130%	111%	80%	120%	109%	70%	130%
Total Antimony	1587377	1587377	<0.003	<0.003	NA	< 0.003	106%	70%	130%	103%	80%	120%	107%	70%	130%
Total Arsenic	1587377	1587377	<0.003	<0.003	NA	< 0.003	99%	70%	130%	103%	80%	120%	109%	70%	130%
Total Barium	1587377	1587377	0.104	0.108	3.8%	< 0.002	99%	70%	130%	98%	80%	120%	102%	70%	130%
Total Beryllium	1587377	1587377	<0.001	<0.001	NA	< 0.001	106%	70%	130%	102%	80%	120%	111%	70%	130%
Total Boron	1587377	1587377	0.010	0.012	NA	< 0.010	108%	70%	130%	106%	80%	120%	112%	70%	130%
Total Cadmium	1587377	1587377	<0.001	<0.001	NA	< 0.001	103%	70%	130%	100%	80%	120%	104%	70%	130%
Total Chromium	1587377	1587377	<0.003	<0.003	NA	< 0.003	104%	70%	130%	105%	80%	120%	110%	70%	130%
Total Cobalt	1587377	1587377	<0.001	<0.001	NA	< 0.001	103%	70%	130%	108%	80%	120%	111%	70%	130%
Total Copper	1587377	1587377	<0.003	<0.003	NA	< 0.003	104%	70%	130%	108%	80%	120%	110%	70%	130%
Total Iron	1587377	1587377	<0.010	<0.010	NA	< 0.010	101%	70%	130%	109%	80%	120%	111%	70%	130%
Total Lead	1587377	1587377	<0.001	<0.001	NA	< 0.001	106%	70%	130%	103%	80%	120%	104%	70%	130%
Total Manganese	1587377	1587377	<0.002	<0.002	NA	< 0.002	106%	70%	130%	108%	80%	120%	109%	70%	130%
Total Mercury	1587377	1587377	<0.0001	<0.0001	NA	< 0.0001	103%	70%	130%	102%	80%	120%	102%	70%	130%
Total Molybdenum	1587377	1587377	<0.002	<0.002	NA	< 0.002	100%	70%	130%	107%	80%	120%	115%	70%	130%

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AGAT Laboratories

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Quality Assurance

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

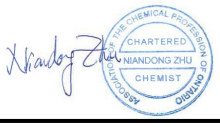
SAMPLED BY:

Water Analysis (Continued)

RPT Date: Oct 30, 2020			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Nickel	1587377	1587377	<0.003	<0.003	NA	< 0.003	105%	70%	130%	105%	80%	120%	108%	70%	130%
Total Selenium	1587377	1587377	<0.004	<0.004	NA	< 0.004	101%	70%	130%	108%	80%	120%	116%	70%	130%
Total Silver	1587377	1587377	<0.002	<0.002	NA	< 0.002	103%	70%	130%	107%	80%	120%	110%	70%	130%
Total Strontium	1587377	1587377	0.266	0.256	3.8%	< 0.005	104%	70%	130%	105%	80%	120%	107%	70%	130%
Total Thallium	1587377	1587377	<0.006	<0.006	NA	< 0.006	104%	70%	130%	103%	80%	120%	105%	70%	130%
Total Tin	1587377	1587377	<0.002	<0.002	NA	< 0.002	97%	70%	130%	102%	80%	120%	106%	70%	130%
Total Titanium	1587377	1587377	<0.002	<0.002	NA	< 0.002	107%	70%	130%	107%	80%	120%	111%	70%	130%
Total Tungsten	1587377	1587377	<0.010	<0.010	NA	< 0.010	88%	70%	130%	91%	80%	120%	98%	70%	130%
Total Uranium	1587377	1587377	<0.002	<0.002	NA	< 0.002	109%	70%	130%	104%	80%	120%	106%	70%	130%
Total Vanadium	1587377	1587377	<0.002	<0.002	NA	< 0.002	104%	70%	130%	109%	80%	120%	111%	70%	130%
Total Zinc	1587377	1587377	0.011	0.009	NA	< 0.005	104%	70%	130%	103%	80%	120%	108%	70%	130%
Total Zirconium	1587377	1587377	<0.004	<0.004	NA	< 0.004	103%	70%	130%	103%	80%	120%	109%	70%	130%

Comments: NA Signifies Not Applicable.
Duplicate NA: results are under 5X the RDL and will not be calculated.
Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:



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Method Summary

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Heterotrophic Plate Count	MIC-93- 7020	SM 9215 C	INCUBATOR
Escherichia coli - DC Agar	MIC-93-7010	MOE Method E3407	MF/INCUBATOR
Total Coliforms - DC Agar	MIC-93-7010	EPA 1604	MF/INCUBATOR
Background Colony Count - DC Agar	MIC-93-7010	MOE Method E3407	MF-Incubator

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Method Summary

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Saturation pH (Calculated)		SM 2320 B	CALCULATION
Langelier Index (Calculated)		SM 2330B	CALCULATION
Hardness (as CaCO3) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684,ON MOECC E3139,SM 2540C,D	BALANCE
Alkalinity (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Bicarbonate (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Carbonate (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Hydroxide (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Reactive Silica	INOR-93-6070	QuickChem 10-114-27-1-A & SM 4500 Si-F	LACHAT FIA
Ammonia as N	INOR-93-6059	modified from SM 4500-NH3 H	LACHAT FIA
Total Phosphorus	INOR-93-6057	modified from LACHAT 10-115-01-3A	LACHAT FIA
Total Organic Carbon	INOR-93-6049	modified from EPA 415.1 & SM 5310 B	SHIMADZU CARBON ANALYZER
True Colour	INOR-93-6046	SM 2120 B	SPECTROPHOTOMETER
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Total Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Aluminum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Barium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Beryllium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Boron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Iron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS

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Method Summary

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Manganese	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Strontium	INOR-93-6003	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Thallium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tin	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Titanium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tungsten	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Uranium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Vanadium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zirconium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS

Results relate only to the items tested. Results apply to samples as received.

November 9, 2020

Mr. Don Van Es
15773 Telephone Road
Brighton, ON, K0K 1H0

Dear Mr. Don Van Es,

Re: Water Well Sampling Results – 15773 Telephone Road, Brighton, ON

As part of the private well survey completed on behalf of the Ontario Ministry of Transportation (MTO) for the replacement and rehabilitation of structures, establishing the future Highway 401 footprint for an interim six lanes and ultimate eight lanes to address current and future transportation needs, and commuter parking lot improvements from 0.8 km east of Percy Street to 0.4 km west of Christiani Road, a water sample was collected from your property at 15773 Telephone Road on October 21, 2020, for baseline information on the quality of your water. The water well survey was completed by WSP Canada Group Limited (WSP).

The water sample was collected at a point that represents raw water quality before treatment. The water sample was submitted for analyses of selected parameters to AGAT Laboratories in Mississauga, a Canadian Association for Laboratory Accreditation (CALA) accredited laboratory. The results of the analyses are included in the attached Certificate of Analysis and have been compared to the Ontario Drinking Water Quality Standards, Objectives and Guidelines[1] (ODWS).

Under the ODWS, there are two broad groups of water quality parameters: health-related and non-health related. Health-related parameters have standards that are reported as Maximum Acceptable Concentrations and as Interim Maximum Acceptable Concentrations, shown in the **MAC** or **IMC** columns on the attached Certificate of Analysis. Non-health related parameters are either Aesthetic Objectives or Operational Guidelines. Aesthetic objectives are established for water treatment purposes. Aesthetic objectives and operational guidelines are shown in parenthesis in the **A/O** column of the attached Certificate of Analysis.

The laboratory analytical results for initial samples indicate that concentrations of health-related and non-health related parameters meet the Ministry of Environment, Conservation and Parks (MECP) ODWS.

[1] Ontario Regulation (O. Reg.) 169/03; latest amendment: O. Reg. 327/08.

610 Chartwell Road
Suite 300
Oakville, ON, Canada L6J 4A5

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F: +1 905-823-8503
wsp.com

Yours Sincerely,

Natalia Codoban, P.Eng.
Senior Hydrogeologist

Encl. AGAT Laboratories Certificate of Analysis
cc: Haliburton, Kawartha, Pine Ridge District Health Unit; Muhammad Waseem, MTO; Brent Gotts, WSP
WSP ref.: 17M-01712-11

AGAT Laboratories

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CLIENT NAME: WSP Canada Inc.
610 Chartwell Rd, Suite 300
Oakville, ON L6J 4A5
905-823-8500
ATTENTION TO: Haley Spennato
PROJECT: 17M-01712-11-460-GW1
AGAT WORK ORDER: 20T667171
MICROBIOLOGY ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer
WATER ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician
DATE REPORTED: Oct 30, 2020
PAGES (INCLUDING COVER): 13
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days following analysis, unless expressly agreed otherwise in writing. Please contact your Client Project Manager if you require additional sample storage time.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
- *The test results reported herewith relate only to the samples as received by the laboratory.*
- *Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.*
- *All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.*

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Certificate of Analysis

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Heterotrophic Plate Count in Water

DATE RECEIVED: 2020-10-22

DATE REPORTED: 2020-10-30

				15773	
			SAMPLE DESCRIPTION:	**Telephone Rd**	
			SAMPLE TYPE:	**Water**	
			DATE SAMPLED:	**2020-10-21 13:25**	
Parameter	**Unit**	**G / S**	**RDL**	**1587380**	
Heterotrophic Plate Count	CFU/1ml		5	ND	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

1587380 ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Total Coliforms & E.Coli and BCC (Using DC Agar)

DATE RECEIVED: 2020-10-22

DATE REPORTED: 2020-10-30

				15773
			SAMPLE DESCRIPTION:	Telephone Rd
			SAMPLE TYPE:	Water
			DATE SAMPLED:	2020-10-21 13:25
Parameter	Unit	G / S	RDL	1587380
Escherichia coli - DC Agar	CFU/100mL	0	1	ND
Total Coliforms - DC Agar	CFU/100mL	0	1	ND
Background Colony Count - DC Agar	CFU/100mL		1	ND

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

1587380 ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

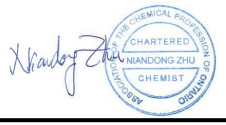
Water Quality Assessment (mg/L)

DATE RECEIVED: 2020-10-22

DATE REPORTED: 2020-10-30

			SAMPLE DESCRIPTION:	15773 Telephone Rd
			SAMPLE TYPE:	Water
			DATE SAMPLED:	2020-10-21 13:25
Parameter	Unit	G / S	RDL	1587380
Electrical Conductivity	µS/cm		2	457
pH	pH Units		NA	7.68
Saturation pH (Calculated)				7.12
Langelier Index (Calculated)				0.559
Hardness (as CaCO3) (Calculated)	mg/L		0.5	227
Total Dissolved Solids	mg/L		20	264
Alkalinity (as CaCO3)	mg/L		5	225
Bicarbonate (as CaCO3)	mg/L		5	225
Carbonate (as CaCO3)	mg/L		5	<5
Hydroxide (as CaCO3)	mg/L		5	<5
Fluoride	mg/L	1.5	0.05	<0.05
Chloride	mg/L		0.10	15.5
Nitrate as N	mg/L	10.0	0.05	<0.05
Nitrite as N	mg/L	1.0	0.05	<0.05
Bromide	mg/L		0.05	<0.05
Sulphate	mg/L		0.10	21.0
Ortho Phosphate as P	mg/L		0.10	0.28
Reactive Silica	mg/L		0.05	15.4
Ammonia as N	mg/L		0.02	<0.02
Total Phosphorus	mg/L		0.02	<0.02
Total Organic Carbon	mg/L		0.5	0.7
True Colour	TCU		5	<5
Turbidity	NTU		0.5	<0.5
Total Calcium	mg/L		0.25	63.52
Total Magnesium	mg/L		0.25	16.69
Total Potassium	mg/L		0.25	1.24
Total Sodium	mg/L	20	0.25	11.10
Total Aluminum	mg/L		0.010	0.015

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

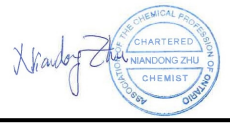
Water Quality Assessment (mg/L)

DATE RECEIVED: 2020-10-22

DATE REPORTED: 2020-10-30

				15773
			SAMPLE DESCRIPTION:	Telephone Rd
			SAMPLE TYPE:	Water
			DATE SAMPLED:	2020-10-21 13:25
Parameter	Unit	G / S	RDL	1587380
Total Antimony	mg/L	0.006	0.003	<0.003
Total Arsenic	mg/L	0.01	0.003	<0.003
Total Barium	mg/L	1.0	0.002	0.108
Total Beryllium	mg/L		0.001	<0.001
Total Boron	mg/L	5.0	0.010	0.014
Total Cadmium	mg/L	0.005	0.001	<0.001
Total Chromium	mg/L	0.05	0.003	<0.003
Total Cobalt	mg/L		0.001	<0.001
Total Copper	mg/L		0.003	0.092
Total Iron	mg/L		0.010	<0.010
Total Lead	mg/L	0.010	0.001	0.003
Total Manganese	mg/L		0.002	<0.002
Total Mercury	mg/L	0.001	0.0001	<0.0001
Total Molybdenum	mg/L		0.002	<0.002
Total Nickel	mg/L		0.003	<0.003
Total Selenium	mg/L	0.05	0.004	<0.004
Total Silver	mg/L		0.002	<0.002
Total Strontium	mg/L		0.005	0.268
Total Thallium	mg/L		0.006	<0.006
Total Tin	mg/L		0.002	<0.002
Total Titanium	mg/L		0.002	<0.002
Total Tungsten	mg/L		0.010	<0.010
Total Uranium	mg/L	0.02	0.002	<0.002
Total Vanadium	mg/L		0.002	<0.002
Total Zinc	mg/L		0.005	0.008
Total Zirconium	mg/L		0.004	<0.004

Certified By:



Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment (mg/L)

DATE RECEIVED: 2020-10-22

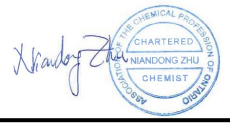
DATE REPORTED: 2020-10-30

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

1587380 Dilution required, RDL has been increased accordingly.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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Quality Assurance

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Microbiology Analysis

RPT Date: Oct 30, 2020			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Coliforms & E.Coli and BCC (Using DC Agar)															
Escherichia coli - DC Agar	1587445		ND	ND	NA	< 1									
Total Coliforms - DC Agar	1587445		ND	ND	NA	< 1									
Background Colony Count - DC Agar	1587445		ND	ND	NA	< 1									
Heterotrophic Plate Count in Water															
Heterotrophic Plate Count	1587445		ND	ND	NA	< 5									

Comments: ND - Not Detected, NA - % RPD Not Applicable

Certified By:

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Quality Assurance

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Water Analysis

RPT Date: Oct 30, 2020

PARAMETER	Batch	Sample Id	DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Water Quality Assessment (mg/L)															
Electrical Conductivity	1589793		1120	1120	0.0%	< 2	98%	90%	110%						
pH	1589793		7.66	7.68	0.3%	NA	100%	90%	110%						
Total Dissolved Solids	1587377	1587377	344	338	1.8%	< 20	102%	80%	120%						
Alkalinity (as CaCO3)	1589793		381	385	1.0%	< 5	100%	80%	120%						
Bicarbonate (as CaCO3)	1589793		381	385	1.0%	< 5									
Carbonate (as CaCO3)	1589793		<5	<5	NA	< 5									
Hydroxide (as CaCO3)	1589793		<5	<5	NA	< 5									
Fluoride	1587161		<0.05	<0.05	NA	< 0.05	93%	90%	110%	90%	90%	110%	98%	85%	115%
Chloride	1587161		12.4	12.0	3.3%	< 0.10	94%	70%	130%	102%	80%	120%	105%	70%	130%
Nitrate as N	1587161		<0.25	<0.25	NA	< 0.05	96%	70%	130%	107%	80%	120%	110%	70%	130%
Nitrite as N	1587161		<0.25	<0.25	NA	< 0.05	102%	70%	130%	101%	80%	120%	110%	70%	130%
Bromide	1587161		<0.25	<0.25	NA	< 0.05	102%	90%	110%	93%	90%	110%	92%	85%	115%
Sulphate	1587161		34.7	35.1	1.1%	< 0.10	91%	70%	130%	96%	80%	120%	98%	70%	130%
Ortho Phosphate as P	1587161		<0.50	<0.50	NA	< 0.10	108%	70%	130%	99%	80%	120%	97%	70%	130%
Reactive Silica	1585854		11.1	11.8	6.1%	< 0.05	100%	90%	110%	104%	90%	110%	NA	80%	120%
Ammonia as N	1590932		<0.02	<0.02	NA	< 0.02	102%	70%	130%	100%	80%	120%	96%	70%	130%
Total Phosphorus	1581191		0.03	0.03	NA	< 0.02	102%	70%	130%	101%	80%	120%	108%	70%	130%
Total Organic Carbon	1587377	1587377	1.0	1.0	NA	< 0.5	95%	90%	110%	105%	90%	110%	97%	80%	120%
True Colour	1588807		<5	<5	NA	< 5	100%	90%	110%						
Turbidity	1589350		1.1	1.2	NA	< 0.5	98%	80%	120%						
Total Calcium	1587377	1587377	75.34	81.98	8.4%	< 0.05	95%	70%	130%	91%	80%	120%	100%	70%	130%
Total Magnesium	1587377	1587377	19.90	21.98	9.9%	< 0.05	95%	70%	130%	91%	80%	120%	100%	70%	130%
Total Potassium	1587377	1587377	1.30	1.41	8.1%	< 0.05	93%	70%	130%	90%	80%	120%	96%	70%	130%
Total Sodium	1587377	1587377	21.94	23.89	8.5%	< 0.05	96%	70%	130%	92%	80%	120%	99%	70%	130%
Total Aluminum	1587377	1587377	0.019	0.020	NA	< 0.010	109%	70%	130%	111%	80%	120%	109%	70%	130%
Total Antimony	1587377	1587377	<0.003	<0.003	NA	< 0.003	106%	70%	130%	103%	80%	120%	107%	70%	130%
Total Arsenic	1587377	1587377	<0.003	<0.003	NA	< 0.003	99%	70%	130%	103%	80%	120%	109%	70%	130%
Total Barium	1587377	1587377	0.104	0.108	3.8%	< 0.002	99%	70%	130%	98%	80%	120%	102%	70%	130%
Total Beryllium	1587377	1587377	<0.001	<0.001	NA	< 0.001	106%	70%	130%	102%	80%	120%	111%	70%	130%
Total Boron	1587377	1587377	0.010	0.012	NA	< 0.010	108%	70%	130%	106%	80%	120%	112%	70%	130%
Total Cadmium	1587377	1587377	<0.001	<0.001	NA	< 0.001	103%	70%	130%	100%	80%	120%	104%	70%	130%
Total Chromium	1587377	1587377	<0.003	<0.003	NA	< 0.003	104%	70%	130%	105%	80%	120%	110%	70%	130%
Total Cobalt	1587377	1587377	<0.001	<0.001	NA	< 0.001	103%	70%	130%	108%	80%	120%	111%	70%	130%
Total Copper	1587377	1587377	<0.003	<0.003	NA	< 0.003	104%	70%	130%	108%	80%	120%	110%	70%	130%
Total Iron	1587377	1587377	<0.010	<0.010	NA	< 0.010	101%	70%	130%	109%	80%	120%	111%	70%	130%
Total Lead	1587377	1587377	<0.001	<0.001	NA	< 0.001	106%	70%	130%	103%	80%	120%	104%	70%	130%
Total Manganese	1587377	1587377	<0.002	<0.002	NA	< 0.002	106%	70%	130%	108%	80%	120%	109%	70%	130%
Total Mercury	1587377	1587377	<0.0001	<0.0001	NA	< 0.0001	103%	70%	130%	102%	80%	120%	102%	70%	130%
Total Molybdenum	1587377	1587377	<0.002	<0.002	NA	< 0.002	100%	70%	130%	107%	80%	120%	115%	70%	130%

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Quality Assurance

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

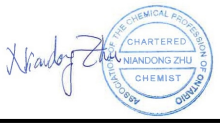
SAMPLED BY:

Water Analysis (Continued)

RPT Date: Oct 30, 2020			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Nickel	1587377	1587377	<0.003	<0.003	NA	< 0.003	105%	70%	130%	105%	80%	120%	108%	70%	130%
Total Selenium	1587377	1587377	<0.004	<0.004	NA	< 0.004	101%	70%	130%	108%	80%	120%	116%	70%	130%
Total Silver	1587377	1587377	<0.002	<0.002	NA	< 0.002	103%	70%	130%	107%	80%	120%	110%	70%	130%
Total Strontium	1587377	1587377	0.266	0.256	3.8%	< 0.005	104%	70%	130%	105%	80%	120%	107%	70%	130%
Total Thallium	1587377	1587377	<0.006	<0.006	NA	< 0.006	104%	70%	130%	103%	80%	120%	105%	70%	130%
Total Tin	1587377	1587377	<0.002	<0.002	NA	< 0.002	97%	70%	130%	102%	80%	120%	106%	70%	130%
Total Titanium	1587377	1587377	<0.002	<0.002	NA	< 0.002	107%	70%	130%	107%	80%	120%	111%	70%	130%
Total Tungsten	1587377	1587377	<0.010	<0.010	NA	< 0.010	88%	70%	130%	91%	80%	120%	98%	70%	130%
Total Uranium	1587377	1587377	<0.002	<0.002	NA	< 0.002	109%	70%	130%	104%	80%	120%	106%	70%	130%
Total Vanadium	1587377	1587377	<0.002	<0.002	NA	< 0.002	104%	70%	130%	109%	80%	120%	111%	70%	130%
Total Zinc	1587377	1587377	0.011	0.009	NA	< 0.005	104%	70%	130%	103%	80%	120%	108%	70%	130%
Total Zirconium	1587377	1587377	<0.004	<0.004	NA	< 0.004	103%	70%	130%	103%	80%	120%	109%	70%	130%

Comments: NA Signifies Not Applicable.
Duplicate NA: results are under 5X the RDL and will not be calculated.
Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:



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Method Summary

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Heterotrophic Plate Count	MIC-93- 7020	SM 9215 C	INCUBATOR
Escherichia coli - DC Agar	MIC-93-7010	MOE Method E3407	MF/INCUBATOR
Total Coliforms - DC Agar	MIC-93-7010	EPA 1604	MF/INCUBATOR
Background Colony Count - DC Agar	MIC-93-7010	MOE Method E3407	MF-Incubator

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PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Saturation pH (Calculated)		SM 2320 B	CALCULATION
Langelier Index (Calculated)		SM 2330B	CALCULATION
Hardness (as CaCO3) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684,ON MOECC E3139,SM 2540C,D	BALANCE
Alkalinity (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Bicarbonate (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Carbonate (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Hydroxide (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Reactive Silica	INOR-93-6070	QuickChem 10-114-27-1-A & SM 4500 Si-F	LACHAT FIA
Ammonia as N	INOR-93-6059	modified from SM 4500-NH3 H	LACHAT FIA
Total Phosphorus	INOR-93-6057	modified from LACHAT 10-115-01-3A	LACHAT FIA
Total Organic Carbon	INOR-93-6049	modified from EPA 415.1 & SM 5310 B	SHIMADZU CARBON ANALYZER
True Colour	INOR-93-6046	SM 2120 B	SPECTROPHOTOMETER
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Total Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Aluminum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Barium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Beryllium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Boron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Iron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS

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Method Summary

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T667171

PROJECT: 17M-01712-11-460-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Manganese	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Strontium	INOR-93-6003	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Thallium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tin	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Titanium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tungsten	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Uranium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Vanadium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zirconium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS

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November 9, 2020

Ms. Christine Cameron
15791 Telephone Road
Brighton, ON, K0K 1H0

Dear Ms. Christine Cameron,

Re: Water Well Sampling Results – 15791 Telephone Road, Brighton, ON

As part of the private well survey completed on behalf of the Ontario Ministry of Transportation (MTO) for the replacement and rehabilitation of structures, establishing the future Highway 401 footprint for an interim six lanes and ultimate eight lanes to address current and future transportation needs, and commuter parking lot improvements from 0.8 km east of Percy Street to 0.4 km west of Christiani Road, a water sample was collected from your property at 15791 Telephone Road on October 28, 2020, for baseline information on the quality of your water. The water well survey was completed by WSP Canada Group Limited (WSP).

The water sample was collected at a point that represents raw water quality before treatment. The water sample was submitted for analyses of selected parameters to AGAT Laboratories in Mississauga, a Canadian Association for Laboratory Accreditation (CALA) accredited laboratory. The results of the analyses are included in the attached Certificate of Analysis and have been compared to the Ontario Drinking Water Quality Standards, Objectives and Guidelines[1] (ODWS) and selected parameters of Table 2 of Ontario Regulation (O. Reg.) 153/04[2].

Under the ODWS, there are two broad groups of water quality parameters: health-related and non-health related. Health-related parameters have standards that are reported as Maximum Acceptable Concentrations and as Interim Maximum Acceptable Concentrations, shown in the **MAC** or **IMC** columns on the attached Certificate of Analysis. Non-health related parameters are either Aesthetic Objectives or Operational Guidelines. Aesthetic objectives are established for water treatment purposes. Aesthetic objectives and operational guidelines are shown in parenthesis in the **A/O** column of the attached Certificate of Analysis.

The laboratory analytical results for initial samples indicate that concentrations of health-related parameters meet the Ministry of Environment, Conservation and Parks (MECP) ODWS and O. Reg. 153/04, with exception of sodium.

Health-related parameters exceeded the ODWS are listed below:

- **Sodium (Na; 191.43 mg/L)**.

There were no exceedances of ODWS non-health related parameters in the water sample.

For the aforementioned ODWS exceedances, WSP would like to inform you of the following:

[1] Ontario Regulation (O. Reg.) 169/03; latest amendment: O. Reg. 327/08.
[2] Table 2 of the Ministry of Environment "Soil, Ground Water and Sediment Standards for use Under Part XV.1 of the Environmental Protection Act" March 9, 2004, amended as of July 1, 2011.

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Suite 300
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wsp.com

Sodium (inorganic)

The aesthetic objective for sodium in drinking water is 200 mg/L, at which it can be detected by a salty taste. Sodium is not toxic. Consumption of sodium in excess of 10 grams per day by normal adults does not result in any apparent adverse health effects. In addition, the average intake for sodium from water is only a small fraction of that consumed in a normal diet. A maximum acceptable concentration for sodium in drinking water has, therefore, not been specified. Persons suffering from hypertension or congestive heart disease may require a sodium-restricted diet, in which case, the intake of sodium from drinking water could become significant. It is, therefore, recommended that the measurement of sodium levels be included in routine monitoring programs of water supplies. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L, so that this information may be passed on to local physicians.

Softening using a domestic water softener increases the sodium level in drinking water and may contribute a significant percentage to the daily sodium intake for a consumer on a sodium restricted diet. It is recommended that a separate unsoftened supply be retained for cooking and drinking purposes.

Yours Sincerely,

Natalia Codoban, P.Eng.
Senior Hydrogeologist

Encl. AGAT Laboratories Certificate of Analysis
cc: Haliburton, Kawartha, Pine Ridge District Health Unit; Muhammad Waseem, MTO; Brent Gotts, WSP
WSP ref.: 17M-01712-11

AGAT Laboratories

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CLIENT NAME: **WSP Canada Inc.**
610 Chartwell Rd, Suite 300
Oakville, ON L6J 4A5
905-823-8500

ATTENTION TO: **Haley Spennato**

PROJECT: **17M-01712-11-GW1**

AGAT WORK ORDER: **20T670366**

MICROBIOLOGY ANALYSIS REVIEWED BY: **Nivine Basily, Inorganics Report Writer**

TRACE ORGANICS REVIEWED BY: **Oksana Gushyla, Trace Organics Lab Supervisor**

WATER ANALYSIS REVIEWED BY: **Yris Verastegui, Report Reviewer**

DATE REPORTED: **Nov 09, 2020**

PAGES (INCLUDING COVER): **17**

VERSION*: **1**

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days following analysis, unless expressly agreed otherwise in writing. Please contact your Client Project Manager if you require additional sample storage time.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
- *The test results reported herewith relate only to the samples as received by the laboratory.*
- *Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.*
- *All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.*

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. Measurement Uncertainty is not taken into consideration when stating conformity with a specified requirement.

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Certificate of Analysis

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Heterotrophic Plate Count in Water

DATE RECEIVED: 2020-10-29

DATE REPORTED: 2020-11-09

			SAMPLE DESCRIPTION:	**15791 Telephone Rd**
			SAMPLE TYPE:	**Water**
			DATE SAMPLED:	**2020-10-28 10:52**
Parameter	**Unit**	**G / S**	**RDL**	**1615475**
Heterotrophic Plate Count	CFU/1ml		5	ND

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

1615475 ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Results relate only to the items tested. Results apply to samples as received.

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Certificate of Analysis

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Total Coliforms & E.Coli and BCC (Using DC Agar)

DATE RECEIVED: 2020-10-29

DATE REPORTED: 2020-11-09

				15791
			SAMPLE DESCRIPTION:	Telephone Rd
			SAMPLE TYPE:	Water
			DATE SAMPLED:	2020-10-28 10:52
Parameter	**Unit**	**G / S**	**RDL**	**1615475**
Escherichia coli - DC Agar	CFU/100mL	0	**1**	ND
Total Coliforms - DC Agar	CFU/100mL	0	**1**	ND
Background Colony Count - DC Agar	CFU/100mL		1	ND

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

1615475 ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

ASSOCIATION OF THE CHEMICAL PROFESSION OF ONTARIO
CHARTERED
NIVINE BASILY
CHEMIST

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Certificate of Analysis

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PHCs F1 - F4 (Water)

DATE RECEIVED: 2020-10-29

DATE REPORTED: 2020-11-09

				15791
			SAMPLE DESCRIPTION:	Telephone Rd
			SAMPLE TYPE:	Water
			DATE SAMPLED:	2020-10-28 10:52
Parameter	**Unit**	**G / S**	**RDL**	**1615475**
Benzene	µg/L	1.0	0.20	<0.20
Toluene	µg/L	60	0.20	<0.20
Ethylbenzene	µg/L	140	0.10	<0.10
m & p-Xylene	µg/L		0.20	<0.20
o-Xylene	µg/L		0.10	<0.10
Xylenes (Total)	µg/L		0.20	<0.20
F1 (C6 - C10)	µg/L		25	<25
F1 (C6 to C10) minus BTEX	µg/L		25	<25
F2 (C10 to C16)	µg/L		100	<100
F3 (C16 to C34)	µg/L		100	<100
F4 (C34 to C50)	µg/L		100	<100
Gravimetric Heavy Hydrocarbons	µg/L		500	NA
Sediment				Yes
Surrogate	**Unit**	**Acceptable Limits**		
Terphenyl	%	60-140		94

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PHCs F1 - F4 (Water)

DATE RECEIVED: 2020-10-29 **DATE REPORTED: 2020-11-09**

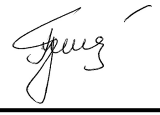
Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

1615475 Sample decanted due to sediment.
The C6-C10 fraction is calculated using Toluene response factor.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and nC34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16 - C50 and are only determined if the chromatogram of the C34 - C50 Hydrocarbons indicated that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6-C50 results are corrected for BTEX contribution.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153/04, results are considered valid without determining the PAH contribution if not requested by the client.
NA = Not Applicable

Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment (mg/L)

DATE RECEIVED: 2020-10-29

DATE REPORTED: 2020-11-09

				15791
			SAMPLE DESCRIPTION:	Telephone Rd
			SAMPLE TYPE:	Water
			DATE SAMPLED:	2020-10-28 10:52
Parameter	Unit	G / S	RDL	1615475
Electrical Conductivity	µS/cm		2	1360
pH	pH Units		NA	7.95
Saturation pH (Calculated)				7.04
Langelier Index (Calculated)				0.915
Hardness (as CaCO3) (Calculated)	mg/L		0.5	249
Total Dissolved Solids	mg/L		20	718
Alkalinity (as CaCO3)	mg/L		5	288
Bicarbonate (as CaCO3)	mg/L		5	288
Carbonate (as CaCO3)	mg/L		5	<5
Hydroxide (as CaCO3)	mg/L		5	<5
Fluoride	mg/L	1.5	0.05	<0.05
Chloride	mg/L		0.50	271
Nitrate as N	mg/L	10.0	0.25	0.83
Nitrite as N	mg/L	1.0	0.25	<0.25
Bromide	mg/L		0.25	<0.25
Sulphate	mg/L		0.50	24.2
Ortho Phosphate as P	mg/L		0.50	<0.50
Reactive Silica	mg/L		0.05	11.5
Ammonia as N	mg/L		0.02	<0.02
Total Phosphorus	mg/L		0.02	<0.02
Total Organic Carbon	mg/L		0.5	1.4
True Colour	TCU		5	<5
Turbidity	NTU		0.5	29.2
Total Calcium	mg/L		0.25	81.08
Total Magnesium	mg/L		0.25	11.22
Total Potassium	mg/L		0.25	1.14
Total Sodium	mg/L	20	0.25	**191.43**
Total Aluminum	mg/L		0.010	0.022

Certified By: Iris Verástegui

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Certificate of Analysis

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment (mg/L)

DATE RECEIVED: 2020-10-29

DATE REPORTED: 2020-11-09

				SAMPLE DESCRIPTION:	15791 Telephone Rd
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2020-10-28 10:52
Parameter	Unit	G / S	RDL		1615475
Total Antimony	mg/L	0.006	0.003		<0.003
Total Arsenic	mg/L	0.01	0.003		<0.003
Total Barium	mg/L	1.0	0.002		0.165
Total Beryllium	mg/L		0.001		<0.001
Total Boron	mg/L	5.0	0.010		0.010
Total Cadmium	mg/L	0.005	0.001		<0.001
Total Chromium	mg/L	0.05	0.003		0.007
Total Cobalt	mg/L		0.001		<0.001
Total Copper	mg/L		0.003		0.013
Total Iron	mg/L		0.010		8.84
Total Lead	mg/L	0.010	0.001		0.001
Total Manganese	mg/L		0.002		0.201
Total Mercury	mg/L	0.001	0.0001		<0.0001
Total Molybdenum	mg/L		0.002		<0.002
Total Nickel	mg/L		0.003		<0.003
Total Selenium	mg/L	0.05	0.004		<0.004
Total Silver	mg/L		0.002		<0.002
Total Strontium	mg/L		0.005		0.206
Total Thallium	mg/L		0.006		<0.006
Total Tin	mg/L		0.002		<0.002
Total Titanium	mg/L		0.002		0.007
Total Tungsten	mg/L		0.010		<0.010
Total Uranium	mg/L	0.02	0.002		<0.002
Total Vanadium	mg/L		0.002		0.003
Total Zinc	mg/L		0.005		0.019
Total Zirconium	mg/L		0.004		<0.004

Certified By: Iris Verástegui

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Certificate of Analysis

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Water Quality Assessment (mg/L)

DATE RECEIVED: 2020-10-29

DATE REPORTED: 2020-11-09

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

1615475 Dilution required, RDL has been increased accordingly.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: Iris Verástegui

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Exceedance Summary

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Haley Spennato

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
1615475	15791 Telephone Rd	ON 169/03 MAC/IMAC	Water Quality Assessment (mg/L)	Total Sodium	mg/L	20	191.43

Results relate only to the items tested. Results apply to samples as received.

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Quality Assurance

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Microbiology Analysis

RPT Date: Nov 09, 2020			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Coliforms & E.Coli and BCC (Using DC Agar)															
Escherichia coli - DC Agar	1615475	1615475	ND	ND	NA	< 1									
Total Coliforms - DC Agar	1615475	1615475	ND	ND	NA	< 1									
Background Colony Count - DC Agar	1615475	1615475	ND	ND	NA	< 1									
Heterotrophic Plate Count in Water															
Heterotrophic Plate Count	1615475	1615475	ND	ND	NA	< 5									

Comments: ND - Not Detected, NA - % RPD Not Applicable

Certified By:

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Results relate only to the items tested. Results apply to samples as received.

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Quality Assurance

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date: Nov 09, 2020			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - PHCs F1 - F4 (Water)															
Benzene	1619828		21	24	13.3%	< 0.20	97%	50%	140%	97%	60%	130%	101%	50%	140%
Toluene	1619828		< 0.20	< 0.20	NA	< 0.20	118%	50%	140%	95%	60%	130%	95%	50%	140%
Ethylbenzene	1619828		6.2	6.7	7.8%	< 0.10	111%	50%	140%	120%	60%	130%	112%	50%	140%
m & p-Xylene	1619828		0.64	0.69	NA	< 0.20	97%	50%	140%	117%	60%	130%	110%	50%	140%
o-Xylene	1619828		2.5	2.8	11.3%	< 0.10	95%	50%	140%	98%	60%	130%	98%	50%	140%
Xylenes (Total)	1619828		3.1	3.5	12.1%	< 0.20	96%	50%	140%	108%	60%	130%	104%	50%	140%
F1 (C6 - C10)	1619828		77	74	NA	< 25	84%	60%	140%	111%	60%	140%	109%	60%	140%
F2 (C10 to C16)	1616149		< 100	< 100	NA	< 100	105%	60%	140%	85%	60%	140%	90%	60%	140%
F3 (C16 to C34)	1616149		< 100	< 100	NA	< 100	89%	60%	140%	84%	60%	140%	85%	60%	140%
F4 (C34 to C50)	1616149		< 100	< 100	NA	< 100	94%	60%	140%	97%	60%	140%	113%	60%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:

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Results relate only to the items tested. Results apply to samples as received.

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Quality Assurance

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Water Analysis

RPT Date: Nov 09, 2020

PARAMETER	Batch	Sample Id	DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Water Quality Assessment (mg/L)															
Electrical Conductivity	1611298		1310	1320	0.8%	< 2	95%	90%	110%						
pH	1611298		7.87	7.88	0.1%	NA	100%	90%	110%						
Total Dissolved Solids	1615475	1615475	718	722	0.6%	< 20	106%	80%	120%						
Alkalinity (as CaCO3)	1611298		365	368	0.8%	< 5	97%	80%	120%						
Bicarbonate (as CaCO3)	1611298		365	368	0.8%	< 5	NA								
Carbonate (as CaCO3)	1611298		<5	<5	NA	< 5	NA								
Hydroxide (as CaCO3)	1611298		<5	<5	NA	< 5	NA								
Fluoride	1610391		<0.05	<0.05	NA	< 0.05	93%	90%	110%	104%	90%	110%	99%	85%	115%
Chloride	1610391		150	150	0.0%	< 0.10	91%	70%	130%	107%	80%	120%	NA	70%	130%
Nitrate as N	1610391		<0.05	<0.05	NA	< 0.05	97%	70%	130%	108%	80%	120%	105%	70%	130%
Nitrite as N	1610391		<0.05	<0.05	NA	< 0.05	98%	70%	130%	107%	80%	120%	108%	70%	130%
Bromide	1610391		<0.05	<0.05	NA	< 0.05	107%	90%	110%	110%	90%	110%	108%	85%	115%
Sulphate	1610391		2.33	2.32	0.4%	< 0.10	97%	70%	130%	105%	80%	120%	103%	70%	130%
Ortho Phosphate as P	1610391		<0.10	<0.10	NA	< 0.10	105%	70%	130%	108%	80%	120%	106%	70%	130%
Reactive Silica	1645123		1.14	1.15	0.9%	< 0.05	101%	90%	110%	110%	90%	110%	106%	80%	120%
Ammonia as N	1610094		<0.02	<0.02	NA	< 0.02	98%	70%	130%	100%	80%	120%	92%	70%	130%
Total Phosphorus	1620472		0.10	0.09	NA	< 0.02	102%	70%	130%	104%	80%	120%	101%	70%	130%
Total Organic Carbon	1615475	1615475	1.4	1.4	NA	< 0.5	103%	90%	110%	103%	90%	110%	96%	80%	120%
True Colour	1620582		<5	<5	NA	< 5	98%	90%	110%						
Turbidity	1614813		4.8	4.8	0.0%	< 0.5	100%	80%	120%						
Total Calcium	1615475	1615475	81.08	84.21	3.8%	< 0.05	99%	70%	130%	97%	80%	120%	108%	70%	130%
Total Magnesium	1615475	1615475	11.22	11.58	3.2%	< 0.05	102%	70%	130%	101%	80%	120%	108%	70%	130%
Total Potassium	1615475	1615475	1.14	1.24	8.4%	< 0.05	96%	70%	130%	94%	80%	120%	100%	70%	130%
Total Sodium	1615475	1615475	191.43	199.15	4.0%	< 0.05	103%	70%	130%	101%	80%	120%	106%	70%	130%
Total Aluminum	1615475	1615475	0.026	0.022	NA	0.012	101%	70%	130%	101%	80%	120%	107%	70%	130%
Total Antimony	1615475	1615475	<0.003	<0.003	NA	< 0.003	100%	70%	130%	94%	80%	120%	97%	70%	130%
Total Arsenic	1615475	1615475	<0.003	<0.003	NA	< 0.003	103%	70%	130%	98%	80%	120%	111%	70%	130%
Total Barium	1615475	1615475	0.154	0.153	0.6%	< 0.002	102%	70%	130%	98%	80%	120%	98%	70%	130%
Total Beryllium	1615475	1615475	<0.001	<0.001	NA	< 0.001	97%	70%	130%	97%	80%	120%	107%	70%	130%
Total Boron	1615475	1615475	0.025	0.027	NA	< 0.010	107%	70%	130%	99%	80%	120%	103%	70%	130%
Total Cadmium	1615475	1615475	<0.001	<0.001	NA	< 0.001	100%	70%	130%	99%	80%	120%	103%	70%	130%
Total Chromium	1615475	1615475	0.006	0.006	NA	< 0.003	100%	70%	130%	97%	80%	120%	102%	70%	130%
Total Cobalt	1615475	1615475	<0.001	<0.001	NA	< 0.001	95%	70%	130%	93%	80%	120%	99%	70%	130%
Total Copper	1615475	1615475	0.014	0.013	NA	< 0.003	100%	70%	130%	100%	80%	120%	101%	70%	130%
Total Iron	1615475	1615475	9.28	9.27	0.1%	< 0.010	98%	70%	130%	100%	80%	120%	NA	70%	130%
Total Lead	1615475	1615475	<0.001	<0.001	NA	< 0.001	103%	70%	130%	101%	80%	120%	99%	70%	130%
Total Manganese	1615475	1615475	0.203	0.202	0.2%	< 0.002	98%	70%	130%	97%	80%	120%	100%	70%	130%
Total Mercury	1616299		<0.0001	<0.0001	NA	< 0.0001	102%	70%	130%	98%	80%	120%	97%	70%	130%
Total Molybdenum	1615475	1615475	<0.002	<0.002	NA	< 0.002	98%	70%	130%	96%	80%	120%	103%	70%	130%

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. RPDs calculated using raw data. The RPD may not be reflective of duplicate values shown, due to rounding of final results.

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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Quality Assurance

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

Water Analysis (Continued)

RPT Date: Nov 09, 2020			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Nickel	1615475	1615475	<0.003	<0.003	NA	< 0.003	100%	70%	130%	97%	80%	120%	100%	70%	130%
Total Selenium	1615475	1615475	<0.004	<0.004	NA	< 0.004	101%	70%	130%	94%	80%	120%	107%	70%	130%
Total Silver	1615475	1615475	<0.002	<0.002	NA	< 0.002	101%	70%	130%	98%	80%	120%	99%	70%	130%
Total Strontium	1615475	1615475	0.227	0.229	0.9%	< 0.005	101%	70%	130%	96%	80%	120%	104%	70%	130%
Total Thallium	1615475	1615475	<0.006	<0.006	NA	< 0.006	NA	70%	130%	101%	80%	120%	99%	70%	130%
Total Tin	1615475	1615475	<0.002	<0.002	NA	< 0.002	99%	70%	130%	96%	80%	120%	102%	70%	130%
Total Titanium	1615475	1615475	<0.002	<0.002	NA	< 0.002	93%	70%	130%	94%	80%	120%	103%	70%	130%
Total Tungsten	1615475	1615475	<0.010	<0.010	NA	< 0.010	98%	70%	130%	96%	80%	120%	104%	70%	130%
Total Uranium	1615475	1615475	<0.002	<0.002	NA	< 0.002	NA	70%	130%	95%	80%	120%	99%	70%	130%
Total Vanadium	1615475	1615475	0.003	0.002	NA	< 0.002	93%	70%	130%	91%	80%	120%	100%	70%	130%
Total Zinc	1615475	1615475	0.018	0.018	NA	< 0.005	99%	70%	130%	102%	80%	120%	103%	70%	130%
Total Zirconium	1615475	1615475	<0.004	<0.004	NA	< 0.004	101%	70%	130%	99%	80%	120%	107%	70%	130%

Comments: NA signifies Not Applicable.
If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By: Iris Verástegui

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Method Summary

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Heterotrophic Plate Count	MIC-93- 7020	SM 9215 C	INCUBATOR
Escherichia coli - DC Agar	MIC-93-7010	MOE Method E3407	MF/INCUBATOR
Total Coliforms - DC Agar	MIC-93-7010	EPA 1604	MF/INCUBATOR
Background Colony Count - DC Agar	MIC-93-7010	MOE Method E3407	MF-Incubator
Trace Organics Analysis			
Benzene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
Toluene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
m & p-Xylene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
F1 (C6 - C10)	VOL-91- 5010	modified from MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	modified from MOE PHC-E3421	(P&T)GC/FID
F2 (C10 to C16)	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
F4 (C34 to C50)	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	modified from MOE PHC-E3421	BALANCE
Terphenyl	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
Sediment			

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Method Summary

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Saturation pH (Calculated)		SM 2320 B	CALCULATION
Langelier Index (Calculated)		SM 2330B	CALCULATION
Hardness (as CaCO3) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684,ON MOECC E3139,SM 2540C,D	BALANCE
Alkalinity (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Bicarbonate (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Carbonate (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Hydroxide (as CaCO3)	INOR-93-6000	SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Reactive Silica	INOR-93-6070	QuickChem 10-114-27-1-A & SM 4500 Si-F	LACHAT FIA
Ammonia as N	INOR-93-6059	modified from SM 4500-NH3 H	LACHAT FIA
Total Phosphorus	INOR-93-6057	modified from LACHAT 10-115-01-3A	LACHAT FIA
Total Organic Carbon	INOR-93-6049	modified from SM 5310 B	SHIMADZU CARBON ANALYZER
True Colour	INOR-93-6046	SM 2120 B	SPECTROPHOTOMETER
Turbidity	INOR-93-6044	modified from SM 2130 B	NEPHELOMETER
Total Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Aluminum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Barium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Beryllium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Boron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Iron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS

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Method Summary

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20T670366

PROJECT: 17M-01712-11-GW1

ATTENTION TO: Haley Spennato

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Manganese	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Strontium	INOR-93-6003	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Thallium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tin	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Titanium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tungsten	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Uranium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Vanadium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zirconium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

lg BIK Tueb. & MIBI

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webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: WSP Canada Inc
Contact: Haley Spennato / Natalia Codoban
Address: 610 Chartwell Road, Suite 300, Oakville, Ontario, L6J 4A5 Canada
Phone: + 289 380 0361 Fax:
Reports to be sent to:
1. Email: Haley.Spennato@wsp.com
2. Email: Natalia.Codoban@wsp.com

Project Information:

Project: 17M-01712-11-460-GW1
Site Location: Trenton to Colborne ON
Sampled By: Warren Yong Devon Asantie-Yeboah
AGAT Quote #: 354723 PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☑ No ☐

Company: WSP Canada Inc
Contact: Natalia Codoban / ~~Haley Spennato~~
Address: 610 Chartwell Road, Suite 300, OAKVILLE ON L6J 4A5
Email: Natalia.Codoban@wsp.com; payables.ontario@wsp.com

Regulatory Requirements:

(Please check all applicable boxes)

☐ Regulation 558

☐ Regulation 153/04
Table _____ *Indicate One*
☐ Ind/Com
☐ Res/Park
☐ Agriculture
Soil Texture *(Check One)*
☐ Coarse
☐ Fine

☐ Excess Soils R406
Table _____ *Indicate One*
Sample from APEC?
☐ Yes
☐ No
☐ Stockpile ☐ In-situ

☐ Sewer Use
☐ Sanitary ☐ Storm
Region
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☑ Other ODWQS
Indicate One

Is this submission for a **Record of Site Condition?** ☐ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☐ Yes ☐ No

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Laboratory Use Only

Work Order #: 20T667171

Cooler Quantity:
Arrival Temperatures: (ICE) 3.1 | 3.2 | 3.9
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes:

Turnaround Time (TAT) Required:

Regular TAT ☑ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI, DOC (Y/N)	O. Reg 153: Metals & Inorganics, Inc. EC/SAR	O. Reg 153: Metals - ICPMS, ☐ CrVI, ☐ Hg, ☐ HWSB	O. Reg 153: BTEX, F1-F4 PHCs, Analyze F4G if required ☐ Yes ☐ No	PAHs	PCBs	VOC	Landfill Disposal Characterization TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Excess Soils SPLP Rainwater Leach ☐ Metals ☐ VOCs ☐ SVOCs	Excess Soils Characterization Package pH, ICPMS Metals, BTEX, F1-F4	Salt - EC/SAR	WQA	EC, TC, HPC, BCC	Potentially Hazardous or High Concentration (Y/N)
48 McDonald Rd	Oct 21/20	10:10 AM/PM	11	GW	Pl. analyze "as received"	N			☑								☑	☑	
627 County Rd 28	Oct 21/20	12:10 AM/PM	11	GW	Pl. analyze "as received"	N			☑								☑	☑	
523 County Rd 28	Oct 21/20	11:15 AM/PM	11	GW	Pl. analyze "as received"	N			☑								☑	☑	
15773 Telephone Rd.	Oct 21/20	1:25 AM/PM	11	GW	Pl. analyze "as received"	N			☑								☑	☑	
		AM/PM							☑								☑	☑	
		AM/PM							☑								☑	☑	
		AM/PM							☑								☑	☑	
		AM/PM																	
		AM/PM																	
		AM/PM																	

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Warren Yong	Oct 21/20	5:30 PM	SIMRAN GV	Oct 22/20	9:35am

Page _____ of _____
N°:

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

AGAT Laboratories

Tuub/M1B1 / med Blue

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Laboratory Use Only

Work Order #: 20T670366

Cooler Quantity:

Arrival Temperatures: 6.4 | 6.5 | 6.7

Custody Seal Intact: ☐Yes ☐No ☐N/A

Notes: On ice

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: WSP Canada Inc

Contact: Haley Spennato / Natalia Codoban

Address: 610 Chartwell Road, Suite 300, Oakville, Ontario, L6J 4A5 Canada

Phone: + 289 380 0361 Fax:

Reports to be sent to:

1. Email: Haley.Spennato@wsp.com
2. Email: Natalia.Codoban@wsp.com

Regulatory Requirements:

(Please check all applicable boxes)

☐ Regulation 153/04 — Table (Indicate One): ☐Ind/Com ☐Res/Park ☐Agriculture; Soil Texture (Check One): ☐Coarse ☐Fine

☐ Excess Soils R406 — Table (Indicate One); Sample from APEC? ☐Yes ☐No; ☐Stockpile ☐In-situ

☐ Regulation 558

☐ Sewer Use: ☐Sanitary ☐Storm; Region

☐ CCME

☐ Prov. Water Quality Objectives (PWQO)

☑ Other: ODWQS (Indicate One)

Is this submission for a **Record of Site Condition?** ☐ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☐ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☑ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
*TAT is exclusive of weekends and statutory holidays

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: 17M-01712-11-460-GW1

Site Location: Trenton to Colborne ON

Sampled By: Warren Young

AGAT Quote #: 354723 PO:

Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☑ No ☐

Company: WSP Canada Inc

Contact: Natalia Codoban

Address: 610 Chartwell Road, Suite 300 Oakville ON L6J 4A5

Email: Natalia.Codoban@wsp.com; payables.ontario@wsp.com

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI, DOC (Y/N)	O. Reg 153: Metals & Inorganics, inc. EC/SAR	O. Reg 153: Metals - ICPMS, ☐ CrVI, ☐ Hg, ☐ HWSB	O. Reg 153: BTEX, F1-F4 PHCs; Analyze F4G if required ☐ Yes ☐ No	PAHs	PCBs	VOC	Landfill Disposal Characterization TCLP: TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Excess Soils SPLP Rainwater Leach SPLP: ☐ Metals ☐ VOCs ☐ SVOCs	Excess Soils Characterization Package pH, ICPMS Metals, BTEX, F1-F4	Salt - EC/SAR	WQA	EC, TC, HPC, BCC	Potentially Hazardous or High Concentration (Y/N)
15791 Telephone Rd	Oct 28/20	10:52 AM	18	GW	Pl. analyze "as received"	N			☑								☑	☑	
252 Lake Rd	Oct 28/20	11:50 AM	18	GW	Pl analyze "as received"	N			☑								☑	☑	
		AM PM							☑								☑	☑	
		AM PM							☑								☑	☑	
		AM PM							☑								☑	☑	
		AM PM							☑								☑	☑	
		AM PM							☑								☑	☑	
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		AM PM																	
		AM PM																	
		AM PM																	

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Warren Young [signature]	Oct 28/20	2:16 PM	SIMRAN [signature]	Oct 29/20	8:35am

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N°:

Document ID: DIV-78-1511.017

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

Date Issued: May 28, 2020