Hydrogeological Investigation, 381 Kent Street, Ottawa, Ontario

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Type of Document:
Technical Report

Project Name:
Hydrogeological Investigation,

Project Number:
OTT-21019154-A0

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Date Submitted:
2023-11-08

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1 Introduction

1.1 Project Description

EXP Services Inc. (EXP) was retained by Katasa Groupe to prepare a hydrogeological investigation report for the proposed development located at 381 Kent Street, Ottawa (hereinafter referred to as the 'Site'). EXP understands that Katasa Groupe is completing this work for due diligence purposes in support of site plan approval with the City of Ottawa. A hydrogeological study is a requirement of the Site Plan Approval (SPA) process by the City of Ottawa (Section 5.1 of City of Ottawa Hydrogeological and Terrain Analysis Guidelines, March 2021).

Based on the design plan communicated to EXP, it is our understanding that the proposed development will consist of a 9-storey high-rise residential tower, including two (2) levels of underground parking structure. The site location plan is shown in Figure 1.

EXP conducted a Preliminary Geotechnical Investigation and a Phase Two Environmental Site Assessment (ESA) prior to this investigation. The pertinent information gathered from previous investigations was also utilized to prepare this report.

1.2 Project Objectives

The main objectives of this 381 Kent Street, Ottawa, Ontario are as follows:

- Establish the local hydrogeological settings within the Site;
- Assess preliminary construction dewatering flow rates and potential impacts;
- Assess groundwater quality for discharge purposes; and,
- Prepare a Hydrogeological Assessment Report to support a SPA.

1.3 Scope of Work

To achieve the investigation objectives, EXP has completed the following scope of work:

- Review available geological and hydrogeological information for the Site;
- Conduct Single Well Response Tests (SWRT) on one monitoring well to evaluate hydraulic properties of the saturated stratigraphic units at the Site.
- Collect one (1) groundwater sample for laboratory testing for comparison with City of Ottawa sanitary and storm Sewer By-Law parameters;
- Complete one (1) round of groundwater level measurements;
- Evaluate the information collected during the field investigation program, including borehole geological information, SWRT results, Water Well Records, groundwater level measurements and groundwater water quality;
- Estimate construction dewatering flow rates and long-term foundation drainage rates;
- Assess potential impacts and recommend mitigation measures; and
- Prepare a 381 Kent Street, Ottawa, Ontario

1.4 Review of Previous Reports

The following reports were reviewed as part of this 381 Kent Street, Ottawa, Ontario:

2018

- Revised Phase I Environmental Site Assessment, Pinchin, January 2018
  - Updated the previous Phase II ESA completed by Golder Associates to the new site condition standards (SCS) which were revised in 2011.
  - In 2010, a Phase II ESA was completed on the property (381 Kent St., Ottawa, Ontario) by Golder Associates Ltd, to identify potential impacts to the site from heating oil spill from a printing facility located at 50 and 52 James Street.
  - Based on the results of Phase II ESA, Golder did not recommend any additional environmental work.
  - Pinchin did not identify any additional potential contaminants or activities based on new SCS.

2021

- Phase One Environmental Site Assessment by EXP Services Inc.
  - Phase One ESA (report OTT-21019154-A0) was conducted for due diligence purposes in support of site plan approval with the City of Ottawa to redevelop the property for residential use.
  - The study recommended conducting a Phase Two ESA to address the potentially contaminating activities (PCA) that may cause areas of potential environmental concern (APEC) on the property.
  - Seven PCAs were identified, including six off-site PCAs. Based on the location of the Site in terms of geological framework, five APECs were identified on the Site.

2022

- Phase Two Environmental Site Assessment (ESA) by EXP Services Inc.
  - The Phase Two ESA was conducted to file a Record of Site Conditions (RSC);
  - Four (4) boreholes all equipped with monitoring wells were installed at the site in November and December 2021 to address the five APECs;
  - Groundwater and soil samples were collected and analyzed for metals, petroleum hydrocarbons (PHC) and volatile organic compounds (VOC). Concentrations of lead, barium, cobalt, vanadium and zinc in the soil samples were above Ontario Ministry of Environment, Conservation and Parks (MECP) Table 3 SCS. The concentrations of metals, PHC and VOCs in the groundwater samples were less than the MECP Table 3 SCS and therefore, the groundwater at the Site was not impacted.

2023

- Preliminary Geotechnical Investigation, Proposed High Rise Development, 381 Kent Street, Ottawa, Ontario by EXP Services Inc.
  - The report assumes based on preliminary conceptual design, the foundation will extend to 6 mbgs approximately P2 level, the foundation will extend into the local groundwater table and will require dewatering;
  - The report mentioned that the site is underlain by shale bedrock of Billings Formation which due to a complex mechanism of bio-oxidation tends to heave when sulfides in the rock reacts with calcite to form expanding gypsum. This occurs when oxygen enters the rock primarily by lowering of the water table;
  - The report recommended a detailed hydrogeological study to assess site hydrogeological conditions and estimate groundwater pumping rates.

2 Geological Setting

2.1 Regional Setting

2.1.1 Regional Physiography

The Site is located within the physiographic region identified as Limestone Plains, which borders with Ottawa Valley Clay Plains to the east. Figure 2 shows the regional physiography of the area.

2.1.2 Regional Geology

The surficial geology can be described as till composed of undifferentiated, predominantly sandy silt to silt matrix, commonly rich in clasts, often high in total matrix carbonate content. East and south of the site the surficial geology transitions in to glaciomarine and marine deposit of silt and clay, quiet water basin environment fine-textured glaciomarine deposits (to the east) and fluvial deposit composed of gravel, sand, silt and clay, deposited on modern flood plains. The Regional Surficial Geology is shown in Figure 3.

The bedrock in the area primarily consists of limestone, dolostone, shale, arkose, sandstone of Lindsay Formation (which the Site is located on) and to the east it is shale and limestone, dolostone and siltstone identified as Billings Formation of Upper Ordovician period (Ontario Geological Survey,2011). The bedrock geology is represented in Figure 4.

2.1.3 Regional Hydrogeology

Regional groundwater across the area flows north towards the Ottawa River. Local deviations from regional groundwater flow pattern may occur in response to changes in topography and/or soils, as well as the presence of surface water features and/or existing subsurface infrastructure.

2.1.4 MECP Water Well Records

Water Well Records (WWRs) within a 500-m buffer from the Site were reviewed for subsurface and hydrogeological information. The locations of the MECP WWR are shown in Figure 5. A summary of the reviewed WWR is provided in Table 2-1 below and a detail of the records is included in Appendix A.

The MECP WWR database indicates that a total of 170 well records are located within a distance of 500 m from the site perimeter. This included five (5) wells recorded as water supply. The remaining 165 records are for non-water supply wells that includes test, monitoring, observation and abandoned wells, and wells of unidentified usage. The well records include water supply wells, monitoring and test holes, observation wells, abandoned wells and wells of unknown use.

Since the area is municipally serviced it is unlikely that the noted water supply wells are still active. These wells were installed in the 1940s and 1960s.

The reported depth to groundwater for all wells recorded as water supply wells vary between (12.2) and (44.2) meters below ground surface (mbgs). The groundwater or potentiometric surface based on recorded information varies from (0.9) and (16.8) in depth and between 57.5 masl to 76.8 masl. Currently the groundwater is anticipated to be at shallower depths or at higher elevations as the use of private water supply wells stopped over the years when municipal services became available.

Table 2-1 Summary of Searched MECP Water Well Records

Well Usage (as recorded)	Number of Wells	Well Construction Period	Groundwater Elevation (masl)	Water Found Depth (mbgs)	Water Found Elevation (masl)	Well Completion Material
Water Supply 3 – domestic 1 – livestock 1 - commercial	5	1948-1961	Min – 57.5 Max – 76.8	Min – 44.2 Max – 10.7	Min – 36.2 Max – 63.6	All of the wells are completed in bedrock
Non-water supply wells (test wells, observation wells, monitoring wells, abandoned wells and unspecified wells)	165	2005-2016	No groundwater elevation information available	No information available	No information available	No information available

Based on the review of water well records, it appears that the bedrock underlain by the overburden material is composed of clay rich sediments and is the regional aquifer in the area and where geological conditions exist, can be characterized as a confined aquifer (confined by the glacial till overburden). The test pumping rates for the water supply wells varied between 9.1 litres/minute (LPM) to 36.4 LPM sustainable through 0.5-hour to 1-hour duration.

Some of the location information as recorded in the database is not correct or accurate (reliability code of 5 or higher identified as UTM RC in the water well report, lower the value higher the accuracy of the recorded well locations), however the reviewed MECP water well information provides a general understanding of the regional hydrogeological conditions of the area.

2.2 Site Setting

2.2.1 Site Topography

The Site is in an urbanized land use setting. The existing site topography gradually slopes down and to the north based on the local topography. The site general elevation at the borehole's locations ranged between (72.0 to 72.66) masl, groundwater flow is anticipated to be north towards the Ottawa River.

2.2.2 Local Surface Water Features

The Site is located within the Ottawa River West sub watershed. The nearest watercourse is the Rideau Canal, which is approximately 1 km to the east, and the Ottawa River is approximately 1.2 km to the north. Based on the Rideau Valley Conservation Authority Website, the Site is not within a flood plain or within a regulated area.

2.2.3 Local Geology and Hydrogeology

The following is a summary of site stratigraphy based on a review of borehole logs of wells drilled during site investigations. Ground surface at the site varies between 72.0 to 72.7 metres above sea level (masl) elevation. Site borehole logs are included in Appendix B.

Table 2-2 Site Stratigraphy

	Subsurface Geological Unit	Material Type	Range of Depth of Bottom of the Unit (mbgs)	Range of Elevation of the Bottom (masl)
Overburden	Fill	Variable material comprising of silty sand with gravel, gravel with sand, contains brick fragments, moist. no odours or stains, compact	0.9 to 1.7	71.4 to 71.0
	Silty Clay	Brown, moist to wet, no odours or stains, firm to very stiff	6.0 to 6.6	66.7 to 65.4
	Glacial Till	Clayey silty sand with gravel and shale fragments, cobbles and boulders, slightly cohesive, dark brown and grey, wet, no odours or stains, compact to very stiff	6.0 to 6.6	66.7 to 65.4
Bedrock	Shale	Shale with limestone partings, black, poor to excellent quality	7.6 to 12.6 *This range is for the top. Bottom not encountered.*	64.8 to 60.1 *This range is for the top. Bottom not encountered.*

NOTE: mbgs – metres below ground surface

The depths of investigation ranged between 7.6 m to 20.9 m (64.8 masl to 51.1 masl elevation). The Site borehole location plan is shown in Figure 6 and a stratigraphic cross-section of the site subsurface is presented in Figure 7.

2.2.3.1 Overburden

The Site contains a thin veneer of anthropogenic fill, underlain by silty clay and glacial till.

Fill

Fill material was encountered at all the four borehole locations and extended to 0.9 m to 1.7 m below ground surface. The fill is composed of silty sand with gravel to gravel with sand and also contains brick fragments. The SPT N-values varied between 7 to 45 indicating a loose to dense unit.

Silty Clay

Native silty clay was encountered below the fill which extends to 6.0 to 6.6 mbgs at all borehole locations. This soil unit displayed an upper brown to brownish grey desiccated crust underlain by an unweathered lower grey silty clay soil layer. The natural moisture content range was very high from 39 percent to 75 percent.

Glacial Till

Glacial till was encountered at three (3) boreholes. Between 6.0 to 6.6 mbgs (65.4 masl to 66.7 masl). The till is composed of varying amounts of gravel, sand, silt and clay and also contains cobbles and boulders. The SPT N-value ranges between 11 and 77 indicating a compact to very dense condition however the high end SPT N-value could be the result of encountering weathered cobbles or boulders in the composition.

2.2.3.2 Bedrock

The bedrock at the site is considered to be shale with limestone partings which was identified as Billings Formation of Upper Ordovician time. It was encountered between 7.6 to 12.6 mbgs depths (64.8 to 60.1 masl elevation). Based on the coring information the total core recovery (TCR) ranged between 97 to 100 percent. The rock quality designation (RQD) indicator value ranges between 28 percent to 99 percent indicative of poor to excellent rock quality.

2.2.4 Site Groundwater Conditions

The groundwater level at the site was measured during site visits on two (2) occasions, once on December 8, 2022 (approximately 1 week after drilling) and again on September 23, 2023. During the most recent site visit on September 23, 2023, most of the wells had issues as the bentonite seal had expanded and was noted in the casings and in the well itself. This foreign material (wet bentonite) was very difficult to remove and may have impacted the functionality of the monitoring wells and collected groundwater measurements at the wells may be in error. So therefore, for further assessment it is recommended to use the September 23, 2023, groundwater elevation data with caution. The groundwater elevation measurements are summarized in the following table.

Table 2-3 Summary of Groundwater Elevations

BH ID	Ground Surface Elevation (masl)	Screened Soil Type	Dec. 8, 2022	Sep. 23, 2023	Additional Comments (Sept. 23, 2023)
MW21-1S	72.47	**SILTY CLAY** Brown , moist to wet, (very soft to very stiff)	69.66	Dry up to 69.35	Depth of the well is different than as logged. Noted debris in the well.
MW21-1D	72.47	**SHALE BEDROCK** With limestone partings, black, (poor to excellent quality)	70.36	*69.35*	Was dry and casing filled with bentonite. Water level after removal of bentonite as much as possible.
MW21-2	72.66	**SILTY CLAY** Brown to grey, moist to wet, very soft to stiff	69.86	*69.54*	The casing and well was filled with bentonite. Water level after removal of bentonite as much as possible.
MW21-3	72.44	**SILTY CLAY** Brown to grey, moist to wet, no odours or stains, stiff	66.84	*66.67*	The casing was filled with bentonite. Water level after removal of bentonite as much as possible.
Mw21-4S	72.00	**SILTY CLAY & GLACIAL TILL** Clayey sand with gravel and shale fragment, cobbles and boulders, slightly cohesive, dark brown and clay.	66.19	Dry up to 69.38	
MW21-4D	72.00	**SHALE BEDROCK** With limestone partings, black, (poor to excellent quality)	63.79	*65.05*	Well filled with bentonite to the top. Water level after removal of bentonite as much as possible.

NOTE:
S – Shallow, D- Deep
Italics and underlined *65.50* – suspect reading or possibly error. September 23, 2023, groundwater measurements may be in error and should be used with cauation.

Considering the December 8, 2022, groundwater measurements, the water level in the shallow aquifer at the Site varied between 66.2 to 69.9 masl and the potentiometric surface in the deeper aquifer varied between (MW21-1D and MW214D) 63.8 to 70.4 masl. The low water level reading at MW21-4D on December 8, 2022, may be in error or may still be equalizing. This indicates that there is an upward gradient of groundwater at the Site. Review of historical MECP well record information for the water supply wells completed in bedrock in the area indicates a range of water levels of 57.5 to 76.8 masl elevation.

The general Site groundwater flow direction in the shallow aquifer is towards the south, however the flow direction in the deeper aquifer is indeterminate as we do not have minimum of three (3) datapoints to establish a direction for the deeper bedrock aquifer. Considering the larger hydrogeological framework, it is anticipated that the direction of flow in the deeper aquifer would be similar.

2.2.5 Hydraulic Conductivity Testing

Hydraulic conductivity testing was completed in MW21-1D. A rising head test was performed at this well. In a rising head test, a known volume of water is removed from the well and the recovery is monitored. The test is terminated when more than 80% recovery is achieved or a 3-hr time period has elapsed. The collected data was analyzed using AQTESOLV Pro 4.0 version software using Hvorslev (1951) solution for confined aquifer. A hydraulic conductivity (K) value of 7.95×10^{-6} m/sec was calculated. This K value will be used in the dewatering pumping rate assessments.

The detail of the analysis is included in Appendix C.

3 Preliminary Construction Plan and Potential Groundwater Issues

It is our understanding that the proposed 9-storey high-rise residential tower will have two (2) levels (or P2) of underground parking structure extending to about 6.5 mbgs including sub-excavation for placement of granular as foundation base. Based on this preliminary design, it is anticipated that the foundation will not extend into the bedrock encountered within the proposed development limits. The foundation will be limited within the upper part of till.

Since it is determined from previous investigations that groundwater at the Site is shallow within a depth of 3.4 mbgs, it is likely that groundwater may pose an issue during construction. However, the groundwater seepage will be relatively slow and will occur under gravity and sump pumping may be adequate to remove the accumulated groundwater.

Considering the approximate Site excavation area of 3,446 m^2 (65 m x 53 m), it is likely that the anticipated dewatering pumping volume will exceed 50,000 litres/day (LPD), the threshold limit of requirement of a permit. If the estimated dewatering pumping rate exceeds 50,000 LPD but is less than 400,000 LPD, then registration with the Environmental Activity and Sector Registration (EASR) website will be required.

4 Construction Dewatering Permit

Considering the size (3,446 m^2) and depth of the proposed excavation (6.5 mbgs) for the anticipated construction activities at the Site, it is likely that an EASR will most likely be required which will allow groundwater pumping at rates up to 400,000 LPD. This type of permit is registered online and issued immediately for a fee of CAD $ 1,190.

The requirement of the type of permit will be confirmed later in this report.

5 Potential Short and Long-term Dewatering

It is anticipated that dewatering pumping during construction will be required in the short-term. The pumping rates initially would be higher, which over time will be lower as the construction progresses. The short-term dewatering operation can cease once the foundation structures are above a certain level that groundwater is no longer an issue. Considering the construction design and the hydrogeology of the Site, dewatering of the shallow aquifer will be required. There is also the potential for foundation drainage over the long-term as the foundation of the P2 underground parking structure will penetrate into the shallow groundwater table.

Table 5-1 Summary of Potential Dewatering Pumping

Area of Interest	Till Bottom (masl)	Groundwater Elevation (masl) December 8, 2022	Excavation Bottom Elevation (masl)	Approximate Head (m)	Potential Issue of Dewatering
MW21-1	62.9	21-1S – 69.66 21-1D – 70.36	59.5	7.46	Dewatering – Shallow Aquifer Long-Term Foundation Drainage
MW21-2	60.1 (auger refusal)	69.86	59.5	9.76	
MW21-3	66.0	66.84	59.5	0.84	
MW21-4	61.9	21-4S – 66.19 21-4D – *63.79*	59.5	Indeterminate because of inconsistent water level	
NOTE: Italics and underlined – measurement may be in error					

Because the foundation will extend below the local groundwater table, the foundation structure in the long-term will be subjected to hydrostatic buoyancy pressure. To reduce this pressure, the groundwater will need to be removed using foundation drainage collection (FDC) subdrain system under the foundations. The groundwater will be collected in a sump pit and then pumped out to the city sewers if allowed.

If the City does not approve long-term discharge (due to under-capacity of the services or any other reasons) into the city services, then an alternative foundation design (watertight bathtub) may have to be considered.

6 Dewatering Assessment

The dimensions of the proposed construction design to support the dewatering assessment are summarized in Table 6-1 below. The foundation of the building structure is designed to extend into the local groundwater/potentiometric table.

Table 6-1 Summary of Dewatering Assessment Parameters

Input Parameter	Input Parameters	Units	Notes
Approximate Area of the excavation	3,446	m^2	Approximate perimeter of the excavated area is 260 m
Ground Elevation	72.0	masl	Lowest ground elevation based on the ground surface elevations surveyed at drilled borehole locations
Deepest Excavation for Foundation	65.5	masl	Based on the design of P2 underground parking structure
Groundwater Elevation Considered	69.86 (MW21-2)	masl	Dewatering of shallow unconfined aquifer will be required
Bottom of Excavation	65.5	masl	P2 UG Parking structure (6.0 + 0.5) 6.5 mbgs (including 0.5 m below the invert for placement of foundation sub-base)

6.1 Dewatering Flow Rate Estimate and Zone of Influence

The dewatering flow rates are estimated based on some key parameters such as groundwater levels, hydraulic conductivity value, size and depth of the excavations. It is expected that the initial dewatering rate will be higher to remove groundwater from within the formation. The dewatering rates are expected to decrease once the target water level is achieved in the excavation footprint area as groundwater will have been removed, primarily from storage, resulting in lower seepage rates into the excavation. For the dewatering assessment at a location, careful review of water level information, the highest inferred water level was used in the dewatering calculations. The required hydraulic conductivity (K) values used in the calculations is estimated from the results of hydraulic conductivity test performed at the site.

The dewatering flow equation is based on the following general hydrogeological and construction considerations and assumptions:

- Aquifer top, bottom and initial ground water levels and aquifer type were established based on borehole logs and monitoring well information;
- The bottom of the aquifer is the limit of dewatering;
- In situations where the aquifer bottom was not encountered within the borehole depths, the aquifer was assumed to continue a few metres below the foundation elevation;
- The hydraulic conductivity ‘K’ for the aquifer parameter is estimated based on the grain size analysis data using Hazen’s empirical relationship. Other aquifer parameter such as storage coefficient ‘S’ were estimated based on field evidence and aquifer type;
- The aquifer is assumed to be isotropic and homogenous in both the horizontal and vertical directions. In reality, the aquifers are anisotropic and heterogeneous in all directions;

- The aquifer is assumed to be infinite in extent. In reality, the extent of the aquifer is limited by high horizontal variability fracture zones and the variations in the overburden sediments;
- It was assumed that dewatering occurs across the full vertical extent of the aquifer (i.e., assumes fully penetrating wells). In practice, dewatering will occur only a limited thickness within the upper portion of the aquifer; and,
- Excavations will extend to 0.5 m below the invert for placement of subgrade or bedding material and that is the target groundwater lowering elevation.

Dewatering in a source area will create a zone within which the groundwater will be lowered from its initial water level. Each zone of influence (ZOI) is dependent on the anticipated pumping duration, continuity of the aquifer, aquifer parameters (hydraulic conductivity, storativity) and required drawdown. For the purposes of this report, the limit of the ZOI is considered the distance beyond which the predicted drawdown will be 0.5 m or less. This drawdown cut-off criterion is considered reasonable and appropriate considering 0.5 m of drawdown is within the range of natural groundwater variation range. The estimated ZOIs are based on reasonable worst-case scenarios assumed for the dewatering evaluation. The dewatering equations are shown in Figure DW-1 in Appendix D.

For dewatering flow volume calculations, a Factor of Safety (FoS) approach will be used by performing a sensitivity analysis by changing the K value. In this approach, the flow volume requested for permit or EASR application will be evaluated based on changed K value as the pumping rate calculations are very sensitive to K value used estimated by the modified non-equilibrium flow equation by Cooper and Jacob (Powers et al., 2007). The FoS approach provides a range of flow volume and a reasonable value is recommended for the site. Based on assessed rates by applying a range of K values, the most reasonable rate will be used for permitting purposes.

6.2 Cooper-Jacob's Radius of Influence

The radius of influence (Rcj) for the construction dewatering was calculated based on Cooper-Jacob's equation. This equation is used to predict the distance at which the drawdown resulting from pumping is negligible.

The estimated radius of influence due to pumping is based on Cooper-Jacob's formula as follows:

$$R_{cj} = \sqrt{2.25KDt/s}$$

Where:

Ro	= Estimated radius of influence (m)
D	= Aquifer thickness (original saturated thickness) (m)
K	= Hydraulic conductivity (m/s)
S	= Storage coefficient
t	= Duration of pumping (s)

6.3 Stormwater

Additional pumping capacity may be required to maintain dry conditions within the excavation during and following significant precipitation events. Therefore, the dewatering rates at the Site should also include removing stormwater from the excavation. To estimate the stormwater volume over the site the intensity, duration and frequency (IDF) data maintained by the Ministry of Transportation Ontario (MTO) was reviewed (IDF Curve Look-up - Ministry of Transportation (gov.on.ca)). A 17.8 mm rainfall resulting from a 10-minute storm event from a once-in-10-year storm was used to estimate the stormwater volume that resulted in 61,340 L (61.3 m^3) of additional amount of water to be pumped out of the site after the storm in addition to the groundwater volume.

6.4 Results of Dewatering Rate Estimates

6.4.1 Construction Dewatering Pumping Rate Estimate

For this assessment, it was assumed that the proposed construction plans include an excavation with shoring extending to the Site boundaries. EXP should be retained to review the assumptions outlined in this section, should the assumed shoring design change. Estimated dewatering rates are presented in Appendix D.

Based on the assumptions and reviewed construction design and groundwater information provided in this report, the proposed construction will require dewatering of the upper shallow aquifer. The results of the dewatering rate estimate are summarized as follows:

Table 6-2 Summary of Dewatering and Depressurization Pumping Rates

Description	Dewatering Rate (LPD)
Maximum Volume (L/day) of Pumped Groundwater (Construction dewatering) **without Safety Factor (excluding precipitation)**	235,290 LPD
Maximum Volume (L/day) of Pumped Groundwater (Construction dewatering) **with Safety Factor 1.25X (excluding precipitation)**	294,113
Storm Water Volume (L)	61,340
Maximum Potential Peak Volume (L/day) of Dewatering Discharge of Groundwater (FoS Construction dewatering) **including stormwater**	**355,453**
Anticipated Long-Term Foundation Drainage Volume (LPD) **It will be updated once we have site dewatering data available**	117,645
Dewatering Rate (LPD) to be registered for the EASR	**400,000**
Predicted ZOI (in m) due to short-term construction dewatering pumping	63

The dewatering pumping conditions were evaluated using calculated hydraulic conductivity value from the analysis of the single well response test. The area of excavation is approximately 3,446 m^2 and the initial estimated rate is usually higher, and the higher rate shall be used for the registration of EASR. As soon as the target water level is reached the pumping rate can be reduced to maintain the water table.

The shallow unconfined aquifer is relatively less permeable than the deeper bedrock aquifer. However, as a conservative approach the same K value was used in the rate estimation analysis. The groundwater in the upper shallow aquifer is mainly stored in the granular lenses within the till matrix (clay rich overburden) and most likely the seepage from this layer is not anticipated to sustain. It is expected that sump pumping would be adequate to address the seepage from the shallow overburden aquifer.

The details of the dewatering rate calculations and the results are provided Table DW-1 in Appendix D.

All grading around the perimeter of the excavation should be graded away from the excavations. The contractor is responsible for the design of the dewatering systems (depth of wells, screen length, number of wells, spacing, sand pack around screens, prevent soil loss etc.) to ensure that dry conditions are always maintained within the excavation at all costs.

Discharge rates should be monitored using calibrated flow meters and records of dewatering progress, and daily precipitation as per MECP requirements. Discharge flow rates must be recorded via a totalizing flow meter and also manually by measuring the instantaneous flow during the day the pump is operational.

6.4.2 Permit Requirement

In terms of permitting requirements, it should be noted that considering a cautious and conservative approach the estimated rates assume pumping from an excavation without groundwater barrier walls other than soil support and stability structures. The estimated maximum initial pumping rate of 355,453 LPD which includes FoS groundwater pumping rate and additional volume of stormwater, an EASR registration will be required. An EASR registration allows pumping at rates up to 400,000 LPD.

7 Groundwater Quality

A groundwater sample was collected from MW21-1D well on September 28, 2023, for analysis of general inorganics, total metals, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), poly aromatic hydrocarbons (PHC) for comparison with the City of Ottawa Sewer Use By-Law standards since the discharge from the site will be discharged in to the City utility services. The collected groundwater sample was analyzed by a Canadian Association of Laboratory Accreditation (CALA) certified laboratory. The following is a summary of exceedances noted. The water quality testing result is included in Appendix E.

Table 7-1 Summary of Exceedances of Water Quality Parameters

Parameters	Sanitary Sewer Limit (mg/L)	Storm Sewer Limit (mg/L)	Detected Concentration (mg/L)
Total Suspended Solids (TSS)	350	15	4590
Sulfide	2		<4
Phosphorous (Total)		0.4	3.08
Cyanide (Total)		0.02	0.041
Phenolics		0.008	<0.01
Copper (Total)		0.04	0.061
Manganese (Total)		0.05	0.693
Zinc (Total)		0.04	0.205

A very high level (4590 mg/L) of TSS was detected in the sample. Normally we do not encounter this level of TSS in the groundwater. This high level of TSS has the potential to impact other parameters. The shale bedrock identified as Billings Formation is sulfide bearing and that is a potential reason for high sulfide concentration. Also, metals tend to adsorb to the particulates, so a high level of TSS has the potential to elevate the concentrations of metals.

During the recent site visit on September 28, 2023, the wells and the casings were found stuffed with bentonite. The subject well (MW21-1) was cleaned of debris as best as possible before testing and sampling. However, residual bentonite in the well has potentially impacted the water quality. The well needs to be cleaned and developed and a resampling of groundwater from the same well (MW21-1) is recommended to confirm the discharge water quality.

8 Groundwater Discharge Management Plan

A private water discharge agreement will be required with the City to direct the pumped groundwater from the Site during both the short- and long-term dewatering and foundation drainage, provided the water quality complies with the applicable discharge guideline standards. Discharge water quality must comply with either Table 1 or Table 2 standards of the City of Ottawa Sewer use By-Law (2003-514) depending on the discharge location (storm or sanitary sewers).

Pre-construction and during construction groundwater sampling and analysis will be required to comply with the sewer use guidelines. If the water quality complies with the City of Ottawa Sewer Use By-Law guidelines (By-Law No. 2003-514) and the City issues a private water discharge agreement, then the discharge can be routed to the City sewers. A discharge water quality management plan will need to be developed. This plan will be adaptive and will be effective during the dewatering period. Anytime any exceedances are identified the discharge to the city services will be suspended until corrective action is implemented and water quality indicates compliance.

A discharge sampling and monitoring plan, as recommended in Table 8-1, shall be in place during the anticipated short-term dewatering operation to ensure compliance of discharge water quality to the receptor standards.

Table 8-1 Recommended Groundwater Discharge Management Plan

Potential Issue	Monitoring Aspect	Sampling and Suggested Frequency	Potential Mitigation Approach
Groundwater Discharge Management			
TSS in discharge TSS was 4,590 mg/L which is extremely high compared to the City of Ottawa sewer by-law standards (15 mg/L for Storm and 350 mg/L for Sanitary) and may be the result of excessive debris in the well. Using heavy duty excavators has the potential to generate large volumes of particulates which when wet has the potential to exceed the limit.	**Due to the nature of work using large and heavy construction equipment TSS will be a potential issue** during construction period specially during post-storm events.	The dewatering discharge – should be routed through a fine mesh filter bag as best management practice (BMP) approach. The discharge shall be sampled **every day for the first week of pumping** and **in the post-storm time** at the outlet location to monitor compliance. **If the discharge is compliant than the sampling frequency could be expanded to two-times a week**. **If it indicates compliance, then the sampling frequency can be expanded to once-a-week**. A field turbidity probe can also be used to calibrate with the laboratory measured TSS concentrations for frequent site discharge turbidity measurements.	As a basic BMP approach the discharge must be routed through fine mesh filter bags. If the discharge is non-compliant with the applicable receptor guidelines, then additional treatment options such as a settling tank, onsite settling basin or envirotank™, floclog™ should be utilized to enhance the mitigation process.
The following **metals** (Sulfide, Phosphorous (Total), Cyanide (Total) Phenolics, Copper (Total), Manganese (Total), Zinc (Total) exceeded Sanitary or Storm Sewer use criteria of the City of Ottawa Sewer use by-law.	Bentonite was noted in the casing and in the wells during the recent site visit. EXP staff cleaned the wells of bentonite as best as possible. However, the extremely high level of TSS in the sample indicates that bentonite formed colloids in the well water and was not completely removed. As a result, the metals may have been sorbed by bentonite.	**Measure turbidity and collect samples every day and analyze for TSS and metals analysis during first week of dewatering with rush turn-around-time (TAT)**. If the discharge is **compliant with the receptor criteria, then the sampling and testing frequency may be decreased to twice-every week for the following two (2) weeks** (with regular TAT). **If the discharge is compliant during this period discharge sampling frequency can be further decreased to once-every week for the remaining duration of dewatering. Turbidity shall be measured daily using a field probe.** Further resampling is recommended to confirm the water quality and to determine treatment option/s for the discharge if results of retesting indicate similar results. **The resampling shall be conducted after the well has been cleaned of all the debris**	**Additional sampling and analysis of groundwater sample is recommended** (both filtered and unfiltered samples) to determine total and dissolved metals to determine and recommend suitable treatment options.

Potential Issue	Monitoring Aspect	Sampling and Suggested Frequency	Potential Mitigation Approach
		and is fully developed.	
Erosion and Sediment Control			
Erosion at the site is not anticipated however, potential of high levels of particulate is anticipated. So a sediment control plan shall be in effect during construction	**Sediment Control** ***Adaptive*** sediment control measures must be in place to reduce transport of sediments offsite (through vehicular traffic to and from the site and storm runoff).	Basic sediment control measures such as installing silt fences around the work area and the site perimeter shall be applied. Siltsox™ or woodchip logs maybe used instead of silt fences at the perimeter to prevent sediment transport offsite. **After every storm event the site must be inspected for sediment control measures.** The sediment control measures shall be in place before construction commences and shall be inspected prior to the beginning of construction. Thereafter, the measures shall be inspected every week or within 24 to 48 hours of a storm event and be maintained or upgraded or modified as necessary.	If there are excessive particulates/sediments generated from the Site, that has the potential to be transported offsite via construction vehicular traffic, then a portable vehicle wheel wash system and a street sweeper may be employed for cleaning operations.

9 Potential of Impact from Anticipated Dewatering

Any dewatering pumping operation will generate a zone within which the groundwater is lowered with the maximum drawdown at the pumping location even during short-term operation. The further the distance away from the pumping location the drawdown is less and eventually at a certain distance from the pumping location the zone of influence (ZOI) diminishes as a result of reaching equilibrium condition.

The lowering of groundwater has the potential to impact sensitive features such as utilities, environmental habitats, water wells and engineered structures that are located within the predicted ZOI and are founded on compressible soils. Most of the construction dewatering operations occur only for short-term (1 month to 6 months duration) and the impacts are very temporary.

The proposed construction and related dewatering activities will be occurring in a highly urbanized area and there is less potential to impact water wells since municipal services are available and there are no active or in use private water wells in the area.

Our preliminary assessment indicates that there are no sensitive environmental features within 500 m distance of the site.

Additionally, a geotechnical assessment of consolidation and settlement of compressible soils due to short-term groundwater lowering will be required to assess the potential of settlement of utilities.

9.1 Groundwater Quality

It is our understanding that the potential effluent from the dewatering system during the construction will be released into the municipal sewer system. As such, the quality of groundwater discharge is required to conform with the City of Ottawa Sewer Use By-Law. Based on results of testing for water quality, the groundwater from the site is not suitable for discharge into the City of Ottawa sewer services without treatment.

Resampling and analysis of the groundwater sample from the same well is recommended after cleaning and redevelopment of the monitoring well. The sample was most likely impacted by excessive amount of particulate in the well that could not be removed prior to sampling.

A private water discharge agreement will be required to route discharge from the site into the City of Ottawa sewers both for the short- and long-term periods. The discharge water quality must be compatible with the receptor services (sewer or sanitary) standards.

9.1.1 Short-Term Construction Dewatering

For the short-term dewatering (construction phase), it is anticipated that TSS levels and some other parameters (for example, Total Metals) in the pumped groundwater may become elevated and exceed both Sanitary and Storm Sewer Use By-Law limits. To control the concentration of TSS and associated metals, it is recommended that a suitable and basic best management practice (BMP) treatment method (source control and outlet control by using fine mesh filter bags settlement tank and/ or any other applicable treatment system) be implemented during construction dewatering activities to discharge to the applicable sewer system. The specifications of the treatment system will need to be adjusted to the reported water quality results by the treatment specialist contractor. The non-compliant discharge shall be stored onsite and be treated and cannot be discharged into the city services until compliance standard is achieved.

9.1.2 Long-Term Foundation Drainage

Long-term drainage discharge into the City of Ottawa sewer services is anticipated from the site in the post-development phase since the foundation will be extending into the groundwater table. Without long-term drainage there is potential for development of hydrostatic buoyancy pressure (uplift pressure). To counterbalance the uplift pressure, a system of foundation drainage collection subdrains will be required to collect the groundwater and pump it out to reduce the uplift pressure.

The volume for the foundation drainage as estimated is 117,645 LPD, however this rate will be updated and refined based on site pumping data collected during construction stage.

Alternatively, the building foundation may be designed as a water-tight bathtub like foundation to counterbalance the uplifting hydrostatic pressure that will not require foundation drainage.

9.2 Contaminant Migration

Dewatering may induce migration of contaminants located within the zone of influence and beyond due to changing hydraulic gradients, hydrogeological conditions beyond Site boundaries and preferential pathways in utility beddings etc. The water quality sampling conducted as part of this assessment was performed under static conditions. As a result, monitoring may be required during dewatering activities to monitor potential migration, and this should be performed more frequently during early dewatering stages.

For the long-term dewatering discharge to the storm sewer system (post-development phase) and based on the water quality results, it is recommended to implement a suitable pre-treatment, as required.

The water quality results presented in this report may not be representative of the long-term condition of groundwater quality onsite. As such, regular water quality monitoring is recommended for the post-construction phase as required by the City.

An agreement to discharge into the sewers owned by the City of Ottawa will be required prior to releasing dewatering effluent.

9.3 Well Decommissioning

In conformance with Regulation 903 of the Ontario Water Resources Act, the installation and eventual decommissioning of any dewatering system wells or monitoring wells must be completed by a licensed well contractor. This will be required for all wells that are no longer in use.

9.4 Groundwater Discharge Management Plan

This section provides a recommended discharge management plan for the proposed dewatering operation at the site. The recommended plan is also summarized in Table 8-1. As per water quality testing results the groundwater is non-compliant for discharge into the City sewers. It is anticipated that the discharge from the site when complaint will be directed to the City of Ottawa sewer services. It is recommended that the well MW21-1S/D be cleaned out of any debris and should be redeveloped before the recommended resampling and repeat analysis of groundwater.

The discharge water quality shall be monitored as per recommended frequencies. If at any point of time the discharge is deemed non-compliant for routing into the city sewers, the pumped water either be stored onsite for treatment or be hauled offsite by a licensed hauler to a designated and licensed site that will accept the discharge.

Erosion will not be an issue at the site given the proposed dewatering operation, however the sediments that will be generated due to excavation have the potential to be an issue. An adaptive sediment control plan shall be developed and be implemented at the site during construction to control impacts from sediments. So therefore, sediment control measures, as outlined in Table 8-1, will need to be installed at the Site and will need to be inspected on regular intervals and within 24 to 48 hours after storm events.

10 Conclusions and Recommendations

Based on the findings of this 381 Kent Street, Ottawa, Ontario, the following conclusions are provided:

- Based on the most recent Phase Two investigation completed in January 2022, by EXP, the Site groundwater can be considered clean when compared to Table 3 SCS standards. However, there is probability of movement of contaminants generated potentially from the 29 PCAs identified nearby during the Phase II study;
- The Site will require dewatering of the shallow aquifer to facilitate the proposed construction of P2 underground parking structure;
- The groundwater dewatering pumping rate for the site has been estimated to be 235,290 LPD not including the stormwater volume. A FoS rate of 294,113 LPD has also been considered which is 1.25 x of the initial estimated rate. This FoS rate provides a safety factor to address uncertainty of encountering unforeseen groundwater conditions which may require very short term and infrequent pumping at a higher volume;
- Including the estimated stormwater volume of 61,340 L generated from 17.8 mm of rainfall from a 10-minute duration storm resulting from a 1-in-10-year storm event the maximum estimated dewatering rate will be 355,453 LPD;
- For the proposed construction dewatering, an EASR registration will be required;
- The raw water quality is not compliant with the Table 1 and 2 standards of the City of Ottawa Sewer use By-Law 2003-514 and the discharge from the site may not be directed to the city sewers without treatment. A resampling is recommended to confirm the noted exceedances. However basic BMP measures must be in place to address potentially high levels of particulates (TSS) generated at the site due to the very nature of the construction activities;
- A recommended discharge management plan is provided in Section 8 and a detail of the recommended plan is provided in Table 8-1. This plan is adaptive and will be evaluated at regular intervals for its effectiveness and efficacy;
- Since there are no sensitive environmental features nearby (private water well user, natural significant habitat) there would be no concern or issues;
- There is potential for shallow buried utilities and building foundations adjacent to the site which may be vulnerable to impacts (settlement or subsidence) due to temporary lowering of groundwater. A geotechnical assessment of consolidation and settlement is required to assess the potential impact;
- Records of daily dewatering and depressurization pumping rates must be measured using a calibrated flowmeter and manually using a calibrated drum or a bucket on a daily basis. This is required as per Ontario Regulation 63/16. The daily pumping information is also required to refine and update the long-term foundation drainage volume; and
- In the absence of suitable groundwater monitoring wells, new wells may have to be drilled.

The followings are our recommendations:

- The existing monitoring wells shall be cleaned out of debris and developed to establish good hydraulic connectivity with aquifers these are installed in;
- Prior to resampling of groundwater from MW21-1D, the well shall be cleaned out of debris, fully developed and allowed to fully recover and equalize with the groundwater level;
- Resampled groundwater shall be analyzed for TSS and total (unfiltered) and dissolved metals (filtered) to determine suitable treatment options; and
- Dewatering should be monitored using dedicated monitoring wells constructed around the perimeter of the excavation, and these wells should be monitored by manual measurements. Records of pumping, groundwater level monitoring and EASR registration should be maintained on site to track dewatering progress.

The conclusions and recommendations provided above should be reviewed in conjunction with the entirety of the report. We assume that the present design concept described throughout the report will proceed to construction. This preliminary report is solely intended for the site plan approval application. Any changes to the design concept may result in a modification to the recommendations provided in this report.

11 Limitations

This report is based on an investigation designed to provide information to support an assessment of the current hydrogeological conditions within the study area. The conclusions and recommendations presented within this report reflect Site conditions existing at the time of the assessment. EXP must be contacted immediately if any unforeseen Site conditions are experienced during construction activities. This will allow EXP to review the new findings and provide appropriate recommendations to allow the construction to proceed in a timely and cost-effective manner.

Our undertaking at EXP, therefore, is to perform our work within limits prescribed by our clients, with the usual thoroughness and competence of the geoscience/engineering profession. No other warranty or representation, either expressed or implied, is included or intended in this report.

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

We trust that this information is satisfactory for your purposes. Should you have any questions or comments, please do not hesitate to contact this office.

Sincerely,

EXP Services Inc.

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Earth and Environmental Services

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Senior Hydrogeologist,
Earth and Environmental Services

Mark McCalla, P.Geo.
Senior Geoscientist,
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12 References

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- EXP Services Inc. (January 21, 2022), Phase Two Environmental Site Assessment, 381 Kent Street, Ottawa, Ontario (EXP Project Ref: OTT-21019154-A0) prepared for Katasa Groupe

Figures

0 150m 300m 600m
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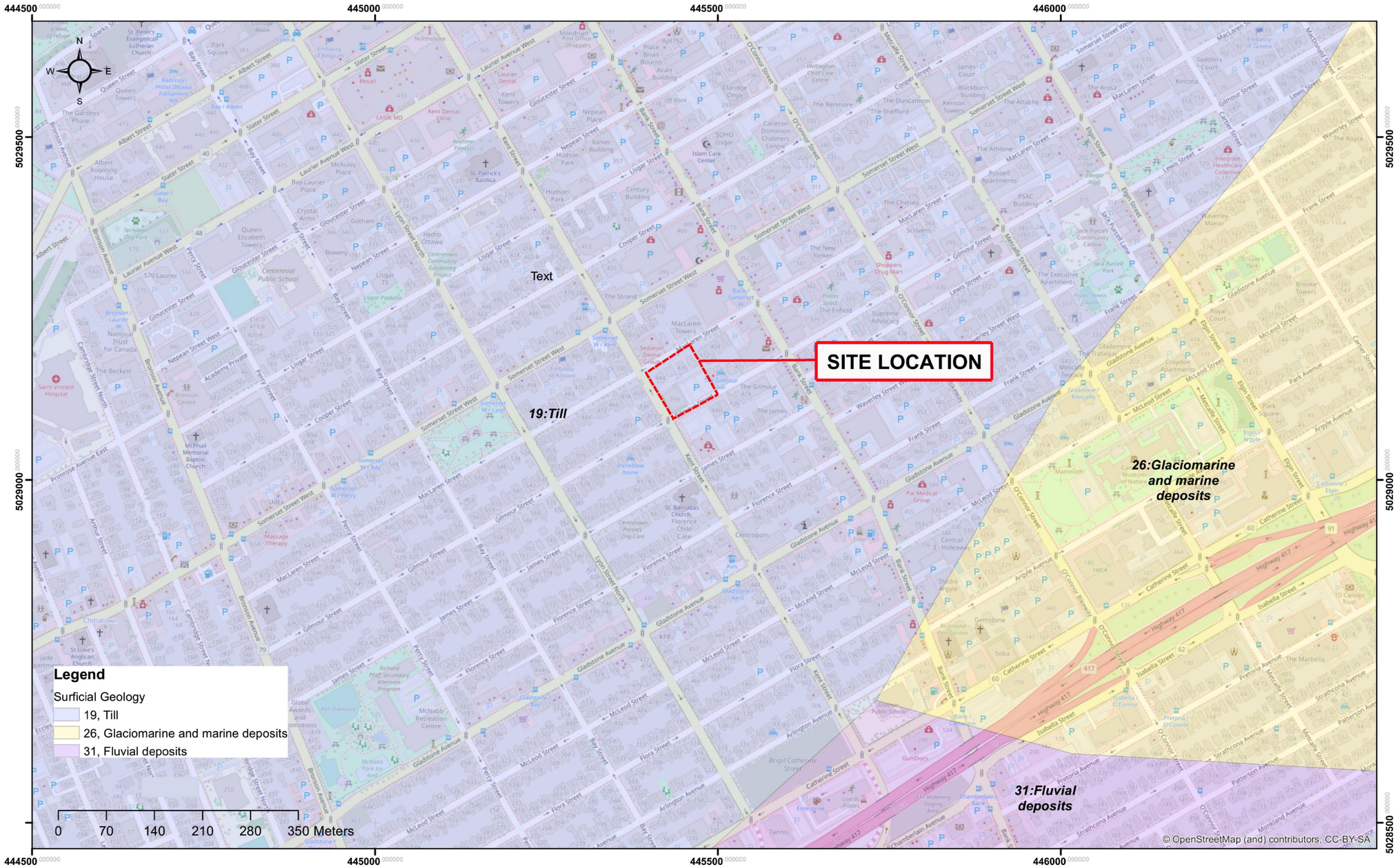

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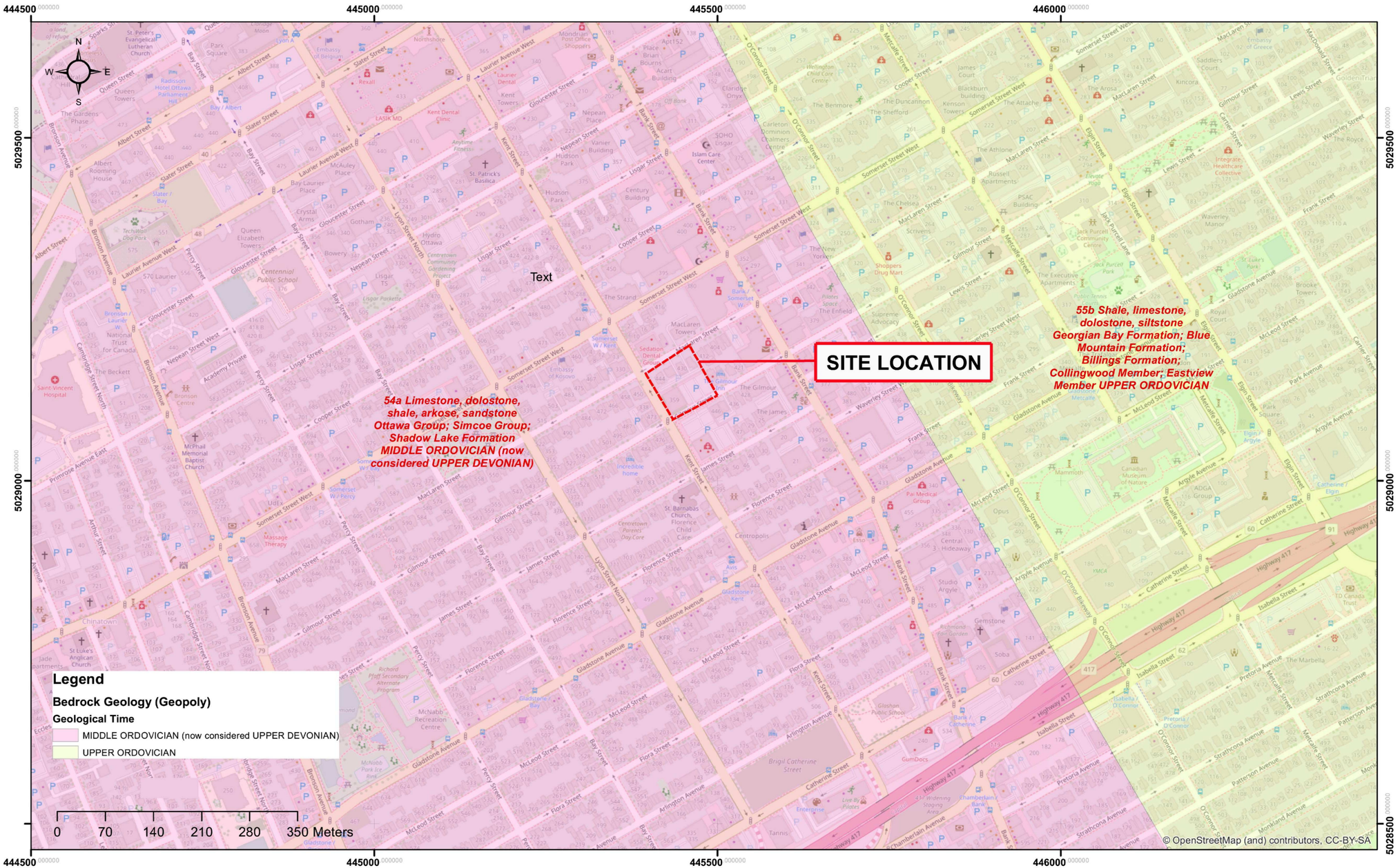

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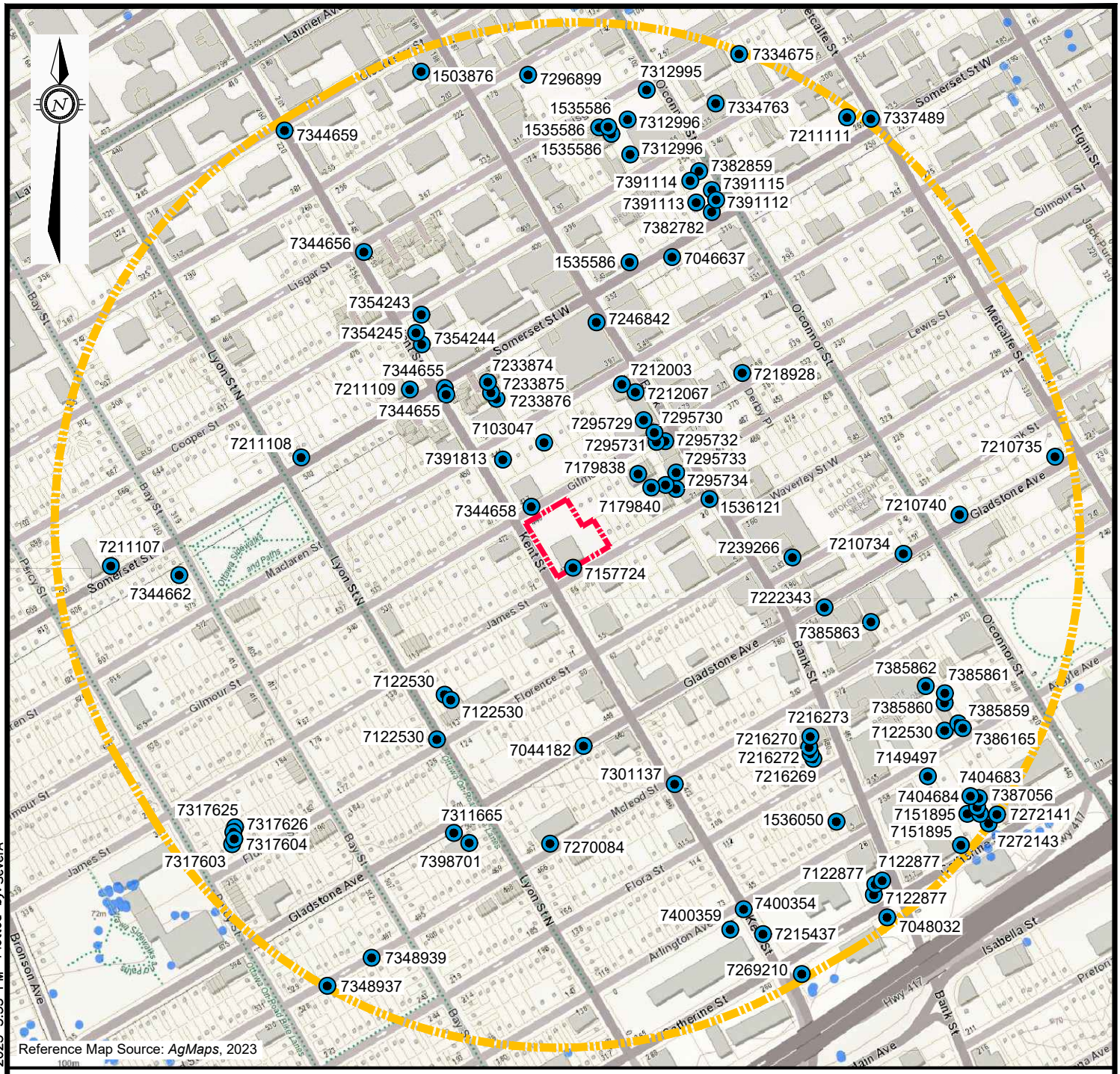

LEGEND

- SITE BOUNDARIES
- 500m (OF-SITE) RADIUS
- 7157724 — RESIDENTIAL (MECP) WELL

0 60m 120m 240m

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DRAWN BY: AS	TITLE: MECP WATER WELL RECORD 381 KENT STREET, OTTAWA, ONTARIO	FIG 6

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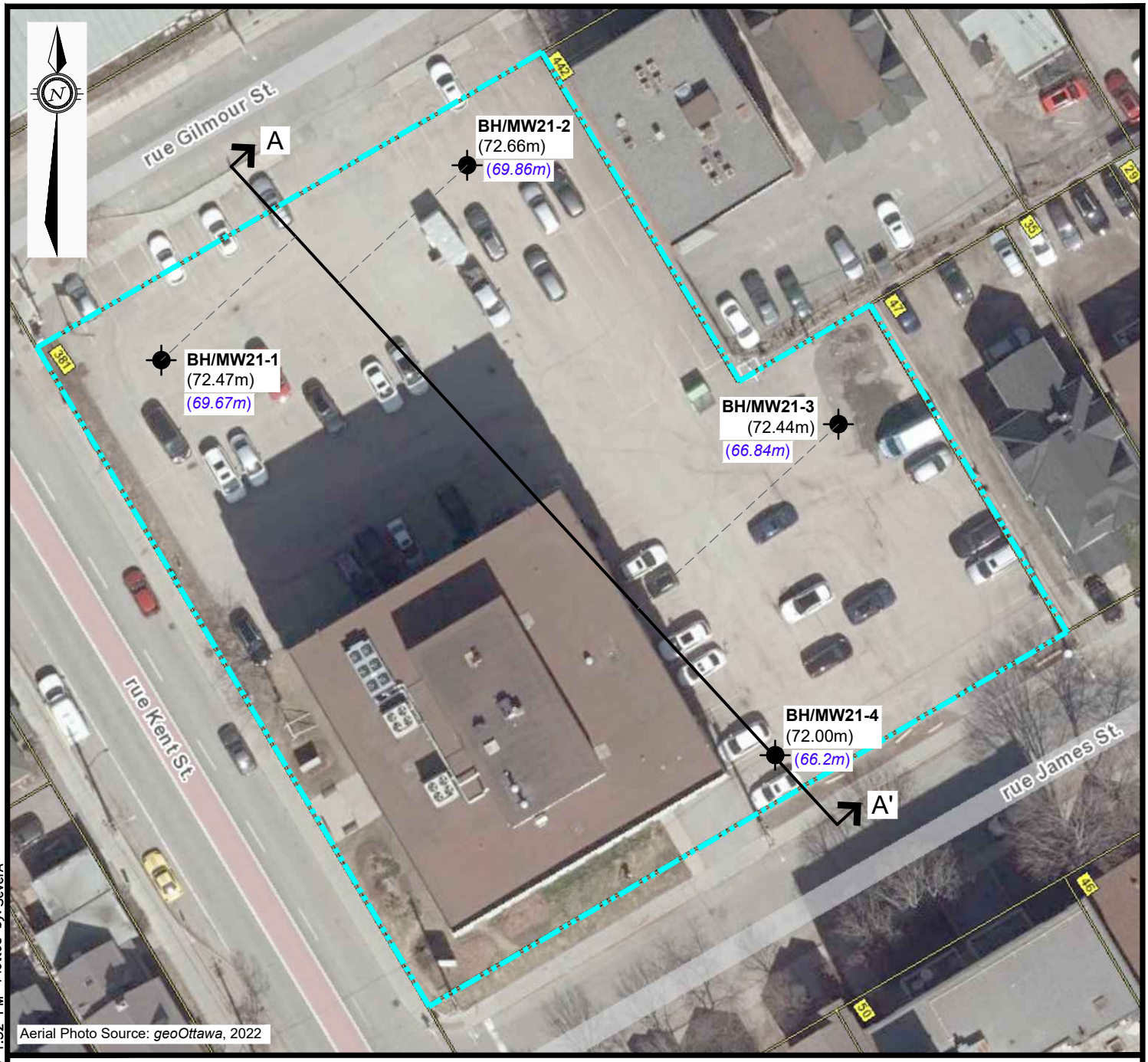

LEGEND

PROPERTY BOUNDARY

BH/MW21-1 BOREHOLE WITH MONITORING WELL
(72.47m) GROUND SURFACE ELEVATION (m)
(69.67m) GROUNDWATER LEVEL (m)

A CROSS-SECTION MARK

0 5m 10m 20m
HORIZONTAL 1:500

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DRAWN BY: AS	TITLE: SITE LAYOUT - BOREHOLE LOCATION PLAN 381 KENT STREET, OTTAWA, ONTARIO	**FIG 6**

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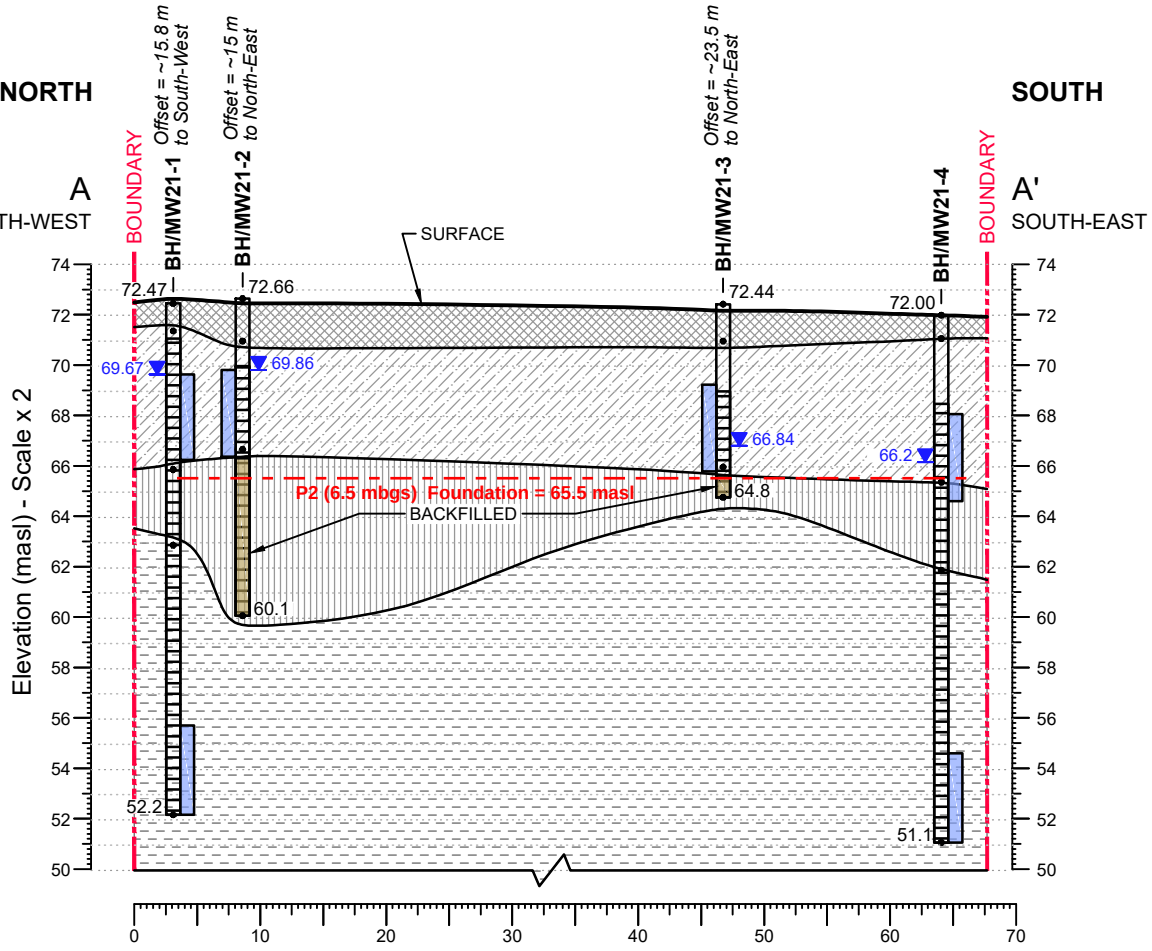

CROSS SECTION A-A'

Horizontal Distance (m) - Scale as indicated

LEGEND

- FILL / TOPSOIL
- SILTY CLAY
- GLACIAL TILL
- SHALE BEDROCK
- BOREHOLE
- BOREHOLE / MONITORING WELL
- ← SCREEN
- 69.67 ▼ GROUNDWATER LEVEL (NOVEMBER-DECEMBER 2021)

0 6m 12m 24m

HORIZONTAL 1:600

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DATE: OCTOBER 2023	CLIENT: KATASA GROUPE	project no.: OTT-21019154-A0
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Appendix A – MECP Water Well Record Information

Water Well Records

Well Record # **Based on Ministry of Environment Water Well Information Database June 30, 2022, available online.**

1503876 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON **Flowing?** N

Date 1948-02-12 **Elev** 72.5 (masl) **Easting** 445331 **Northing** 5029572 **SWL** 2.4 (mbgs) 70.1 (masl)
DDMMYY **Well_Depth_m:** 22.8600006103516 **UTM RC** 9 **unknown UTM** **Pumping WL** 3.7 (mbgs) 68.8 (masl)
Pump Rate 45.5 (LPM) 0 / 30
Spec. Cap. 37.29 (LPM/m) Hr / Min

/ Domestic Water Supply
Water Found (mbgs) (masl) FRESH

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	72.5		
8.5	64.0		SILT / /
22.9	49.6		SHALE / /

Street
Town/City

1535586 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON **Flowing?**

Date 2005-04-27 **Elev** 72.8 (masl) **Easting** 445557 **Northing** 5029364 **SWL** (mbgs) (masl)
DDMMYY **Well_Depth_m:** 6 **UTM RC** 4 **margin of error : 30 m - 100 m** **Pumping WL** (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hr / Min

/ Observation Wells
Water Found (mbgs) (masl)

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	72.8		
0.8	72.0	GREY	GRAVEL / /
1.2	71.6	BROWN	SAND / /
6.0	66.8	GREY	SILT / /

Street SOMERSET ROADWAY
Town/City OTTAWA

1536050 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON **Flowing?**

Date 2005-06-28 **Elev** 68.8 (masl) **Easting** 445776 **Northing** 5028755 **SWL** (mbgs) (masl)
DDMMYY **Well_Depth_m:** 4.57000017166138 **UTM RC** 4 **margin of error : 30 m - 100 m** **Pumping WL** (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hr / Min

/ Observation Wells
Water Found (mbgs) (masl)

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	68.8		
0.2	68.6		/ /
1.5	67.3	BLACK	COARSE SAND / GRAVEL /
2.4	66.4	BROWN	MEDIUM SAND / FINE SAND /
4.6	64.2	GREY	CLAY / /

Street 510 BANKL ST
Town/City OTTAWA

1536121 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON **Flowing?** N

Date 2005-12-09 **Elev** 71.8 (masl) **Easting** 445641 **Northing** 5029106 **SWL** (mbgs) (masl)
DDMMYY **Well_Depth_m:** 5.40000009536743 **UTM RC** 3 **margin of error : 10 - 30 m** **Pumping WL** (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hr / Min

/ Not Used Test Hole
Water Found (mbgs) (masl)

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	71.8		
0.2	71.6	BROWN	SAND / /
2.0	69.8	BROWN	SAND / SILT / GRAVEL
5.4	66.4	GREY	CLAY / SILT /

Street 408 BANK STREET
Town/City OTTAWA

7044182 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date 2007-05-11 **DDMMYY** | **Elev** 71.0 (masl) **Easting** 445502 **Northing** 5028840 | **Well_Depth_m:** 4.88000011444092 **UTM RC** 3 **margin of error : 10 - 30 m**

/ Not Used Test Hole

Water Found (mbgs) (masl)

Street 454 GLADSTONE AVE

Town/City OTTAWA

Flowing?

SWL (mbgs) (masl)

Pumping WL (mbgs) (masl)

Pump Rate (LPM) /

Spec. Cap. (LPM/m) Hr / Min

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	71.0		
0.1	70.9	BLACK	/ /
1.0	70.1	GREY	FILL / SAND / GRAVEL
1.1	69.9	BROWN	PEAT / /
2.0	69.1	BROWN	SAND / GRAVEL / SILT
4.9	66.1	GREY	CLAY / SILTY /

7046637 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date 2007-06-22 **DDMMYY** | **Elev** 72.6 (masl) **Easting** 445602 **Northing** 5029369 | **Well_Depth_m:** 8.22999954223633 **UTM RC** 3 **margin of error : 10 - 30 m**

/ Observation Wells

Water Found (mbgs) (masl)

Street 338 SOMERSET STREET WEST

Town/City OTTAWA

Flowing?

SWL (mbgs) (masl)

Pumping WL (mbgs) (masl)

Pump Rate (LPM) /

Spec. Cap. (LPM/m) Hr / Min

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	72.6		
0.9	71.6	BROWN	TOPSOIL / SANDY / GRAVEL
1.5	71.1	BROWN	SILT / SAND / CLAY
3.7	68.9	BROWN	SILT / CLAY / SOFT
6.1	66.5	GREY	CLAY / SILT / SOFT
8.2	64.3	GREY	CLAY / WATER-BEARING / SOFT

7103047 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date 2008-03-05 **DDMMYY** | **Elev** 73.3 (masl) **Easting** 445461 **Northing** 5029169 | **Well_Depth_m:** 5.78999996185303 **UTM RC** 3 **margin of error : 10 - 30 m**

/ Test Hole Test Hole

Water Found (mbgs) (masl)

Street 7, 9, 11 FLORENCE ST.

Town/City OTTAWA

Flowing? N

SWL (mbgs) (masl)

Pumping WL (mbgs) (masl)

Pump Rate (LPM) /

Spec. Cap. (LPM/m) Hr / Min

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	73.3		
2.4	70.8	BROWN	FILL / SAND / SOFT
4.5	68.7	GREY	CLAY / / SOFT
5.8	67.5	GREY	CLAY / / SOFT

7121702 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date 2008-08-11 **DDMMYY** | **Elev** 71.3 (masl) **Easting** 445444 **Northing** 5029914 | **Well_Depth_m:** 30.7600002288818 **UTM RC** 3 **margin of error : 10 - 30 m**

/ Monitoring Test Hole

Water Found (mbgs) (masl)

Street 150 SLATER STREET

Town/City Ottawa

Flowing?

SWL 7.0 (mbgs) 64.3 (masl)

Pumping WL (mbgs) (masl)

Pump Rate (LPM) /

Spec. Cap. (LPM/m) Hr / Min

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	71.3		
0.2	71.1		OTHER / /
	70.6		OTHER / /
			OTHER / /
	71.1		OTHER / /
			OTHER / /

	0.2	71.1		OTHER /		/
				OTHER /		/
				OTHER /		/
				OTHER /		/
				OTHER /		/
				OTHER /		/
		70.7		OTHER /		/
		70.6		OTHER /		/
				OTHER /		/
				OTHER /		/
				OTHER /		/
				OTHER /		/
		70.7		OTHER /		/
				OTHER /		/
		71.0		OTHER /		/
		70.6		OTHER /		/
		71.1		OTHER /		/
		70.7		OTHER /		/
		70.3		OTHER /		/
				OTHER /		/
				OTHER /		/
				OTHER /		/
				OTHER /		/
		71.0		OTHER /		/
				OTHER /		/
				OTHER /		/
		70.7		OTHER /		/
				OTHER /		/
				OTHER /		/
		70.6		OTHER /		/
		70.7		OTHER /		/
				OTHER /		/
				OTHER /		/
				OTHER /		/
				OTHER /		/
				OTHER /		/
				OTHER /		/
				OTHER /		/
		70.6		OTHER /		/
		71.0		OTHER /		/
				OTHER /		/
		70.7		OTHER /		/
				OTHER /		/
				OTHER /		/
				OTHER /		/
		71.0		OTHER /		/
		70.7		OTHER /		/
		71.0		OTHER /		/
				OTHER /		/
		70.3		OTHER /		/
				OTHER /		/
				OTHER /		/
				OTHER /		/
				OTHER /		/
		71.0		OTHER /		/
	1.8	69.0	GREY	SAND /	GRAVEL	/ SILTY

1.8	69.1	GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
	68.7	GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
	69.1	GREY	SAND /	GRAVEL	/ SILTY
	68.7	GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
	69.0	GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
	68.7	GREY	SAND /	GRAVEL	/ SILTY
	69.4	GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
	69.1	GREY	SAND /	GRAVEL	/ SILTY
	69.4	GREY	SAND /	GRAVEL	/ SILTY
	69.1	GREY	SAND /	GRAVEL	/ SILTY
	69.4	GREY	SAND /	GRAVEL	/ SILTY
	68.7	GREY	SAND /	GRAVEL	/ SILTY
	69.5	GREY	SAND /	GRAVEL	/ SILTY
	69.1	GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
	69.4	GREY	SAND /	GRAVEL	/ SILTY
	69.5	GREY	SAND /	GRAVEL	/ SILTY
	69.1	GREY	SAND /	GRAVEL	/ SILTY
	69.5	GREY	SAND /	GRAVEL	/ SILTY
	68.7	GREY	SAND /	GRAVEL	/ SILTY
	69.5	GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
	69.1	GREY	SAND /	GRAVEL	/ SILTY
	69.5	GREY	SAND /	GRAVEL	/ SILTY
	69.1	GREY	SAND /	GRAVEL	/ SILTY
	69.0	GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
	69.5	GREY	SAND /	GRAVEL	/ SILTY
	69.1	GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
	69.5	GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
	69.1	GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY

1.8	68.7	GREY	SAND /	GRAVEL	/ SILTY
	69.1	GREY	SAND /	GRAVEL	/ SILTY
		GREY	SAND /	GRAVEL	/ SILTY
2.6	68.5	GREY	CLAY /	SILTY	/
	68.2	GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
	68.5	GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
	67.8	GREY	CLAY /	SILTY	/
	68.2	GREY	CLAY /	SILTY	/
	67.8	GREY	CLAY /	SILTY	/
	68.2	GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
	68.6	GREY	CLAY /	SILTY	/
	68.2	GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
	68.6	GREY	CLAY /	SILTY	/
	67.8	GREY	CLAY /	SILTY	/
	68.5	GREY	CLAY /	SILTY	/
	67.8	GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
	68.6	GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
	67.8	GREY	CLAY /	SILTY	/
	68.5	GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
	68.2	GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
	67.8	GREY	CLAY /	SILTY	/
	68.2	GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
	68.6	GREY	CLAY /	SILTY	/
	68.2	GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
	68.6	GREY	CLAY /	SILTY	/
	68.2	GREY	CLAY /	SILTY	/

2.6	68.6	GREY	CLAY /	SILTY	/
	67.8	GREY	CLAY /	SILTY	/
	68.6	GREY	CLAY /	SILTY	/
	67.8	GREY	CLAY /	SILTY	/
	68.6	GREY	CLAY /	SILTY	/
	68.2	GREY	CLAY /	SILTY	/
		GREY	CLAY /	SILTY	/
5.9	65.3	GREY	SAND /	CLAY	/ SILTY
	64.8	GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
	64.9	GREY	SAND /	CLAY	/ SILTY
	65.3	GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
	64.8	GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
	65.3	GREY	SAND /	CLAY	/ SILTY
	64.8	GREY	SAND /	CLAY	/ SILTY
	65.3	GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
	64.9	GREY	SAND /	CLAY	/ SILTY
	65.2	GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
	64.5	GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
	65.3	GREY	SAND /	CLAY	/ SILTY
	64.9	GREY	SAND /	CLAY	/ SILTY
	64.8	GREY	SAND /	CLAY	/ SILTY
	64.9	GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
	65.3	GREY	SAND /	CLAY	/ SILTY
	64.9	GREY	SAND /	CLAY	/ SILTY
	65.3	GREY	SAND /	CLAY	/ SILTY
	64.9	GREY	SAND /	CLAY	/ SILTY
	65.3	GREY	SAND /	CLAY	/ SILTY
	64.9	GREY	SAND /	CLAY	/ SILTY
	64.5	GREY	SAND /	CLAY	/ SILTY
	64.9	GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
	64.5	GREY	SAND /	CLAY	/ SILTY

5.9	64.9	GREY	SAND /	CLAY	/ SILTY
	64.5	GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
	65.2	GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
	64.9	GREY	SAND /	CLAY	/ SILTY
		GREY	SAND /	CLAY	/ SILTY
7.3	63.5	GREY	SAND /	CLAY	/ SHALE
		GREY	SAND /	CLAY	/ SHALE
		GREY	SAND /	CLAY	/ SHALE
		GREY	SAND /	CLAY	/ SHALE
		GREY	SAND /	CLAY	/ SHALE
		GREY	SAND /	CLAY	/ SHALE
	63.9	GREY	SAND /	CLAY	/ SHALE
		GREY	SAND /	CLAY	/ SHALE
		GREY	SAND /	CLAY	/ SHALE
	63.5	GREY	SAND /	CLAY	/ SHALE
	63.9	GREY	SAND /	CLAY	/ SHALE
	63.5	GREY	SAND /	CLAY	/ SHALE
	63.9	GREY	SAND /	CLAY	/ SHALE
	63.1	GREY	SAND /	CLAY	/ SHALE
	63.8	GREY	SAND /	CLAY	/ SHALE
		GREY	SAND /	CLAY	/ SHALE
		GREY	SAND /	CLAY	/ SHALE
		GREY	SAND /	CLAY	/ SHALE
		GREY	SAND /	CLAY	/ SHALE
	63.1	GREY	SAND /	CLAY	/ SHALE
		GREY	SAND /	CLAY	/ SHALE
		GREY	SAND /	CLAY	/ SHALE
		GREY	SAND /	CLAY	/ SHALE
	63.5	GREY	SAND /	CLAY	/ SHALE
	63.1	GREY	SAND /	CLAY	/ SHALE
	63.5	GREY	SAND /	CLAY	/ SHALE
	63.1	GREY	SAND /	CLAY	/ SHALE
	63.5	GREY	SAND /	CLAY	/ SHALE
	63.1	GREY	SAND /	CLAY	/ SHALE
	63.5	GREY	SAND /	CLAY	/ SHALE
		GREY	SAND /	CLAY	/ SHALE
	63.1	GREY	SAND /	CLAY	/ SHALE
	63.5	GREY	SAND /	CLAY	/ SHALE
	63.8	GREY	SAND /	CLAY	/ SHALE
	63.5	GREY	SAND /	CLAY	/ SHALE
	63.1	GREY	SAND /	CLAY	/ SHALE
	63.5	GREY	SAND /	CLAY	/ SHALE
		GREY	SAND /	CLAY	/ SHALE
		GREY	SAND /	CLAY	/ SHALE
		GREY	SAND /	CLAY	/ SHALE
		GREY	SAND /	CLAY	/ SHALE
		GREY	SAND /	CLAY	/ SHALE
	63.9	GREY	SAND /	CLAY	/ SHALE
		GREY	SAND /	CLAY	/ SHALE
		GREY	SAND /	CLAY	/ SHALE

	7.3	63.9	GREY	SAND /	CLAY	/ SHALE
		63.5	GREY	SAND /	CLAY	/ SHALE
		63.9	GREY	SAND /	CLAY	/ SHALE
		63.5	GREY	SAND /	CLAY	/ SHALE
		63.8	GREY	SAND /	CLAY	/ SHALE
		63.5	GREY	SAND /	CLAY	/ SHALE
		63.8	GREY	SAND /	CLAY	/ SHALE
			GREY	SAND /	CLAY	/ SHALE
			GREY	SAND /	CLAY	/ SHALE
		63.5	GREY	SAND /	CLAY	/ SHALE
			GREY	SAND /	CLAY	/ SHALE
			GREY	SAND /	CLAY	/ SHALE
			GREY	SAND /	CLAY	/ SHALE
			GREY	SAND /	CLAY	/ SHALE
			GREY	SAND /	CLAY	/ SHALE
	30.8	40.5	BLACK	SHALE /	ROCK	/ LIMESTONE
			BLACK	SHALE /	ROCK	/ LIMESTONE
			BLACK	SHALE /	ROCK	/ LIMESTONE
		39.6	BLACK	SHALE /	ROCK	/ LIMESTONE
			BLACK	SHALE /	ROCK	/ LIMESTONE
			BLACK	SHALE /	ROCK	/ LIMESTONE
			BLACK	SHALE /	ROCK	/ LIMESTONE
			BLACK	SHALE /	ROCK	/ LIMESTONE
		40.5	BLACK	SHALE /	ROCK	/ LIMESTONE
		39.6	BLACK	SHALE /	ROCK	/ LIMESTONE
			BLACK	SHALE /	ROCK	/ LIMESTONE
		40.1	BLACK	SHALE /	ROCK	/ LIMESTONE
			BLACK	SHALE /	ROCK	/ LIMESTONE
		39.6	BLACK	SHALE /	ROCK	/ LIMESTONE
		40.1	BLACK	SHALE /	ROCK	/ LIMESTONE
			BLACK	SHALE /	ROCK	/ LIMESTONE
			BLACK	SHALE /	ROCK	/ LIMESTONE
			BLACK	SHALE /	ROCK	/ LIMESTONE
		40.4	BLACK	SHALE /	ROCK	/ LIMESTONE
			BLACK	SHALE /	ROCK	/ LIMESTONE
			BLACK	SHALE /	ROCK	/ LIMESTONE
			BLACK	SHALE /	ROCK	/ LIMESTONE
			BLACK	SHALE /	ROCK	/ LIMESTONE
		39.6	BLACK	SHALE /	ROCK	/ LIMESTONE
		40.0	BLACK	SHALE /	ROCK	/ LIMESTONE
		40.4	BLACK	SHALE /	ROCK	/ LIMESTONE
			BLACK	SHALE /	ROCK	/ LIMESTONE
		40.0	BLACK	SHALE /	ROCK	/ LIMESTONE
			BLACK	SHALE /	ROCK	/ LIMESTONE
		40.1	BLACK	SHALE /	ROCK	/ LIMESTONE
			BLACK	SHALE /	ROCK	/ LIMESTONE
			BLACK	SHALE /	ROCK	/ LIMESTONE
			BLACK	SHALE /	ROCK	/ LIMESTONE
		40.4	BLACK	SHALE /	ROCK	/ LIMESTONE
		40.1	BLACK	SHALE /	ROCK	/ LIMESTONE
		40.0	BLACK	SHALE /	ROCK	/ LIMESTONE
		39.6	BLACK	SHALE /	ROCK	/ LIMESTONE
		40.5	BLACK	SHALE /	ROCK	/ LIMESTONE
			BLACK	SHALE /	ROCK	/ LIMESTONE
			BLACK	SHALE /	ROCK	/ LIMESTONE
			BLACK	SHALE /	ROCK	/ LIMESTONE

30.8	40.0	BLACK	SHALE /	ROCK	/ LIMESTONE
		BLACK	SHALE /	ROCK	/ LIMESTONE
		BLACK	SHALE /	ROCK	/ LIMESTONE
	40.4	BLACK	SHALE /	ROCK	/ LIMESTONE
	40.1	BLACK	SHALE /	ROCK	/ LIMESTONE
		BLACK	SHALE /	ROCK	/ LIMESTONE
	40.0	BLACK	SHALE /	ROCK	/ LIMESTONE
	40.5	BLACK	SHALE /	ROCK	/ LIMESTONE
	40.0	BLACK	SHALE /	ROCK	/ LIMESTONE
	40.1	BLACK	SHALE /	ROCK	/ LIMESTONE
		BLACK	SHALE /	ROCK	/ LIMESTONE
		BLACK	SHALE /	ROCK	/ LIMESTONE
		BLACK	SHALE /	ROCK	/ LIMESTONE
		BLACK	SHALE /	ROCK	/ LIMESTONE
		BLACK	SHALE /	ROCK	/ LIMESTONE
		BLACK	SHALE /	ROCK	/ LIMESTONE
	40.5	BLACK	SHALE /	ROCK	/ LIMESTONE
	40.4	BLACK	SHALE /	ROCK	/ LIMESTONE
	40.0	BLACK	SHALE /	ROCK	/ LIMESTONE

7122530 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date 2009-03-16 **Elev** 72.1 (masl) **Easting** 445353 **Northing** 5028896

DDMMYY **Well_Depth_m:** 2.74000000953674 **UTM RC** 3 **margin of error : 10 - 30 m**

Flowing?

SWL (mbgs) (masl)

Pumping WL (mbgs) (masl)

Pump Rate (LPM) /

Spec. Cap. (LPM/m) Hr / Min

/ Monitoring and Te Test Hole

Water Found (mbgs) (masl)

Street 111 FLORENCE ST.

Town/City Ottawa

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	72.1				
0.6	71.5	BROWN	FILL /	GRAVEL	/ SAND
	71.4	BROWN	FILL /	GRAVEL	/ SAND
	69.4	BROWN	FILL /	GRAVEL	/ SAND
		BROWN	FILL /	GRAVEL	/ SAND
	71.5	BROWN	FILL /	GRAVEL	/ SAND
		BROWN	FILL /	GRAVEL	/ SAND
		BROWN	FILL /	GRAVEL	/ SAND
	70.8	BROWN	FILL /	GRAVEL	/ SAND
	69.4	BROWN	FILL /	GRAVEL	/ SAND
	71.4	BROWN	FILL /	GRAVEL	/ SAND
	69.4	BROWN	FILL /	GRAVEL	/ SAND
		BROWN	FILL /	GRAVEL	/ SAND
		BROWN	FILL /	GRAVEL	/ SAND
	70.8	BROWN	FILL /	GRAVEL	/ SAND
		BROWN	FILL /	GRAVEL	/ SAND
	71.5	BROWN	FILL /	GRAVEL	/ SAND
		BROWN	FILL /	GRAVEL	/ SAND
	71.4	BROWN	FILL /	GRAVEL	/ SAND
	70.8	BROWN	FILL /	GRAVEL	/ SAND
	71.5	BROWN	FILL /	GRAVEL	/ SAND
	71.4	BROWN	FILL /	GRAVEL	/ SAND
		BROWN	FILL /	GRAVEL	/ SAND
		BROWN	FILL /	GRAVEL	/ SAND
		BROWN	FILL /	GRAVEL	/ SAND
	70.8	BROWN	FILL /	GRAVEL	/ SAND
	71.4	BROWN	FILL /	GRAVEL	/ SAND
	70.8	BROWN	FILL /	GRAVEL	/ SAND

0.6	71.5	BROWN	FILL /	GRAVEL	/ SAND
		BROWN	FILL /	GRAVEL	/ SAND
	71.4	BROWN	FILL /	GRAVEL	/ SAND
	70.8	BROWN	FILL /	GRAVEL	/ SAND
	69.4	BROWN	FILL /	GRAVEL	/ SAND
		BROWN	FILL /	GRAVEL	/ SAND
		BROWN	FILL /	GRAVEL	/ SAND
		BROWN	FILL /	GRAVEL	/ SAND
		BROWN	FILL /	GRAVEL	/ SAND
	71.5	BROWN	FILL /	GRAVEL	/ SAND
	71.4	BROWN	FILL /	GRAVEL	/ SAND
	71.5	BROWN	FILL /	GRAVEL	/ SAND
		BROWN	FILL /	GRAVEL	/ SAND
	69.4	BROWN	FILL /	GRAVEL	/ SAND
	70.8	BROWN	FILL /	GRAVEL	/ SAND
		BROWN	FILL /	GRAVEL	/ SAND
		BROWN	FILL /	GRAVEL	/ SAND
		BROWN	FILL /	GRAVEL	/ SAND
	71.4	BROWN	FILL /	GRAVEL	/ SAND
		BROWN	FILL /	GRAVEL	/ SAND
	70.8	BROWN	FILL /	GRAVEL	/ SAND
1.5	69.9	BROWN	CLAY /	SILT	/ DENSE
	68.5	BROWN	CLAY /	SILT	/ DENSE
	70.6	BROWN	CLAY /	SILT	/ DENSE
	68.5	BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
	69.9	BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
	70.6	BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
	68.5	BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
	70.6	BROWN	CLAY /	SILT	/ DENSE
	68.5	BROWN	CLAY /	SILT	/ DENSE
	70.6	BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
	69.9	BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
	68.5	BROWN	CLAY /	SILT	/ DENSE
	69.9	BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
	70.6	BROWN	CLAY /	SILT	/ DENSE
	69.9	BROWN	CLAY /	SILT	/ DENSE
	70.6	BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE

1.5	70.6	BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
	69.9	BROWN	CLAY /	SILT	/ DENSE
	68.5	BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
	70.6	BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
		BROWN	CLAY /	SILT	/ DENSE
2.7	69.3	GREY	CLAY /	SILT	/ WATER-BEARING
		GREY	CLAY /	SILT	/ WATER-BEARING
	69.4	GREY	CLAY /	SILT	/ WATER-BEARING
		GREY	CLAY /	SILT	/ WATER-BEARING
		GREY	CLAY /	SILT	/ WATER-BEARING
	67.2	GREY	CLAY /	SILT	/ WATER-BEARING
		GREY	CLAY /	SILT	/ WATER-BEARING
		GREY	CLAY /	SILT	/ WATER-BEARING
	68.7	GREY	CLAY /	SILT	/ WATER-BEARING
		GREY	CLAY /	SILT	/ WATER-BEARING
	69.3	GREY	CLAY /	SILT	/ WATER-BEARING
		GREY	CLAY /	SILT	/ WATER-BEARING
	69.4	GREY	CLAY /	SILT	/ WATER-BEARING
	69.3	GREY	CLAY /	SILT	/ WATER-BEARING
	69.4	GREY	CLAY /	SILT	/ WATER-BEARING
		GREY	CLAY /	SILT	/ WATER-BEARING
	67.2	GREY	CLAY /	SILT	/ WATER-BEARING
		GREY	CLAY /	SILT	/ WATER-BEARING
		GREY	CLAY /	SILT	/ WATER-BEARING
	68.7	GREY	CLAY /	SILT	/ WATER-BEARING
		GREY	CLAY /	SILT	/ WATER-BEARING
		GREY	CLAY /	SILT	/ WATER-BEARING
		GREY	CLAY /	SILT	/ WATER-BEARING
		GREY	CLAY /	SILT	/ WATER-BEARING
		GREY	CLAY /	SILT	/ WATER-BEARING
	69.4	GREY	CLAY /	SILT	/ WATER-BEARING
	67.2	GREY	CLAY /	SILT	/ WATER-BEARING
	69.3	GREY	CLAY /	SILT	/ WATER-BEARING
		GREY	CLAY /	SILT	/ WATER-BEARING
	67.2	GREY	CLAY /	SILT	/ WATER-BEARING
	69.4	GREY	CLAY /	SILT	/ WATER-BEARING
	69.3	GREY	CLAY /	SILT	/ WATER-BEARING
	69.4	GREY	CLAY /	SILT	/ WATER-BEARING
	69.3	GREY	CLAY /	SILT	/ WATER-BEARING
	67.2	GREY	CLAY /	SILT	/ WATER-BEARING
	68.7	GREY	CLAY /	SILT	/ WATER-BEARING
	69.3	GREY	CLAY /	SILT	/ WATER-BEARING
	67.2	GREY	CLAY /	SILT	/ WATER-BEARING
	68.7	GREY	CLAY /	SILT	/ WATER-BEARING
		GREY	CLAY /	SILT	/ WATER-BEARING
		GREY	CLAY /	SILT	/ WATER-BEARING
	67.2	GREY	CLAY /	SILT	/ WATER-BEARING
		GREY	CLAY /	SILT	/ WATER-BEARING

2.7	69.4	GREY	CLAY /	SILT	/ WATER-BEARING
	69.3	GREY	CLAY /	SILT	/ WATER-BEARING
		GREY	CLAY /	SILT	/ WATER-BEARING
	69.4	GREY	CLAY /	SILT	/ WATER-BEARING
		GREY	CLAY /	SILT	/ WATER-BEARING

7122877 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date 2009-02-18 **Elev** 67.1 (masl) **Easting** 445825 **Northing** 5028690
DDMMYY **Well_Depth_m:** 4.80000019073486 **UTM RC** 4 **margin of error : 30 m - 100 m**

/ Monitoring and Te Test Hole

Water Found (mbgs) (masl)

Street 512 BANK STREET
Town/City Ottawa

Flowing?
SWL 3.9 (mbgs) 63.2 (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hr / Min

Depth (m)	Elev (masl)	Color			Soil Descriptions
0.0	67.1				
0.1	67.0		OTHER /		/
	66.9		OTHER /		/
	67.0		OTHER /		/
			OTHER /		/
			OTHER /		/
			OTHER /		/
	66.9		OTHER /		/
			OTHER /		/
	67.0		OTHER /		/
			OTHER /		/
			OTHER /		/
			OTHER /		/
			OTHER /		/
			OTHER /		/
			OTHER /		/
			OTHER /		/
			OTHER /		/
			OTHER /		/
	66.9		OTHER /		/
	67.0		OTHER /		/
	66.9		OTHER /		/
			OTHER /		/
			OTHER /		/
			OTHER /		/
			OTHER /		/
	67.0		OTHER /		/
0.6	66.4	BROWN	GRAVEL /	FILL	/ MEDIUM SAND
		BROWN	GRAVEL /	FILL	/ MEDIUM SAND
	66.5	BROWN	GRAVEL /	FILL	/ MEDIUM SAND
	66.4	BROWN	GRAVEL /	FILL	/ MEDIUM SAND
	66.5	BROWN	GRAVEL /	FILL	/ MEDIUM SAND
		BROWN	GRAVEL /	FILL	/ MEDIUM SAND
		BROWN	GRAVEL /	FILL	/ MEDIUM SAND
		BROWN	GRAVEL /	FILL	/ MEDIUM SAND
		BROWN	GRAVEL /	FILL	/ MEDIUM SAND
		BROWN	GRAVEL /	FILL	/ MEDIUM SAND
		BROWN	GRAVEL /	FILL	/ MEDIUM SAND
		BROWN	GRAVEL /	FILL	/ MEDIUM SAND
	66.4	BROWN	GRAVEL /	FILL	/ MEDIUM SAND

0.6	66.5	BROWN	GRAVEL /	FILL	/ MEDIUM SAND
	66.4	BROWN	GRAVEL /	FILL	/ MEDIUM SAND
	66.5	BROWN	GRAVEL /	FILL	/ MEDIUM SAND
		BROWN	GRAVEL /	FILL	/ MEDIUM SAND
		BROWN	GRAVEL /	FILL	/ MEDIUM SAND
	66.4	BROWN	GRAVEL /	FILL	/ MEDIUM SAND
		BROWN	GRAVEL /	FILL	/ MEDIUM SAND
		BROWN	GRAVEL /	FILL	/ MEDIUM SAND
		BROWN	GRAVEL /	FILL	/ MEDIUM SAND
	66.5	BROWN	GRAVEL /	FILL	/ MEDIUM SAND
		BROWN	GRAVEL /	FILL	/ MEDIUM SAND
		BROWN	GRAVEL /	FILL	/ MEDIUM SAND
		BROWN	GRAVEL /	FILL	/ MEDIUM SAND
4.8	62.3	BROWN	CLAY /	SOFT	/ DRY
		BROWN	CLAY /	SOFT	/ DRY
		BROWN	CLAY /	SOFT	/ DRY
		BROWN	CLAY /	SOFT	/ DRY
	62.2	BROWN	CLAY /	SOFT	/ DRY
	62.3	BROWN	CLAY /	SOFT	/ DRY
	62.2	BROWN	CLAY /	SOFT	/ DRY
	62.3	BROWN	CLAY /	SOFT	/ DRY
		BROWN	CLAY /	SOFT	/ DRY
		BROWN	CLAY /	SOFT	/ DRY
		BROWN	CLAY /	SOFT	/ DRY
	62.2	BROWN	CLAY /	SOFT	/ DRY
		BROWN	CLAY /	SOFT	/ DRY
		BROWN	CLAY /	SOFT	/ DRY
	62.3	BROWN	CLAY /	SOFT	/ DRY
		BROWN	CLAY /	SOFT	/ DRY
		BROWN	CLAY /	SOFT	/ DRY
		BROWN	CLAY /	SOFT	/ DRY
		BROWN	CLAY /	SOFT	/ DRY
		BROWN	CLAY /	SOFT	/ DRY
		BROWN	CLAY /	SOFT	/ DRY
	62.2	BROWN	CLAY /	SOFT	/ DRY
	62.3	BROWN	CLAY /	SOFT	/ DRY
	62.2	BROWN	CLAY /	SOFT	/ DRY
		BROWN	CLAY /	SOFT	/ DRY
		BROWN	CLAY /	SOFT	/ DRY
	62.3	BROWN	CLAY /	SOFT	/ DRY

7130914 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date 2009-07-24 **Elev** 71.8 (masl) **Easting** 445494 **Northing** 5029650

DDMMYY **Well_Depth_m:** 6.09999990463257 **UTM RC** 3 **margin of error : 10 - 30 m**

/ Monitoring Test Hole

Water Found (mbgs) (masl)

Street 154 O'CONNOR STREET

Town/City Ottawa

Flowing?

SWL (mbgs) (masl)

Pumping WL (mbgs) (masl)

Pump Rate (LPM) /

Spec. Cap. (LPM/m) Hr / Min

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0	71.8		
0.1	71.7	OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
	71.8	OTHER /	/

0.1	71.8	OTHER /	/
		OTHER /	/
	71.8	OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
	72.2	OTHER /	/
		OTHER /	/
		OTHER /	/
	71.8	OTHER /	/
	71.7	OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
	71.8	OTHER /	/
	71.7	OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
	71.8	OTHER /	/
	71.7	OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
	72.1	OTHER /	/
	71.7	OTHER /	/
	72.1	OTHER /	/
		OTHER /	/
		OTHER /	/
	72.3	OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
	72.1	OTHER /	/
		OTHER /	/
		OTHER /	/
	71.8	OTHER /	/
	72.1	OTHER /	/
		OTHER /	/
		OTHER /	/
	71.7	OTHER /	/
		OTHER /	/
	72.1	OTHER /	/
		OTHER /	/
	71.8	OTHER /	/
	71.7	OTHER /	/
	72.1	OTHER /	/
	71.8	OTHER /	/
	72.2	OTHER /	/
		OTHER /	/
		OTHER /	/
	71.7	OTHER /	/
		OTHER /	/

0.1		OTHER /	/
	71.7	OTHER /	/
		OTHER /	/
	72.2	OTHER /	/
		OTHER /	/
	72.3	OTHER /	/
	71.8	OTHER /	/
	71.7	OTHER /	/
	71.8	OTHER /	/
		OTHER /	/
	72.1	OTHER /	/
		OTHER /	/
	72.2	OTHER /	/
	72.1	OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
	72.2	OTHER /	/
		OTHER /	/
	72.2	OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
	72.1	OTHER /	/
		OTHER /	/
	72.1	OTHER /	/
	71.7	OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
	72.3	OTHER /	/
		OTHER /	/
	72.3	OTHER /	/
		OTHER /	/
	71.8	OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
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		OTHER /	/
	72.1	OTHER /	/
	72.3	OTHER /	/
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	72.3	OTHER /	/
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		OTHER /	/
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	72.1	OTHER /	/
		OTHER /	/

0.1	72.1	OTHER /	/
		OTHER /	/
	71.8	OTHER /	/
	72.2	OTHER /	/
	71.7	OTHER /	/
	72.2	OTHER /	/
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	72.1	OTHER /	/
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	72.1	OTHER /	/
	72.2	OTHER /	/
	71.7	OTHER /	/
	72.2	OTHER /	/
	71.7	OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
	72.1	OTHER /	/
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	72.2	OTHER /	/
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	71.7	OTHER /	/
	72.3	OTHER /	/
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		OTHER /	/
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	72.3	OTHER /	/
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	72.3	OTHER /	/
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	72.2	OTHER /	/
		OTHER /	/
	71.7	OTHER /	/
	72.3	OTHER /	/
		OTHER /	/
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		OTHER /	/
		OTHER /	/
	71.7	OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
	71.8	OTHER /	/

0.1	71.7	OTHER /	/
	72.3	OTHER /	/
	72.2	OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
	71.8	OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
		OTHER /	/
	71.7	OTHER /	/
		OTHER /	/
	71.8	OTHER /	/
	72.2	OTHER /	/
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		OTHER /	/
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	72.1	OTHER /	/
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	71.7	OTHER /	/
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	72.1	OTHER /	/
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	71.7	OTHER /	/
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		OTHER /	/
	71.7	OTHER /	/
	71.8	OTHER /	/
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	72.1	OTHER /	/
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0.1	72.1	OTHER /	/
	72.2	OTHER /	/
	72.1	OTHER /	/
	72.2	OTHER /	/
	71.7	OTHER /	/
		OTHER /	/
		OTHER /	/
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		OTHER /	/
	72.3	OTHER /	/
		OTHER /	/
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		OTHER /	/
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	72.1	OTHER /	/
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	71.7	OTHER /	/
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	71.8	OTHER /	/
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	71.8	OTHER /	/
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	71.7	OTHER /	/
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	72.2	OTHER /	/
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	72.1	OTHER /	/
	72.3	OTHER /	/
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	72.1	OTHER /	/
		OTHER /	/
	71.7	OTHER /	/
	72.1	OTHER /	/
	72.3	OTHER /	/

0.1	72.1	OTHER /	/
		OTHER /	/
	72.3	OTHER /	/
	71.7	OTHER /	/
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	71.8	OTHER /	/
	71.7	OTHER /	/
	72.1	OTHER /	/
	71.8	OTHER /	/
	72.3	OTHER /	/
	71.7	OTHER /	/
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	72.3	OTHER /	/
	71.7	OTHER /	/
	71.8	OTHER /	/
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	72.3	OTHER /	/
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	71.7	OTHER /	/
	71.8	OTHER /	/
	71.7	OTHER /	/
		OTHER /	/
	72.2	OTHER /	/
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		OTHER /	/
	71.7	OTHER /	/
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	72.2	OTHER /	/
	71.8	OTHER /	/
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	71.7	OTHER /	/
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	71.7	OTHER /	/
	72.3	OTHER /	/
	71.7	OTHER /	/
	72.3	OTHER /	/
	71.7	OTHER /	/
		OTHER /	/
	72.3	OTHER /	/
		OTHER /	/
	72.3	OTHER /	/

0.1			OTHER /		/
0.4	71.8	GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
	71.4	GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
	72.0	GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
	71.4	GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
	71.4	GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
	71.8	GREY	SAND /	GRAVEL	/ FILL
	71.9	GREY	SAND /	GRAVEL	/ FILL
	71.4	GREY	SAND /	GRAVEL	/ FILL
	71.9	GREY	SAND /	GRAVEL	/ FILL
	71.4	GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
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		GREY	SAND /	GRAVEL	/ FILL
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	72.0	GREY	SAND /	GRAVEL	/ FILL
	71.5	GREY	SAND /	GRAVEL	/ FILL
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	71.4	GREY	SAND /	GRAVEL	/ FILL
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		GREY	SAND /	GRAVEL	/ FILL
	71.9	GREY	SAND /	GRAVEL	/ FILL
	71.5	GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
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		GREY	SAND /	GRAVEL	/ FILL
	71.4	GREY	SAND /	GRAVEL	/ FILL
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	71.9	GREY	SAND /	GRAVEL	/ FILL
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		GREY	SAND /	GRAVEL	/ FILL
	71.9	GREY	SAND /	GRAVEL	/ FILL
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	71.4	GREY	SAND /	GRAVEL	/ FILL
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	71.5	GREY	SAND /	GRAVEL	/ FILL
	71.8	GREY	SAND /	GRAVEL	/ FILL
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	71.4	GREY	SAND /	GRAVEL	/ FILL
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	71.5	GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
	71.5	GREY	SAND /	GRAVEL	/ FILL
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		GREY	SAND /	GRAVEL	/ FILL
		GREY	SAND /	GRAVEL	/ FILL
	71.8	GREY	SAND /	GRAVEL	/ FILL
	71.4	GREY	SAND /	GRAVEL	/ FILL
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	72.0	GREY	SAND /	GRAVEL	/ FILL
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	71.4	GREY	SAND /	GRAVEL	/ FILL
	71.5	GREY	SAND /	GRAVEL	/ FILL
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	71.8	GREY	SAND /	GRAVEL	/ FILL
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	71.9	BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
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	71.3	BROWN	SAND /	FILL	/
	71.9	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.9	BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
	71.9	BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
	71.9	BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/

0.5	71.4	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.9	BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
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		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.9	BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
	71.8	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/

0.5	71.3	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
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		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.8	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
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		BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
	71.8	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
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		BROWN	SAND /	FILL	/
	71.8	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
	71.8	BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
	71.8	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
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		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.8	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/

0.5	71.3	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
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	71.3	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.8	BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.9	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
	71.9	BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
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		BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
	71.8	BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.9	BROWN	SAND /	FILL	/

0.5		BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
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		BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.9	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
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		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.9	BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
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		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.8	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.3	BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
	71.9	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/

	0.5	71.9	BROWN	SAND /	FILL	/
			BROWN	SAND /	FILL	/
		71.7	BROWN	SAND /	FILL	/
		71.9	BROWN	SAND /	FILL	/
		71.7	BROWN	SAND /	FILL	/
		71.9	BROWN	SAND /	FILL	/
			BROWN	SAND /	FILL	/
			BROWN	SAND /	FILL	/
			BROWN	SAND /	FILL	/
		71.3	BROWN	SAND /	FILL	/
		71.9	BROWN	SAND /	FILL	/
			BROWN	SAND /	FILL	/
			BROWN	SAND /	FILL	/
			BROWN	SAND /	FILL	/
		71.7	BROWN	SAND /	FILL	/
	1.5	70.8	BROWN	CLAY /	FILL	/ SANDY
			BROWN	CLAY /	FILL	/ SANDY
			BROWN	CLAY /	FILL	/ SANDY
		70.9	BROWN	CLAY /	FILL	/ SANDY
			BROWN	CLAY /	FILL	/ SANDY
		70.3	BROWN	CLAY /	FILL	/ SANDY
		70.9	BROWN	CLAY /	FILL	/ SANDY
		70.3	BROWN	CLAY /	FILL	/ SANDY
			BROWN	CLAY /	FILL	/ SANDY
			BROWN	CLAY /	FILL	/ SANDY
		70.8	BROWN	CLAY /	FILL	/ SANDY
		70.4	BROWN	CLAY /	FILL	/ SANDY
		70.3	BROWN	CLAY /	FILL	/ SANDY
		70.4	BROWN	CLAY /	FILL	/ SANDY
			BROWN	CLAY /	FILL	/ SANDY
		70.9	BROWN	CLAY /	FILL	/ SANDY
			BROWN	CLAY /	FILL	/ SANDY
			BROWN	CLAY /	FILL	/ SANDY
		70.7	BROWN	CLAY /	FILL	/ SANDY
			BROWN	CLAY /	FILL	/ SANDY
			BROWN	CLAY /	FILL	/ SANDY
			BROWN	CLAY /	FILL	/ SANDY
		70.4	BROWN	CLAY /	FILL	/ SANDY
		70.3	BROWN	CLAY /	FILL	/ SANDY
			BROWN	CLAY /	FILL	/ SANDY
		70.7	BROWN	CLAY /	FILL	/ SANDY
			BROWN	CLAY /	FILL	/ SANDY
			BROWN	CLAY /	FILL	/ SANDY
		70.7	BROWN	CLAY /	FILL	/ SANDY
		70.4	BROWN	CLAY /	FILL	/ SANDY
			BROWN	CLAY /	FILL	/ SANDY
		70.4	BROWN	CLAY /	FILL	/ SANDY
			BROWN	CLAY /	FILL	/ SANDY
		70.3	BROWN	CLAY /	FILL	/ SANDY
			BROWN	CLAY /	FILL	/ SANDY
			BROWN	CLAY /	FILL	/ SANDY
			BROWN	CLAY /	FILL	/ SANDY
			BROWN	CLAY /	FILL	/ SANDY
			BROWN	CLAY /	FILL	/ SANDY
		70.4	BROWN	CLAY /	FILL	/ SANDY
			BROWN	CLAY /	FILL	/ SANDY

1.5	70.8	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.7	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.9	BROWN	CLAY /	FILL	/ SANDY
	70.4	BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.7	BROWN	CLAY /	FILL	/ SANDY
	70.4	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.4	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.4	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
	70.9	BROWN	CLAY /	FILL	/ SANDY

1.5	70.7	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
	70.4	BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.9	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
	70.9	BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
	70.9	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
	70.9	BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
	70.9	BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.9	BROWN	CLAY /	FILL	/ SANDY
	70.7	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
	70.7	BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY

1.5	70.7	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
	70.7	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.4	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.4	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
	70.4	BROWN	CLAY /	FILL	/ SANDY
	70.7	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.4	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.7	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
	70.9	BROWN	CLAY /	FILL	/ SANDY
	70.7	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.9	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.7	BROWN	CLAY /	FILL	/ SANDY
	70.9	BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.9	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.4	BROWN	CLAY /	FILL	/ SANDY
	70.9	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.7	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
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		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.7	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.7	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.7	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY

1.5	70.7	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.9	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.9	BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
	70.4	BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
	70.9	BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.4	BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
	70.4	BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.4	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.7	BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.7	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY

1.5		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.4	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
	70.9	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
	70.9	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
	70.9	BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
	70.7	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.9	BROWN	CLAY /	FILL	/ SANDY
	70.4	BROWN	CLAY /	FILL	/ SANDY
	70.8	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
	70.4	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.4	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY

1.5	70.3	BROWN	CLAY /	FILL	/ SANDY
	70.4	BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.9	BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
		BROWN	CLAY /	FILL	/ SANDY
	70.3	BROWN	CLAY /	FILL	/ SANDY
4.8	67.5	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.5	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.5	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
	67.5	GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.5	GREY	CLAY /	SILTY	/ SAND

4.8		GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND

4.8	67.0	GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
	67.5	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
	67.5	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.5	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.5	GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.5	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.5	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND

4.8	67.0	GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.5	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
	67.5	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND

4.8	67.1	GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
	67.5	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.4	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND

4.8		GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
	67.5	GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.5	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
	67.5	GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
	67.5	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
	67.5	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND

4.8	67.0	GREY	CLAY /	SILTY	/ SAND
	67.5	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
		GREY	CLAY /	SILTY	/ SAND
	67.1	GREY	CLAY /	SILTY	/ SAND
	67.6	GREY	CLAY /	SILTY	/ SAND
	67.0	GREY	CLAY /	SILTY	/ SAND
6.1	65.8	BLACK	SHALE /		/
		BLACK	SHALE /		/
		BLACK	SHALE /		/
		BLACK	SHALE /		/
	65.7	BLACK	SHALE /		/
		BLACK	SHALE /		/
		BLACK	SHALE /		/
		BLACK	SHALE /		/
		BLACK	SHALE /		/
		BLACK	SHALE /		/
		BLACK	SHALE /		/
		BLACK	SHALE /		/
	65.8	BLACK	SHALE /		/
	65.7	BLACK	SHALE /		/
		BLACK	SHALE /		/
		BLACK	SHALE /		/
		BLACK	SHALE /		/
	65.8	BLACK	SHALE /		/
		BLACK	SHALE /		/
		BLACK	SHALE /		/
		BLACK	SHALE /		/
		BLACK	SHALE /		/
	65.7	BLACK	SHALE /		/
	66.2	BLACK	SHALE /		/
	65.7	BLACK	SHALE /		/
		BLACK	SHALE /		/
	66.2	BLACK	SHALE /		/

	6.1	66.2	BLACK	SHALE /	/
			BLACK	SHALE /	/
			BLACK	SHALE /	/
		66.2	BLACK	SHALE /	/
			BLACK	SHALE /	/
		66.2	BLACK	SHALE /	/
			BLACK	SHALE /	/
			BLACK	SHALE /	/
		66.2	BLACK	SHALE /	/
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			BLACK	SHALE /	/
			BLACK	SHALE /	/
		65.7	BLACK	SHALE /	/
			BLACK	SHALE /	/
			BLACK	SHALE /	/
		66.2	BLACK	SHALE /	/
		66.1	BLACK	SHALE /	/
			BLACK	SHALE /	/
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			BLACK	SHALE /	/
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		65.7	BLACK	SHALE /	/
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		66.2	BLACK	SHALE /	/
		65.8	BLACK	SHALE /	/
		66.1	BLACK	SHALE /	/
		66.2	BLACK	SHALE /	/
		66.3	BLACK	SHALE /	/
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		66.2	BLACK	SHALE /	/
		65.7	BLACK	SHALE /	/
		66.1	BLACK	SHALE /	/
		65.7	BLACK	SHALE /	/
		66.2	BLACK	SHALE /	/
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			BLACK	SHALE /	/
		65.7	BLACK	SHALE /	/
			BLACK	SHALE /	/
			BLACK	SHALE /	/
			BLACK	SHALE /	/
		66.1	BLACK	SHALE /	/
			BLACK	SHALE /	/
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			BLACK	SHALE /	/
			BLACK	SHALE /	/
			BLACK	SHALE /	/

	6.1	66.1	BLACK	SHALE /	/
			BLACK	SHALE /	/
			BLACK	SHALE /	/
		65.7	BLACK	SHALE /	/
		66.3	BLACK	SHALE /	/
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			BLACK	SHALE /	/
		66.3	BLACK	SHALE /	/
		66.2	BLACK	SHALE /	/
		66.3	BLACK	SHALE /	/
			BLACK	SHALE /	/
			BLACK	SHALE /	/
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			BLACK	SHALE /	/
		66.1	BLACK	SHALE /	/
			BLACK	SHALE /	/
			BLACK	SHALE /	/
			BLACK	SHALE /	/
		65.7	BLACK	SHALE /	/
			BLACK	SHALE /	/
		66.3	BLACK	SHALE /	/
		65.7	BLACK	SHALE /	/
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		65.8	BLACK	SHALE /	/
		66.3	BLACK	SHALE /	/
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		65.8	BLACK	SHALE /	/
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			BLACK	SHALE /	/
		65.7	BLACK	SHALE /	/
			BLACK	SHALE /	/

	6.1	65.7	BLACK	SHALE /	/
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		65.8	BLACK	SHALE /	/
		65.7	BLACK	SHALE /	/
		65.8	BLACK	SHALE /	/
		65.7	BLACK	SHALE /	/
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			BLACK	SHALE /	/
		66.3	BLACK	SHALE /	/
		65.7	BLACK	SHALE /	/
		66.1	BLACK	SHALE /	/
			BLACK	SHALE /	/
			BLACK	SHALE /	/
			BLACK	SHALE /	/
		65.8	BLACK	SHALE /	/
		66.2	BLACK	SHALE /	/
		65.8	BLACK	SHALE /	/
		65.7	BLACK	SHALE /	/
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		65.8	BLACK	SHALE /	/
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		65.7	BLACK	SHALE /	/
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		65.8	BLACK	SHALE /	/
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		66.3	BLACK	SHALE /	/
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		65.8	BLACK	SHALE /	/
		65.7	BLACK	SHALE /	/
		66.3	BLACK	SHALE /	/
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			BLACK	SHALE /	/
			BLACK	SHALE /	/
		65.8	BLACK	SHALE /	/
		66.1	BLACK	SHALE /	/

6.1	65.7	BLACK	SHALE /	/
		BLACK	SHALE /	/
	66.3	BLACK	SHALE /	/
	65.7	BLACK	SHALE /	/
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	65.7	BLACK	SHALE /	/
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	65.7	BLACK	SHALE /	/
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	66.2	BLACK	SHALE /	/
		BLACK	SHALE /	/
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	65.7	BLACK	SHALE /	/
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		BLACK	SHALE /	/
	66.1	BLACK	SHALE /	/
	65.7	BLACK	SHALE /	/
	66.2	BLACK	SHALE /	/
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	65.7	BLACK	SHALE /	/
	66.1	BLACK	SHALE /	/
	66.3	BLACK	SHALE /	/
	65.7	BLACK	SHALE /	/
	65.8	BLACK	SHALE /	/
	65.7	BLACK	SHALE /	/
	66.1	BLACK	SHALE /	/
	65.7	BLACK	SHALE /	/
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		BLACK	SHALE /	/
	66.3	BLACK	SHALE /	/

	6.1	66.3	BLACK	SHALE /	/
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		66.1	BLACK	SHALE /	/
		65.7	BLACK	SHALE /	/
		66.1	BLACK	SHALE /	/
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		66.3	BLACK	SHALE /	/
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		65.7	BLACK	SHALE /	/
		66.2	BLACK	SHALE /	/
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		65.7	BLACK	SHALE /	/
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		65.8	BLACK	SHALE /	/
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		65.7	BLACK	SHALE /	/
		65.8	BLACK	SHALE /	/
		65.7	BLACK	SHALE /	/
		66.1	BLACK	SHALE /	/
		65.7	BLACK	SHALE /	/
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		66.3	BLACK	SHALE /	/
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			BLACK	SHALE /	/
			BLACK	SHALE /	/
			BLACK	SHALE /	/
		66.1	BLACK	SHALE /	/
		65.7	BLACK	SHALE /	/
		66.1	BLACK	SHALE /	/

6.1	66.3	BLACK	SHALE /	/
	66.1	BLACK	SHALE /	/
		BLACK	SHALE /	/
		BLACK	SHALE /	/
		BLACK	SHALE /	/
		BLACK	SHALE /	/
		BLACK	SHALE /	/
		BLACK	SHALE /	/
	65.8	BLACK	SHALE /	/
		BLACK	SHALE /	/
		BLACK	SHALE /	/
	66.1	BLACK	SHALE /	/
	65.7	BLACK	SHALE /	/
	66.2	BLACK	SHALE /	/
		BLACK	SHALE /	/
		BLACK	SHALE /	/
		BLACK	SHALE /	/
	66.1	BLACK	SHALE /	/
	65.7	BLACK	SHALE /	/
	66.2	BLACK	SHALE /	/
		BLACK	SHALE /	/
		BLACK	SHALE /	/
	65.7	BLACK	SHALE /	/
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		BLACK	SHALE /	/
		BLACK	SHALE /	/
	65.8	BLACK	SHALE /	/
		BLACK	SHALE /	/
	65.7	BLACK	SHALE /	/
		BLACK	SHALE /	/
	65.8	BLACK	SHALE /	/
		BLACK	SHALE /	/
		BLACK	SHALE /	/
		BLACK	SHALE /	/
		BLACK	SHALE /	/
	65.7	BLACK	SHALE /	/

7137421 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Flowing?

Date 2009-11-09 **Elev** 72.4 (masl) **Easting** 445513 **Northing** 5029677 **SWL** (mbgs) (masl)

DDMMYY **Well_Depth_m:** **UTM RC** 4 **margin of error : 30 m - 100 m** **Pumping WL** (mbgs) (masl)

Pump Rate (LPM) /

Spec. Cap. (LPM/m) Hr / Min

/ Abandoned Monitoring and Test

Water Found (mbgs) (masl)

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	72.4			/	/
				/	/

Street 154 O'CONNOR STREET

Town/City Ottawa

7139448 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date 2009-12-16 **Elev** 72.2 (masl) **Easting** 445494 **Northing** 5029702

DDMMYY **Well_Depth_m:** 11.3000001907349 **UTM RC** 4 **margin of error : 30 m - 100 m**

/ Monitoring Test Hole

Water Found (mbgs) (masl)

Street 154 O'CONNOR ST

Town/City Ottawa

Flowing?

SWL (mbgs) (masl)

Pumping WL (mbgs) (masl)

Pump Rate (LPM) /

Spec. Cap. (LPM/m) Hr / Min

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	72.2				
0.6	71.6	BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.6	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
	71.8	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.6	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.8	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.6	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
	71.6	BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
	71.5	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
	71.6	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.8	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.6	BROWN	SAND /	FILL	/

0.6	71.6	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.5	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.6	BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.5	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
	71.6	BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
	71.6	BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.6	BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
	71.8	BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
	71.5	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.6	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.5	BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
	71.5	BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
	71.6	BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.8	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.5	BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/

0.6	71.4	BROWN	SAND /	FILL	/
	71.6	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.6	BROWN	SAND /	FILL	/
	71.4	BROWN	SAND /	FILL	/
	71.6	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
	71.5	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.6	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.5	BROWN	SAND /	FILL	/
	71.6	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.5	BROWN	SAND /	FILL	/
	71.8	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.6	BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
	71.6	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
	71.8	BROWN	SAND /	FILL	/
	71.5	BROWN	SAND /	FILL	/
	71.6	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.5	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.8	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/
	71.5	BROWN	SAND /	FILL	/
	71.8	BROWN	SAND /	FILL	/
	71.7	BROWN	SAND /	FILL	/
	71.6	BROWN	SAND /	FILL	/
		BROWN	SAND /	FILL	/

	0.6	71.6	BROWN	SAND /	FILL	/
			BROWN	SAND /	FILL	/
			BROWN	SAND /	FILL	/
		71.4	BROWN	SAND /	FILL	/
			BROWN	SAND /	FILL	/
			BROWN	SAND /	FILL	/
			BROWN	SAND /	FILL	/
			BROWN	SAND /	FILL	/
		71.7	BROWN	SAND /	FILL	/
			BROWN	SAND /	FILL	/
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		71.8	BROWN	SAND /	FILL	/
		71.4	BROWN	SAND /	FILL	/
			BROWN	SAND /	FILL	/
			BROWN	SAND /	FILL	/
		71.7	BROWN	SAND /	FILL	/
			BROWN	SAND /	FILL	/
			BROWN	SAND /	FILL	/
			BROWN	SAND /	FILL	/
		71.4	BROWN	SAND /	FILL	/
			BROWN	SAND /	FILL	/
		71.7	BROWN	SAND /	FILL	/
	1.2	71.1	BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
		70.9	BROWN	SAND /	GRAVEL	/ FILL
		71.2	BROWN	SAND /	GRAVEL	/ FILL
		70.9	BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
		71.2	BROWN	SAND /	GRAVEL	/ FILL
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		71.1	BROWN	SAND /	GRAVEL	/ FILL
		70.8	BROWN	SAND /	GRAVEL	/ FILL
		71.0	BROWN	SAND /	GRAVEL	/ FILL
		71.2	BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
		71.1	BROWN	SAND /	GRAVEL	/ FILL
		71.0	BROWN	SAND /	GRAVEL	/ FILL
		70.8	BROWN	SAND /	GRAVEL	/ FILL
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			BROWN	SAND /	GRAVEL	/ FILL
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			BROWN	SAND /	GRAVEL	/ FILL
		71.0	BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
		71.2	BROWN	SAND /	GRAVEL	/ FILL
		71.0	BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
		70.9	BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
		71.0	BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
		70.8	BROWN	SAND /	GRAVEL	/ FILL

	1.2	70.8	BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
		71.0	BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
		71.2	BROWN	SAND /	GRAVEL	/ FILL
		71.0	BROWN	SAND /	GRAVEL	/ FILL
		71.2	BROWN	SAND /	GRAVEL	/ FILL
		71.0	BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
		71.2	BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
		70.8	BROWN	SAND /	GRAVEL	/ FILL
		71.0	BROWN	SAND /	GRAVEL	/ FILL
		70.9	BROWN	SAND /	GRAVEL	/ FILL
		71.0	BROWN	SAND /	GRAVEL	/ FILL
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			BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
		71.1	BROWN	SAND /	GRAVEL	/ FILL
		71.0	BROWN	SAND /	GRAVEL	/ FILL
		70.9	BROWN	SAND /	GRAVEL	/ FILL
		70.8	BROWN	SAND /	GRAVEL	/ FILL
		70.9	BROWN	SAND /	GRAVEL	/ FILL
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			BROWN	SAND /	GRAVEL	/ FILL
		71.1	BROWN	SAND /	GRAVEL	/ FILL
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		71.2	BROWN	SAND /	GRAVEL	/ FILL
		71.1	BROWN	SAND /	GRAVEL	/ FILL
		71.2	BROWN	SAND /	GRAVEL	/ FILL
		71.0	BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
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			BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
		70.8	BROWN	SAND /	GRAVEL	/ FILL
		71.1	BROWN	SAND /	GRAVEL	/ FILL
		71.2	BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
		70.8	BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
		71.0	BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
		71.2	BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
		71.1	BROWN	SAND /	GRAVEL	/ FILL
		71.0	BROWN	SAND /	GRAVEL	/ FILL
		70.9	BROWN	SAND /	GRAVEL	/ FILL

1.2	71.0	BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
	71.2	BROWN	SAND /	GRAVEL	/ FILL
	70.8	BROWN	SAND /	GRAVEL	/ FILL
	70.9	BROWN	SAND /	GRAVEL	/ FILL
	71.1	BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
	70.8	BROWN	SAND /	GRAVEL	/ FILL
	71.0	BROWN	SAND /	GRAVEL	/ FILL
	70.8	BROWN	SAND /	GRAVEL	/ FILL
	71.0	BROWN	SAND /	GRAVEL	/ FILL
	70.8	BROWN	SAND /	GRAVEL	/ FILL
	70.9	BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
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		BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
	70.8	BROWN	SAND /	GRAVEL	/ FILL
	71.2	BROWN	SAND /	GRAVEL	/ FILL
	70.9	BROWN	SAND /	GRAVEL	/ FILL
	70.8	BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
	71.0	BROWN	SAND /	GRAVEL	/ FILL
	71.1	BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
	70.9	BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
	70.8	BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
	71.0	BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
	70.9	BROWN	SAND /	GRAVEL	/ FILL
	71.2	BROWN	SAND /	GRAVEL	/ FILL
	71.0	BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
	71.1	BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL
		BROWN	SAND /	GRAVEL	/ FILL

	1.2	70.9	BROWN	SAND /	GRAVEL	/ FILL
		71.0	BROWN	SAND /	GRAVEL	/ FILL
		71.2	BROWN	SAND /	GRAVEL	/ FILL
		71.0	BROWN	SAND /	GRAVEL	/ FILL
		71.2	BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
		71.1	BROWN	SAND /	GRAVEL	/ FILL
		70.9	BROWN	SAND /	GRAVEL	/ FILL
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			BROWN	SAND /	GRAVEL	/ FILL
		71.0	BROWN	SAND /	GRAVEL	/ FILL
		71.1	BROWN	SAND /	GRAVEL	/ FILL
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		70.8	BROWN	SAND /	GRAVEL	/ FILL
		71.2	BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
		71.1	BROWN	SAND /	GRAVEL	/ FILL
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			BROWN	SAND /	GRAVEL	/ FILL
		71.2	BROWN	SAND /	GRAVEL	/ FILL
		70.8	BROWN	SAND /	GRAVEL	/ FILL
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			BROWN	SAND /	GRAVEL	/ FILL
		71.2	BROWN	SAND /	GRAVEL	/ FILL
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		71.0	BROWN	SAND /	GRAVEL	/ FILL
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			BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
			BROWN	SAND /	GRAVEL	/ FILL
		71.2	BROWN	SAND /	GRAVEL	/ FILL
	3.0	69.1	BROWN	CLAY /	WATER-BEARING	/ SILTY
		69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
			BROWN	CLAY /	WATER-BEARING	/ SILTY
			BROWN	CLAY /	WATER-BEARING	/ SILTY
			BROWN	CLAY /	WATER-BEARING	/ SILTY
		69.1	BROWN	CLAY /	WATER-BEARING	/ SILTY
		69.3	BROWN	CLAY /	WATER-BEARING	/ SILTY
		69.1	BROWN	CLAY /	WATER-BEARING	/ SILTY
		69.0	BROWN	CLAY /	WATER-BEARING	/ SILTY
		69.1	BROWN	CLAY /	WATER-BEARING	/ SILTY
		69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
			BROWN	CLAY /	WATER-BEARING	/ SILTY
			BROWN	CLAY /	WATER-BEARING	/ SILTY
			BROWN	CLAY /	WATER-BEARING	/ SILTY
			BROWN	CLAY /	WATER-BEARING	/ SILTY
		69.4	BROWN	CLAY /	WATER-BEARING	/ SILTY
		69.1	BROWN	CLAY /	WATER-BEARING	/ SILTY
		69.3	BROWN	CLAY /	WATER-BEARING	/ SILTY
			BROWN	CLAY /	WATER-BEARING	/ SILTY
			BROWN	CLAY /	WATER-BEARING	/ SILTY
			BROWN	CLAY /	WATER-BEARING	/ SILTY
		69.0	BROWN	CLAY /	WATER-BEARING	/ SILTY

3.0	69.0	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.0	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.4	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.3	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.0	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.4	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.0	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.3	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.1	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.3	BROWN	CLAY /	WATER-BEARING	/ SILTY
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	69.4	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.3	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.1	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.4	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.3	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.0	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.4	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.0	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
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		BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
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		BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.4	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.1	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.0	BROWN	CLAY /	WATER-BEARING	/ SILTY

3.0	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.3	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.0	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
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		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
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	69.1	BROWN	CLAY /	WATER-BEARING	/ SILTY
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		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
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		BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.4	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
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		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.1	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.4	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
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	69.3	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.1	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.4	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.1	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.1	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.0	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.3	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.0	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.1	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.3	BROWN	CLAY /	WATER-BEARING	/ SILTY
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	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.3	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY

3.0	69.3	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.4	BROWN	CLAY /	WATER-BEARING	/ SILTY
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	69.1	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.1	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.0	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.3	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.3	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.1	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.3	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.3	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.0	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.1	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.0	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.0	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.0	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.1	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.4	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.0	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.4	BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.2	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.4	BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
		BROWN	CLAY /	WATER-BEARING	/ SILTY
	69.0	BROWN	CLAY /	WATER-BEARING	/ SILTY
4.3	68.0	GREY	CLAY /		/ WATER-BEARING
	67.9	GREY	CLAY /		/ WATER-BEARING
		GREY	CLAY /		/ WATER-BEARING
		GREY	CLAY /		/ WATER-BEARING
		GREY	CLAY /		/ WATER-BEARING
	68.1	GREY	CLAY /		/ WATER-BEARING
	67.9	GREY	CLAY /		/ WATER-BEARING
	68.0	GREY	CLAY /		/ WATER-BEARING
		GREY	CLAY /		/ WATER-BEARING
		GREY	CLAY /		/ WATER-BEARING

	4.3	68.0	GREY	CLAY /	/ WATER-BEARING
		68.1	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		68.0	GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
		67.8	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
		68.1	GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
		68.1	GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
		68.0	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		68.1	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
		68.1	GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
		67.7	GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.7	GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
		67.7	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.8	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
		68.1	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
		67.7	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		68.0	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.8	GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
		67.8	GREY	CLAY /	/ WATER-BEARING
		68.0	GREY	CLAY /	/ WATER-BEARING

	4.3	68.1	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.8	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.7	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
		67.8	GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
		67.7	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		68.0	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.7	GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.7	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.8	GREY	CLAY /	/ WATER-BEARING
		68.1	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.8	GREY	CLAY /	/ WATER-BEARING
		67.7	GREY	CLAY /	/ WATER-BEARING
		67.8	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		68.0	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.7	GREY	CLAY /	/ WATER-BEARING
		68.0	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
		68.0	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING

	4.3	68.0	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.7	GREY	CLAY /	/ WATER-BEARING
		68.0	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
		68.0	GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.8	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.7	GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
		68.1	GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
		67.7	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		68.0	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.8	GREY	CLAY /	/ WATER-BEARING
		68.0	GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		68.1	GREY	CLAY /	/ WATER-BEARING
		67.9	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.7	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		68.1	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.7	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		68.1	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
		67.8	GREY	CLAY /	/ WATER-BEARING
		67.7	GREY	CLAY /	/ WATER-BEARING
		68.1	GREY	CLAY /	/ WATER-BEARING
		67.8	GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING
			GREY	CLAY /	/ WATER-BEARING

4.3	67.8	GREY	CLAY /	/ WATER-BEARING
		GREY	CLAY /	/ WATER-BEARING
5.5	66.7	GREY	SILT /	/ CLAYEY
	66.8	GREY	SILT /	/ CLAYEY
	66.9	GREY	SILT /	/ CLAYEY
	66.6	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.7	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.5	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.8	GREY	SILT /	/ CLAYEY
	66.7	GREY	SILT /	/ CLAYEY
	66.6	GREY	SILT /	/ CLAYEY
	66.7	GREY	SILT /	/ CLAYEY
	66.9	GREY	SILT /	/ CLAYEY
	66.7	GREY	SILT /	/ CLAYEY
	66.9	GREY	SILT /	/ CLAYEY
	66.8	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.5	GREY	SILT /	/ CLAYEY
	66.7	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.8	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.5	GREY	SILT /	/ CLAYEY
	66.6	GREY	SILT /	/ CLAYEY
	66.9	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.6	GREY	SILT /	/ CLAYEY
	66.8	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.7	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.5	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.8	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.6	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.5	GREY	SILT /	/ CLAYEY
	66.6	GREY	SILT /	/ CLAYEY
	66.5	GREY	SILT /	/ CLAYEY
	66.8	GREY	SILT /	/ CLAYEY
	66.5	GREY	SILT /	/ CLAYEY
	66.6	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY

	5.5	66.6	GREY	SILT /	/ CLAYEY
		66.8	GREY	SILT /	/ CLAYEY
		66.5	GREY	SILT /	/ CLAYEY
		66.6	GREY	SILT /	/ CLAYEY
		66.7	GREY	SILT /	/ CLAYEY
		66.5	GREY	SILT /	/ CLAYEY
		66.8	GREY	SILT /	/ CLAYEY
		66.7	GREY	SILT /	/ CLAYEY
			GREY	SILT /	/ CLAYEY
			GREY	SILT /	/ CLAYEY
			GREY	SILT /	/ CLAYEY
			GREY	SILT /	/ CLAYEY
		66.8	GREY	SILT /	/ CLAYEY
		66.9	GREY	SILT /	/ CLAYEY
		66.8	GREY	SILT /	/ CLAYEY
		66.6	GREY	SILT /	/ CLAYEY
		66.7	GREY	SILT /	/ CLAYEY
			GREY	SILT /	/ CLAYEY
			GREY	SILT /	/ CLAYEY
			GREY	SILT /	/ CLAYEY
		66.9	GREY	SILT /	/ CLAYEY
			GREY	SILT /	/ CLAYEY
			GREY	SILT /	/ CLAYEY
		66.7	GREY	SILT /	/ CLAYEY
		66.8	GREY	SILT /	/ CLAYEY
		66.7	GREY	SILT /	/ CLAYEY
			GREY	SILT /	/ CLAYEY
		66.6	GREY	SILT /	/ CLAYEY
			GREY	SILT /	/ CLAYEY
			GREY	SILT /	/ CLAYEY
			GREY	SILT /	/ CLAYEY
			GREY	SILT /	/ CLAYEY
		66.8	GREY	SILT /	/ CLAYEY
		66.7	GREY	SILT /	/ CLAYEY
		66.6	GREY	SILT /	/ CLAYEY
		66.8	GREY	SILT /	/ CLAYEY
		66.9	GREY	SILT /	/ CLAYEY
			GREY	SILT /	/ CLAYEY
			GREY	SILT /	/ CLAYEY
			GREY	SILT /	/ CLAYEY
			GREY	SILT /	/ CLAYEY
		66.6	GREY	SILT /	/ CLAYEY
		66.8	GREY	SILT /	/ CLAYEY
		66.7	GREY	SILT /	/ CLAYEY
		66.9	GREY	SILT /	/ CLAYEY
		66.7	GREY	SILT /	/ CLAYEY
			GREY	SILT /	/ CLAYEY
		66.9	GREY	SILT /	/ CLAYEY
			GREY	SILT /	/ CLAYEY
		66.7	GREY	SILT /	/ CLAYEY
		66.9	GREY	SILT /	/ CLAYEY
		66.7	GREY	SILT /	/ CLAYEY
		66.5	GREY	SILT /	/ CLAYEY
			GREY	SILT /	/ CLAYEY
			GREY	SILT /	/ CLAYEY
		66.7	GREY	SILT /	/ CLAYEY

5.5	66.5	GREY	SILT /	/ CLAYEY
	66.9	GREY	SILT /	/ CLAYEY
	66.7	GREY	SILT /	/ CLAYEY
	66.5	GREY	SILT /	/ CLAYEY
	66.7	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.9	GREY	SILT /	/ CLAYEY
	66.5	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.7	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.5	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.7	GREY	SILT /	/ CLAYEY
	66.9	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.8	GREY	SILT /	/ CLAYEY
	66.7	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.5	GREY	SILT /	/ CLAYEY
	66.6	GREY	SILT /	/ CLAYEY
	66.7	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.5	GREY	SILT /	/ CLAYEY
	66.8	GREY	SILT /	/ CLAYEY
	66.6	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.8	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.6	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.7	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.9	GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
		GREY	SILT /	/ CLAYEY
	66.6	GREY	SILT /	/ CLAYEY
	66.7	GREY	SILT /	/ CLAYEY

5.5	66.5	GREY	SILT /		/ CLAYEY
		GREY	SILT /		/ CLAYEY
	66.6	GREY	SILT /		/ CLAYEY
	66.8	GREY	SILT /		/ CLAYEY
		GREY	SILT /		/ CLAYEY
	66.7	GREY	SILT /		/ CLAYEY
	66.5	GREY	SILT /		/ CLAYEY
		GREY	SILT /		/ CLAYEY
		GREY	SILT /		/ CLAYEY
	66.8	GREY	SILT /		/ CLAYEY
		GREY	SILT /		/ CLAYEY
		GREY	SILT /		/ CLAYEY
		GREY	SILT /		/ CLAYEY
	66.7	GREY	SILT /		/ CLAYEY
6.0	66.1	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.0	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.1	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
	66.3	GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
	66.1	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.4	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.4	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.3	GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
	66.4	GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
	66.4	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.0	GREY	CLAY /	SANDY	/
	66.4	GREY	CLAY /	SANDY	/
	66.3	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/

6.0	66.3	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
	66.4	GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
	66.3	GREY	CLAY /	SANDY	/
	66.4	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.0	GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.0	GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
	66.3	GREY	CLAY /	SANDY	/
	66.1	GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
	66.3	GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.0	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
	66.4	GREY	CLAY /	SANDY	/
	66.1	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.3	GREY	CLAY /	SANDY	/
	66.4	GREY	CLAY /	SANDY	/
	66.3	GREY	CLAY /	SANDY	/
	66.4	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.3	GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.3	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/

6.0	66.3	GREY	CLAY /	SANDY	/
	66.1	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.3	GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.0	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.3	GREY	CLAY /	SANDY	/
	66.0	GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
	66.0	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.1	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.3	GREY	CLAY /	SANDY	/
	66.0	GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.0	GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.4	GREY	CLAY /	SANDY	/
	66.0	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.4	GREY	CLAY /	SANDY	/
	66.0	GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.0	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.1	GREY	CLAY /	SANDY	/
	66.4	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
	66.4	GREY	CLAY /	SANDY	/
	66.0	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/
	66.3	GREY	CLAY /	SANDY	/
	66.4	GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
	66.4	GREY	CLAY /	SANDY	/
	66.2	GREY	CLAY /	SANDY	/
	66.3	GREY	CLAY /	SANDY	/
		GREY	CLAY /	SANDY	/

	6.0	66.2	GREY	CLAY /	SANDY	/
		66.3	GREY	CLAY /	SANDY	/
			GREY	CLAY /	SANDY	/
			GREY	CLAY /	SANDY	/
			GREY	CLAY /	SANDY	/
		66.2	GREY	CLAY /	SANDY	/
			GREY	CLAY /	SANDY	/
			GREY	CLAY /	SANDY	/
			GREY	CLAY /	SANDY	/
		66.3	GREY	CLAY /	SANDY	/
		66.1	GREY	CLAY /	SANDY	/
		66.4	GREY	CLAY /	SANDY	/
		66.1	GREY	CLAY /	SANDY	/
			GREY	CLAY /	SANDY	/
			GREY	CLAY /	SANDY	/
			GREY	CLAY /	SANDY	/
		66.2	GREY	CLAY /	SANDY	/
		66.0	GREY	CLAY /	SANDY	/
		66.2	GREY	CLAY /	SANDY	/
		66.1	GREY	CLAY /	SANDY	/
			GREY	CLAY /	SANDY	/
			GREY	CLAY /	SANDY	/
			GREY	CLAY /	SANDY	/
		66.3	GREY	CLAY /	SANDY	/
			GREY	CLAY /	SANDY	/
		66.2	GREY	CLAY /	SANDY	/
	11.3	60.7	BROWN	SHALE /		/ DRY
			BROWN	SHALE /		/ DRY
			BROWN	SHALE /		/ DRY
		60.8	BROWN	SHALE /		/ DRY
			BROWN	SHALE /		/ DRY
		60.9	BROWN	SHALE /		/ DRY
		61.1	BROWN	SHALE /		/ DRY
		60.9	BROWN	SHALE /		/ DRY
			BROWN	SHALE /		/ DRY
		61.0	BROWN	SHALE /		/ DRY
			BROWN	SHALE /		/ DRY
			BROWN	SHALE /		/ DRY
			BROWN	SHALE /		/ DRY
		60.9	BROWN	SHALE /		/ DRY
		61.0	BROWN	SHALE /		/ DRY
			BROWN	SHALE /		/ DRY
		60.7	BROWN	SHALE /		/ DRY
			BROWN	SHALE /		/ DRY
			BROWN	SHALE /		/ DRY
			BROWN	SHALE /		/ DRY
		60.9	BROWN	SHALE /		/ DRY
			BROWN	SHALE /		/ DRY
			BROWN	SHALE /		/ DRY
			BROWN	SHALE /		/ DRY
			BROWN	SHALE /		/ DRY
		60.7	BROWN	SHALE /		/ DRY
		61.0	BROWN	SHALE /		/ DRY
			BROWN	SHALE /		/ DRY
		60.8	BROWN	SHALE /		/ DRY
			BROWN	SHALE /		/ DRY

11.3	61.1	BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
	60.7	BROWN	SHALE /	/ DRY
	61.0	BROWN	SHALE /	/ DRY
	60.9	BROWN	SHALE /	/ DRY
	61.0	BROWN	SHALE /	/ DRY
	60.8	BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
	60.7	BROWN	SHALE /	/ DRY
	60.9	BROWN	SHALE /	/ DRY
	60.8	BROWN	SHALE /	/ DRY
	60.9	BROWN	SHALE /	/ DRY
	61.1	BROWN	SHALE /	/ DRY
	60.8	BROWN	SHALE /	/ DRY
	61.1	BROWN	SHALE /	/ DRY
	60.9	BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
	60.8	BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
	61.1	BROWN	SHALE /	/ DRY
	60.7	BROWN	SHALE /	/ DRY
	60.8	BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
	61.0	BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
	60.9	BROWN	SHALE /	/ DRY
	61.0	BROWN	SHALE /	/ DRY
	60.8	BROWN	SHALE /	/ DRY
	60.7	BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
	60.9	BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
	61.0	BROWN	SHALE /	/ DRY
	60.8	BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
	61.1	BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
	60.8	BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
	60.9	BROWN	SHALE /	/ DRY
	60.8	BROWN	SHALE /	/ DRY
	60.9	BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY
		BROWN	SHALE /	/ DRY

	11.3	60.9	BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
		61.1	BROWN	SHALE /	/ DRY
		60.7	BROWN	SHALE /	/ DRY
		61.0	BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
		60.8	BROWN	SHALE /	/ DRY
		60.7	BROWN	SHALE /	/ DRY
		61.1	BROWN	SHALE /	/ DRY
		60.7	BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
		60.9	BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
		60.7	BROWN	SHALE /	/ DRY
		61.1	BROWN	SHALE /	/ DRY
		60.9	BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
		61.1	BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
		60.9	BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
		60.8	BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
		60.9	BROWN	SHALE /	/ DRY
		60.8	BROWN	SHALE /	/ DRY
		60.9	BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
		61.1	BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
		60.9	BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
			BROWN	SHALE /	/ DRY
		60.8	BROWN	SHALE /	/ DRY
		60.9	BROWN	SHALE /	/ DRY

11.3	60.7	BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY
	61.0	BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY
	60.9	BROWN	SHALE /		/ DRY
	60.7	BROWN	SHALE /		/ DRY
	60.9	BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY
	61.1	BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY
	60.9	BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY
	60.8	BROWN	SHALE /		/ DRY
	60.7	BROWN	SHALE /		/ DRY
	60.8	BROWN	SHALE /		/ DRY
	60.7	BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY
	61.0	BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY
	60.8	BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY
	60.9	BROWN	SHALE /		/ DRY
		BROWN	SHALE /		/ DRY

7149497 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date 2010-07-11 **Elev** 69.5 (masl) **Easting** 445876 **Northing** 5028803

DDMMYY **Well_Depth_m:** 6.09999990463257 **UTM RC** 4 **margin of error : 30 m - 100 m**

/ Monitoring and Te Test Hole

Water Found (mbgs) (masl)

Street 203 CATHERINE STREET

Town/City Ottawa

Flowing?

SWL (mbgs) (masl)

Pumping WL (mbgs) (masl)

Pump Rate (LPM) /

Spec. Cap. (LPM/m) Hr / Min

Depth (m)	Elev (masl)	Color	Soil Descriptions		
0.0	69.5				
1.2	68.3	BROWN	GRAVEL /	SAND	/ SOFT
		BROWN	GRAVEL /	SAND	/ SOFT
		BROWN	GRAVEL /	SAND	/ SOFT
		BROWN	GRAVEL /	SAND	/ SOFT
		BROWN	GRAVEL /	SAND	/ SOFT
		BROWN	GRAVEL /	SAND	/ SOFT
	68.3	BROWN	GRAVEL /	SAND	/ SOFT
		BROWN	GRAVEL /	SAND	/ SOFT

1.2		BROWN	GRAVEL /	SAND	/ SOFT
	68.3	BROWN	GRAVEL /	SAND	/ SOFT
		BROWN	GRAVEL /	SAND	/ SOFT
		BROWN	GRAVEL /	SAND	/ SOFT
		BROWN	GRAVEL /	SAND	/ SOFT
		BROWN	GRAVEL /	SAND	/ SOFT
		BROWN	GRAVEL /	SAND	/ SOFT
		BROWN	GRAVEL /	SAND	/ SOFT
	68.3	BROWN	GRAVEL /	SAND	/ SOFT
		BROWN	GRAVEL /	SAND	/ SOFT
		BROWN	GRAVEL /	SAND	/ SOFT
		BROWN	GRAVEL /	SAND	/ SOFT
		BROWN	GRAVEL /	SAND	/ SOFT
		BROWN	GRAVEL /	SAND	/ SOFT
		BROWN	GRAVEL /	SAND	/ SOFT
		BROWN	GRAVEL /	SAND	/ SOFT
		BROWN	GRAVEL /	SAND	/ SOFT
		BROWN	GRAVEL /	SAND	/ SOFT
	68.3	BROWN	GRAVEL /	SAND	/ SOFT
		BROWN	GRAVEL /	SAND	/ SOFT
		BROWN	GRAVEL /	SAND	/ SOFT
3.7		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
	65.8	GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
	65.8	GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
6.1		GREY	CLAY /		/ SOFT
	63.4	GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT

	6.1	63.4	GREY	CLAY /	/ SOFT
			GREY	CLAY /	/ SOFT
			GREY	CLAY /	/ SOFT
			GREY	CLAY /	/ SOFT
			GREY	CLAY /	/ SOFT
			GREY	CLAY /	/ SOFT
			GREY	CLAY /	/ SOFT
			GREY	CLAY /	/ SOFT
			GREY	CLAY /	/ SOFT
		63.4	GREY	CLAY /	/ SOFT
			GREY	CLAY /	/ SOFT
			GREY	CLAY /	/ SOFT
			GREY	CLAY /	/ SOFT
			GREY	CLAY /	/ SOFT
			GREY	CLAY /	/ SOFT
			GREY	CLAY /	/ SOFT
			GREY	CLAY /	/ SOFT
			GREY	CLAY /	/ SOFT
			GREY	CLAY /	/ SOFT
			GREY	CLAY /	/ SOFT
			GREY	CLAY /	/ SOFT
			GREY	CLAY /	/ SOFT
			GREY	CLAY /	/ SOFT
			GREY	CLAY /	/ SOFT
			GREY	CLAY /	/ SOFT

7157724 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date 2010-12-02 **Elev** (masl) **Easting** 445491 **Northing** 5029035

DDMMYY **Well_Depth_m:** 6.09999990463257 **UTM RC** 3 **margin of error : 10 - 30 m**

/ Test Hole Test Hole

Water Found (mbgs) (masl)

Street 381 KENT ST

Town/City Ottawa

Flowing?

SWL (mbgs) (masl)

Pumping WL (mbgs) (masl)

Pump Rate (LPM) /

Spec. Cap. (LPM/m) Hr / Min

Depth (m)	Elev (masl)	Color		Soil Descriptions	
0.0					
1.2		BROWN	SAND /	FILL	/ SOFT
		BROWN	SAND /	FILL	/ SOFT
		BROWN	SAND /	FILL	/ SOFT
		BROWN	SAND /	FILL	/ SOFT
		BROWN	SAND /	FILL	/ SOFT
		BROWN	SAND /	FILL	/ SOFT
4.0		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
6.1		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT
		GREY	CLAY /		/ SOFT

7179838 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date 2012-01-24 **Elev** (masl) **Easting** 445564 **Northing** 5029134
DDMMYY **Well_Depth_m:** 3.96000003814697 **UTM RC** 3 **margin of error : 10 - 30 m**
/ Monitoring and Te Test Hole
Water Found (mbgs) (masl)
Street 320 GILMOUR ST
Town/City Ottawa

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

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
0.9		BROWN	GRAVEL / SAND / SOFT
4.0		GREY	CLAY / SILT / WATER-BEARING

7179839 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

Date 2012-01-24 **Elev** (masl) **Easting** 445564 **Northing** 5029134
DDMMYY **Well_Depth_m:** 4.26999998092651 **UTM RC** 4 **margin of error : 30 m - 100 m**
/ Monitoring and Te Test Hole
Water Found (mbgs) (masl)
Street 320 GILMOUR ST
Town/City Ottawa

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

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
1.2		BROWN	GRAVEL / SAND / SOFT
4.3		GREY	CLAY / SILT / WATER-BEARING

7179840 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

Date 2012-01-24 **Elev** (masl) **Easting** 445578 **Northing** 5029119
DDMMYY **Well_Depth_m:** 3.66000008583069 **UTM RC** 4 **margin of error : 30 m - 100 m**
/ Monitoring and Te Test Hole
Water Found (mbgs) (masl)
Street 320 GILMOUR ST
Town/City Ottawa

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

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
0.9		BROWN	GRAVEL / SAND / SOFT
3.7		GREY	CLAY / SILT / SOFT

7186496 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date 2012-07-26 **Elev** (masl) **Easting** 445594 **Northing** 5029121
DDMMYY **Well_Depth_m:** 4.57000017166138 **UTM RC** 4 **margin of error : 30 m - 100 m**
/ Monitoring and Te Observation Wells
Water Found (mbgs) (masl)
Street 21 JAMES ST
Town/City OTTAWA

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

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
1.5		BROWN	CLAY / / SOFT
4.6		GREY	CLAY / SOFT / WATER-BEARING

7210734 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

Date 2013-09-25 **Elev** (masl) **Easting** 445852 **Northing** 5029045
DDMMYY **Well_Depth_m:** **UTM RC** 4 **margin of error : 30 m - 100 m**
/ Abandoned-Other
Water Found (mbgs) (masl)
Street GLADSTONE AVENUE
Town/City OTTAWA

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

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

7210740 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

Date 2013-09-25 **Elev** (masl) **Easting** 445914 **Northing** 5029087
DDMMYY **Well_Depth_m:** **UTM RC** 4 **margin of error : 30 m - 100 m**

/ Abandoned-Other
Water Found (mbgs) (masl)
Street GLADSTONE AVENUE
Town/City OTTAWA

Depth (m) **Elev (masl)**
0.0

Color **Soil Descriptions**

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

/ /

7211107 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date **Elev** (masl) **Easting** 444989 **Northing** 5029038
DDMMYY **Well_Depth_m:** **UTM RC** 4 **margin of error : 30 m - 100 m**

/ Monitoring Abandoned-Other
Water Found (mbgs) (masl)
Street
Town/City

Depth (m) **Elev (masl)**
0.0

Color **Soil Descriptions**

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

/ /

7211108 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date **Elev** (masl) **Easting** 445196 **Northing** 5029156
DDMMYY **Well_Depth_m:** **UTM RC** 3 **margin of error : 10 - 30 m**

/ Monitoring Abandoned-Other
Water Found (mbgs) (masl)
Street
Town/City

Depth (m) **Elev (masl)**
0.0

Color **Soil Descriptions**

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

/ /

7211109 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date **Elev** (masl) **Easting** 445315 **Northing** 5029228
DDMMYY **Well_Depth_m:** **UTM RC** 3 **margin of error : 10 - 30 m**

/ Monitoring Abandoned-Other
Water Found (mbgs) (masl)
Street
Town/City

Depth (m) **Elev (masl)**
0.0

Color **Soil Descriptions**

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

/ /

7211110 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date **Elev** (masl) **Easting** 445650 **Northing** 5029430
DDMMYY **Well_Depth_m:** **UTM RC** 3 **margin of error : 10 - 30 m**

/ Monitoring Abandoned-Other
Water Found (mbgs) (masl)
Street
Town/City

Depth (m) **Elev (masl)**
0.0

Color **Soil Descriptions**

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

/ /

7211111 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date **Elev** (masl) **Easting** 445795 **Northing** 5029519
DDMMYY **Well_Depth_m:** **UTM RC** 3 **margin of error : 10 - 30 m**

/ Monitoring Abandoned-Other
Water Found (mbgs) (masl)
Street
Town/City

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

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

/ /

7212003 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

Date 2013-10-15 **Elev** (masl) **Easting** 445546 **Northing** 5029231
DDMMYY **Well_Depth_m:** 6.09999990463257 **UTM RC** 4 **margin of error : 30 m - 100 m**

/ Monitoring and Te Monitoring and Test Hole
Water Found (mbgs) (masl)
Street 384 MC LAUREN RD
Town/City OTTAWA

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

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
0.3		GREY	GRAVEL / HARD /
2.1		BROWN	SAND / GRAVEL / LOOSE
6.1		GREY	CLAY / SILT / SOFT

7212004 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

Date 2013-10-15 **Elev** (masl) **Easting** 445561 **Northing** 5029222
DDMMYY **Well_Depth_m:** 1.39293611049652 **UTM RC** 4 **margin of error : 30 m - 100 m**

/ Monitoring and Te Monitoring and Test Hole
Water Found (mbgs) (masl)
Street 384 MCLAUREN RD
Town/City OTTAWA

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

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
0.1		GREY	GRAVEL / HARD /
0.6		BROWN	SAND / GRAVEL / SOFT
1.4		GREY	CLAY / SILT / SOFT

7212067 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

Date 2013-10-15 **Elev** (masl) **Easting** 445563 **Northing** 5029224
DDMMYY **Well_Depth_m:** 6.09999990463257 **UTM RC** 4 **margin of error : 30 m - 100 m**

/ Monitoring and Te Monitoring and Test Hole
Water Found (mbgs) (masl)
Street 180 WALLER ST
Town/City OTTAWA

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

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
0.3		BROWN	TOPSOIL / SOFT /
1.8		BROWN	SAND / SOFT /
6.1		GREY	CLAY / SILT / SOFT

7215437 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

Date 2013-11-28 **Elev** (masl) **Easting** 445696 **Northing** 5028634
DDMMYY **Well_Depth_m:** 29.8899993896484 **UTM RC** 4 **margin of error : 30 m - 100 m**

/ Test Hole Test Hole
Water Found 16.0 (mbgs) (masl)
Street CATHERINE & KENT ST.
Town/City OTTAWA

Flowing? N
SWL 5.1 (mbgs) (masl)
Pumping WL 27.1 (mbgs) (masl)
Pump Rate 19.0 (LPM) 0 / 19
Spec. Cap. 0.86 (LPM/m) Hr / Min

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
2.4		BROWN	SAND / GRAVEL /
12.8		GREY	CLAY / /
29.9		GREY	LIMESTONE / /

7216268 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

Date 2013-12-04 **Elev** (masl) **Easting** 445750 **Northing** 5028833
DDMMYY **Well_Depth_m:** 7.61999988555908 **UTM RC** 4 **margin of error : 30 m - 100 m**

/ Monitoring and Te Monitoring and Test Hole
Water Found (mbgs) (masl)
Street 37 FLORA ST
Town/City OTTAWA

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

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
1.8		BROWN	FILL / SOFT / DRY
4.6		GREY	CLAY / SOFT /
7.6		GREY	CLAY / SOFT / WATER-BEARING

7216269 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date 2013-12-04 **Elev** (masl) **Easting** 445753 **Northing** 5028824
DDMMYY **Well_Depth_m:** 7.61999988555908 **UTM RC** 4 **margin of error : 30 m - 100 m**

/ Monitoring and Te Monitoring and Test Hole
Water Found (mbgs) (masl)
Street 37 FLORA ST
Town/City OTTAWA

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

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
2.7		BROWN	FILL / SOFT / DRY
4.6		GREY	CLAY / SOFT /
7.6		GREY	CLAY / SOFT / WATER-BEARING

7216270 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date 2013-12-04 **Elev** (masl) **Easting** 445748 **Northing** 5028836
DDMMYY **Well_Depth_m:** 6.09999990463257 **UTM RC** 4 **margin of error : 30 m - 100 m**

/ Monitoring and Te Monitoring and Test Hole
Water Found (mbgs) (masl)
Street 37 FLORA ST
Town/City OTTAWA

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

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
2.1		BROWN	FILL / SOFT / DRY
4.6		GREY	CLAY / SOFT /
6.1		GREY	CLAY / SOFT / WATER-BEARING

7216271 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date 2013-12-04 **Elev** (masl) **Easting** 445747 **Northing** 5028837
DDMMYY **Well_Depth_m:** 14.3000001907349 **UTM RC** 4 **margin of error : 30 m - 100 m**
/ Monitoring and Te Monitoring and Test Hole
Water Found (mbgs) (masl)
Street 37 FLORA ST
Town/City OTTAWA

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

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
1.8		BROWN	FILL / SOFT / DRY
2.7		GREY	CLAY / SOFT /
6.1		GREY	CLAY / SOFT / WATER-BEARING
14.3		GREY	CLAY / SOFT /

7216272 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date 2013-12-04 **Elev** (masl) **Easting** 445751 **Northing** 5028829
DDMMYY **Well_Depth_m:** 4.57000017166138 **UTM RC** 4 **margin of error : 30 m - 100 m**
/ Monitoring and Te Monitoring and Test Hole
Water Found (mbgs) (masl)
Street 37 FLORA ST
Town/City OTTAWA

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

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
1.8		BROWN	FILL / SOFT / DRY
3.1		GREY	CLAY / SOFT /
4.6		GREY	CLAY / SOFT / WATER-BEARING

7216273 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

Date 2013-12-04 **Elev** (masl) **Easting** 445748 **Northing** 5028846
DDMMYY **Well_Depth_m:** 4.57000017166138 **UTM RC** 4 **margin of error : 30 m - 100 m**
/ Monitoring and Te Monitoring and Test Hole
Water Found (mbgs) (masl)
Street 37 FLORA ST
Town/City OTTAWA

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

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
1.8		BROWN	FILL / SOFT / DRY
3.3		GREY	CLAY / SOFT /
4.6		GREY	CLAY / SOFT / WATER-BEARING

7218928 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

Date 2012-12-30 **Elev** (masl) **Easting** 445678 **Northing** 5029243
DDMMYY **Well_Depth_m:** 3.50999999046326 **UTM RC** 4 **margin of error : 30 m - 100 m**
/ Monitoring Observation Wells
Water Found (mbgs) (masl)
Street 356 MACLAREN STREET
Town/City Ottawa

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

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
0.5		GREY	SAND / GRAVEL / FILL
0.9		GREY	/ /
1.5		BROWN	SAND / / FILL
3.5		BROWN	SILT / CLAY / WEATHERED

7222343 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

Date 2014-05-20 **Elev** (masl) **Easting** 445766 **Northing** 5028987 **Flowing?**
DDMMYY **Well_Depth_m:** **UTM RC** 4 **margin of error : 30 m - 100 m** **SWL** (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hr / Min

/ Abandoned-Other
Water Found (mbgs) (masl)
Street GLADSTONE AVENUE
Town/City Ottawa

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

/ /

7230965 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

Date 2014-10-02 **Elev** (masl) **Easting** 445365 **Northing** 5029763 **Flowing?**
DDMMYY **Well_Depth_m:** 12.4499998092651 **UTM RC** 4 **margin of error : 30 m - 100 m** **SWL** (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hr / Min

/ Monitoring and Te Test Hole
Water Found (mbgs) (masl)
Street 269 LAURIER AVE
Town/City Ottawa

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
0.6		BLACK	GRAVEL / / SOFT
4.3		BROWN	SAND / BOULDERS / SOFT
12.4		BLACK	SHALE / FRACTURED / HARD

7231361 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

Date 2014-09-24 **Elev** (masl) **Easting** 445367 **Northing** 5029798 **Flowing?**
DDMMYY **Well_Depth_m:** 10.3800001144409 **UTM RC** 4 **margin of error : 30 m - 100 m** **SWL** (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hr / Min

/ Monitoring and Te Test Hole
Water Found (mbgs) (masl)
Street 269 LAURIER AVE
Town/City Ottawa

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
0.3		BLACK	/ GRAVEL / SOFT
4.3		BROWN	SAND / BOULDERS / SOFT
10.4		BLACK	SHALE / / HARD

7231362 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

Date 2014-09-24 **Elev** (masl) **Easting** 445336 **Northing** 5029785 **Flowing?**
DDMMYY **Well_Depth_m:** 10.3599996566772 **UTM RC** 4 **margin of error : 30 m - 100 m** **SWL** (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hr / Min

/ Monitoring and Te Test Hole
Water Found (mbgs) (masl)
Street 269 LAURIER AVE
Town/City Ottawa

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
1.2		BLACK	GRAVEL / / SOFT
4.6		GREY	CLAY / SAND / SOFT
10.4		GREY	SHALE / / HARD

7233874 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

Date 2014-11-06 **Elev** (masl) **Easting** 445399 **Northing** 5029235
DDMMYY **Well_Depth_m:** 5.09999990463257 **UTM RC** 4 **margin of error : 30 m - 100 m**
/ Monitoring and Te Monitoring and Test Hole
Water Found (mbgs) (masl)
Street 429 MC LEARN
Town/City Ottawa

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

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
1.2		BROWN	FILL / GRAVEL / SAND
3.1		BROWN	SAND / CLAY / SILTY
4.9		BROWN	CLAY / SILTY / SOFT
5.1		GREY	CLAY / SILT / SOFT

7233875 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

Date 2014-11-06 **Elev** (masl) **Easting** 445405 **Northing** 5029222
DDMMYY **Well_Depth_m:** 6.09999990463257 **UTM RC** 4 **margin of error : 30 m - 100 m**
/ Monitoring and Te Monitoring and Test Hole
Water Found (mbgs) (masl)
Street 429 MC LEARN
Town/City OTTAWA

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

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
1.2		BROWN	FILL / GRAVEL / SAND
3.1		BROWN	SAND / CLAY / SILTY
4.9		BROWN	CLAY / / SILTY
6.1		GREY	CLAY / SILT / SOFT

7233876 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date 2014-11-06 **Elev** (masl) **Easting** 445410 **Northing** 5029217
DDMMYY **Well_Depth_m:** 3.6210241317749 **UTM RC** 4 **margin of error : 30 m - 100 m**
/ Monitoring and Te Monitoring and Test Hole
Water Found (mbgs) (masl)
Street 19 MCLAREN
Town/City

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

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
0.4		BROWN	FILL / GRAVEL / SAND
0.9		BROWN	SILT / SAND / CLAY
1.9		GREY	CLAY / SILT / SOFT
3.6		BROWN	SILT / CLAY / SOFT

7236607 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

Date 2014-04-12 **Elev** (masl) **Easting** 445686 **Northing** 5029686
DDMMYY **Well_Depth_m:** 13.6999998092651 **UTM RC** 4 **margin of error : 30 m - 100 m**
/ Monitoring Observation Wells
Water Found 7.1 (mbgs) (masl) Untested
Street 180 METCALFE STREET
Town/City

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

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
0.1			OTHER / /
0.3		GREY	LIMESTONE / FILL / SAND
1.3		BROWN	SAND / FILL / CLAY
2.8		GREY	CLAY / SILT /
7.5		GREY	CLAY / /
13.7		GREY	SILT / TILL / SANDY

7236609 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

Date 2014-04-12 **Elev** (masl) **Easting** 445694 **Northing** 5029684 **Flowing?**
DDMMYY **Well_Depth_m:** 16.2000007629395 **UTM RC** 4 **margin of error : 30 m - 100 m** **SWL** (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hr / Min

/ Monitoring Observation Wells
Water Found 7.6 (mbgs) (masl) Untested
Street 180 METCALFE STREET
Town/City Ottawa

Depth (m)	Elev (masl)	Color			
0.0		**Color**		**Soil Descriptions**	
0.1			OTHER /		/
0.3		GREY	LIMESTONE /		/
1.7		GREY	SAND /	FILL	/ GRAVEL
9.0		GREY	CLAY /	SILT	/
16.2		GREY	CLAY /	SILT	/ TILL

7239266 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

Date 2012-03-08 **Elev** (masl) **Easting** 445732 **Northing** 5029042 **Flowing?**
DDMMYY **Well_Depth_m:** **UTM RC** 4 **margin of error : 30 m - 100 m** **SWL** (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hr / Min

/
Water Found (mbgs) (masl)
Street
Town/City

Depth (m)	Elev (masl)	Color			
0.0		**Color**		**Soil Descriptions**	
			/		/

7246842 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date 2015-07-17 **Elev** (masl) **Easting** 445519 **Northing** 5029299 **Flowing?**
DDMMYY **Well_Depth_m:** 6.09600019454956 **UTM RC** 4 **margin of error : 30 m - 100 m** **SWL** (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hr / Min

Monitoring / Test Hole Observation Wells
Water Found (mbgs) (masl)
Street 296 BANK ST.
Town/City OTTAWA

Depth (m)	Elev (masl)	Color			
0.0		**Color**		**Soil Descriptions**	
0.3		GREY	/		/
3.0		GREY	CLAY /	SILT	/
6.1			TILL /		/

7246843 **Lot** **Conc** OTTAWA CITY / OTTAWA-CARLETON

Date 2015-07-17 **Elev** (masl) **Easting** 445519 **Northing** 5029299 **Flowing?**
DDMMYY **Well_Depth_m:** 3.04800009727478 **UTM RC** 4 **margin of error : 30 m - 100 m** **SWL** (mbgs) (masl)
Pumping WL (mbgs) (masl)
Pump Rate (LPM) /
Spec. Cap. (LPM/m) Hr / Min

Monitoring / Test Hole Observation Wells
Water Found (mbgs) (masl)
Street 296 BANK ST.
Town/City OTTAWA

Depth (m)	Elev (masl)	Color			
0.0		**Color**		**Soil Descriptions**	
0.3		GREY	/	HARD	/
3.0		GREY	CLAY /	SILT	/ SOFT

7269210 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

Date 2016-07-23 **Elev** (masl) **Easting** 445737 **Northing** 5028591
DDMMYY **Well_Depth_m:** 4.57000017166138 **UTM RC** 4 **margin of error : 30 m - 100 m**

Monitoring / Test Hole Monitoring and Test Hole
Water Found (mbgs) (masl)
Street 240 CATHERINE STREET
Town/City OTTAWA

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

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
0.6		GREY	GRAVEL / SAND / LOOSE
2.1		BROWN	SAND / / SOFT
4.6		GREY	CLAY / / SOFT

7269211 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

Date 2016-07-23 **Elev** (masl) **Easting** 445748 **Northing** 5028573
DDMMYY **Well_Depth_m:** 4.57000017166138 **UTM RC** 4 **margin of error : 30 m - 100 m**

Monitoring / Test Hole Monitoring and Test Hole
Water Found (mbgs) (masl)
Street 240 CATHERINE STREET
Town/City Ottawa

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

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
0.6		GREY	GRAVEL / SAND / LOOSE
2.1		BROWN	SAND / / SOFT
4.6		GREY	CLAY / / SOFT

7269212 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

Date 2016-07-23 **Elev** (masl) **Easting** 445772 **Northing** 5028584
DDMMYY **Well_Depth_m:** 4.57000017166138 **UTM RC** 4 **margin of error : 30 m - 100 m**

Monitoring / Test Hole Monitoring and Test Hole
Water Found (mbgs) (masl)
Street 240 CATHERINE STREET
Town/City Ottawa

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

Depth (m)	Elev (masl)	Color	Soil Descriptions
0.0			
0.6		GREY	GRAVEL / SAND / LOOSE
2.8		GREY	SAND / / SOFT
4.6			CLAY / / SOFT

7270084 **Lot** **Conc** NEPEAN TOWNSHIP / OTTAWA-CARLETON

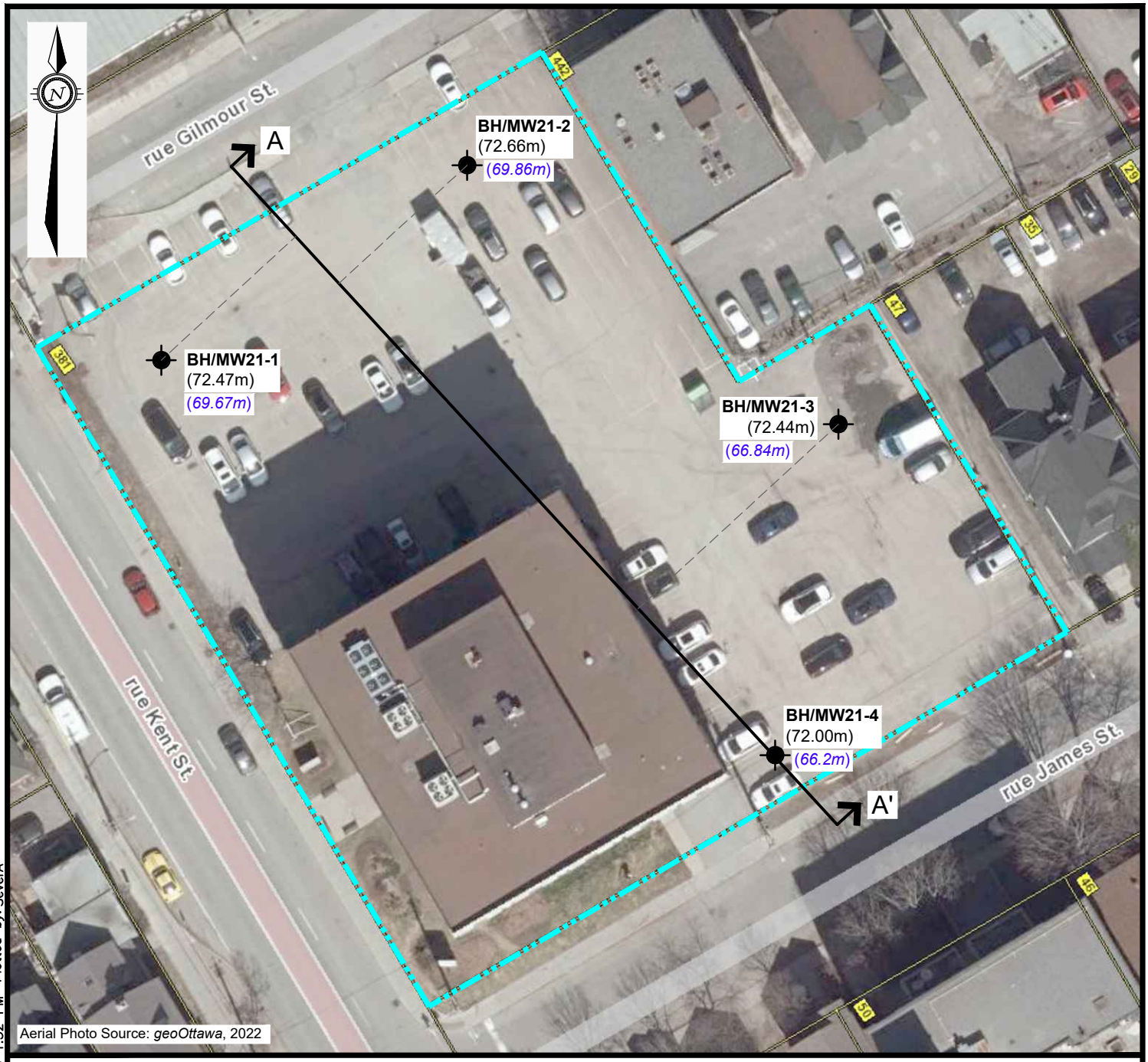
Date 2016-06-14 **Elev** (masl) **Easting** 445465 **Northing** 5028734
DDMMYY **Well_Depth_m:** **UTM RC** 4 **margin of error : 30 m - 100 m**

Not Used / Test Hole Abandoned-Other
Water Found (mbgs) (masl)
Street LYON & MCLEOD STREET
Town/City Ottawa

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

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

Appendix B – Borehole Logs



LEGEND

PROPERTY BOUNDARY

BH/MW21-1 BOREHOLE WITH MONITORING WELL
(72.47m) GROUND SURFACE ELEVATION (m)
(69.67m) GROUNDWATER LEVEL (m)

A CROSS-SECTION MARK

0 5m 10m 20m
HORIZONTAL 1:500

EXP Services Inc. www.exp.com
t: +1.613.688.1899 | f: +1.613.225.7337
2650 Queensview Drive, Suite 100
Ottawa, ON K2B 8H6, Canada

DATE: OCTOBER 2023	CLIENT: KATASA GROUPE	project no. OTT-21019154-A0
DESIGN: DA / CHECKED: CK	PROJECT: HYDROGEOLOGICAL SITE ASSESSMENT	scale 1:500
DRAWN BY: AS	TITLE: SITE LAYOUT - BOREHOLE LOCATION PLAN 381 KENT STREET, OTTAWA, ONTARIO	**FIG 6**

Filename: E:\OTT\OTT-21019154-A0\60 Execution\65 Drawings\Hydrogeological\21019154-A0_HG.dwg
Last Saved: Oct 18, 2023 1:32 PM Last Plotted: Oct 18, 2023 1:32 PM Plotted by: SeverA

Log of Borehole BH/MW21-1

Project No: OTT-21019154-A0

Project: Proposed High-Rise Development - Preliminary Investigation

Location: 381 Kent Street, Ottawa, Ontario

Figure No. 3

Page. 1 of 2

Date Drilled: 'December 2, 2021

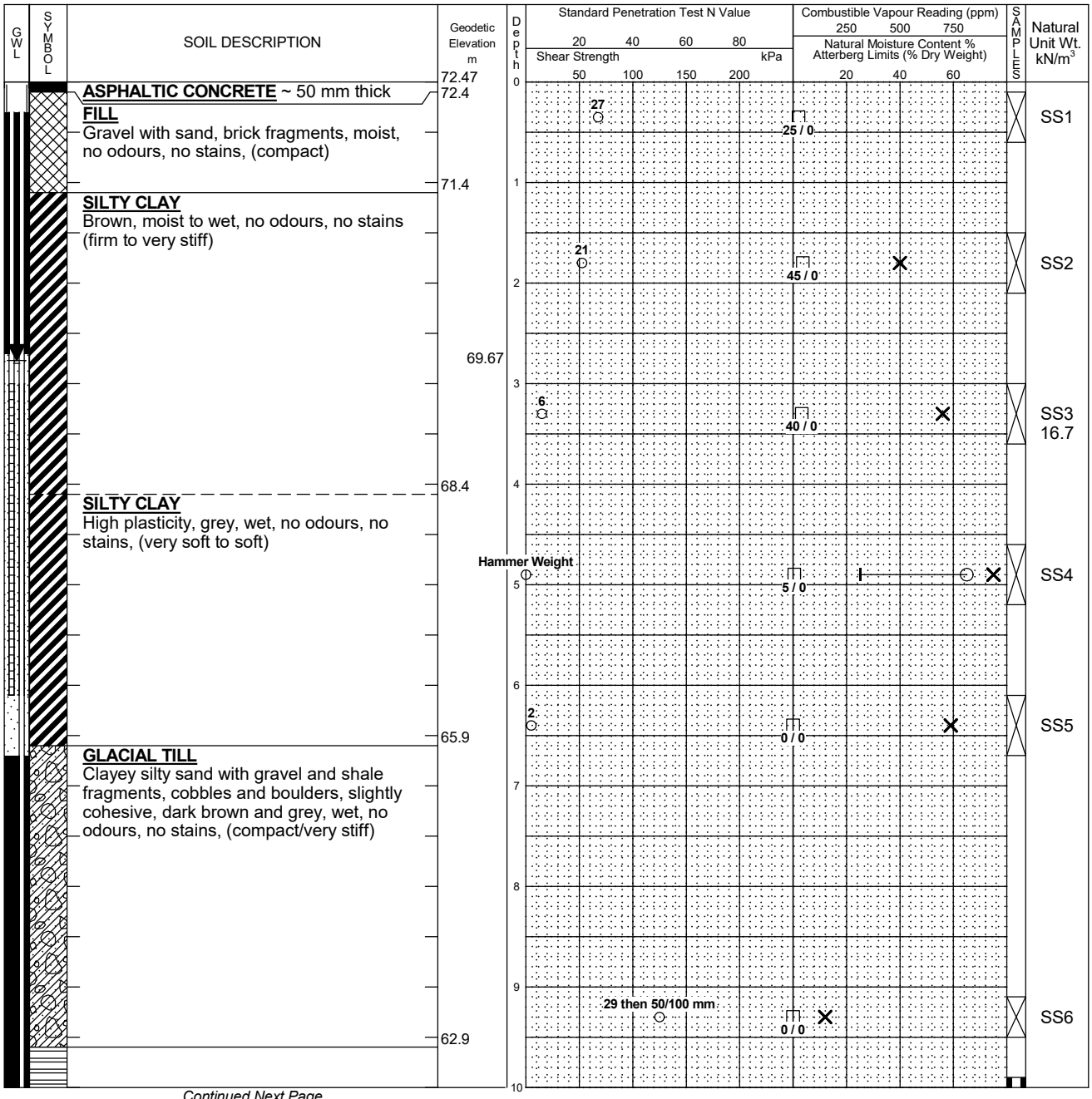
Drill Type: CME-55 Truck Mounted Drill-Rig

Datum: Geodetic Elevation

Logged by: MAD Checked by: MGM/SMP

Split Spoon Sample ⊠ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test —— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content × | Atterberg Limits |—○—| | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲



Continued Next Page

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. 19 mm diameter standpipe and 38 mm diameter monitoring well installed as shown upon completion of drilling.
3. Field work was supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-21019154-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
December 8,2021 (Shallow)	2.8	-
December 8, 2021 (Deep)	2.1	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	9.9 - 11.5	100	14
2	11.5 - 13.1	100	30
3	13.1 - 14.6	100	28
4	14.6 - 16.1	100	36
5	16.1 - 17.7	100	47
6	17.7 - 19.2	95	85
7	19.2 - 20.3	95	93

Log of Borehole BH/MW21-1

Project No: OTT-21019154-A0

Project: Proposed High-Rise Development - Preliminary Investigation

Figure No. 3

Page. 2 of 2

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value (20 40 60 80) / Shear Strength kPa (50 100 150 200)	Combustible Vapour Reading (ppm) (250 500 750) / Natural Moisture Content % Atterberg Limits (% Dry Weight) (20 40 60)	SAMPLES	Natural Unit Wt. kN/m³
		WEATHERED SHALE BEDROCK With sandy silty clay, dark grey to black, wet *(continued)*	62.47	10			RUN1	
		SHALE BEDROCK With limestone partings, black, (poor to excellent quality)	62.4	11				
				12			RUN2	
		59.5 P4		13				
				14			RUN3	
				15				
				16			RUN4	
				17				
		55.17		18			RUN5	
				19				
				20			RUN6	
			52.2				RUN7	
		Borehole Terminated at 20.3 m Depth						

LOG OF BOREHOLE LOGS OF BOREHOLES - 381 KENT STREET.GPJ TROW OTTAWA.GDT 2/21/23

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. 19 mm diameter standpipe and 38 mm diameter monitoring well installed as shown upon completion of drilling.
3. Field work was supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-21019154-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
December 8,2021 (Shallow)	2.8	-
December 8, 2021 (Deep)	2.1	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	9.9 - 11.5	100	14
2	11.5 - 13.1	100	30
3	13.1 - 14.6	100	28
4	14.6 - 16.1	100	36
5	16.1 - 17.7	100	47
6	17.7 - 19.2	95	85
7	19.2 - 20.3	95	93

Log of Borehole BH/MW21-2

Project No: OTT-21019154-A0

Project: Proposed High-Rise Development - Preliminary Investigation

Location: 381 Kent Street, Ottawa, Ontario

Figure No. 4

Page. 1 of 2

Date Drilled: 'December 1, 2021

Drill Type: CME-55 Truck Mounted Drill-Rig

Datum: Geodetic Elevation

Logged by: MAD Checked by: MGM/SMP

Split Spoon Sample ⊠ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test —— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content × | Atterberg Limits ⊢○⊣ | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		ASPHALTIC CONCRETE ~ 50 mm thick	72.66	0				
		FILL Silty sand with gravel, brick fragments, brown, moist, no odours, no stains, (loose)	72.6		9		SS0	
				1	7	25 / 0	SS1	
		SILTY CLAY Brown, moist to wet, no odours, no stains, (stiff)	71.0	2	10	20 / 0 ×	SS2	
				3	15	35 / 0 ×	SS3	18.1
			69.86					
				3	8	25 / 0 ×	SS4	17.2
		SILTY CLAY Grey, wet, no odours, no stains, (very soft)	69.0	4	0	25 / 0 ×	SS5	
				5				
				6				
		GLACIAL TILL Clayey silty sand with gravel and shale fragments, cobbles and boulders, slightly cohesive, grey wet, (compact/stiff)	66.7	7				
				8	13	25 / 0	SS6	
				9				
				10				

Continued Next Page

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. A 38 mm diameter monitoring well installed as shown upon completion of drilling.
3. Field work was supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-21019154-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
December 8,2021	2.8	-

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE LOGS OF BOREHOLES - 381 KENT STREET.GPJ TROW OTTAWA.GDT 2/21/23

Log of Borehole BH/MW21-2

Project No: OTT-21019154-A0

Project: Proposed High-Rise Development - Preliminary Investigation

Figure No. 4

Page. 2 of 2

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		GLACIAL TILL Clayey silty sand with gravel and shale fragments, cobbles and boulders, slightly cohesive, grey wet, (compact/stiff) *(continued)*	62.66	10 11 12	20 40 60 80 Shear Strength 50 100 150 200 kPa	250 500 750 Natural Moisture Content % Atterberg Limits (% Dry Weight) 20 40 60		
		Auger Refusal at 12.6 m Depth 59.5 P4	60.1					

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. A 38 mm diameter monitoring well installed as shown upon completion of drilling.
3. Field work was supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-21019154-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
December 8,2021	2.8	-

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE LOGS OF BOREHOLES - 381 KENT STREET.GPJ TROW OTTAWA.GDT 2/21/23

Log of Borehole BH/MW21-3

Project No: OTT-21019154-A0

Project: Proposed High-Rise Development - Preliminary Investigation

Location: 381 Kent Street, Ottawa, Ontario

Figure No. 5

Page. 1 of 1

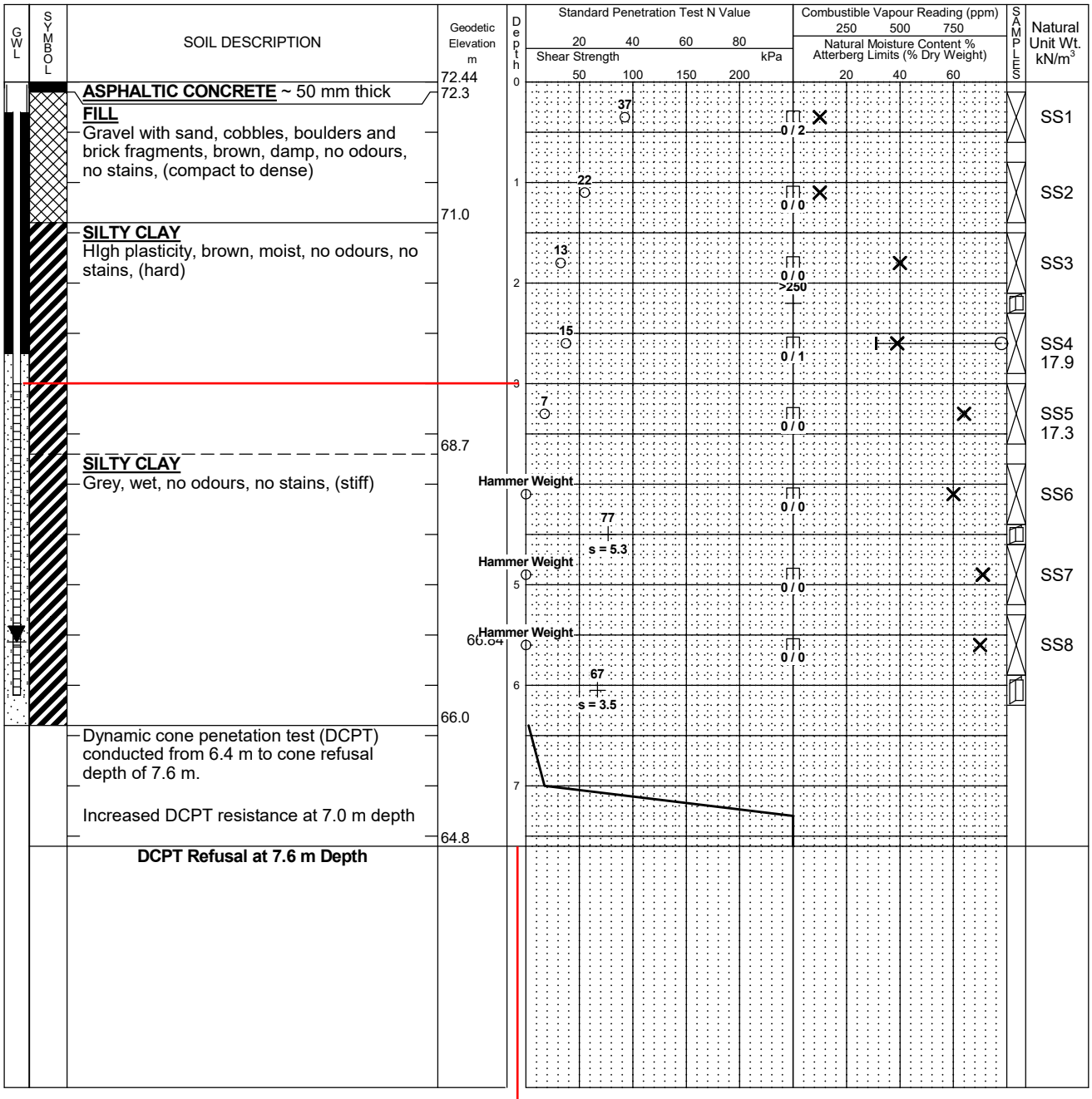
Date Drilled: 'December 1, 2021

Drill Type: CME-55 Truck Mounted Drill-Rig

Datum: Geodetic Elevation

Logged by: MAD Checked by: MGM/SMP

Split Spoon Sample
Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Shear Strength by Vane Test (S)
Combustible Vapour Reading
Natural Moisture Content
Atterberg Limits
Undrained Triaxial at % Strain at Failure
Shear Strength by Penetrometer Test



LOG OF BOREHOLE LOGS OF BOREHOLES - 381 KENT STREET.GPJ TROW OTTAWA.GDT 2/21/23

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. A 38 mm diameter monitoring well installed as shown upon completion of drilling.
3. Field work was supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-21019154-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
December 8,2021	5.6	-

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

59.5 P4

Log of Borehole BH/MW21-4

Project No: OTT-21019154-A0

Project: Proposed High-Rise Development - Preliminary Investigation

Location: 381 Kent Street, Ottawa, Ontario

Figure No. 6

Page. 1 of 2

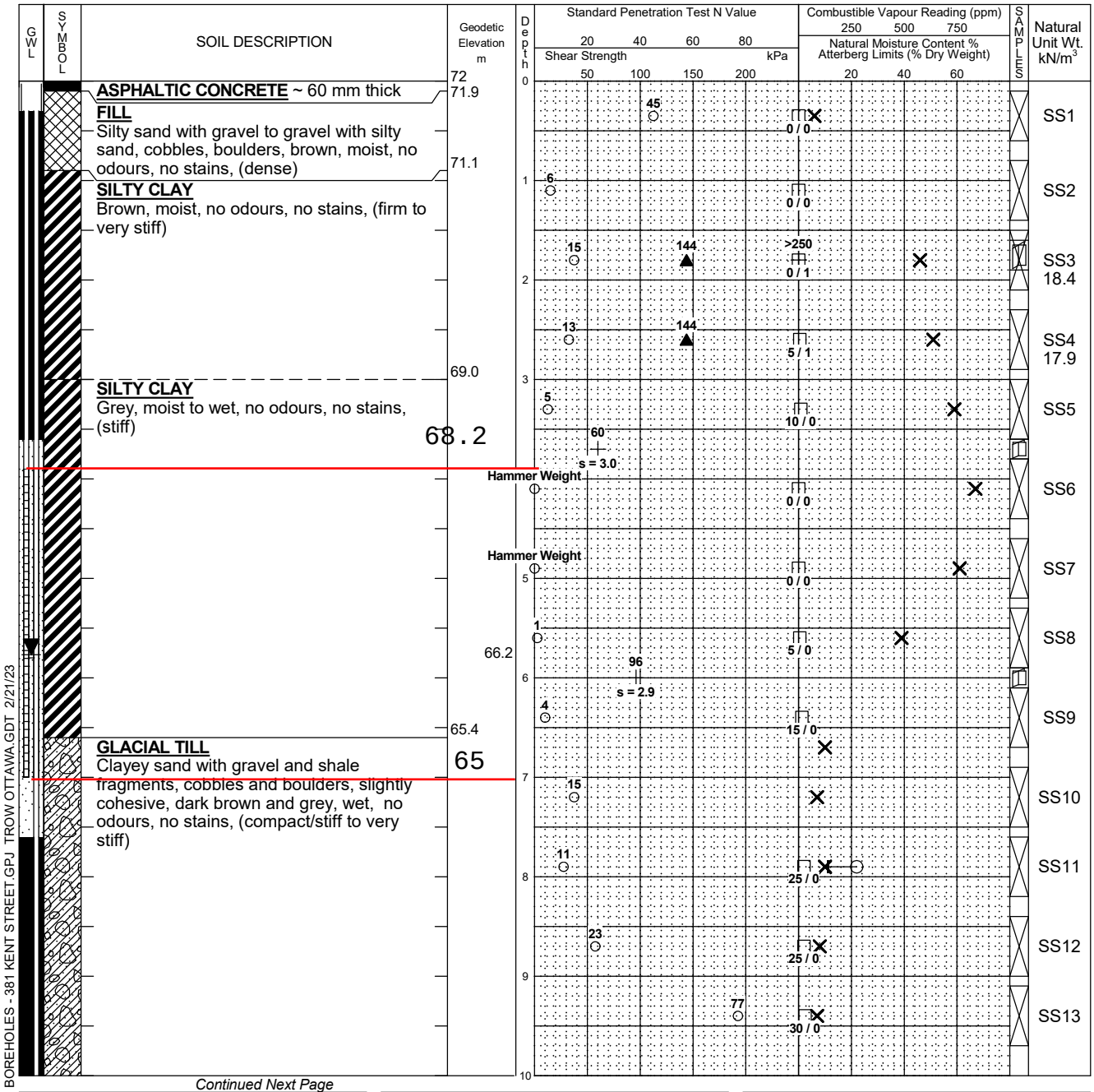
Date Drilled: 'November 29 and 30, 2021

Drill Type: CME-55 Truck Mounted Drill-Rig

Datum: Geodetic Elevation

Logged by: MAD Checked by: MGM/SMP

Split Spoon Sample
Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Shear Strength by Vane Test (S)
Combustible Vapour Reading
Natural Moisture Content
Atterberg Limits
Undrained Triaxial at % Strain at Failure
Shear Strength by Penetrometer Test



Continued Next Page

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. 19 mm diameter standpipe and 38 mm diameter monitoring well installed as shown upon completion of drilling.
3. Field work was supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-21019154-A0

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
December 8,2021 (Shallow)	5.8	-
December 8, 2021 (Deep)	8.2	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	10.1 - 11.7	57	8
2	11.7 - 13.2	100	49
3	13.2 - 14.8	97	57
4	14.8 - 16.3	100	73
5	16.3 - 17.8	100	99
6	17.8 - 19.3	100	91
7	19.3 - 20.9	97	95

LOG OF BOREHOLE LOGS OF BOREHOLES - 381 KENT STREET.GPJ TROW OTTAWA.GDT 2/21/23

Log of Borehole BH/MW21-4

Project No: OTT-21019154-A0

Project: Proposed High-Rise Development - Preliminary Investigation

Figure No. 6

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic Elevation m	Depth	Standard Penetration Test N Value (20 40 60 80) / Shear Strength kPa (50 100 150 200)	Combustible Vapour Reading (ppm) (250 500 750) / Natural Moisture Content % Atterberg Limits (% Dry Weight) (20 40 60)	SAMPLES	Natural Unit Wt. kN/m³
		62		10				
		SHALE BEDROCK With limestone partings, black, (poor to excellent quality)	61.9	11			RUN1	
				12			RUN2	
		59.5 P4		13				
				14			RUN3	
				15				
				16			RUN4	
			54.4	17			RUN5	
				18				
				19			RUN6	
				20			RUN7	
			51.1					
		Borehole Terminated at 20.9 m Depth						

LOG OF BOREHOLE LOGS OF BOREHOLES - 381 KENT STREET.GPJ TROW OTTAWA.GDT 2/21/23

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. 19 mm diameter standpipe and 38 mm diameter monitoring well installed as shown upon completion of drilling.
3. Field work was supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-21019154-A0

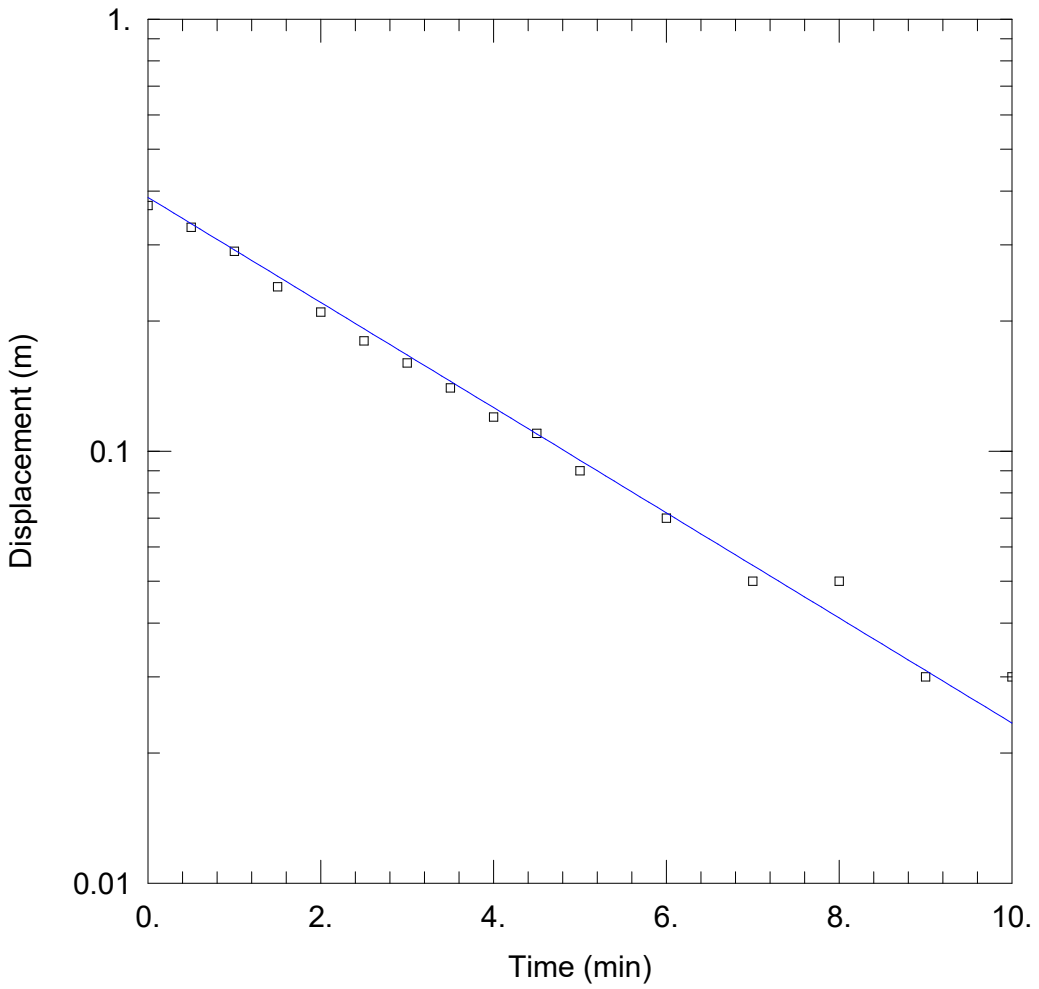
WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)
December 8,2021 (Shallow)	5.8	-
December 8, 2021 (Deep)	8.2	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	10.1 - 11.7	57	8
2	11.7 - 13.2	100	49
3	13.2 - 14.8	97	57
4	14.8 - 16.3	100	73
5	16.3 - 17.8	100	99
6	17.8 - 19.3	100	91
7	19.3 - 20.9	97	95

Appendix C – Single Well Response Test Results



MULTI WELL SLUG TEST

Data Set: C:\Users\AhmedD\OneDrive - EXP\Desktop\St Laurent Blvd\AqtSolve\Aqt BH19-02 RH.aqt
Date: 10/06/23 Time: 16:13:23

PROJECT INFORMATION

Company: EXP Services Inc.
Project: OTT-21019154-A0
Location: 381 Kent Street
Test Well: MW21-1
Test Date: September 28, 2023

AQUIFER DATA

Saturated Thickness: 1.4 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW21-1 RH)

Initial Displacement: 2.59 m
Total Well Penetration Depth: 6.3 m
Casing Radius: 0.05 m
Static Water Column Height: 6.2 m
Screen Length: 3. m
Well Radius: 0.07 m

SOLUTION

Aquifer Model: Confined Solution Method: Hvorslev

K = 7.95E-6 m/sec y0 = 0.3867 m

Data Set: C:\Users\AhmedD\OneDrive - EXP\Desktop\381 Kent Street HG\AqtSolve\Aqt MW21-1 RH.aqt
Title: Multi Well Slug Test
Date: 10/09/23
Time: 21:59:14

PROJECT INFORMATION

Company: EXP Services Inc.
Project: OTT-21019154-A0
Location: 381 Kent Street
Test Date: September 28, 2023
Test Well: MW21-1

AQUIFER DATA

Saturated Thickness: 1.4 m
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: MW21-1 RH

X Location: 0. m
Y Location: 0. m

Initial Displacement: 2.59 m
Static Water Column Height: 6.2 m
Casing Radius: 0.05 m
Well Radius: 0.07 m
Well Skin Radius: 0.1 m
Screen Length: 3. m
Total Well Penetration Depth: 6.3 m

No. of Observations: 16

Observation Data

Time (min)	Displacement (m)	Time (min)	Displacement (m)
0.	0.37	4.	0.12
0.5	0.33	4.5	0.11
1.	0.29	5.	0.09
1.5	0.24	6.	0.07
2.	0.21	7.	0.05
2.5	0.18	8.	0.05
3.	0.16	9.	0.03
3.5	0.14	10.	0.03

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Hvorslev
Log Factor: 0.1887

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	7.95E-6	m/sec
y0	0.3867	m

K = 0.000795 cm/sec
T = K*b = 1.113E-5 m²/sec (0.1113 sq. cm/sec)

Appendix D – Dewatering Rate Calculations

Figure DW-2: Dewatering Flow Estimation Equations

Basic Dewatering Equations Used Consistent Units

Equation for Confined Aquifer		**Refer to Table 6.1, p. 67, Powers et al., 2007**
Radial Flow Confined Aquifer Q_{cr} = $[2\pi KB(H-h)]/ln(R_o/r_w)$		<---Radial flow = contributions from end wells
Trench Flow Confined Aquifer Q_{ct} = $2xKB(H-h)/L$		<---Trench flow = contributions from both sides of the trench.
where	K = hydraulic conductivity in **m/day**	
	B = saturated thickness of the aquifer in **m**	
	H = initial GW elevation measured from ref. datum in **m**	<---Initial GW elevation
	h = Target GW elevation in the well measured from ref. datum in	<---Target to lower the GW to!
	R_o = radius of influence in **m**	<--- Sichart & Kryelis Eq. R_o= 3000(H-h)*(K)$^{0.5}$ **where H & h are in meters and K in m/sec.R_o** will be in **metres**. Alternative equation by Bear (Bear, J., 1979. **Hydraulics of Groundwater**, McGraw-Hill, New York, 569p) R_o=1.5(Tt/S)$^{0.5}$ where **T** is transmissivity in **m^2/day**, **t** is pumping duration in **days**, **S** is dimensionless storage coefficient. **R_o** will be in **metres**.
	r_w = radius of of the well in **m**	
	L = distance of influence for trench flow in **m**	<--- Similar to R_o = ZOI for radial flow
Q = volume in m^3/day		
Equation for Unconfined Aquifer		
Radial Flow Unconfined Aquifer Q_{ur} = $\pi K(H^2-h^2)]/ln(R_o/r_w)$		<---Radial flow = contributions from end wells
Trench Flow Unconfined Q_{ut} = $xK(H^2-h^2)/L$		<---Trench flow = contributions from both sides of the trench.
These eqs have been used in dewatering calculations.		

Refer to Figs 6.7 and 6.8, p.70, Powers et al., 2007

Equivalent Radius Approximation

Circular System	**r_s = (ab/π)^0.5**	<--- Circular system with aspect ratio a/b close to 1[Figure 6.7(a), p-70, Construction Dewatering & Groundwater Control, 3rd Ed, 2007, Powers et al].
Rectangular System	**r_s = a+b/π**	<--- Where the system is rectangular with unequal dimensions of length 'a' and width 'b' and when the raio of a/b is >1 but <1.5 [Figure 6.7(b), p-70, Construction Dewatering & Groundwater Control, 3rd Ed, 2007, Powers et al].

If the well array is as shown in Fig. 6.7 substitute r_w with r_s and use the equation for radial flow shown above based on confined or unconfined aquifer condition

Where the aspect ratio is > 1.5 or large and the well array is double sided as shown in Fig. 6.8, use the equations 6.10a nd 6.10b shown on p. 71 of Powers et. al., 2007

Figure 6.7

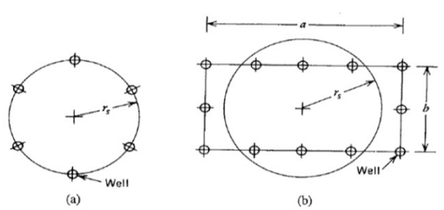


Figure 6.7 Approximation of equivalent radius r_s (a) Circular systems. (b) Rectangular systems.

Figure 6.8

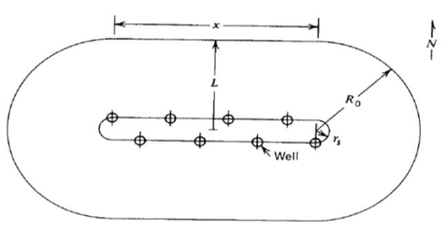


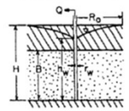
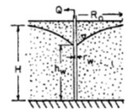
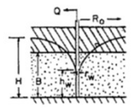
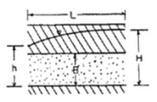
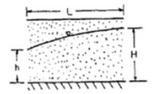
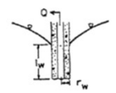
Figure 6.8 Approximate analysis of long, narrow systems.

Equations 6.10a and 6.10b

$$Q = \frac{2\pi KB(H-h)}{\ln R_o/r_s} + 2\left[\frac{xKB(H-h)}{L}\right] \quad (6.10a)$$

$$Q = \frac{\pi K(H^2-h^2)}{\ln R_o/r_s} + 2\left[\frac{xK(H^2-h^2)}{2L}\right] \quad (6.10b)$$

Table 6.1 Summary of Analytical Models

Model	Basic equation	U.S. units[a]	Metric units[b]
 Radial flow, confined aquifer	$Q_w = \frac{2\pi KB(H-h_w)}{\ln R_o/r_w}$	$Q_w = \frac{KB(H-h_w)}{229 \ln R_o/r_w}$	$Q_w = \frac{KB(H-h_w)}{2.65\times10^{-6} \ln R_o/r_w}$
	K = hydraulic conductivity		
 Radial flow, water table aquifer	$Q_w = \frac{\pi K(H^2-h_w^2)}{\ln R_o/r_w}$	$Q_w = \frac{K(H^2-h_w^2)}{458 \ln R_o/r_w}$	$Q_w = \frac{K(H^2-h_w^2)}{5.31\times10^{-6} \ln R_o/r_w}$
	K = hydraulic conductivity		
 Radial flow, mixed aquifer	$Q_w = \frac{\pi K(2BH-B^2-h_w^2)}{\ln R_o/r_w}$	$Q_w = \frac{K(2BH-B^2-h_w^2)}{458 \ln R_o/r_w}$	$Q_w = \frac{K(2BH-B^2-h_w^2)}{5.31\times10^{-6} \ln R_o/r_w}$
	K = hydraulic conductivity		
 Confined flow from a line source to a drainage trench	$\frac{Q}{x} = \frac{KB(H-h)}{L}$	$\frac{Q}{x} = \frac{KB(H-h)}{1440L}$	$\frac{Q}{x} = \frac{KB(H-h)}{1.67\times10^{-3}L}$
	x = unit length of trench, for flow from 2 sides, use twice the indicated value K = hydraulic conductivity		
 Water table flow from a line source to a drainage trench	$\frac{Q}{x} = \frac{K(H^2-h^2)}{2L}$	$\frac{Q}{x} = \frac{K(H^2-h^2)}{2880L}$	$\frac{Q}{x} = \frac{K(H^2-h^2)}{3.34\times10^{-3}L}$
	x = unit length of trench, for flow from 2 sides, use twice the indicated value K = hydraulic conductivity		
 Recommended flow per unit length of wet borehole (Sichart)	$Q = 2\pi l_w r_w C\sqrt{K}$ C = empirical coefficient	$Q_w = 0.035 l_w r_w \sqrt{K}$ r_w in in. l_w in ft	$Q_w = 24.91 l_w r_w \sqrt{K}$ r_w in mm l_w in m

[a] Except where noted: Q in gpm; H, B, R_o, r_w in ft; K in gpd/ft²
[b] Except where noted: Q in L/min; H, B, R_o, r_w in m; K in m/sec

Table DW-1: Summary of Construction Dewatering and Long-Term Foundation Drainage Rates, 381 Kent Street, Ottawa, ON

Dewatering System Configuration	Linear dewatering system for Dewatering Pumping of the shallow aqiuifer
REFERENCE AREA	381 Kent Street One 9 storey Tower with P2 Parking
Excavation Dimension (m) =	67 x 65
Aquifer Type =	Unconfined
Foundation Elevation (P2 level) =	65.5
Summary of Hydrogeological Conditions =	High plasiticity silty caly, grey wet, very soft to soft layer with lenses of granular material - Glacial Till. Excavation through Till. MW21-2 GW 69.86 masl on Dec. 8, 2022
Active Dewatering Segment Length (m) =	260
Aquifer Top Elevation (masl) =	69.86
Aquifer Bottom Elevation (masl) =	58
K (m/day) =	0.6869
K (m/sec) =	7.95E-06
Initial GW Elevation (masl) =	69.86
GW Elevation at Invert (masl) =	65.5
Drawdown (m) =	4.36
Excavation Bottom Elevation (masl) =	65.5
Target GW Elevation (masl) =	65.5
Ro from Sichart & Kryieleis (1982) =	37
Zone of Influence (m) =	63
Radius of the well rw =	0.25
Storage Coefficient 'S' =	0.01
Pumping Duration 't' in days =	3
rw (m) =	0.25
t (day) =	3
S =	0.01
ESTIMATED INITIAL STATE (LPD) =	235,290
Factor of Safety Dewatering Rate (LPD) =	294,113
PTTW Category =	EASR
Steady State or Long-Term Foundation Drainage Volume =	117,645
Stormwater Volume (L) =	61,340
Maximum Permit Application Dewatering Rate (LPD) =	355,453

NOTE:
Stormwater volume estimated based on 17.8 mm of rainfall over 10-minute duration from a storm of once in 10 year recurrence frequency,considering changed weather pattern and more frequent high-volume short duration rainfall event

Active coordinate

45° 24' 45" N, 75° 41' 45" W (45.412500,-75.695833)

Retrieved: Tue, 24 Oct 2023 14:12:32 GMT

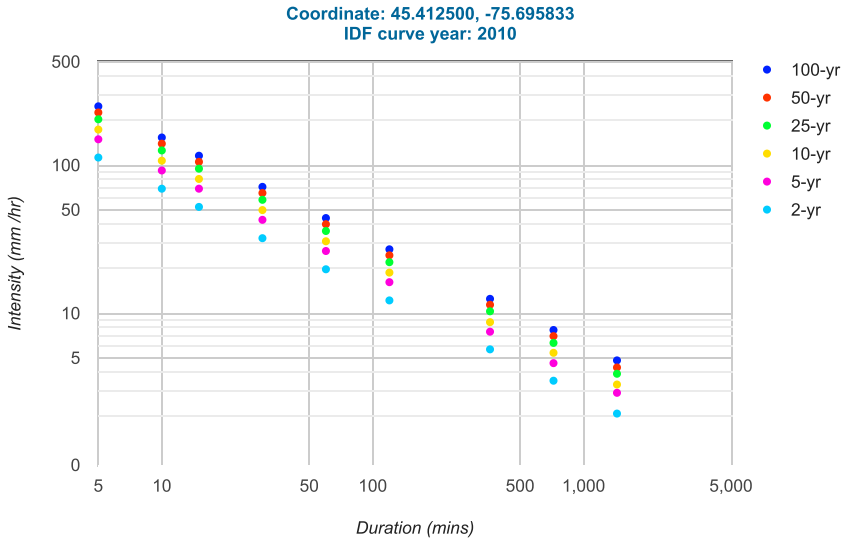
Location summary

These are the locations in the selection.

IDF Curve: 45° 24' 45" N, 75° 41' 45" W (45.412500,-75.695833)

Results

An IDF curve was found.



Coefficient summary

IDF Curve: 45° 24' 45" N, 75° 41' 45" W (45.412500,-75.695833)

Retrieved: Tue, 24 Oct 2023 14:12:32 GMT

Data year: 2010
IDF curve year: 2010

Return period	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
A	19.8	26.3	30.6	35.9	39.9	43.9
B	-0.699	-0.699	-0.699	-0.699	-0.699	-0.699

Statistics

Rainfall intensity (mm hr^{-1})

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	112.5	69.3	52.2	32.1	19.8	12.2	5.7	3.5	2.1
5-yr	149.4	92.0	69.3	42.7	26.3	16.2	7.5	4.6	2.9
10-yr	173.8	107.1	80.6	49.7	30.6	18.8	8.7	5.4	3.3
25-yr	203.9	125.6	94.6	58.3	35.9	22.1	10.3	6.3	3.9
50-yr	226.6	139.6	105.2	64.8	39.9	24.6	11.4	7.0	4.3
100-yr	249.4	153.6	115.7	71.3	43.9	27.0	12.5	7.7	4.8

Rainfall depth (mm)

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	9.4	11.5	13.0	16.1	19.8	24.4	34.0	41.8	51.5
5-yr	12.4	15.3	17.3	21.3	26.3	32.4	45.1	55.6	68.5
10-yr	14.5	17.8	20.2	24.8	30.6	37.7	52.5	64.6	79.6
25-yr	17.0	20.9	23.7	29.1	35.9	44.2	61.6	75.8	93.4
50-yr	18.9	23.3	26.3	32.4	39.9	49.2	68.4	84.3	103.9
100-yr	20.8	25.6	28.9	35.6	43.9	54.1	75.3	92.7	114.3

Terms of Use

Appendix E – Laboratory Certificate of Analysis

CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured. Canadian owned.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: G 110104

REPORT No: 23-026466 - Rev. 0

Report To:
EXP Services Inc - Ottawa
2650 Queensview Drive
Suite 100
Ottawa, ON K2B 8H6

CADUCEON Environmental Laboratories
2378 Holly Lane
Ottawa, ON K1V 7P1

Attention: Delwar Ahmed

DATE RECEIVED: 2023-Sep-28
DATE REPORTED: 2023-Oct-11
SAMPLE MATRIX: Ground Water

CUSTOMER PROJECT: OTT-21019154-AO
P.O. NUMBER:

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	1	OTTAWA	VKASYAN	2023-Sep-29	A-IC-01	SM 4110B
BOD5 (Liquid)	1	KINGSTON	JWOLFE2	2023-Oct-05	BOD-001	SM 5210B
Cond/pH/Alk Auto (Liquid)	1	OTTAWA	SBOUDREAU	2023-Sep-29	COND-02/PH-02/A LK-02	SM 2510B/4500H/ 2320B
Cyanide Total (Liquid)	1	KINGSTON	JMACINNES	2023-Oct-04	CN-001	SM 4500-CN-E
ICP/MS Total (Liquid)	1	OTTAWA	AOZKAYMAK	2023-Oct-03	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	1	OTTAWA	NHOGAN	2023-Sep-29	D-ICP-01	SM 3120B
Mercury (Liquid)	1	OTTAWA	TBENNETT	2023-Oct-02	D-HG-02	SM 3112B
OC Pesticides (Liquid)	1	KINGSTON	CSUMMERHAYS	2023-Oct-03	PESTCL-001	EPA 8081
Oil & Grease (Liquid)	1	KINGSTON	MLANE	2023-Oct-02	O&G-001	SM 5520
PCB's (Liquid)	1	KINGSTON	CSUMMERHAYS	2023-Oct-03	PCB-001	EPA 8081
Phenols (Liquid)	1	KINGSTON	JMACINNES	2023-Oct-04	PHEN-01	MECP E3179
Sulphide (Liquid)	1	KINGSTON	EHINCH	2023-Oct-02	H2S-001	SM 4500-S2
SVOC - Semi-Volatiles (Liquid)	1	KINGSTON	EASIEDU	2023-Oct-03	NAB-W-001	EPA 8270D
TP & TKN (Liquid)	1	KINGSTON	KDIBBITS	2023-Oct-03	TPTKN-001	MECP E3516.2
TSS (Liquid)	1	KINGSTON	KKHUTSYYEVA	2023-Oct-02	TSS-001	SM 2540D
VOC-Volatiles Full (Water)	1	RICHMOND_HILL	FLENA	2023-Oct-02	C-VOC-02	EPA 8260

R.L. = Reporting Limit
NC = Not Calculated
Test methods may be modified from specified reference method unless indicated by an *

Michelle Dubien
Data Specialist

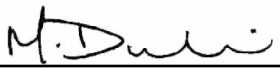
Parameter	Units	R.L.	Limits		Client I.D.: MW21-1 Sample I.D.: 23-026466-1 Date Collected: 2023-Sep-28 -
pH @25°C	pH units	-	11.0, 9.0	SAN, STORM	7.45
Fluoride	mg/L	0.1	10	SAN	<1.8
Sulphate	mg/L	1	1500	SAN	405
BOD5	mg/L	3	300, 25.0	SAN, STORM	3
Total Suspended Solids	mg/L	3	350, 15.0	SAN, STORM	**4590**
Phosphorus (Total)	mg/L	0.01	10, 0.4	SAN, STORM	**3.08**
Total Kjeldahl Nitrogen	mg/L	0.1	100	SAN	3.4
Sulphide	mg/L	0.01	2	SAN	**<4.00 (EI)**
Cyanide (Total)	mg/L	0.005	2, 0.02	SAN, STORM	**0.041**
Phenolics	mg/L	0.001	1, 0.008	SAN, STORM	**<0.010**
Aluminum (Total)	mg/L	0.01	50	SAN	19.8
Bismuth (Total)	mg/L	0.02	5	SAN	<0.02
Boron (Total)	mg/L	0.005	25	SAN	0.099
Cadmium (Total)	mg/L	0.005	0.02, 0.008	SAN, STORM	<0.005
Chromium (Total)	mg/L	0.002	5, 0.08	SAN, STORM	0.067
Cobalt (Total)	mg/L	0.005	5	SAN	0.025
Copper (Total)	mg/L	0.002	3, 0.04	SAN, STORM	**0.061**
Lead (Total)	mg/L	0.02	5, 0.12	SAN, STORM	0.06
Manganese (Total)	mg/L	0.001	0.05, 5	STORM, SAN	**0.693**
Molybdenum (Total)	mg/L	0.01	5	SAN	0.01
Nickel (Total)	mg/L	0.01	3, 0.08	SAN, STORM	0.05

Michelle Dubien
Data Specialist

Parameter	Units	R.L.	Limits		Client I.D.: MW21-1 Sample I.D.: 23-026466-1 Date Collected: 2023-Sep-28
					-
Silver (Total)	mg/L	0.005	5, 0.12	SAN, STORM	0.005
Tin (Total)	mg/L	0.05	5	SAN	<0.05
Titanium (Total)	mg/L	0.005	5	SAN	2.03
Vanadium (Total)	mg/L	0.005	5	SAN	0.070
Zinc (Total)	mg/L	0.005	3, 0.04	SAN, STORM	**0.205**
Antimony (Total)	mg/L	0.0005	5	SAN	0.0014
Arsenic (Total)	mg/L	0.0005	0.02, 1	STORM, SAN	0.0059
Selenium (Total)	mg/L	0.005	0.02, 5	STORM, SAN	0.006
Mercury	mg/L	0.00002	0.001, 0.0004	SAN, STORM	<0.00002

Michelle Dubien
Data Specialist

Parameter	Units	R.L.	Limits	Client I.D.	MW21-1
				Sample I.D.	23-026466-1
				Date Collected	2023-Sep-28
					-
Benzene	mg/L	0.0005	0.01, 0.002	SAN, STORM	<0.0005
Bromodichloromethane	mg/L	0.002	0.35	SAN	<0.002
Bromoform	mg/L	0.005	0.63	SAN	<0.005
Bromomethane	mg/L	0.0005	0.11	SAN	<0.0005
Carbon Tetrachloride	mg/L	0.0002	0.057	SAN	<0.0002
Chlorobenzene	mg/L	0.0005	0.057	SAN	<0.0005
Chloroethane	mg/L	0.003	0.27	SAN	<0.003
Chloroform	mg/L	0.001	0.08, 0.002	SAN, STORM	<0.001
Chloromethane (Methyl Chloride)	mg/L	0.002	0.19	SAN	<0.002
Dibromochloromethane	mg/L	0.002	0.057	SAN	<0.002
Ethylene Dibromide	mg/L	0.0002	0.028	SAN	<0.0002
Dichlorobenzene,1,2-	mg/L	0.0005	0.088, 0.0056	SAN, STORM	<0.0005
Dichlorobenzene,1,3-	mg/L	0.0005	0.036	SAN	<0.0005
Dichlorobenzene,1,4-	mg/L	0.0005	0.017, 0.0068	SAN, STORM	<0.0005
Dichloroethane,1,1-	mg/L	0.0005	0.2	SAN	<0.0005
Dichloroethane,1,2-	mg/L	0.0005	0.21	SAN	<0.0005
Dichloroethylene,1,1-	mg/L	0.0005	0.04	SAN	<0.0005
Dichloroethylene,1,2-cis-	mg/L	0.0005	0.2, 0.0056	SAN, STORM	<0.0005
Dichloroethylene,1,2-trans-	mg/L	0.0005	0.2	SAN	<0.0005
Dichloropropane,1,2-	mg/L	0.0005	0.85	SAN	<0.0005
Dichloropropene,1,3-cis-	mg/L	0.0005	0.07	SAN	<0.0005



Michelle Dubien
Data Specialist

				Client I.D.	MW21-1
				Sample I.D.	23-026466-1
				Date Collected	2023-Sep-28
Parameter	Units	R.L.	Limits		-
Dichloropropene,1,3-trans-	mg/L	0.0005	0.07, 0.0056	SAN, STORM	<0.0005
Ethylbenzene	mg/L	0.0005	0.057, 0.002	SAN, STORM	<0.0005
Dichloromethane (Methylene Chloride)	mg/L	0.005	0.211, 0.0052	SAN, STORM	<0.005
Styrene	mg/L	0.0005	0.04	SAN	<0.0005
Tetrachloroethane,1,1,2,2-	mg/L	0.0005	0.04, 0.017	SAN, STORM	<0.0005
Tetrachloroethylene	mg/L	0.0005	0.05, 0.0044	SAN, STORM	<0.0005
Toluene	mg/L	0.0005	0.08, 0.002	SAN, STORM	<0.0005
Trichloroethane,1,1,1-	mg/L	0.0005	0.054	SAN	<0.0005
Trichloroethane,1,1,2-	mg/L	0.0005	0.8	SAN	<0.0005
Trichloroethylene	mg/L	0.0005	0.054, 0.0076	SAN, STORM	<0.0005
Trichlorofluoromethane (Freon 11)	mg/L	0.005	0.02	SAN	<0.005
Trimethylbenzene,1,3,5-	mg/L	0.0001	0.003	SAN	<0.0001
Vinyl Chloride	mg/L	0.0002	0.4	SAN	<0.0002
Xylene, m,p-	µg/L	1			<1
Xylene, m,p,o-	mg/L	0.0011	0.32, 0.0044	SAN, STORM	<0.0011
Xylene, o-	µg/L	0.5			<0.5
Oil & Grease (Total)	mg/L	1.0			9.5
Oil and Grease (Mineral)	mg/L	1.0	15	SAN	<1.0
Oil and Grease (Anim/Veg)	mg/L	1.0	150	SAN	8.6

Michelle Dubien
Data Specialist

Parameter	Units	R.L.	Limits		Client I.D.: MW21-1 Sample I.D.: 23-026466-1 Date Collected: 2023-Sep-28
					-
Acenaphthene	µg/L	0.05			<0.08
Acenaphthylene	µg/L	0.05			<0.06
Anthracene	µg/L	0.05			<0.05
Benzo[a]anthracene	µg/L	0.05			<0.16 (15)
Benzo(a)pyrene	µg/L	0.01			<0.03
Benzo(b)fluoranthene	µg/L	0.05			<0.06
Benzo(b+k)fluoranthene	µg/L	0.1			<0.1
Benzo(g,h,i)perylene	µg/L	0.05			<0.06
Benzo(k)fluoranthene	µg/L	0.05			<0.05
Butyl Benzyl Phthalate	mg/L	0.001	0.017	SAN	<0.001
Bis(2-Chloroethoxy)methane	mg/L	0.002	0.036	SAN	<0.002
Bis(2-ethylhexyl) Phthalate	mg/L	0.005	0.28	SAN	<0.010
Chrysene	µg/L	0.05			<0.06
Dibenzo(a,h)anthracene	µg/L	0.05			<0.06
Di-n-Butyl Phthalate	mg/L	0.0010	0.057	SAN	<0.0020
Dichlorophenol,2,4-	mg/L	0	0.044	SAN	<0
Diethyl Phthalate	mg/L	0.0010	0.2	SAN	<0.0020
Di-n-Octyl Phthalate	mg/L	0.0010	0.03	SAN	<0.0010
Fluoranthene	mg/L	0.00005	0.059	SAN	<0.00005
Fluorene	µg/L	0.05			<0.05
Indeno(1,2,3,-cd)Pyrene	µg/L	0.05			<0.06

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Data Specialist

Parameter	Units	R.L.	Limits		Client I.D.: MW21-1 Sample I.D.: 23-026466-1 Date Collected: 2023-Sep-28
					-
Indole	mg/L	0.002	0.05	SAN	<0.002
Methylnaphthalene,1-	mg/L	0	0.032	SAN	<0.0001
Methylnaphthalene,2-(1-)	µg/L	1			<1
Methylnaphthalene,2-	mg/L	0	0.022	SAN	<0.0001
Naphthalene	mg/L	0.00005	0.059, 0.064	SAN, STORM	<0.00016
Phenanthrene	µg/L	0.05			<0.08
Pyrene	µg/L	0.05			0.10

Parameter	Units	R.L.	Limits		Client I.D.: MW21-1 Sample I.D.: 23-026466-1 Date Collected: 2023-Sep-28
					-
Poly-Chlorinated Biphenyls (PCB's)	mg/L	0.00005	0.0004	STORM	<0.00005
Identification Comment	-	-			-
Hexachlorobenzene	mg/L	0.00001	0.00004	STORM	<0.00001

Comments:

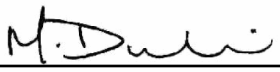
15. Elevated RDL due to sample matrix

Elevated MDL due to sample matrix interference

: City of Ottawa
SAN: Sanitary Sewer By Law
STORM: Storm Sewer By Law

Michelle Dubien
Data Specialist

Summary of Exceedances		
Sanitary Sewer By Law		
MW21-1	**Found Value**	**Limit**
Total Suspended Solids	4590	350
Sulphide	<4.00	2
Storm Sewer By Law		
MW21-1	**Found Value**	**Limit**
Total Suspended Solids	4590	15.0
Phosphorus (Total)	3.08	0.4
Cyanide (Total)	0.041	0.02
Phenolics	<0.010	0.008
Copper (Total)	0.061	0.04
Manganese (Total)	0.693	0.05
Zinc (Total)	0.205	0.04



Michelle Dubien
Data Specialist

GENERAL SAMPLE SUBMISSION FORM

CADUCEON ENVIRONMENTAL LABORATORIES
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SAMPLES SUBMITTED TO: Kingston ☐ Ottawa ☑ Richmond Hill ☐ Barrie ☐ Windsor ☐

TESTING REQUIREMENTS: O'Reg 153/04 ☐ O'Reg 406/19 ☐ RPI ☐ Coarse ☐ MISA ☐ Other: ☐ | Table (1 - 9) ____ Table (1 - 9.1) ____ ☐ ICC ☐ Medium/Fine ☐ PWQO | Record of Site ____ SPLP Table (1-9.1) ____ ☐ Agricultural ☐ O'Reg 558 TCLP ☐ Landfill Monitoring

REPORT NUMBER (Lab Use): 23109128 / 23-026466

Are any samples to be submitted intended for Human Consumption under any Drinking Water Regulations? ☐ Yes ☑ No (If yes, submit all Drinking Water Samples on a Drinking Water Chain of Custody)

Organization: EXP	Address: 2650 queensview drive, suite 100	Invoicing Address (if different):
Contact: Delwar Ahmed		
Tel: 289-409-3187 Fax:		
Email: delwar.ahmed@exp.com	Quote #:	Project Name or #: OTT-210 19154-A0
Additional Info (email, cell, etc):	P.O. #:	Additional Info:

ANALYSES REQUESTED: Sewer Discharge City of Ottawa.

Suspected Highly Contaminated: ☐

TURNAROUND SERVICE REQUESTED (see back page) *Must be arranged in advance

- ☐ Platinum* 200% Surcharge
- ☐ Gold* 100% Surcharge
- ☐ Silver 50% Surcharge
- ☐ Bronze 25% Surcharge
- ☑ Standard 5-7 days
- ☐ Specific Date: ____

* Sample Matrix Legend: WW=Waste Water, SW=Surface Water, GW=Groundwater, LS=Liquid Sludge, SS=Solid Sludge, S=Soil, Sed=Sediment, PC=Paint Chips, F=Filter, Oil = Oil

Lab No.	Sample Source and/or Sample Identification	S.P.L. (Watertrax)	Sample Matrix *	Date Collected (yy-mm-dd)	Time Collected	Indicate Test For Each Sample By Using A Check Mark In The Box Provided	X	Field pH	Field Temp.	# Bottles/ Sample	Field Filtered Y/N
V	MW21-1	G.W	G.W	28-09-23	2.30pm	X X X X X				14	NO

SAMPLE SUBMISSION INFORMATION

	Sampled by:	Submitted by:
Print:	Shahynaz Abdel.	Shahynaz
Sign:	Shahynaz	Shahynaz
	Date (yy-mm-dd)/Time:	Date (yy-mm-dd)/Time:

SHIPPING INFORMATION: Courier (Client account) ☐ Courier (Caduceon account) ☐ Drop Off ☑ Caduceon (Pick-up) ☐ | Invoice ____ # of Pieces 1

REPORTING / INVOICING: Report by Fax ☐ Report by Email ☑ Invoice by Email ☑ Invoice by Mail ☐

SAMPLE RECEIVING INFORMATION (LABORATORY USE ONLY)

Received By (print):	Jessica C	Signature:	JC
Date Received (yy-mm-dd):	23-09-28	Time Received:	4:46
Laboratory Prepared Bottles:	☑ Yes ☐ No		
Sample Temperature °C:	6.8	Labeled by:	

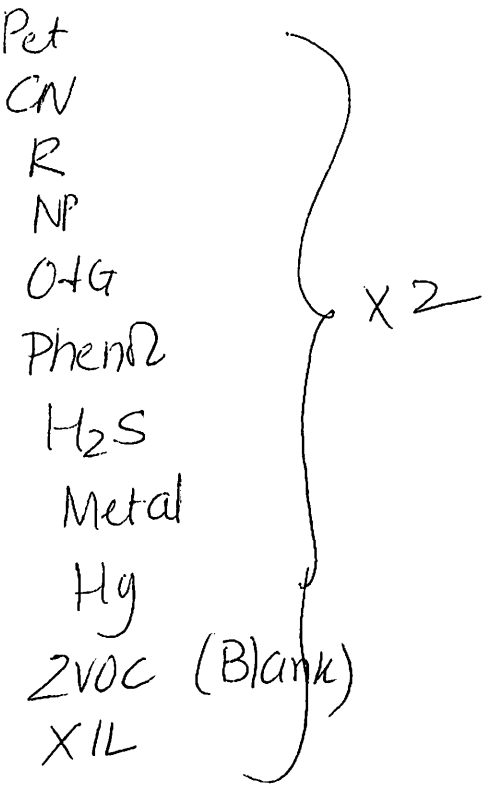
Comments: O+G, 3x1L Amber, pet, R, NP, CN, M, H_2S, Hg, phenol, 2VOC-BI

Page ____ of ____

G 110104

Table 1. Limits for Sanitary and Combined Sewers I

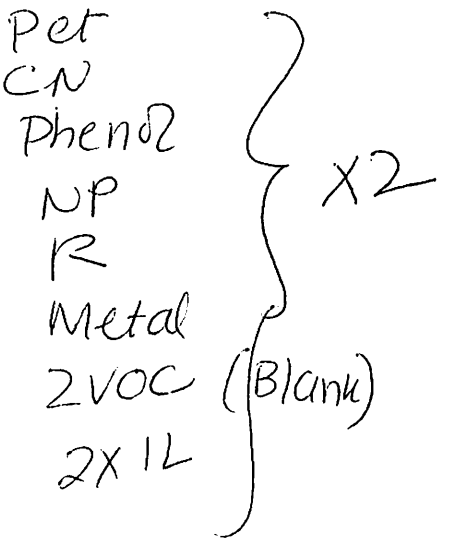
Parameter	Limit (mg/L)
Biochemical Oxygen Demand	300
Cyanide (total)	2
Fluoride	10
Total Kjeldahl Nitrogen	100
Oil & Grease . Animal & Vegetable	150
Oil & Grease . Mineral & Synthetic	15
Phenolics (4AAP)	1
Phosphorous (total)	10
Sulphates	1500
Sulphides	2
Suspended Solids (total)	350
Aluminum (total)	50
Antimony (total)	5
Arsenic (total)	1
Bismuth (total)	5
Boron (total)	25
Cadmium (total)	0.02
Chromium (total)	5
Cobalt (total)	5
Copper (total)	3
Lead (total)	5
Manganese (total)	5
Mercury (total)	0.001
Molybdenum (total)	5
Nickel (total)	3
Selenium (total)	5
Silver (total)	5
Tin (total)	5
Titanium (total)	5
Vanadium	5
Zinc (total)	3
Benzene	0.01
Bromodichloromethane	0.35
Bromoform	0.63



Bromomethane	0.11
Carbon Tetrachloride	0.057
Chlorobenzene	0.057
Chloroethane	0.27
Chloroform	0.08
Chloromethane	0.19
Dibromochloromethane	0.057
1,2 Dibromoethane	0.028
1,2.Dichlorobenzene / o	0.088
1,3.Dichlorobenzene / m	0.036

Table 2. Limits for Storm Sewer Discharge

Parameter	Limit (mg/l)
Biochemical Oxygen Demand	25
Cyanide (total)	0.02
Phenolics (4AAP)	0.008
Phosphorous (total)	0.4
Suspended Solids (total)	15
Arsenic (total)	0.02
Cadmium (total)	0.008
Chromium (total)	0.08
Copper (total)	0.04
Lead (total)	0.12
Manganese (total)	0.05
Mercury (total)	0.0004
Nickel (total)	0.08
Selenium (total)	0.02
Silver (total)	0.12
Zinc (total)	0.04
Benzene	0.002
Chloroform	0.002
1,2-dichlorobenzene	0.0056



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QUOTATION FOR ANALYTICAL SERVICES

Quote #:
Organization:
Contact:
Telephone:
Email:
Project #:
Address: City of Ottawa Sewer Use By-Law 2003-514
Invoice To:
Date: **Valid Until:**

Item #	Quantity	Analysis Request	Matrix	Unit Cost, $	Amount, $
Schedule B Storm Sewer Discharge					
1	1	**General Chemistry** (pH, BOD5, CN, Phenols (4AAP), TP, TSS)	WW	100.00	100.00
2	1	**Metals** (As, Cd, Cr, Cu, Pb, Mn, Hg, Ni, Se, Ag, Zn)	WW	52.50	52.50
3	1	**VOC's** (Benzene, Chloroform, 1,2-Dichlorobenzene, 1,4-Dichlorobenzene, Cis-1,2-Dichloroethylene, Methylene Chloride, Ethylbenzene, Tetrachloroethylene, Toluene, Trichloroethylene, Xylenes (total), Trans-1,3 Dichloropropylene,, 1,1,2,2-Tetrachloroethane	WW	87.15	87.15
4	1	**SVOC's and PAH's** (Naphthalene, Hexachlorobenzene, PAH (Total))	WW	204.75	204.75
5	1	**PCB's**	WW	71.40	71.40
6	1	**Nonyphenols & Nonylphenol Ethoxylates** (sub-contracted)	WW	330.00	330.00
-	-	**Sample Supplies Surcharge**	Surcharge	5%	$42.29
-	1	**Sample Disposal Surcharge**	Surcharge	$2.00	$2.00
				Subtotal	$890.09
				HST	$115.71
				Total Cost	$1,005.80

All submissions must have a completed C-o-C form indicating report recipient name and address, invoicing information (if different from recipient), P.O. Number &/or Project Number, Caduceon Quotation Number, and analysis requested, or General pricing will be applied. If a P.O. Number is mandatory to process payment, the P.O. Number must be supplied prior to invoicing or an administrative charge will be applied. Caduceon is a member of the Canadian Association for Laboratory Accreditation (CALA) and participates in the proficiency testing program for a list of parameters registered with the association. The laboratory is accredited for specific tests by CALA and was found to comply with the requirements of ISO/IEC Guide 17025. See Scope of Accreditation for list of tests. This quote is intended for the addressee(s) show on this form only, and may contain information which is confidential and privileged, any disclosure, copying, distribution or use of the contents of this quote without the consent of Caduceon Environmental Laboratories is prohibited.

Steve Garrett
Director of Laboratory Services
Caduceon Environmental Laboratories
E-mail: sgarrett@caduceonlabs.com

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QUOTATION FOR ANALYTICAL SERVICES

Quote #:
Organization:
Contact:
Telephone:
Email:
Project #:
Address: City of Ottawa Sewer Use By-law 2003-514
Invoice To:
Date: **Valid Until:**

Item #	Quantity	Analysis Request	Matrix	Unit Cost, $	Amount, $
Schedule A Sanitary and Combined Sewer Discharge					
1	1	**General Chemistry** (pH, BOD5, TSS, CN, F, TP/TKN, Total Oil & Grease (Animal/Vegetable/Mineral/Synthetic), Phenols (4AAP), SO4, S^{2-})	WW	173.45	173.45
2	1	**Metals** (Al, Sb, As, Bi, B, Cd, Cr, Co, Cu, Pb, Mn, Hg, Mo, Ni, Se, Ag, Sn, Ti, V, Zn)	WW	52.50	52.50
3	1	**VOC's** (Benzene, Bromodichloromethane, Bromoform, Bromomethane, Carbon Tetrachloride, Chloroform, Chloromethane, Chlorobenzene, 1,2-Dichlorobenzene, Dibromochloromethane, cis-1,3 Dichloropropylene, 1,2-Dibromoethane, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,1-Dichlorethane, 1,2-Dichloroethane, 1,1-Dicloroethylene, Trans-1,2-Dichloroethylene, 1,1,1-Trichlorethane, 1,1,2-Trichlorethane Cis-1,2-Dichloroethylene, 1,2-Dichloropropane, Methylene Chloride, Ethylbenzene, Tetrachloroethylene, Trichlorofluromethane, 1,3,5Trimethylbenzene, Toluene, Trichloroethylene, Xylenes (total) Styrene, Trans-1,3 Dichloropropylene, 1,1,2,2-Tetrachloroethane, Vinyl Chloride, Chloroethane)	WW	87.15	87.15
4	1	**SVOC's and PAH's** (Bis(2-Chloreth)meth, Bis(2-ethylhexyl Phthalate), Butyl Benzyl Phthalate, 2,4-Dichlorophenol, Diethyl Phthalate, Dibutyl Phthalate, Dioctylphthalate, Fluorene, Hexachlorobenzene, Indole, 1-Methyl-Naphthalene, 2-Methyl-Naphthalene, Naphthalene, PAH (Total)	WW	$204.75	$204.75
5	1	**Dioxins and Furans** (sub-contracted)	WW	1300.00	1300.00
6	1	**Formaldehyde** (sub-contracted)	WW	275.00	260.00
7	1	**Nitrosodimethylamine (NDMA)** (sub-contracted)	WW	500.00	500.00
8	1	**Nonylphenols & Nonylphenol Ethoxylates** (sub-contracted)	WW	330.00	330.00
-	-	**Sample Supplies Surcharge**	Surcharge	5%	$145.39
-	1	**Sample Disposal Surcharge**	Surcharge	$2.00	$2.00
				Subtotal	$3,055.24
				HST	$397.18
				Total Cost	$3,452.42

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