



Contaminant Investigation Report

Yonge Subway Extension Project
Train Storage Facility
Environmental Project Report Addendum

Richmond Hill, Ontario

Prepared For: Toronto Transit Commission
and York Region Rapid Transit
Corporation

COMMUNITIES
TRANSPORTATION
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INFRASTRUCTURE



May 2014

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MMM Group Limited
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EXECUTIVE SUMMARY

MMM Group Limited (MMM) was retained by the Toronto Transit Commission and York Region Rapid Transit Corporation to complete a contaminant investigation for a proposed 14 Train Storage Facility (TSF) in the vicinity of the Richmond Hill Centre.

The Study Area for the contaminant investigation is an area within the northern portion of the Town of Richmond Hill lands, located north of Bantry Avenue and the northern limit of Coburg Crescent (herein referred to as the “Study Area”). The northern part of the TSF is proposed to be installed within the Study Area. No drilling or sampling was completed by MMM south of Bantry Avenue, due to difficulties in locating a storm sewer, which is present in the landscaped area east of the commercial plaza.


The purpose of this contaminant investigation is to assess soil and groundwater quality within the upper 10 m of the Study Area and to provide recommendations for additional contaminant investigations to be completed at the preliminary and detail design stages, as necessary.

Several investigations have been completed for the project, focused predominantly on the geotechnical aspects. The environmental report available for MMM’s review was a Contamination Overview Study (COS), completed by MMM for the project in May 2013. The Study Area of the COS was defined as a 250 m buffer zone around the footprint of the TSF.

Several areas of potential environmental concern (APECs) were identified to be present in the Study Area of the COS. This included six (6) APECs with high potential for contamination and several APECs with moderate potential for contamination. None of the identified APECs with the high potential for contamination were found to be present within a close proximity of the proposed TSF. Therefore, no additional environmental investigations were recommended by MMM to be completed for the project with respect to this classification.

In regards to APECs with moderate potential for contamination in the Study Area, the COS recommended to carry out Phase I and/or Phase II Environmental Site Assessments for those properties where property acquisitions are to take place in support of the project. Based on available information for the COS, the properties/areas likely to be impacted by the project were anticipated to be the railway corridor present to the east of the proposed TSF. For the rest of moderate APECs (i.e., where no property acquisitions is to occur), the COS recommended carrying out a soil contaminant investigation in areas where excavation may be required, to evaluate soil quality and soil management options for the TSF construction.

The fieldwork for this contaminant investigation consisted of advancing five (5) boreholes and installation of two (2) monitoring wells in the Study Area, in July 2013. The field work was completed by MMM’s field staff with due regard to generally accepted environmental field



protocols, in general accordance with applicable CSA guidelines and the MOE's "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario (MOE, 1996) and the protocol included in O. Reg. 153/04, as amended (July 2011).

Soil samples retrieved during drilling were collected for evaluation of the hydrogeological conditions and pre-screened for signs of potential contamination. Soil samples collected within each borehole were tested for Total Organic Vapours using a Photo-ionization Detector Mini-Rae 3000. The samples with the high vapour readings were selected for analysis of concentrations of Volatile Organic Compounds (VOCs), Petroleum Hydrocarbons (PHCs) including fractions F1 to F4 and BTEX (i.e., benzene, toluene, ethylbenzene and xylenes). Selected soil samples were submitted to a Maxxam Analytics Inc. (Maxxam) laboratory for analysis of concentrations of metals/inorganic parameters, Polycyclic Aromatic Hydrocarbons (PAHs) and VOCs.

Groundwater samples were collected by MMM from wells MW4 and MW5 on April 16, 2014. Groundwater samples were analyzed for concentrations of metals/inorganic parameters, PHCs, and VOCs.

Comparison of the soil analytical results to the Ministry of the Environment (MOE) Table 1 and 3 ICC Standards for fine textured soils showed concentration of PHC F4 of 180 µg/g exceeding the MOE Table 1 Standard of 120 µg/g but meet the MOE Table 3 Standard of 6,600 µg/g. The rest of parameters meet the MOE Table 1 and 3 Standards.

The groundwater analytical results identified concentrations of molybdenum, uranium and vanadium exceeding the MOE Table 1 Standards but meeting the MOE Table 3 standards. Concentrations of molybdenum were 150 and 27 µg/L in MW4 and MW5, above the MOE Table 1 Standard of 23 µg/L but below the MOE Table 3 Standard of 9,200 µg/L. Concentration of uranium of 58 µg/L exceeded the MOE Table 1 Standard of 8.9 µg/L in MW4; concentration of vanadium of 5.2 µg/L was above the MOE Table 1 of 3.9 µg/L in MW5. It is believed that elevated concentrations of molybdenum, uranium and vanadium in shallow groundwater may be natural-occurring. The rest of tested parameters (i.e., inorganic parameters, VOCs and PHCs) meet the MOE Table 1 and 3 Standards.

Based on results of the contaminant investigation, MMM provides the following recommendations:

- ◆ Soil and groundwater quality should be evaluated for the area where the Train Storage Facility is proposed to be constructed south of Bantry Avenue. This area was not evaluated in this contaminant investigation due to difficulties in locating a storm sewer in the landscaped area;


- 
- ◆ It is recommended to develop a management plan to deal with excess materials to be generated during the construction phase of the project. This plan should develop a sampling program to collect soil confirmatory samples for evaluation of options for soil re-use, recycling or disposal, as recommended in the MOE's Guide for Best Management Practices for Soil Management (MOE, 2014) and according to applicable regulations;
 - ◆ Based on results of the groundwater investigation completed for the TSF, a dewatering program is likely required for groundwater control during the TSF construction. Detailed hydrogeological investigations and geotechnical assessments should be completed to provide mitigation measures for the groundwater control during dewatering activities;
 - ◆ Additional groundwater sampling should be completed in wells MW4 and MW5 and wells to be installed during future investigations in the area south of Bantry Avenue, to provide recommendations for groundwater discharge options during dewatering for the TSF construction.

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1.0 INTRODUCTION

MMM Group Limited (MMM) was retained by the Toronto Transit Commission and York Region Rapid Transit Corporation to complete a contaminant investigation for a proposed 14 Train Storage Facility (TSF) in the vicinity of the Richmond Hill Centre. The TSF is proposed to be built approximately between 0.6 km north of High Tech Road and 0.1 km north of Edgar Avenue and 25 m west of the existing CN/GO railway corridor on lands currently owned by the Town of Richmond Hill.

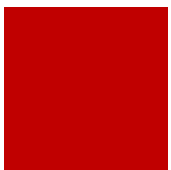
The Study Area for the contaminant investigation is an area within the northern portion of the Town of Richmond Hill lands, located north of Bantry Avenue and the northern limit of Coburg Crescent (herein referred to as the “Study Area”). The northern part of the TSF is proposed to be installed within the Study Area (**Figure 1**). No drilling or sampling was completed by MMM south of Bantry Avenue, due to difficulties in locating a storm sewer, which is present in the landscaped area east of the commercial plaza.

Several investigations have been completed for this project to date. Golder Associates Ltd. (Golder) has completed several preliminary geotechnical investigations for the project since 2008. A Contamination Overview Study and a Groundwater Assessment were completed by MMM for the project in May 2013 and April 2014, respectively. Selected sections of these investigations have been included in this report.

1.1 Project Background

This investigation was completed for the Yonge Subway Extension (YSE) project. The objective of the project is to extend the existing Yonge Subway from its current terminus at Finch Station in the City of Toronto to approximately Highway 7 (Richmond Hill Centre) in the Town of Richmond Hill. In 2009-2010, the Toronto Transit Commission (TTC) reviewed the subway rail yard needs for the Yonge Subway to the year 2030, and determined that the train car fleet would grow from 62 trains to a total of 88 trains. This in turn, led to the conclusion that an additional 14-train storage capacity would be required for overnight storage of a portion of the additional vehicles, and a yard property should be purchased in the vicinity of the Richmond Hill Centre to accommodate the fleet growth beyond the year of 2030.

The requirement for the train storage at the north end of the Yonge line was identified by the TTC after the original YSE Transit Project Assessment Process (TPAP) was completed and approved by the Ministry of Environment (MOE). The implementation of the Train Storage Facility is subject to an Addendum to the previous assessment under the TPAP and that assessment is documented under a separate cover in an Environmental Project Report (EPR)



Addendum. A detailed project history is provided in the draft Environmental Project Report Addendum dated April 2014.

It is understood that underground portions of the YSE will be constructed using tunnelling with the tunnel ingress point located at Richmond Hill Centre in the middle of a parking lot. The TSF, however, will be constructed using a cut-and-cover method (MMM (a), April 2014).

1.2 Project Description

The proposed Train Storage Facility requires an underground extension of the Yonge Subway of approximately 800 m beyond the end of the approved Richmond Hill Centre Station, northerly along the west side of the CN rail corridor. The storage facility itself would be comprised of three parallel tracks to accommodate additional storage capacity, side-by-side in a triple box structure along the west side of the GO/CN rail corridor. The box structure would be approximately 21 m wide and 6 m tall, generally located at a depth from surface of approximately 14-20 m (top of structure/ bottom of structure). The structure would be approximately 700 m long.

In addition to the underground vehicle storage facility, a number of supporting surface facilities will be required, including maintenance operators and electrical services building, a ventilation shaft and drop shaft, an Emergency Exit Building, and a parking lot for 25-30 spaces.

1.3 Purpose of Study

The purpose of this contaminant investigation is to assess soil and groundwater quality within the upper 10 m of the Study Area and to provide recommendations for additional contaminant investigations to be completed at the preliminary and detail design stages, as necessary.

1.4 Scope of Work

The scope of work for the study included the tasks described below.


- ◆ **Background Information Review:**

This included reviewing geological, topographical and physiographic maps and environmental background reports available for the Study Area and surrounding areas.

- ◆ **Subsurface Investigation:**

This included advancement of five (5) boreholes and installation of two (2) monitoring wells by a drilling contractor in the Study Area under MMM's supervision in July 2013.

- ◆ **Sampling and Analyses:**



This included collection and submission of soil and groundwater samples to Maxxam Analytics Inc. laboratory (Maxxam). Soil samples were collected by MMM staff during the borehole advancement in July 2013. Representative soil samples were submitted to Maxxam for analysis of soil texture; inorganic parameters; concentrations of metals; petroleum hydrocarbons (PHCs) including fractions F1 to F4, benzene, toluene, ethylbenzene and xylene (BTEX); volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs).

Groundwater samples were collected by MMM Group and submitted to Maxxam for analysis of inorganic parameters, metals, PHCs (F1 to F4 and BTEX) and VOCs in April 2014.

◆ Data Assessment and Reporting:

Results of soil and groundwater analyses were compared to Tables 1 and 3 of the MOE Site Specific Standards for fine-textured soils. Results of the background information review, drilling details and analytical results are presented in this report.

1.5 Applicable Site Condition Standards

The contaminant investigation was undertaken in general accordance with Canadian Standards Association (CSA) Standard Z769-00 (Phase II ESA) pursuant to Ontario Regulation 153/04 (O.Reg. 153/04), as amended. It should be noted that this investigation is not in support of a Record of Site Condition pursuant to O. Reg. 153/04, as amended.

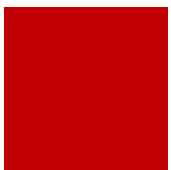
Generic site condition standards established by MOE in the document titled “Soil, Groundwater and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act” (MOE, April 2011) (the “Standard”) were used to assess soil and groundwater quality in the Study Area. The Study Area is not a sensitive site as defined in O. Reg. 153/04 and is municipally serviced. Therefore, MOE Table 3 Standards established for non-potable groundwater conditions for industrial/commercial/community (ICC) land uses with fine-textured soil were considered to be applicable for the Study Area.

For comparison purposes, results of this assessment were also compared to MOE Table 1 Standards, since soils that MOE Table 1 Standards have no off-site disposal/re-use restrictions.

2.0 BACKGROUND INFORMATION

2.1 Description of Study Area

As described in Section 1.0, the Study Area is located between north of Bantry Avenue and the northern limit of Coburg Crescent, and 25 m west of the existing CN/GO railway corridor. The



Study Area is surrounded primarily by residential developments. The CN/GO railway corridor is present to the east of the Study Area (**Figure 1**).

2.2 Topography and Drainage

The topography within the Study Area is flat to gently sloping. Based on design drawings provided for the Train Storage Facility (MMM, January 2014), the ground surface elevations along the TSF alignment increase from approximately 206 metres above sea level (masl) to approximately 209 masl from Bantry Avenue to near Coburg Crescent.

The Study Area is located within the Don River Watershed. The East Don River crosses Yonge Street approximately 1.5 km south of the Highway 407 interchange, with a tributary crossing directly though (underneath) the interchange. Pomona Mills Creek, enclosed in an underground pipe, crosses the TSF from east to west before it flows outside of the railway's Right of Way to the west and then flows south to join the East Don River.


Stormwater run-off within the Study Area is from urban and natural areas in transition to urban land use. Stormwater is conveyed through storm sewers in the urban areas and ditches in the natural areas, respectively. All stormwater is eventually discharged into surface water courses draining into the East Don River. On the regional scale, water from the Don River is eventually discharged into Lake Ontario.

2.3 Physiography

According to Chapman and Putnam's "The Physiography of Southern Ontario, Third Edition" (1984), the Study Area is located within the physiographic region known as the Peel Plain. The Peel Plain is a level-to-undulating tract of clay soils and covers an area of 300 square miles across the central portions of the Regional municipalities of York, Peel and Halton. The ground surface within the Peel Plain slopes toward Lake Ontario with elevations ranging between 152 to 213 masl. Deep valleys have been cut across this plain by rivers and water courses. Much of the Peel Plain has been modified by a veneer of clay soils, which occasionally, when deep enough, have been observed to be varved. The water supply within the Plain is generally poor and the high degree of evaporation from the deforested clay surface limits the adequate recharge of groundwater (Chapman and Putnam, 1984).

2.4 Regional Geology

According to the Ontario Geological Survey mapping "The Surficial Geology of Southern Ontario" (OGS, 2010), glaciolacustrine deposits of silt and clay with minor sand content are



present within the Study Area. The glaciolacustrine deposits generally form a thin veneer over the underlying deposits, although they can be several meters thick. The youngest deposits present beneath the glaciolacustrine deposits and sometime exposed at the surface in the watershed of Don River is *Halton Till*. It is a sandy silt to clayey silt till interbedded with silt, clay, sand and gravel. The Halton Till is a 3 to 6 m thick aquitard unit (TRCA, 2009).

Deposits that correlate to the *The Oak Ridges Moraine* (ORM) may potentially be present in the Study Area. The ORM sediments are arranged from coarse to fine in a down flow direction and vertically up section. Rhythmically interbedded fine sands and silts are the predominant sediments, but coarse, diffusely-bedded sands and gravel may also be present locally. The ORM aquifer sits on the Newmarket Till and lower sediments (TRCA, 2009).

The Newmarket (Northern) Till is a dense silty sand diamicton up to 60 m thick and has been traced to be present beneath the ORM unit. It contains 2-5 cm thick interbeds of sand and silt, boulder pavements, fractures and joints. Discontinuous sand beds up to 1-2 m thick may also be present in this unit (TRCA, 2009). The Newmarket Till is an over-consolidated aquitard unit.

The underlying bedrock in the Study Area is mapped as grey to black shale interbedded with limestone and siltstone layers of the Georgian Bay Formation and limestone of the Simcoe Group (OGS, 1991).

2.5 Study Area Geology

As described in Section 1.0, several preliminary geotechnical investigations were completed by Golder for the project. During these investigations, nested wells BH 126A/B and 128 A/B were installed in the southern and northern portions of the proposed TSF (**Figure 2**).

The borehole logs from the groundwater and the contaminant investigations indicate that a 1.4 to 3.7 m thick fill is present in the central and northern portion of the proposed TSF below the topsoil layer. The native soils in the Study Area consist of clayey silt to silty clay till, sandy silt to silt, sand to silty sand, silty clay to clayey silt and sand and gravel.

The till seems to be interbedded with deposits of silty clay to clayey silt at shallow depths down to 13.3 m in the northern portion of the Study Area. Silty clay to clayey silt deposit was found to be present at the depth of 19.4 to 22.3 mbgs and below 20.9 mbgs in the northern portion of the Study Area. Deposits of sandy silt, sand and silt and silt deposits are distinct at the depths of 4.9 to 8.7 mbgs, 11.7 to 14.9 mbgs, 27.0 to 29.9 mbgs and below 31.2 mbgs in the central portion of the Study Area.

Deposits of sand to silty sand were encountered at the shallow depths in the northern portion of the Study Area. These deposits are also present at the depths of 8.7 to 11.7 mbgs and at the depth of 26.0 to 27.0 mbgs in the central portion of the Study Area.

2.6 Groundwater Elevations

Static groundwater levels at Monitoring Wells MW4 and MW5 were measured by MMM in March and April 2014. Information from the monitoring events is presented in **Table 1**. As can be seen from **Table 1**, the shallow groundwater is present at depths of 7.6 to 8.3 mbgs within the Study Area. Additional monitoring wells are required to be installed to understand the flow direction of shallow groundwater in the Study Area.

Table 1: Depth to Groundwater in Study Area


Monitoring Well ID	Well Depth (mbgs)	Depth to GW (mbgs) – March 27, 2014	GW Elev (masl) – March 27, 2014	Depth to GW (mbgs) – April 16, 2014	GW Elev (masl) – April 16, 2014
MW4	9.75	8.07	200.02	7.60	200.49
MW5	11.28	8.32	200.30	7.87	200.74

2.7 Background Environmental Reports

Several investigations have been completed for the project, focused predominantly on the geotechnical aspects. The environmental report available for MMM's review was a Contamination Overview Study (COS), completed by MMM for the project in May 2013. The Study Area of the COS was defined as a 250 m buffer zone around the footprint of the TSF. The purpose of the COS was to identify properties/areas with actual and/or potential contamination that may impact the design and construction of the TSF. The COS consisted of reviewing environmental records and completing a site reconnaissance.

Several areas of potential environmental concerns (APECs) were identified to be present in the Study Area of the COS. This included six (6) APECs with high potential for contamination and several APECs with moderate potential for contamination. None of the identified APECs with the high potential for contamination were found to be present within a close proximity of the proposed TSF. Therefore, no additional environmental investigations were recommended by MMM to be completed for the project with respect to this classification.

In regards to APECs with moderate potential for contamination in the Study Area, the COS recommended to carry out Phase I and/or Phase II Environmental Site Assessments for those



properties where property acquisitions are to take place in support of the project. Based on available information for the COS, the properties/areas likely to be impacted by the project were anticipated to be the railway corridor present to the east of the proposed TSF. For the rest of moderate APECs (i.e., where no property acquisitions is to occur), the COS recommended carrying out a soil contaminant investigation in areas where excavation may be required, to evaluate soil quality and soil management options for the TSF construction.

2.8 Potential Contaminants of Concern

As described above, the COS completed for the project identified areas with potential areas for contamination. Potential contaminants of concern for this investigation may include metals/inorganic parameters, PHCs (F1-F4 and BTEX), PAHs and VOCs.

3.0 FIELD WORK METHODOLOGY


The field work for the contaminant investigation consisted of advancing five (5) boreholes and installation of two (2) monitoring wells in the Study Area (**Figure 2**), in July 2013. The field work was completed by MMM's field staff with due regard to generally accepted environmental field protocols, in general accordance with applicable CSA guidelines and the MOE's "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario (MOE, 1996) and the protocol included in O. Reg. 153/04, as amended (July 2011).

3.1 Media Investigated

Both soil and groundwater quality was investigated within the Study Area as part of this contaminant investigation. The soil quality was assessed through recovery of soil samples during the borehole advancement. Soil samples were collected at regular depth intervals to allow the characterization of physical soil properties and signs of potential contamination, documented in the boreholes logs. The groundwater samples were collected in monitoring wells MW4 and MW5 in April 2014. Detailed description of analyses completed for soil and groundwater samples is presented in Section 3.7.

3.2 Drilling Details

The borehole advancement and well installation for this investigation was completed by Walker Drilling Ltd., a certified well drilling contractor, under MMM's supervision on July 24 and 25, 2013. In the initial scope of work, eleven (11) boreholes were planned to be advanced and five (5) out of eleven monitoring wells were planned to be installed in vicinity of the TSF. However, only boreholes north of Bantry Avenue were advanced due to difficulties locating a storm sewer



south of Bantry Avenue. The original names were kept for boreholes and wells advanced north of Bantry Avenue.

All five (5) boreholes BH4, MW4, BH5, MW5 and BH6 were advanced using a track mounted drilling rig Geoprobe 7822DT, equipped with hollow stem augers. Soil samples were retrieved from each borehole at semi-continuous intervals of 0.6 m (2 feet) using split spoons.

3.3 Soil Sampling

Soil samples retrieved during drilling were collected for evaluation of the hydrogeological conditions and pre-screened for signs of potential contamination. Soil samples were recovered from split spoons and placed in labeled polyethylene bags for the field screening. For screening purposes, a portion of each sample was maintained in an undisturbed condition and the balance of the sample was broken up into small pieces to release soil vapours.

The vapour readings were measured and selected soil samples were jarred in laboratory supplied bottles for submission to the Maxxam Analytics Inc. (Maxxam) laboratory, located in Mississauga, Ontario. For samples considered for BTEX analysis, the undisturbed portion of the sample was recovered from each bag and carefully placed in a laboratory-prepared vial containing a measured amount of methanol.

3.4 Field Screening Measurements

Soil samples collected within each borehole were tested for TOVs using a Photo-ionization Detector Mini-Rae 3000. The purpose of the screening was to evaluate whether combustible (e.g., petroleum) or volatile (e.g., solvents) compounds are present in the recovered samples. The TOV readings were gathered at the end of each day once the samples had acclimatized to indoor ambient temperature. The TOV readings for all collected soil samples are presented in the borehole logs (**Appendix A**).

The soil samples with the higher vapour readings were selected for analysis of concentrations of VOC, PHCs and BTEX. Screened samples were submitted to Maxxam's lab under a chain of custody.

3.5 Installation of Monitoring Wells

Installation of monitoring wells MW4 and MW5 was completed as follows:

- ◆ Each monitoring well was constructed using a 51 mm diameter well screen and Schedule 40 PVC riser pipe;

- ◆ The well screen intervals were chosen to be 1.5 m (5 feet) long with a No. 10 slot size screen;
- ◆ Sand pack was placed around the well screen to the outer diameter of 20 cm and the sand pack was extended to 0.3 m above the top of the screen;
- ◆ A bentonite seal was then placed around the PVC riser pipe up to within 0.3 m of the ground surface;
- ◆ Well caps were placed on the top of PVC wells; and
- ◆ Monitoring wells were completed using steel monuments.

Installation of monitoring wells was completed in accordance with O. Reg. 903. Groundwater levels were observed in the monitoring wells upon completion and were measured upon return site visits on March 27, 2014 and April 16, 2014.

3.6 Groundwater Sampling

MMM collected groundwater samples in monitoring wells MW4 and MW5 on April 16, 2014. To collect samples representative of the screened formation, each monitoring well was purged at least three (3) volumes of the well volume. The water quality parameters, including pH, temperature, electrical conductivity and concentrations of total dissolved solids, were monitored using a YSI water quality meter (Model 556) during the well purging. The water levels in the wells were allowed to recover prior to collecting groundwater samples. The groundwater samples were then collected in laboratory-supplied bottles, placed on ice and delivered to Maxxam's laboratory the same day.

3.7 Analytical Testing

Soil samples collected during advancement of boreholes on July 24 and 25, 2013 were selected for the chemical analysis using olfactory information in the field notes, targeted sampling intervals and measured TOV readings. A plan of soil samples selected for the chemical analyses is shown in **Table 2**.

It should be noted that the borehole BH6 was originally named as "BH7" and changed to "BH6" at later stages of the contaminant investigation. References in Certificates of Analyses for soil samples collected at BH6 refer to the old name of this borehole (i.e., BH7).

The soil samples were put on ice and delivered to Maxxam laboratory the same day. Maxxam is a laboratory accredited by the Canadian Association for Laboratory Accreditation (CALA) for the requested soil and groundwater analyses.

Groundwater samples were collected following recovery of purged water in MW4 and MW5 on April 16, 2014. These samples were submitted for analyses of metals, inorganic parameters, VOC and PHCs (F1 to F4 and BTEX). Due to high silt content and limited recovery of groundwater in MW4 and MW5 following purging, analysis for concentrations of mercury in groundwater was not completed.

Table 2: Sampling Analysis Plan for Soil Samples

Sample ID	Sample Depth (mbgs)	Field Vapour Readings ¹	Metals and Inorganics	PHCs/BTEX	VOCs	PAHs
BH6	0-0.6	0	X			
	2.2-2.8	0			X	
	3-3.6	0	X			
	4.1-4.4	0		X		
	4.5-5.1	0				X
BH4	0-0.6	0		X		X
	0.7-1.3	0	X			
	2.2-2.5	0.2			X ²	
	3.8-4.3	0	X			
BH5	0.7-1.3	0	X ²			
	1.5-2.1	0		X		X
	6.4-6.7	0			X	
	8.3-8.9	0	X ²			
MW4	0-0.6	4.1		X	X	
	0.7-1.3	4.1	X			
	1.5-2.1	0.8				X ²
	3.8-4	1.3				X ²
	8.3-8.7	0	X			
MW5	0.7-1.3	0	X			
	2.5-2.8	2			X	X
	3-3.6	0.8				X
	3.8-3.9	1.5		X		
	8.3-8.9	0	X			

Notes:

1. Total Organic Vapours were measured using a PID calibrated to isobutylene (ppm);
 2. A duplicate sample was collected at this location.
- mbgs = meters below ground surface

3.8 Residue Management Procedures

Soil cuttings from drilling operations were collected and contained in one drum and stored within the Study Area. Minimal volumes of purge water were generated and this water was added to the void spaces within the soil drums. Equipment wash fluids were contained and removed by the drilling contractor as part of the drilling scope of work.

3.9 Quality Assurance and Quality Control Measures

Quality assurance and quality control of the soil and groundwater samples was monitored and maintained in a number of ways:

- ◆ The field investigations followed MMM' standard operating procedures for soil and groundwater sampling;
- ◆ Samples were given unique identifications as they were collected, identifying the project number, date, sampling location and depth. The sample numbers were recorded in field notes for each location;
- ◆ Sample containers provided by the laboratory were used and laboratory requirements for sample size, container type, preservatives and filtering were followed;
- ◆ Split spoons were washed by the drilling contractor between drilling intervals in a solution containing Alconox to prevent cross-contamination of the recovered soil samples;
- ◆ Nitrile gloves were used by the MMM's field technician while handling soil samples, and were changed for each sample;
- ◆ Non-disposable sampling equipment was cleaned using Alconox, following each use;
- ◆ A chain-of-custody form was filled out for the samples prior to submitting the samples to the laboratory. The chain-of-custody documented sample movement from collection to receipt at the laboratory and provided sample identification, requested analysis and conditions of samples upon arrival at the laboratory (e.g., temperature, container status, etc.);
- ◆ Soil samples were randomly selected by the MMM field staff for duplicate testing. For the requested analyses, one duplicate sample for analysis was selected for every five (5) samples submitted to the lab;
- ◆ Field monitoring equipment was calibrated according to manufacture requirements prior to the site visit including on-site calibration;

- ◆ Samples were randomly selected by the laboratory for internal Quality Assurance checks including blanks and matrix spikes. Generally, one sample for every ten samples submitted was checked. For each parameter, there is an acceptable upper and lower limit for the measured concentration of the parameter. Measured concentrations of analyzed samples must fall within the upper and lower acceptable limits in order for the sample to be valid. If a result exceeds the upper or lower acceptable limits, the sample must be re-analyzed. Upper and lower acceptable limits for each analyzed parameter is presented in Certificates of Analysis (**Appendix B and C**).

4.0 EVALUATION OF RESULTS

This section presents results of the soil analysis and the sample QA/QC program completed for the Study Area. For the purposes of this study, all soil samples were compared to the following set of standards:

- ◆ Table 1 of the MOE Site Condition Standards (SCS) under Ontario Regulation 153/04, as amended. MOE Table 1 SCS are suitable for Full Depth Background Site Conditions for all property uses and soil textures. Soils that meet MOE Table 1 SCS have no off-site disposal/re-use restrictions; and
- ◆ Table 3 of the MOE SCS under Ontario Regulation 153/04 as amended. Table 3 SCS are suitable for Generic Conditions for all property uses and soil textures in non-potable groundwater conditions. The SCS applicable for the Study Area are Table 3 standards for industrial/commercial/community (ICC) land uses (i.e., the train storage facility) and fine-textured soils. Results of the soil texture analysis are provided below.

4.1 Soil Texture

Selected soil samples were submitted to Maxxam for the soil texture analysis. The results have indicated that the soils within the Study Area have a fine texture, as shown in **Table 3** below.

Table 3: Summary of Analytical Results for Soil Texture

Borehole ID Depth (mbgs) Maxxam work order Sampling Date	Units	BH4(10-12') 3.0 – 3.7 SK6012 25/07/2013	MW4(2'.5-4'.5) 0.7 – 1.3 SK6022 25/07/2013
Grain Size		FINE	FINE
Sieve - #200 (<0.075mm)	%	61	71
Sieve - #200 (>0.075mm)	%	39	29



4.2 Results of Soil Field Screening

As described in Section 3.4, soil samples collected within each borehole were tested for TOVs using a PID. The results of the soil field screening indicated that TOV readings for boreholes advanced within the Study Area ranged between 0.0 parts per million (ppm) to 4.1 ppm, with background concentrations in ambient air being zero.

The TOV readings obtained during the field screening indicate that vapour concentrations are low. This is consistent with visual and olfactory observations. At each borehole location, a sample representing the highest PID reading was submitted for analysis of concentration of PHC and/or BTEX in soil samples. PID readings were also used in choosing samples for the VOC analyses. The highest reading of 4.1 ppm was in the soil sample collected at the depth of 0 mbgs to 1.3 mbgs in MW4.

4.3 Soil Sampling Results

Detailed tables with soil sampling results collected during this investigation are presented in **Appendix B**. This includes results for metals and inorganic parameters (**Table B1**), PHCs (**Table B2**) and PAHs (**Table B3**) and VOCs (**Table B4**).

Comparison of the soil analytical results to the MOE Table 1 and 3 ICC Standards for fine textured soils showed concentration of PHC F4 of 180 µg/g exceeding the MOE Table 1 Standard of 120 µg/g but meeting the MOE Table 3 Standard of 6,600 µg/g in the sample collected in MW4 at the depth of 0 to 0.6 m. The rest of parameters meet the MOE Table 1 and 3 Standards. A Certificate of Analysis for collected soil samples is provided in **Appendix B**.

4.4 Groundwater Sampling Results

The groundwater samples were analyzed for metals, inorganic parameters, PHCs (F1 to F4 and BTEX) and VOCs. Analytical results are presented in the following tables: metals and inorganic parameters (**Table C1**), PHCs/BTEX (**Table C2**) and VOCs (**Table C3**). A Certificate of Analysis for collected groundwater samples is provided in **Appendix C**.


Comparison of the groundwater analytical results to the MOE Table 1 and 3 Standards identified concentration of molybdenum, uranium and vanadium exceeding the MOE Table 1 Standards but meet the MOE Table 3 standards. Concentrations of molybdenum were 150 and 27 µg/L in MW4 and MW5, above the MOE Table 1 Standard of 23 µg/L but below the MOE Table 3 Standard of 9,200 µg/L. Concentration of uranium of 58 µg/L exceeded the MOE Table 1 Standard of 8.9 µg/L in MW4; concentration of vanadium of 5.2 µg/L was above the MOE Table

1 Standard of 3.9 µg/L in MW5. It is believed that elevated concentrations of molybdenum, uranium and vanadium in shallow groundwater may be naturally-occurring.

5.0 DISCUSSION OF FINDINGS AND RECOMMENDATIONS

The following is a summary of results obtained during this contaminant investigation:

- ◆ The Study Area for a contaminant investigation is an area within a 250-m radius of the proposed northern portion of the TSF, located approximately 0.2 m south of Bantry Road and 0.1 km north of Edgar Avenue. The Study Area is surrounded by residential lands and commercial properties. The CN/GO railway corridor is present to the east of the Study Area;
- ◆ The shallow groundwater is present at depth of 7.6 to 8.3 mbgs in the Study Area. Additional monitoring wells are required to be installed to understand the flow direction of shallow groundwater;
- ◆ A Contamination Overview Study (COS) completed by MMM for the project in May 2013 identified areas of potential environmental concerns (APECs) within the Study Area;
- ◆ None of the identified APECs with the high potential for contamination were found to be present within a close proximity of the proposed TSF. Therefore, no additional environmental investigations were recommended by MMM to be completed for the project with respect to this classification;
- ◆ In regards to APECs with moderate potential for contamination, the COS recommended to carry out Phase I and/or Phase II Environmental Site Assessments for those properties where property acquisitions are to take place in support of the project. Based on available information, the properties/areas likely to be impacted by the project is the railway corridor present to the east of the proposed TSF;
- ◆ For the rest of moderate APECs (i.e., where no property acquisitions is to occur), the COS recommended carrying out a soil contaminant investigation in areas where excavation may be required, to evaluate soil quality and soil management options for the TSF construction;
- ◆ The borehole advancement was completed by Walker Drilling Ltd., a certified well drilling contractor, under MMM's supervision on July 24 and 25, 2013. Soil samples retrieved during drilling were collected for evaluation of the hydrogeological conditions and pre-screened for signs of potential contamination;
- ◆ Soil samples collected within each borehole were tested for Total Organic Vapours (TOVs) using a Photo-ionization Detector (PID) Mini-Rae 3000. The samples with the higher vapour readings were selected for analysis of concentrations of PHCs (F1 to F4 and BTEX).




Selected soil samples were submitted to a Maxxam laboratory for analysis of concentrations of metals/inorganic parameters, PHCs and VOCs;

- ◆ Groundwater samples were collected by MMM on April 16, 2014. Groundwater samples from MW4 and MW5 were analyzed for concentrations of metals/ inorganic parameters, PHCs, and VOCs;
- ◆ Comparison of the soil analytical results to the MOE Table 1 and 3 ICC Standards for fine textured soils showed concentration of PHC F4 of 180 µg/g exceeding the MOE Table 1 Standard of 120 µg/g but meeting the MOE Table 3 Standard of 6,600 µg/g, in the sample collected in MW4 at the depth of 0 to 0.6 m. The rest of parameters are below the MOE Table 1 and 3 Standards;
- ◆ Comparison of the groundwater analytical results to the MOE Table 1 and 3 Standards identified concentration of molybdenum, uranium and vanadium exceeding the MOE Table 1 Standards but meeting the MOE Table 3 standards. Concentrations of molybdenum were 150 and 27 µg/L in MW4 and MW5, above the MOE Table 1 Standard of 23 µg/L but below the MOE Table 3 Standard of 9,200 µg/L. Concentration of uranium of 58 µg/L exceeded the MOE Table 1 Standard of 8.9 µg/L in MW4; concentration of vanadium of 5.2 µg/L was above the MOE Table 1 Standard of 3.9 µg/L in MW5. It is believed that elevated concentrations of molybdenum, uranium and vanadium in shallow groundwater may be natural-occurring;

Based on results of this contaminant investigation, MMM provides the following recommendations:

- Soil and groundwater quality should be evaluated for the area where the Train Storage Facility is proposed to be constructed south of Bantry Avenue. This area was not evaluated in this contaminant investigation due to difficulties in locating a storm sewer in the landscaped area;
- It is recommended to develop a management plan to deal with excess materials to be generated during the construction phase of the project. This plan should develop a sampling program to collect soil confirmatory samples for evaluation of options for soil re-use, recycling or disposal, as recommended in the MOE's Guide for Best Management Practices for Soil Management (MOE, 2014) and according to applicable regulations;
- Based on results of the groundwater investigation completed for the TSF, a dewatering program is likely required for groundwater control during the TSF construction. Detailed



hydrogeological investigations and geotechnical assessments should be completed to provide mitigation measures for the groundwater control during dewatering activities;

- Additional groundwater sampling should be completed in wells MW4 and MW5 and wells to be installed during future investigations in the area south of Bantry Avenue, to provide recommendations for groundwater discharge options during dewatering for the TSF construction.



6.0 QUALIFICATIONS OF THE CONSULTANT

6.1 MMM Group Limited

For six decades, MMM Group Limited has offered comprehensive consulting services in design, planning, project management, contract administration and construction inspection services in the environmental engineering, municipal engineering, urban development and recreational development fields. The firm employs over 2,000 professional, technical and administrative staff, in offices across Canada with expertise in all facets of the environmental field. The Environmental Management Department (EMD) specializes in conducting Phase One, Two and Three Environmental Site Assessments, hazardous materials assessment, removal of underground storage tanks, hydrogeological and groundwater investigations and site remediation.

6.2 Qualified Person

The contaminant investigation was supervised by **Ms. Natalia Codoban, M.Eng., P.Eng.**, Hydrogeologist/Environmental Engineer and a Project Manager with MMM. Ms. Codoban has an academic background in Earth/Environmental Sciences and Geology, and Environmental Engineering. She has over nine (9) years of experience in completing and managing environmental and hydrogeological investigations. Natalia has provided expertise to numerous environmental investigations, contaminated site assessments (brownfields), clean water and contaminant groundwater investigations, Contamination Overview Studies, Preliminary Site Screenings, studies for development impact assessment, on-site servicing, watershed studies and water balance evaluation, water resources development and protection, dewatering and hydrogeological projects. Natalia is a Qualified Person (QP) under O. Reg. 153/04, as amended.

The contaminant investigation report was reviewed for quality assurance/quality control purposes by **Mr. Murray Gomer, M.Sc., P.Geo.**, who is a Senior Hydrogeologist/Senior Project Manager and an Associate with MMM. Mr. Gomer has more than 32 years of experience as a Hydrogeologist and Project Manager in a wide range of overburden and bedrock terrain and geological conditions. Relevant experience includes: development impact assessment, on-site servicing, watershed studies and water balance evaluation, water resources development and protection, dewatering, waste management plans, siting and monitoring for municipal landfills, industrial and radioactive waste sites, contaminated sites assessment (brownfields), remedial action, expert witness (OMB), and environmental assessment under the Ontario Environmental

Assessment Act, Environmental Protection Act and under the Canadian Environmental Assessment Act. Murray is a QP under O. Reg. 153/04, as amended.

6.3 Technical Support

The field work and preparation of the technical report was completed by **Ms. Sanam Rahmanian, M.Sc.**, an Environmental Scientist working with MMM. Sanam has over three (3) years of experience in completing soil and groundwater sampling and monitoring, supervising drilling contractors for borehole advancement and installation of monitoring wells and preparing technical reports. Prior to working with MMM, Sanam inspected numerous surface water/groundwater monitoring stations, prepared field reports and assisted in conducting a wide variety of environmental/engineering projects, including soil remediation projects, environmental site assessments and Designated Substance Surveys.

6.4 Signatures

Report Authored By:



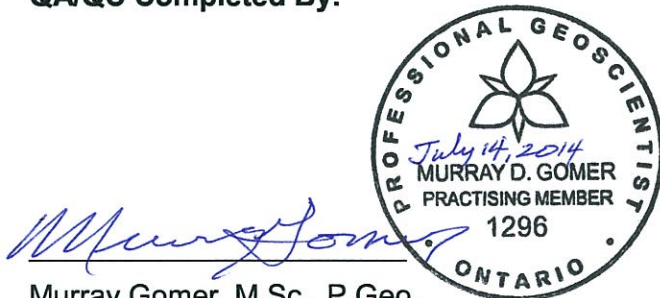
Sanam Rahmanian, M.Sc.
Environmental Scientist

Report Reviewed By:



Natalia Codoban, M.Eng, P. Eng.
Hydrogeologist/ Environmental Engineer

QA/QC Completed By:



Murray Gomer, M.Sc., P.Geo.
Senior Hydrogeologist

7.0 STANDARD LIMITATIONS

Standard conditions and limitations are presented in **Appendix D** as they apply to this report.

8.0 REFERENCES

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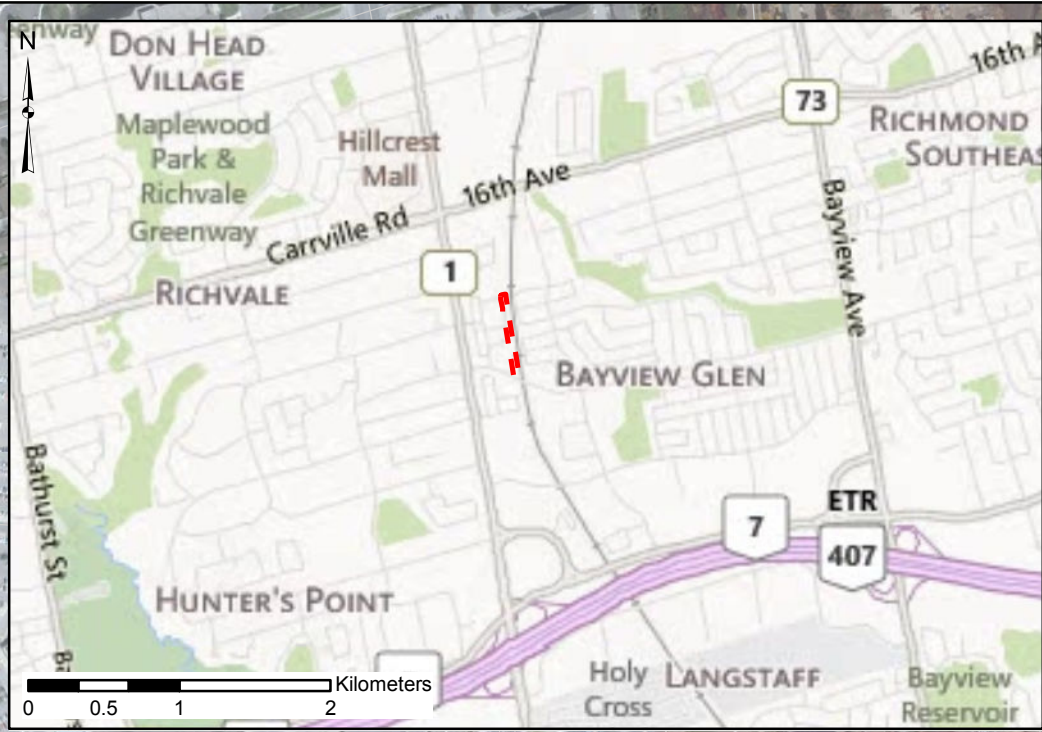
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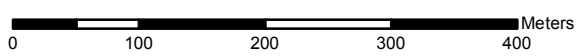
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Legend

- Proposed Train Storage Facility Alignment
- Approximate Limits of Town of Richmond Hill Properties
- - - Study Area of Contaminant Investigation



Scale: As Shown

REFERENCE
 Imagery © 2014 Microsoft Corporation and its data suppliers
<http://www.bing.com/maps>
 Projection: UTM Zone 17N Datum: NAD 83



A member of **MMM GROUP**

CONTAMINANT INVESTIGATION
YONGE SUBWAY EXTENSION
TRAIN STORAGE FACILITY EPR ADDENDUM
RICHMOND HILL, ONTARIO
STUDY AREA LOCATION PLAN

DATE:
 MAY 2014

PROJECT:
 33-77670

FIGURE

1



Legend

Monitoring Locations

- ◆ Monitoring Well (Golder, May 2013)
- Borehole (MMM, July 2013)
- ◆ Monitoring Well (MMM, July 2013)
- Proposed Alignment for Train Storage Facility
- Approximate Limits of Town of Richmond Hill Properties
- - - Study Area of Contaminant Investigation



Scale: As Shown

REFERENCE
 Imagery © 2014 Microsoft Corporation and its data suppliers
<http://www.bing.com/maps>
 Projection: UTM Zone 17N Datum: NAD 83



CONTAMINANT INVESTIGATION
 YONGE SUBWAY EXTENSION
 TRAIN STORAGE FACILITY EPR ADDENDUM
 RICHMOND HILL, ONTARIO

PLAN OF BOREHOLES AND MONITORING WELLS

DATE:
MAY 2014

PROJECT:
32-77670

FIGURE

2



LOG OF BOREHOLE BH4

Project No. 3277670
 Project: Yonge Subway Extension TPAP
 Location: Richmond Hill, Ontario Co-ordinates: 626318.2E, 4856008.1N
 Date Drilled: 7/24/13 Datum: NAD 83 Zone 17N
 Drill Type: Hollow Stem Augers Logged By: SR
 Drilling Contractor: Walker Drilling Ltd. Checked By: NC

● SPT (N) Value
 ▲ Total Organic Volatiles (ppm)

DEPTH (m bgs) (masl)	SYMBOL	SOIL DESCRIPTION	WELL	INSTALLATION DETAILS	SAMPLE ID	SOIL SAMPLE TEST	Standard Penetration Test N Value			
							20	40	60	80
							Total Organic Volatiles (ppm)			
							10	20	30	40
206.37		TOPSOIL								
0.20	206.17	SILTY FINE SAND (FILL) - light brown to light grey - trace of coarse sand and gravel - compact - moist			HS1	PAHs, PHCs	▲	●		
0.76	205.61	- inclusions of gabbro (rock)			HS2	metals	▲	●		
1.52	204.85	SILTY SAND TILL - dark brown - some clay - trace of gravel, orange mottled - compact - moist			HS3		▲	●		
2.59	203.78	- inclusions of gabbro (rock)			HS4	VOCs, moisture	▲	●		
3.05	203.32	CLAYEY SILT TILL - dark brown - trace of sand and gravel, orange mottled - hard - moist			HS5					
3.81	202.56	- black staining - compact			HS6	soil texture	▲	●		
4.57	201.8	End of borehole at 4.57 m			HS7	metals	▲	●		
		Notes: 1) Auger refusal occurred at the depth of 0.6 m, therefore the drilling continued in the alternate location - 1 m north of the original location. 2) Borehole was dry upon completion.								

MMM MW REPORT VER.3 YONGESUBWAYBHLOGS.GPJ GINT STD CANADA LAB.GDT 4/2/14



LOG OF BOREHOLE BH5

Project No. 3277670
 Project: Yonge Subway Extension TPAP
 Location: Richmond Hill, Ontario Co-ordinates: 626279.6E, 4856181.9N
 Date Drilled: 7/25/13 Datum: NAD 83 Zone 17N
 Drill Type: Hollow Stem Augers Logged By: SR
 Drilling Contractor: Walker Drilling Ltd. Checked By: NC

- SPT (N) Value
- ▲ Total Organic Volatiles (ppm)

DEPTH (m bgs) (masl)	SYMBOL	SOIL DESCRIPTION	WELL	INSTALLATION DETAILS	SAMPLE ID	SOIL SAMPLE TEST	Standard Penetration Test N Value						
							20	40	60	80			
							Total Organic Volatiles (ppm)						
							10	20	30	40			
208.73		TOPSOIL											
0.20	208.53	SILTY FINE SAND (FILL) - light brown to dark brown - pieces of wood, rootlets - trace of gravel - compact - moist			HS1		▲	●					
					HS2	metals	▲	●					
1.37	207.36	CLAYEY SILT, some sand - light brown to grey - trace of gravel - hard - slightly varved texture - moist			HS3	PAHs, PHCs	▲	●					
2.29	206.44	- light brown - trace of sand			HS4		▲	●					
3.05	205.68	SILTY to FINE SAND - light brown to light grey - very soft - moist			HS5		▲	●					
3.66	205.07	CLAYEY SILT TILL - light grey to light brown - trace of sand, orange mottled - soft - varved texture - moist			HS6		▲	●					
3.86	204.87	SILTY CLAY to CLAYEY SILT TILL - light brown - hard - varved texture - light grey - trace of sand - orange mottled			HS7		▲	●					
4.42	204.31				HS7b		▲	●					
5.33	203.4	- light grey - trace of sand			HS8		▲	●					
6.10	202.63	- dark grey - trace of sand			HS9		▲	●					
					HS10	VOCs, moisture	▲	●					
					HS11		▲	●					
7.62	201.11	- dark grey - trace of sand and gravel - saturated			HS12		▲	●					

MMM MW REPORT VER.3 YONGESUBWAYBHLOGS.GPJ GINT STD CANADA LAB.GDT 4/2/14



LOG OF BOREHOLE BH5

Project No. 3277670
 Project: Yonge Subway Extension TPAP
 Location: Richmond Hill, Ontario Co-ordinates: 626279.6E, 4856181.9N
 Date Drilled: 7/25/13 Datum: NAD 83 Zone 17N
 Drill Type: Hollow Stem Augers Logged By: SR
 Drilling Contractor: Walker Drilling Ltd. Checked By: NC

● SPT (N) Value

DEPTH (m bgs) (masl)	SYMBOL	SOIL DESCRIPTION	WELL	INSTALLATION DETAILS	SAMPLE ID	SOIL SAMPLE TEST	Standard Penetration Test N Value						
							20	40	60	80			
							Total Organic Volatiles (ppm)						
							10	20	30	40			
200.73													
8.38 200.35	▨	SILTY CLAY to CLAYEY SILT TILL - light brown - hard - varved texture (<i>continued</i>) - pebbles			HS12								
8.99 199.74	▨	End of borehole at 8.99 m Notes: 1) Groundwater was encountered at the depth of 7.6 mbgs upon borehole completion.			HS13	metals	▲	●					



LOG OF BOREHOLE BH6

Project No. 3277670
 Project: Yonge Subway Extension TPAP
 Location: Richmond Hill, Ontario Co-ordinates: 626252.5E, 4856328.9N
 Date Drilled: 7/24/13 Datum: NAD 83 Zone 17N
 Drill Type: Hollow Stem Augers Logged By: SR
 Drilling Contractor: Walker Drilling Ltd. Checked By: NC

● SPT (N) Value
 ▲ Total Organic Volatiles (ppm)

DEPTH (m bgs) (m asl)	SYMBOL	SOIL DESCRIPTION	WELL	INSTALLATION DETAILS	SAMPLE ID	SOIL SAMPLE TEST	Standard Penetration Test N Value			
							20	40	60	80
							Total Organic Volatiles (ppm)			
							10	20	30	40
208.65		TOPSOIL								
0.20	208.45	SILTY CLAY to CLAYEY SILT (FILL) - dark brown - pieces of wood, rootlets - hard - blocky texture - dry			HS1	metals				
0.90	207.75	- moist			HS2					
					HS3					
2.29	206.36	SILTY CLAY to CLAYEY SILT TILL - dark brown, black mottled - some sand and gravel - slight organic odour - hard - slightly varved texture - moist			HS4	VOCs, moisture, TCLP				
3.05	205.6	- orange mottled (signs of oxidation) - varved texture			HS5					
3.81	204.84	- brown to light grey			HS6					
4.11	204.54	CLAYEY SILT, some sand - dark brown, black sand particles - organic odour - hard - very moist			HS7	PHCs				
4.57	204.08	SILTY CLAY TILL - dark brown, orange mottled (signs of oxidation) - hard - moist			HS8	PAHs				
5.18	203.47	End of borehole at 5.18 m								
		Notes: 1) Borehole was dry upon completion.								

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LOG OF BOREHOLE MW4

Project No. 3277670
 Project: Yonge Subway Extension TPAP
 Location: Richmond Hill, Ontario Co-ordinates: 626299.7E, 4856095.9N
 Date Drilled: 7/25/13 Datum: NAD 83 Zone 17N
 Drill Type: Hollow Stem Augers Logged By: SR
 Drilling Contractor: Walker Drilling Ltd. Checked By: NC

- SPT (N) Value
- ▲ Total Organic Volatiles (ppm)

DEPTH (m bgs) (m asl)	SYMBOL	SOIL DESCRIPTION	WELL	INSTALLATION DETAILS	SAMPLE ID	SOIL SAMPLE TEST	Standard Penetration Test N Value			
							20	40	60	80
							Total Organic Volatiles (ppm)			
							10	20	30	40
208.09		TOPSOIL		Bentonite						
0.20	207.89	SILTY FINE SAND (FILL) - light to dark brown, black staining - compact - blocky texture - moist			HS1	VOCs, moisture, PHCs				
0.76	207.33	- dark brown			HS2	metals, soil texture				
1.52	206.57	- orange mottled, black staining			HS3	PAHs				
2.28	205.81	CLAYEY SILT, some sand - trace of gravel - varved texture - moist			HS4					
3.05	205.04	- light brown			HS5					
3.81	204.28	- light brown, orange mottled			HS6	PAHs				
4.04	204.05	SILTY SAND - some clay - orange mottled - moist			HS7					
4.57	203.52	SANDY SILT TILL - light brown, orange mottled - some clay			HS8					
5.33	202.76	- black sand			HS9					
5.48	202.61	- light brown - soft - moist			HS10					
6.10	201.99	CLAYEY SILT to SILTY CLAY TILL - light grey - some sand and gravel - slight organic odour - compact - moist			HS11					
6.86	201.23	- varved texture			HS12					
7.62	200.47	- trace of sand and gravel - hard		Sandpack	HS13					

MMM MW REPORT VER.3 YONGESUBWAYBHLOGS.GPJ GINT STD CANADA LAB.GDT 4/2/14



LOG OF BOREHOLE MW4

Project No. 3277670
 Project: Yonge Subway Extension TPAP
 Location: Richmond Hill, Ontario Co-ordinates: 626299.7E, 4856095.9N
 Date Drilled: 7/25/13 Datum: NAD 83 Zone 17N
 Drill Type: Hollow Stem Augers Logged By: SR
 Drilling Contractor: Walker Drilling Ltd. Checked By: NC

● SPT (N) Value

DEPTH (mbgs) (masl)	SYMBOL	SOIL DESCRIPTION	WELL	INSTALLATION DETAILS	SAMPLE ID	SOIL SAMPLE TEST	Standard Penetration Test N Value					
							20	40	60	80		
							Total Organic Volatiles (ppm)					
							10	20	30	40		
200.09		CLAYEY SILT to SILTY CLAY TILL - light grey - some sand and gravel - slight organic odour - compact - moist (continued)			HS13							
8.71 199.38					HS14	metals	▲	●				
8.99 199.1		SANDY SILT, some clay - dark grey - compact - moist			HS15		▲					
9.14 198.95		- saturated										
9.75 198.34		End of borehole at 9.75 m					HS16		▲	●		
		Notes: 1) A 50 mm diameter well was installed at the depth of 9.75 mbgs upon borehole completion. 2) Groundwater was encountered at the depth of 9.1 mbgs upon borehole completion.	Water measured on 03/24/2014 200.00 masl 8.99 mbgs Well Diameter: 50 mm Well Material: Schedule 40 PVC									



LOG OF BOREHOLE MW5

Project No. 3277670
 Project: Yonge Subway Extension TPAP
 Location: Richmond Hill, Ontario Co-ordinates: 626267.5E, 4856250.5N
 Date Drilled: 7/24/13 Datum: NAD 83 Zone 17N
 Drill Type: Hollow Stem Augers Logged By: SR
 Drilling Contractor: Walker Drilling Ltd. Checked By: NC

● SPT (N) Value
 ▲ Total Organic Volatiles (ppm)

DEPTH (m bgs) (masl)	SYMBOL	SOIL DESCRIPTION	WELL	INSTALLATION DETAILS	SAMPLE ID	SOIL SAMPLE TEST	Standard Penetration Test N Value							
							20	40	60	80				
208.61		TOPSOIL		Bentonite										
0.20	208.41	SANDY SILT (FILL) - light to dark brown - some gravel - rootlets			HS1									
0.76	207.85	- soft - moist - light brown, fragments of asphalt - hard			HS2	metals								
1.52	207.09	CLAYEY SILT to SILTY TILL			HS3									
1.70	206.91	- dark brown, orange stained - some sand - soft - moist			HS4									
2.29	206.32	- dark brown, some gravel - slightly varved texture - dark brown to dark grey, grey veined - hard			HS5									
3.05	205.56	- very hard			HS6	VOCs, moisture, PAHs								
3.81	204.8				HS7	PAHs								
3.96	204.65	- black mottled, trace of coarse to fine sand, slight organic odour, hard - light brown, grey veined - hard - varved texture - very moist			HS8	PHCs								
4.57	204.04	- some sand, trace gravel - soft			HS9									
5.33	203.28	SILTY CLAY TILL - light to dark brown, grey mottled - signs of oxidation - soft - moist			HS10									
6.10	202.51	- becoming grey - varved texture			HS11									
					HS12									
					HS13									
					HS14									

MMM MW REPORT VER.3 YONGESUBWAYBHLOGS.GPJ GINT STD CANADA LAB.GDT 4/2/14



LOG OF BOREHOLE MW5

Project No. 3277670
 Project: Yonge Subway Extension TPAP
 Location: Richmond Hill, Ontario Co-ordinates: 626267.5E, 4856250.5N
 Date Drilled: 7/24/13 Datum: NAD 83 Zone 17N
 Drill Type: Hollow Stem Augers Logged By: SR
 Drilling Contractor: Walker Drilling Ltd. Checked By: NC

● SPT (N) Value

DEPTH (mbgs) (masl)	SYMBOL	SOIL DESCRIPTION	WELL	INSTALLATION DETAILS	SAMPLE ID	SOIL SAMPLE TEST	Standard Penetration Test N Value						
							20	40	60	80			
200.61					HS14								
8.38 200.23		SILTY CLAY to CLAYEY SILT TILL - dark grey - trace of gravel - hard - moist			HS15	metals	▲	●					
9.14 9.20 199.47 199.41		- dark grey - very moist - varved texture			HS16		▲	●					
9.52 199.09		SAND, some clay - dark grey - saturated		Sandpack	HS17		▲						
					HS18		▲	●					
					HS19		▲	●					
11.28 197.33		End of borehole at 11.28 m											

Notes:
 1) A 50 mm diameter well was installed at the depth of 11.3 mbgs upon borehole completion.
 2) Groundwater was encountered at the depth of 9.3 mbgs upon borehole completion.

Water measured on
 03/24/2014
 200.32 masl
 9.2 mbgs
 Well Diameter:
 50 mm
 Well Material:
 Schedule 40 PVC

APPENDIX B – CERTIFICATE OF ANALYSIS FOR SOIL SAMPLES

**Table B1: Summary of Analytical Results
Metals and Inorganic Parameters in Soil
Yonge Subway EPR Addendum**

Borehole ID Maxxam work order Sampling Date	MOE Table 1	MOE Table 3 ICC Land Use	Reporting limit	Units	BH7(0'-2')	BH7(10'-12')	BH4(2'-5'-4'.5)	BH4(12'.5-14'.2)	BH5(2'.5-4'.5)	D1 - BH5(2'.5-4'.5)	BH5(27'.5-29'.5)	D2 - BH5(27'.5-29'.5)
					0-0.6	3.0-3.6	0.7-1.3	3.8-4.3	0.7-1.3	0.7-1.3	8.3-8.9	8.3-8.9
					SK6004	SK6006	SK6010	SK6013	SK6015	SK6019	SK6018	SK6020
					24-Jul-13	24-Jul-13	25-Jul-13	25-Jul-13	25-Jul-13	25-Jul-13	25-Jul-13	25-Jul-13
Antimony	1.3	50	0.20	ug/g	<0.20	ND	ND	ND	ND	ND	ND	ND
Arsenic	18	18	1.0	ug/g	2.4	2.6	1.4	2.2	2.5	2.3	2.2	2.8
Barium	220	670	0.50	ug/g	67	87	26	76	60	58	48	62
Beryllium	2.5	10	0.20	ug/g	0.46	0.51	ND	0.4	0.39	0.38	0.32	0.45
Boron ^(a) (Hot Water Soluble)	NV	2	0.050	ug/g	0.13	0.14	0.086	0.061	0.095	0.1	0.077	0.12
Boron (total)	36	120	5.0	ug/g	ND	5.3	ND	ND	ND	ND	ND	6.3
Cadmium	1.2	1.9	0.10	ug/g	ND	0.13	ND	ND	ND	ND	ND	ND
Chromium Total	70	160	1.0	ug/g	16	19	7	15	14	14	12	16
Chromium VI	0.66	10	0.2	ug/g	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cobalt	21	100	0.10	ug/g	6.9	7.7	3	8.6	6.4	6.2	5.4	7.9
Copper	92	300	0.50	ug/g	14	16	7.2	14	13	12	11	15
Cyanide, Free	0.051	0.051	0.01	ug/g	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Electrical Conductivity	0.57	1.4	0.002	mS/cm	0.15	0.21	0.33	0.28	0.15	0.2	0.18	0.23
Lead	120	120	1.0	ug/g	9.2	8.8	3.5	7.4	7.3	6.9	5.2	7.7
Mercury	0.27	20	0.050	ug/g	ND	ND	ND	ND	ND	ND	ND	ND
Molybdenum	2	40	0.50	ug/g	ND	ND	ND	ND	ND	ND	ND	ND
Nickel	82	340	0.50	ug/g	14	17	6.5	18	14	13	12	18
Available (CaCl2) pH	NV	NV	NV	pH Units	7.36	7.53	7.61	7.65	7.51	7.56	6.98	7.97
Selenium	1.5	5.5	0.50	ug/g	ND	ND	ND	ND	ND	ND	ND	ND
Silver	0.5	50	0.20	ug/g	ND	ND	ND	ND	ND	ND	ND	ND
Sodium Adsorption Ratio	2.4	12	NV	NV	0.25	0.44	0.54	0.35	0.27	0.24	0.26	0.25
Thallium	1	3.3	0.050	ug/g	0.12	0.13	0.052	0.14	0.1	0.1	0.072	0.079
Uranium	2.5	33	0.050	ug/g	0.43	0.6	0.29	0.41	0.4	0.42	0.54	0.59
Vanadium	86	86	5.0	ug/g	24	25	13	23	21	21	18	23
Zinc	290	340	5.0	ug/g	38	54	16	34	32	32	27	38

Notes:
 NM = Not Measured
 NV = No Value

(a) This standard is for hot water soluble extract for surface soils. For subsurface soils, the standard is for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

Criteria Used: Ontario Ministry of the Environment, "Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", April 2011.

MOE Table 1: Background Site Condition Standards for Res. / Park / Institu. / Ind. / Com. / Comm. property use and all textures.

MOE Table 3: Generic Site Conditions Standards for medium/fine textured soils in a Non-Potable Ground Water Conditions for Industrial, Commercial, Community (ICC) land use.

10	Exceeds MOE Standard Table 1
10	Exceeds MOE Standard Table 3, Standard 1 does not exist
10	Exceeds MOE Standard Table 1 and 3

**Table B1: Summary of Analytical Results
Metals and Inorganic Parameters in Soil
Yonge Subway EPR Addendum**

Borehole ID Maxxam work order Sampling Date	MOE Table 1	MOE Table 3 ICC Land Use	Reporting limit	Units	MW4(2'.5-4'.5)	MW4(27'.5-28.7")	MW5(2'.5-4'.5)	MW5(27'.5-29'.5)
					0.7-1.3	8.3-8.7	0.7-1.3	8.3-8.9
					SK6022	SK6025	SK6028	SK6032
					25-Jul-13	25-Jul-13	25-Jul-13	25-Jul-13
Antimony	1.3	50	0.20	ug/g	ND	ND	ND	ND
Arsenic	18	18	1.0	ug/g	3.1	3	2.6	4.2
Barium	220	670	0.50	ug/g	79	76	73	81
Beryllium	2.5	10	0.20	ug/g	0.42	0.45	0.5	0.65
Boron ^(a) (Hot Water Soluble)	NV	2	0.050	ug/g	0.1	0.11	0.11	0.089
Boron (total)	36	120	5.0	ug/g	ND	7.3	5.4	6.2
Cadmium	1.2	1.9	0.10	ug/g	ND	ND	ND	ND
Chromium Total	70	160	1.0	ug/g	17	19	16	22
Chromium VI	0.66	10	0.2	ug/g	<0.2	<0.2	<0.2	<0.2
Cobalt	21	100	0.10	ug/g	8.4	8.1	7.4	12
Copper	92	300	0.50	ug/g	16	19	15	22
Cyanide, Free	0.051	0.051	0.01	ug/g	<0.01	<0.01	<0.01	<0.01
Electrical Conductivity	0.57	1.4	0.002	mS/cm	0.27	0.24	0.16	0.27
Lead	120	120	1.0	ug/g	7.9	8.2	8.5	12
Mercury	0.27	20	0.050	ug/g	ND	ND	ND	ND
Molybdenum	2	40	0.50	ug/g	ND	ND	ND	ND
Nickel	82	340	0.50	ug/g	19	19	16	27
Available (CaCl2) pH	NV	NV	NV	pH Units	7.6	7.7	7.4	7.84
Selenium	1.5	5.5	0.50	ug/g	ND	ND	ND	ND
Silver	0.5	50	0.20	ug/g	ND	ND	ND	ND
Sodium Adsorption Ratio	2.4	12	NV	NV	0.36	0.22	0.26	0.23
Thallium	1	3.3	0.050	ug/g	0.11	0.13	0.13	0.09
Uranium	2.5	33	0.050	ug/g	0.83	0.71	0.42	0.67
Vanadium	86	86	5.0	ug/g	23	25	25	26
Zinc	290	340	5.0	ug/g	39	38	38	56

Notes:

NM = Not Measured

NV = No Value

(a) This standard is for hot water soluble extract for surface soils. For subsurface soils, the standard is for total boron (mixed strong acid digest), since plant protection for soils below the root zone is not a significant concern.

Criteria Used: Ontario Ministry of the Environment, "Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", April 2011.

MOE Table 1: Background Site Condition Standards for Res. / Park / Institu. / Ind. / Com. / Comm. property use and all textures.

MOE Table 3: Generic Site Conditions Standards for medium/fine textured soils in a Non-Potable Ground Water Conditions for Industrial, Commercial, Community (ICC) land use.

10	Exceeds MOE Standard Table 1
10	Exceeds MOE Standard Table 3, Standard 1 does not exist
10	Exceeds MOE Standard Table 1 and 3

Table B2: Summary of Analytical Results
Petroleum Hydrocarbons in Soil
 Yonge Subway EPR Addendum

Borehole ID Depth (m) Maxxam work order Sampling Date	MOE Table 1	MOE Table 3 ICC Land Use	Reporting limit	Units	BH7(13'.5-14'.5)	BH4(0-2')	BH5(5'-7')	MW4(0-2')	MW5(12'.5-13')
					4.1-4.4	0-0.6	1.5-2.1	0-0.6	3.8-3.9
					SK6007	SK6009	SK6016	SK6021	SK6031
					24-Jul-13	25-Jul-13	25-Jul-13	25-Jul-13	24-Jul-13
BTEX & F1 Hydrocarbons									
Benzene	0.02	0.4	0.020	ug/g	<0.020	<0.020	<0.020	NM	<0.020
Toluene	0.2	78	0.020	ug/g	<0.020	<0.020	<0.020	NM	<0.020
Ethylbenzene	0.05	19	0.020	ug/g	<0.020	<0.020	<0.020	NM	<0.020
o-Xylene	NV	NV	0.020	ug/g	<0.020	<0.020	<0.020	NM	<0.020
m-Xylene & p-Xylene	NV	NV	0.040	ug/g	<0.040	<0.040	<0.040	NM	<0.040
Xylene Mixture	0.05	30	0.040	ug/g	<0.040	<0.040	<0.040	NM	<0.040
F1 (C6-C10)	25	65	10	ug/g	<10	<10	<10	<10	<10
F1 (C6-C10) - BTEX	25	65	10	ug/g	<10	<10	<10	<10	<10
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	10	250	10	ug/g	<10	<10	<10	<10	<10
F3 (C16-C34 Hydrocarbons)	240	2500	50	ug/g	<50	<50	<50	<50	<50
F4 (C34-C50 Hydrocarbons)	120	6600	50	ug/g	<50	<50	<50	68	<50
Reached Baseline at C50	NV	NV	NV	ug/g	Yes	Yes	Yes	NO	Yes
F4 Gravimetric	120	6600	100	ug/g	NV	NV	NV	180	NV

Notes:

NM = Not Measured

NV = No Value

Criteria Used: Ontario Ministry of the Environment, "Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", April 2011.

MOE Table 1: Background Site Condition Standards for Res. / Park / Institu. / Ind. / Com. / Comm. property use and all textures.

MOE Table 3: Generic Site Conditions Standards for medium/fine textured soils in a Non-Potable Ground Water Conditions for Industrial, Commercial, Community (ICC) land use.

10	Exceeds MOE Standard Table 1
10	Exceeds MOE Standard Table 3, Standard 1 does not exist
10	Exceeds MOE Standard Table 1 and 3

Table B3: Summary of Analytical Results
Polyaromatic Hydrocarbons in Soil
Yonge Subway EPR Addendum

Borehole ID Depth (m) Maxxam work order Sampling Date	MOE Table 1	MOE Table 3 ICC Land Use	Reporting Limit	Units	BH7(15'-17')	BH4(0-2')	BH5(5'-7')	MW4(5'-7')	D3 - MW4(5'-7')	MW4(12'.5-13'.3")	D4 - MW4(12.5'-13'3")	MW5(8'.5-9'.5)	MW5(10'-12')
					4.5-5.1	0-0.6	1.5-2.1	1.5-2.1	1.5-2.1	3.8-4	3.8-4	2.5-2.8	3-3.6
					SK6008	SK6009	SK6016	SK6023	SK6026	SK6024	SK6027	SK6029	SK6030
					25-Jul-13	25-Jul-13	25-Jul-13	25-Jul-13	25-Jul-13	25-Jul-13	24-Jul-13	24-Jul-13	
Acenaphthene	0.072	96	0.0050	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acenaphthylene	0.093	0.17	0.0050	ug/g	<0.0050	0.0052	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Anthracene	0.16	0.74	0.0050	ug/g	<0.0050	0.0052	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo[a]anthracene	0.36	0.96	0.0050	ug/g	<0.0050	0.021	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo[a]pyrene	0.3	0.3	0.0050	ug/g	<0.0050	0.019	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo[b]fluoranthene	0.47	0.96	0.0050	ug/g	<0.0050	0.027	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo[g,h,i]perylene	0.68	9.6	0.0050	ug/g	<0.0050	0.017	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo[k]fluoranthene	0.48	0.96	0.0050	ug/g	<0.0050	0.0087	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chrysene	2.8	9.6	0.0050	ug/g	<0.0050	0.022	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Dibenzof[a,h]anthracene	0.1	0.1	0.0050	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	0.56	9.6	0.0050	ug/g	<0.0050	0.039	<0.0050	0.0052	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluorene	0.12	69	0.0050	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Indeno[1,2,3-cd]pyrene	0.23	0.95	0.0050	ug/g	<0.0050	0.016	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Methylnaphthalene, 1-	0.59 ^(a)	0.85 ^(a)	0.0050	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Methylnaphthalene, 2-	0.59 ^(a)	0.85 ^(a)	0.0050	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Naphthalene	0.09	28	0.0050	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Phenanthrene	0.69	16	0.0050	ug/g	<0.0050	0.022	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Pyrene	1	96	0.0050	ug/g	<0.0050	0.039	<0.0050	0.0052	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

Notes:

NM = Not Measured; NV = No Value

(a) The methylnaphthalene standards are applicable to both 1-methylnaphthalene and 2-methylnaphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.

Criteria Used: Ontario Ministry of the Environment, "Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", April 2011.

MOE Table 1: Background Site Condition Standards for Res. / Park / Institu. / Ind. / Com. / Comm. property use and all textures.

MOE Table 3: Generic Site Conditions Standards for medium/fine textured soils in a Non-Potable Ground Water Conditions for Industrial, Commercial, Community (ICC) land use.

10	Exceeds MOE Standard Table 1
10	Exceeds MOE Standard Table 3, Standard 1 does not exist
10	Exceeds MOE Standard Table 1 and 3

Table B4: Summary of Analytical Results
Volatile Organic Compounds in Soil
 Yonge Subway EPR Addendum

Borehole ID Depth (m) Maxxam work order Sampling Date	MOE Table 1	MOE Table 3 ICC Land Use	Reporting Limit	Units	BH7(7'.5-9'.5)	BH4(7'.5-8'.5)	D5 - BH4(7'.5-8'.5)	BH5(21'3"-22')	MW4(0-2')	MW5(8'.5-9'.5)
					2.2-2.8	2.2-2.5	2.2-2.5	6.4-6.7	0-0.6	2.5-2.8
					SK6005	SK6011	SK6014	SK6017	SK6021	SK6029
					24-Jul-13	25-Jul-13	25-Jul-13	25-Jul-13	25-Jul-13	24-Jul-13
Acetone	0.5	28	0.50	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	0.02	0.4	0.020	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Bromodichloromethane	0.05	18	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromoform	0.05	1.7	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromomethane	0.05	0.05	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Carbon Tetrachloride	0.05	1.5	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chlorobenzene	0.05	2.7	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloroform	0.05	0.18	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibromochloromethane	0.05	13	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorobenzene, 1,2-	0.05	8.5	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorobenzene, 1,3-	0.05	12	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorobenzene, 1,4-	0.05	0.84	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorodifluoromethane	0.05	25	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethane, 1,1-	0.05	21	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethane, 1,2-	0.05	0.05	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethylene, 1,1-	0.05	0.48	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethylene, cis-1,2-	0.05	37	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloroethylene, trans-1,2-	0.05	9.3	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloropropane, 1,2-	0.05	0.68	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichloropropene, 1,3- cis	0.05 ^(a)	0.21 ^(a)	0.030	ug/g	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Dichloropropene, 1,3- trans	0.05 ^(a)	0.21 ^(a)	0.040	ug/g	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Ethylbenzene	0.05	19	0.020	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Ethylene dibromide	0.05	0.05	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Hexane (n)	0.05	88	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methyl Ethyl Ketone	0.5	88	0.50	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	0.5	210	0.50	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl tert-Butyl Ether (MTBE)	0.05	3.2	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methylene Chloride	0.05	2	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Styrene	0.05	43	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethane, 1,1,1,2-	0.05	0.11	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethane, 1,1,2,2-	0.05	0.094	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethylene	0.05	21	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Toluene	0.2	78	0.020	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Trichloroethane, 1,1,1-	0.05	12	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethane, 1,1,2-	0.05	0.11	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethylene	0.05	0.61	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichlorofluoromethane	0.25	5.8	0.050	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Vinyl Chloride	0.02	0.25	0.020	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
m-Xylene & p-Xylene	NV	NV	0.020	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
o-Xylene	NV	NV	0.020	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total Xylene	0.05	30	0.020	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020

Notes:

NM = Not Measured

NV = No Value

(a) This standard is for Dichloropropene-1,3

Criteria Used: Ontario Ministry of the Environment, "Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", April 2011.

MOE Table 1: Background Site Condition Standards for Res. / Park / Institu. / Ind. / Com. / Comm. property use and all textures.

MOE Table 3: Generic Site Conditions Standards for medium/fine textured soils in a Non-Potable Ground Water Conditions for Industrial, Commercial, Community (ICC) land use.

10	Exceeds MOE Standard Table 1
10	Exceeds MOE Standard Table 3, Standard 1 does not exist
10	Exceeds MOE Standard Table 1 and 3

Your Project #: YONGE SUBWAY EXTENSION
 Your C.O.C. #: 42843101, 428431-01-01

Attention: Natalia Codoban

Ecoplans Limited
 2655 North Sheridan Way
 Suite 280
 Mississauga, ON
 L5K 2P8

Report Date: 2013/08/02

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B3C2252

Received: 2013/07/26, 09:45

Sample Matrix: Soil
 # Samples Received: 29

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Methylnaphthalene Sum	9	N/A	2013/08/01	CAM SOP - 00301	EPA 8270
Hot Water Extractable Boron	12	2013/08/01	2013/08/02	CAM SOP-00408	R153 Ana. Prot. 2011
1,3-Dichloropropene Sum	6	N/A	2013/08/02	CAM SOP-00226	EPA 8260
Free (WAD) Cyanide	12	N/A	2013/08/01	CAM SOP-00457	Ontario MOE CN-E3015
Conductivity	12	N/A	2013/08/01	CAM SOP-00414	MOE LSB E3138 v2
Hexavalent Chromium in Soil by IC (1)	12	2013/07/31	2013/07/31	CAM SOP-00436	EPA SW846-3060/7199
Petroleum Hydro. CCME F1 & BTEX in Soil	4	2013/07/30	2013/07/31	CAM SOP-00315	CCME CWS
Petroleum Hydro. CCME F1 & BTEX in Soil	1	2013/07/31	2013/08/01	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	5	2013/07/30	2013/08/01	CAM SOP-00316	CCME CWS
F4G (CCME Hydrocarbons Gravimetric)	1	2013/08/01	2013/08/01	CAM SOP-00316	CCME CWS
Acid Extr. Metals (aqua regia) by ICPMS	12	2013/08/01	2013/08/01	CAM SOP-00447	EPA 6020
Moisture	27	N/A	2013/07/31	CAM SOP-00445	R.Carter,1993
Moisture	1	N/A	2013/08/01	CAM SOP-00445	R.Carter,1993
PAH Compounds in Soil by GC/MS (SIM)	1	2013/07/31	2013/07/31	CAM SOP - 00318	EPA 8270
PAH Compounds in Soil by GC/MS (SIM)	8	2013/07/31	2013/08/01	CAM SOP - 00318	EPA 8270
pH CaCl2 EXTRACT	12	2013/08/01	2013/08/01	CAM SOP-00413	SM 4500H+ B
Sieve, 75um	2	N/A	2013/07/31	CAM SOP-00467	M.R Carter SSMA
Sodium Adsorption Ratio (SAR)	12	2013/07/30	2013/08/02	CAM SOP-00102	EPA 6010
Volatile Organic Compounds in Soil	6	2013/07/31	2013/08/01	CAM SOP-00226	EPA 8260 modified

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. Reporting results to two significant figures at the RDL is to permit statistical evaluation and is not intended to be an indication of analytical precision.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is

Your Project #: YONGE SUBWAY EXTENSION
Your C.O.C. #: 42843101, 428431-01-01

Attention: Natalia Codoban

Ecoplans Limited
2655 North Sheridan Way
Suite 280
Mississauga, ON
L5K 2P8

Report Date: 2013/08/02

CERTIFICATE OF ANALYSIS

-2-

available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

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

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

Encryption Key

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

Jolanta Goralczyk, Project Manager
Email: JGoralczyk@maxxam.ca
Phone# (905) 817-5751

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 2

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Maxxam Job #: B3C2252
 Report Date: 2013/08/02

 Ecoplans Limited
 Client Project #: YONGE SUBWAY EXTENSION

O'REG 153 METALS & INORGANICS PKG (SOIL)

Maxxam ID		SK6004	SK6004		SK6006	SK6010		
Sampling Date		2013/07/24	2013/07/24		2013/07/24	2013/07/25		
COC Number		428431-01-01	428431-01-01		428431-01-01	428431-01-01		
	Units	BH7(0-2') YONGE SUBWAY EXTENSION	BH7(0-2') YONGE SUBWAY EXTENSION Lab-Dup	QC Batch	BH7(10'-12') YONGE SUBWAY EXTENSION	BH4(2'-5-4'.5) YONGE SUBWAY EXTENSION	RDL	QC Batch

Calculated Parameters								
Sodium Adsorption Ratio	N/A	0.25		3297687	0.44	0.54		3297687
Inorganics								
Chromium (VI)	ug/g	ND		3299513	ND	ND	0.2	3299513
Conductivity	mS/cm	0.15		3300619	0.21	0.33	0.002	3300619
Free Cyanide	ug/g	ND		3299379	ND	ND	0.01	3299379
Moisture	%	11		3299336	15	13	1.0	3299336
Available (CaCl2) pH	pH	7.36		3300312	7.53	7.61		3300312
Metals								
Hot Water Ext. Boron (B)	ug/g	0.13	0.14	3300848	0.14	0.086	0.050	3300621
Acid Extractable Antimony (Sb)	ug/g	ND		3300582	ND	ND	0.20	3300582
Acid Extractable Arsenic (As)	ug/g	2.4		3300582	2.6	1.4	1.0	3300582
Acid Extractable Barium (Ba)	ug/g	67		3300582	87	26	0.50	3300582
Acid Extractable Beryllium (Be)	ug/g	0.46		3300582	0.51	ND	0.20	3300582
Acid Extractable Boron (B)	ug/g	ND		3300582	5.3	ND	5.0	3300582
Acid Extractable Cadmium (Cd)	ug/g	ND		3300582	0.13	ND	0.10	3300582
Acid Extractable Chromium (Cr)	ug/g	16		3300582	19	7.0	1.0	3300582
Acid Extractable Cobalt (Co)	ug/g	6.9		3300582	7.7	3.0	0.10	3300582
Acid Extractable Copper (Cu)	ug/g	14		3300582	16	7.2	0.50	3300582
Acid Extractable Lead (Pb)	ug/g	9.2		3300582	8.8	3.5	1.0	3300582
Acid Extractable Molybdenum (Mo)	ug/g	ND		3300582	ND	ND	0.50	3300582
Acid Extractable Nickel (Ni)	ug/g	14		3300582	17	6.5	0.50	3300582
Acid Extractable Selenium (Se)	ug/g	ND		3300582	ND	ND	0.50	3300582
Acid Extractable Silver (Ag)	ug/g	ND		3300582	ND	ND	0.20	3300582
Acid Extractable Thallium (Tl)	ug/g	0.12		3300582	0.13	0.052	0.050	3300582
Acid Extractable Uranium (U)	ug/g	0.43		3300582	0.60	0.29	0.050	3300582
Acid Extractable Vanadium (V)	ug/g	24		3300582	25	13	5.0	3300582
Acid Extractable Zinc (Zn)	ug/g	38		3300582	54	16	5.0	3300582
Acid Extractable Mercury (Hg)	ug/g	ND		3300582	ND	ND	0.050	3300582
ND = Not detected RDL = Reportable Detection Limit QC Batch = Quality Control Batch								

O'REG 153 METALS & INORGANICS PKG (SOIL)

Maxxam ID		SK6013	SK6013		SK6015		
Sampling Date		2013/07/25	2013/07/25		2013/07/25		
COC Number		428431-01-01	428431-01-01		428431-01-01		
	Units	BH4(12'.5-14'.2) YONGE SUBWAY EXTENSION	BH4(12'.5-14'.2) YONGE SUBWAY EXTENSION Lab-Dup	QC Batch	BH5(2'.5-4'.5) YONGE SUBWAY EXTENSION	RDL	QC Batch

Calculated Parameters							
Sodium Adsorption Ratio	N/A	0.35		3297687	0.27		3297687
Inorganics							
Chromium (VI)	ug/g	ND		3299513	ND	0.2	3299513
Conductivity	mS/cm	0.28		3300619	0.15	0.002	3300619
Free Cyanide	ug/g	ND	ND	3299379	ND	0.01	3299379
Moisture	%	12		3299336	8.4	1.0	3299336
Available (CaCl2) pH	pH	7.65		3300312	7.51		3300523
Metals							
Hot Water Ext. Boron (B)	ug/g	0.061		3300621	0.095	0.050	3300621
Acid Extractable Antimony (Sb)	ug/g	ND		3300582	ND	0.20	3300582
Acid Extractable Arsenic (As)	ug/g	2.2		3300582	2.5	1.0	3300582
Acid Extractable Barium (Ba)	ug/g	76		3300582	60	0.50	3300582
Acid Extractable Beryllium (Be)	ug/g	0.40		3300582	0.39	0.20	3300582
Acid Extractable Boron (B)	ug/g	ND		3300582	ND	5.0	3300582
Acid Extractable Cadmium (Cd)	ug/g	ND		3300582	ND	0.10	3300582
Acid Extractable Chromium (Cr)	ug/g	15		3300582	14	1.0	3300582
Acid Extractable Cobalt (Co)	ug/g	8.6		3300582	6.4	0.10	3300582
Acid Extractable Copper (Cu)	ug/g	14		3300582	13	0.50	3300582
Acid Extractable Lead (Pb)	ug/g	7.4		3300582	7.3	1.0	3300582
Acid Extractable Molybdenum (Mo)	ug/g	ND		3300582	ND	0.50	3300582
Acid Extractable Nickel (Ni)	ug/g	18		3300582	14	0.50	3300582
Acid Extractable Selenium (Se)	ug/g	ND		3300582	ND	0.50	3300582
Acid Extractable Silver (Ag)	ug/g	ND		3300582	ND	0.20	3300582
Acid Extractable Thallium (Tl)	ug/g	0.14		3300582	0.10	0.050	3300582
Acid Extractable Uranium (U)	ug/g	0.41		3300582	0.40	0.050	3300582
Acid Extractable Vanadium (V)	ug/g	23		3300582	21	5.0	3300582
Acid Extractable Zinc (Zn)	ug/g	34		3300582	32	5.0	3300582
Acid Extractable Mercury (Hg)	ug/g	ND		3300582	ND	0.050	3300582
ND = Not detected RDL = Reportable Detection Limit QC Batch = Quality Control Batch							

Maxxam Job #: B3C2252
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 Ecoplans Limited
 Client Project #: YONGE SUBWAY EXTENSION

O'REG 153 METALS & INORGANICS PKG (SOIL)

Maxxam ID		SK6018	SK6019		SK6020	SK6022		
Sampling Date		2013/07/25	2013/07/25		2013/07/25	2013/07/25		
COC Number		428431-01-01	428431-01-01		428431-01-01	428431-01-01		
	Units	BH5(27'.5-29'.5) YONGE SUBWAY EXTENSION	D1	QC Batch	D2	MW4(2'.5-4'.5) YONGE SUBWAY EXTENSION	RDL	QC Batch

Calculated Parameters								
Sodium Adsorption Ratio	N/A	0.26	0.24	3297687	0.25	0.36		3297687
Inorganics								
Chromium (VI)	ug/g	ND	ND	3299513	ND	ND	0.2	3299513
Conductivity	mS/cm	0.18	0.20	3300619	0.23	0.27	0.002	3300619
Free Cyanide	ug/g	ND	ND	3299379	ND	ND	0.01	3299379
Moisture	%	9.4	11	3299336	10	9.9	1.0	3299336
Available (CaCl2) pH	pH	6.98	7.56	3300511	7.97	7.60		3300312
Metals								
Hot Water Ext. Boron (B)	ug/g	0.077	0.10	3300621	0.12	0.10	0.050	3300621
Acid Extractable Antimony (Sb)	ug/g	ND	ND	3300582	ND	ND	0.20	3300582
Acid Extractable Arsenic (As)	ug/g	2.2	2.3	3300582	2.8	3.1	1.0	3300582
Acid Extractable Barium (Ba)	ug/g	48	58	3300582	62	79	0.50	3300582
Acid Extractable Beryllium (Be)	ug/g	0.32	0.38	3300582	0.45	0.42	0.20	3300582
Acid Extractable Boron (B)	ug/g	ND	ND	3300582	6.3	ND	5.0	3300582
Acid Extractable Cadmium (Cd)	ug/g	ND	ND	3300582	ND	ND	0.10	3300582
Acid Extractable Chromium (Cr)	ug/g	12	14	3300582	16	17	1.0	3300582
Acid Extractable Cobalt (Co)	ug/g	5.4	6.2	3300582	7.9	8.4	0.10	3300582
Acid Extractable Copper (Cu)	ug/g	11	12	3300582	15	16	0.50	3300582
Acid Extractable Lead (Pb)	ug/g	5.2	6.9	3300582	7.7	7.9	1.0	3300582
Acid Extractable Molybdenum (Mo)	ug/g	ND	ND	3300582	ND	ND	0.50	3300582
Acid Extractable Nickel (Ni)	ug/g	12	13	3300582	18	19	0.50	3300582
Acid Extractable Selenium (Se)	ug/g	ND	ND	3300582	ND	ND	0.50	3300582
Acid Extractable Silver (Ag)	ug/g	ND	ND	3300582	ND	ND	0.20	3300582
Acid Extractable Thallium (Tl)	ug/g	0.072	0.10	3300582	0.079	0.11	0.050	3300582
Acid Extractable Uranium (U)	ug/g	0.54	0.42	3300582	0.59	0.83	0.050	3300582
Acid Extractable Vanadium (V)	ug/g	18	21	3300582	23	23	5.0	3300582
Acid Extractable Zinc (Zn)	ug/g	27	32	3300582	38	39	5.0	3300582
Acid Extractable Mercury (Hg)	ug/g	ND	ND	3300582	ND	ND	0.050	3300582

ND = Not detected
 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B3C2252
 Report Date: 2013/08/02

 Ecoplans Limited
 Client Project #: YONGE SUBWAY EXTENSION

O'REG 153 METALS & INORGANICS PKG (SOIL)

Maxxam ID		SK6025	SK6025	SK6028		SK6032		
Sampling Date		2013/07/25	2013/07/25	2013/07/24		2013/07/24		
COC Number		428431-01-01	428431-01-01	428431-01-01		428431-01-01		
	Units	MW4(27'.5-28.7") YONGE SUBWAY EXTENSION	MW4(27'.5-28.7") YONGE SUBWAY EXTENSION Lab-Dup	MW5(2'.5-4'.5) YONGE SUBWAY EXTENSION	QC Batch	MW5(27'.5-29'.5) YONGE SUBWAY EXTENSION	RDL	QC Batch

Calculated Parameters								
Sodium Adsorption Ratio	N/A	0.22		0.26	3297687	0.23		3297687
Inorganics								
Chromium (VI)	ug/g	ND	ND	ND	3299513	ND	0.2	3299513
Conductivity	mS/cm	0.24		0.16	3300619	0.27	0.002	3300619
Free Cyanide	ug/g	ND		ND	3299379	ND	0.01	3299379
Moisture	%	14		13	3299336	14	1.0	3299336
Available (CaCl2) pH	pH	7.70		7.40	3300511	7.84		3300312
Metals								
Hot Water Ext. Boron (B)	ug/g	0.11		0.11	3300621	0.089	0.050	3300621
Acid Extractable Antimony (Sb)	ug/g	ND		ND	3300582	ND	0.20	3300582
Acid Extractable Arsenic (As)	ug/g	3.0		2.6	3300582	4.2	1.0	3300582
Acid Extractable Barium (Ba)	ug/g	76		73	3300582	81	0.50	3300582
Acid Extractable Beryllium (Be)	ug/g	0.45		0.50	3300582	0.65	0.20	3300582
Acid Extractable Boron (B)	ug/g	7.3		5.4	3300582	6.2	5.0	3300582
Acid Extractable Cadmium (Cd)	ug/g	ND		ND	3300582	ND	0.10	3300582
Acid Extractable Chromium (Cr)	ug/g	19		16	3300582	22	1.0	3300582
Acid Extractable Cobalt (Co)	ug/g	8.1		7.4	3300582	12	0.10	3300582
Acid Extractable Copper (Cu)	ug/g	19		15	3300582	22	0.50	3300582
Acid Extractable Lead (Pb)	ug/g	8.2		8.5	3300582	12	1.0	3300582
Acid Extractable Molybdenum (Mo)	ug/g	ND		ND	3300582	ND	0.50	3300582
Acid Extractable Nickel (Ni)	ug/g	19		16	3300582	27	0.50	3300582
Acid Extractable Selenium (Se)	ug/g	ND		ND	3300582	ND	0.50	3300582
Acid Extractable Silver (Ag)	ug/g	ND		ND	3300582	ND	0.20	3300582
Acid Extractable Thallium (Tl)	ug/g	0.13		0.13	3300582	0.090	0.050	3300582
Acid Extractable Uranium (U)	ug/g	0.71		0.42	3300582	0.67	0.050	3300582
Acid Extractable Vanadium (V)	ug/g	25		25	3300582	26	5.0	3300582
Acid Extractable Zinc (Zn)	ug/g	38		38	3300582	56	5.0	3300582
Acid Extractable Mercury (Hg)	ug/g	ND		ND	3300582	ND	0.050	3300582

 ND = Not detected
 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

O'REG 153 PAHS (SOIL)

Maxxam ID		SK6008	SK6009	SK6016	SK6023	SK6024		
Sampling Date		2013/07/25	2013/07/25	2013/07/25	2013/07/25	2013/07/25		
COC Number		428431-01-01	428431-01-01	428431-01-01	428431-01-01	428431-01-01		
	Units	BH7(15'-17') YONGE SUBWAY EXTENSION	BH4(0-2') YONGE SUBWAY EXTENSION	BH5(5'-7') YONGE SUBWAY EXTENSION	MW4(5'-7') YONGE SUBWAY EXTENSION	MW4(12'.5-13'.3") YONGE SUBWAY EXTENSION	RDL	QC Batch

Inorganics								
Moisture	%	8.4	8.0	11	10	13	1.0	3299390
Calculated Parameters								
Methylnaphthalene, 2-(1-)	ug/g	ND	ND	ND	ND	ND	0.0071	3297326
Polyaromatic Hydrocarbons								
Acenaphthene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
Acenaphthylene	ug/g	ND	0.0052	ND	ND	ND	0.0050	3298946
Anthracene	ug/g	ND	0.0052	ND	ND	ND	0.0050	3298946
Benzo(a)anthracene	ug/g	ND	0.021	ND	ND	ND	0.0050	3298946
Benzo(a)pyrene	ug/g	ND	0.019	ND	ND	ND	0.0050	3298946
Benzo(b/j)fluoranthene	ug/g	ND	0.027	ND	ND	ND	0.0050	3298946
Benzo(g,h,i)perylene	ug/g	ND	0.017	ND	ND	ND	0.0050	3298946
Benzo(k)fluoranthene	ug/g	ND	0.0087	ND	ND	ND	0.0050	3298946
Chrysene	ug/g	ND	0.022	ND	ND	ND	0.0050	3298946
Dibenz(a,h)anthracene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
Fluoranthene	ug/g	ND	0.039	ND	0.0052	ND	0.0050	3298946
Fluorene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
Indeno(1,2,3-cd)pyrene	ug/g	ND	0.016	ND	ND	ND	0.0050	3298946
1-Methylnaphthalene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
2-Methylnaphthalene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
Naphthalene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
Phenanthrene	ug/g	ND	0.022	ND	ND	ND	0.0050	3298946
Pyrene	ug/g	ND	0.039	ND	0.0052	ND	0.0050	3298946
Surrogate Recovery (%)								
D10-Anthracene	%	92	86	88	90	92		3298946
D14-Terphenyl (FS)	%	97	89	98	98	96		3298946
D8-Acenaphthylene	%	86	78	82	83	85		3298946

ND = Not detected
 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

O'REG 153 PAHS (SOIL)

Maxxam ID		SK6026	SK6027	SK6027	SK6029	SK6030		
Sampling Date		2013/07/25	2013/07/25	2013/07/25	2013/07/24	2013/07/24		
COC Number		428431-01-01	428431-01-01	428431-01-01	428431-01-01	428431-01-01		
	Units	D3	D4	D4 Lab-Dup	MW5(8'.5-9'.5) YONGE SUBWAY EXTENSION	MW5(10'-12') YONGE SUBWAY EXTENSION	RDL	QC Batch

Inorganics								
Moisture	%	8.7	16		17	18	1.0	3299390
Calculated Parameters								
Methylnaphthalene, 2-(1-)	ug/g	ND	ND		ND	ND	0.0071	3297326
Polyaromatic Hydrocarbons								
Acenaphthene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
Acenaphthylene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
Anthracene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
Benzo(a)anthracene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
Benzo(a)pyrene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
Benzo(b/j)fluoranthene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
Benzo(g,h,i)perylene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
Benzo(k)fluoranthene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
Chrysene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
Dibenz(a,h)anthracene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
Fluoranthene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
Fluorene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
Indeno(1,2,3-cd)pyrene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
1-Methylnaphthalene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
2-Methylnaphthalene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
Naphthalene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
Phenanthrene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
Pyrene	ug/g	ND	ND	ND	ND	ND	0.0050	3298946
Surrogate Recovery (%)								
D10-Anthracene	%	90	85	80	87	90		3298946
D14-Terphenyl (FS)	%	99	96	91	102	104		3298946
D8-Acenaphthylene	%	83	74	70	82	85		3298946

ND = Not detected
 RDL = Reportable Detection Limit
 Lab-Dup = Laboratory Initiated Duplicate
 QC Batch = Quality Control Batch

Maxxam Job #: B3C2252
 Report Date: 2013/08/02

 Ecoplans Limited
 Client Project #: YONGE SUBWAY EXTENSION

O'REG 153 PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		SK6007	SK6007	SK6009	SK6016		SK6021		
Sampling Date		2013/07/24	2013/07/24	2013/07/25	2013/07/25		2013/07/25		
COC Number		428431-01-01	428431-01-01	428431-01-01	428431-01-01		428431-01-01		
	Units	BH7(13'.5-14'.5) YONGE SUBWAY EXTENSION	BH7(13'.5-14'.5) YONGE SUBWAY EXTENSION Lab-Dup	BH4(0-2') YONGE SUBWAY EXTENSION	BH5(5'-7') YONGE SUBWAY EXTENSION	QC Batch	MW4(0-2') YONGE SUBWAY EXTENSION	RDL	QC Batch

Inorganics									
Moisture	%	10	10			3299336	9.0	1.0	3299336
BTEX & F1 Hydrocarbons									
Benzene	ug/g	ND		ND	ND	3298693		0.020	
Toluene	ug/g	ND		ND	ND	3298693		0.020	
Ethylbenzene	ug/g	ND		ND	ND	3298693		0.020	
o-Xylene	ug/g	ND		ND	ND	3298693		0.020	
p+m-Xylene	ug/g	ND		ND	ND	3298693		0.040	
Total Xylenes	ug/g	ND		ND	ND	3298693		0.040	
F1 (C6-C10)	ug/g	ND		ND	ND	3298693	ND	10	3299931
F1 (C6-C10) - BTEX	ug/g	ND		ND	ND	3298693	ND	10	3299931
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	ND		ND	ND	3298698	ND	10	3298698
F3 (C16-C34 Hydrocarbons)	ug/g	ND		ND	ND	3298698	ND	50	3298698
F4 (C34-C50 Hydrocarbons)	ug/g	ND		ND	ND	3298698	68	50	3298698
Reached Baseline at C50	ug/g	Yes		Yes	Yes	3298698	No		3298698
Surrogate Recovery (%)									
1,4-Difluorobenzene	%	99		100	99	3298693	102		3299931
4-Bromofluorobenzene	%	92		94	96	3298693	105		3299931
D10-Ethylbenzene	%	83		79	78	3298693	109		3299931
D4-1,2-Dichloroethane	%	93		92	93	3298693	93		3299931
o-Terphenyl	%	88		85	87	3298698	88		3298698

ND = Not detected
 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B3C2252
 Report Date: 2013/08/02

 Ecoplans Limited
 Client Project #: YONGE SUBWAY EXTENSION

O'REG 153 PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		SK6031	SK6031		
Sampling Date		2013/07/24	2013/07/24		
COC Number		428431-01-01	428431-01-01		
	Units	MW5(12'.5-13') YONGE SUBWAY EXTENSION	MW5(12'.5-13') YONGE SUBWAY EXTENSION Lab-Dup	RDL	QC Batch

Inorganics					
Moisture	%	9.7		1.0	3299336
BTEX & F1 Hydrocarbons					
Benzene	ug/g	ND	ND	0.020	3298693
Toluene	ug/g	ND	ND	0.020	3298693
Ethylbenzene	ug/g	ND	ND	0.020	3298693
o-Xylene	ug/g	ND	ND	0.020	3298693
p+m-Xylene	ug/g	ND	ND	0.040	3298693
Total Xylenes	ug/g	ND	ND	0.040	3298693
F1 (C6-C10)	ug/g	ND	ND	10	3298693
F1 (C6-C10) - BTEX	ug/g	ND	ND	10	3298693
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/g	ND		10	3298698
F3 (C16-C34 Hydrocarbons)	ug/g	ND		50	3298698
F4 (C34-C50 Hydrocarbons)	ug/g	ND		50	3298698
Reached Baseline at C50	ug/g	Yes			3298698
Surrogate Recovery (%)					
1,4-Difluorobenzene	%	100	99		3298693
4-Bromofluorobenzene	%	93	89		3298693
D10-Ethylbenzene	%	79	79		3298693
D4-1,2-Dichloroethane	%	92	90		3298693
o-Terphenyl	%	85			3298698
ND = Not detected RDL = Reportable Detection Limit QC Batch = Quality Control Batch					

O'REG 153 VOLATILE ORGANICS (SOIL)

Maxxam ID		SK6005	SK6011		SK6014		
Sampling Date		2013/07/24	2013/07/25		2013/07/25		
COC Number		428431-01-01	428431-01-01		428431-01-01		
	Units	BH7(7'.5-9'.5) YONGE SUBWAY EXTENSION	BH4(7'.5-8'.5) YONGE SUBWAY EXTENSION	QC Batch	D5	RDL	QC Batch

Inorganics							
Moisture	%	16	16	3299442	14	1.0	3300191
Calculated Parameters							
1,3-Dichloropropene (cis+trans)	ug/g	ND	ND	3297327	ND	0.050	3297327
Volatile Organics							
Acetone (2-Propanone)	ug/g	ND	ND	3298850	ND	0.50	3298850
Benzene	ug/g	ND	ND	3298850	ND	0.020	3298850
Bromodichloromethane	ug/g	ND	ND	3298850	ND	0.050	3298850
Bromoform	ug/g	ND	ND	3298850	ND	0.050	3298850
Bromomethane	ug/g	ND	ND	3298850	ND	0.050	3298850
Carbon Tetrachloride	ug/g	ND	ND	3298850	ND	0.050	3298850
Chlorobenzene	ug/g	ND	ND	3298850	ND	0.050	3298850
Chloroform	ug/g	ND	ND	3298850	ND	0.050	3298850
Dibromochloromethane	ug/g	ND	ND	3298850	ND	0.050	3298850
1,2-Dichlorobenzene	ug/g	ND	ND	3298850	ND	0.050	3298850
1,3-Dichlorobenzene	ug/g	ND	ND	3298850	ND	0.050	3298850
1,4-Dichlorobenzene	ug/g	ND	ND	3298850	ND	0.050	3298850
Dichlorodifluoromethane (FREON 12)	ug/g	ND	ND	3298850	ND	0.050	3298850
1,1-Dichloroethane	ug/g	ND	ND	3298850	ND	0.050	3298850
1,2-Dichloroethane	ug/g	ND	ND	3298850	ND	0.050	3298850
1,1-Dichloroethylene	ug/g	ND	ND	3298850	ND	0.050	3298850
cis-1,2-Dichloroethylene	ug/g	ND	ND	3298850	ND	0.050	3298850
trans-1,2-Dichloroethylene	ug/g	ND	ND	3298850	ND	0.050	3298850
1,2-Dichloropropane	ug/g	ND	ND	3298850	ND	0.050	3298850
cis-1,3-Dichloropropene	ug/g	ND	ND	3298850	ND	0.030	3298850
trans-1,3-Dichloropropene	ug/g	ND	ND	3298850	ND	0.040	3298850
Ethylbenzene	ug/g	ND	ND	3298850	ND	0.020	3298850
Ethylene Dibromide	ug/g	ND	ND	3298850	ND	0.050	3298850
Hexane	ug/g	ND	ND	3298850	ND	0.050	3298850
Methylene Chloride(Dichloromethane)	ug/g	ND	ND	3298850	ND	0.050	3298850
Methyl Isobutyl Ketone	ug/g	ND	ND	3298850	ND	0.50	3298850
ND = Not detected RDL = Reportable Detection Limit QC Batch = Quality Control Batch							

O'REG 153 VOLATILE ORGANICS (SOIL)

Maxxam ID		SK6005	SK6011		SK6014		
Sampling Date		2013/07/24	2013/07/25		2013/07/25		
COC Number		428431-01-01	428431-01-01		428431-01-01		
	Units	BH7(7'.5-9'.5) YONGE SUBWAY EXTENSION	BH4(7'.5-8'.5) YONGE SUBWAY EXTENSION	QC Batch	D5	RDL	QC Batch

Methyl Ethyl Ketone (2-Butanone)	ug/g	ND	ND	3298850	ND	0.50	3298850
Methyl t-butyl ether (MTBE)	ug/g	ND	ND	3298850	ND	0.050	3298850
Styrene	ug/g	ND	ND	3298850	ND	0.050	3298850
1,1,1,2-Tetrachloroethane	ug/g	ND	ND	3298850	ND	0.050	3298850
1,1,2,2-Tetrachloroethane	ug/g	ND	ND	3298850	ND	0.050	3298850
Tetrachloroethylene	ug/g	ND	ND	3298850	ND	0.050	3298850
Toluene	ug/g	ND	ND	3298850	ND	0.020	3298850
1,1,1-Trichloroethane	ug/g	ND	ND	3298850	ND	0.050	3298850
1,1,2-Trichloroethane	ug/g	ND	ND	3298850	ND	0.050	3298850
Trichloroethylene	ug/g	ND	ND	3298850	ND	0.050	3298850
Vinyl Chloride	ug/g	ND	ND	3298850	ND	0.020	3298850
p+m-Xylene	ug/g	ND	ND	3298850	ND	0.020	3298850
o-Xylene	ug/g	ND	ND	3298850	ND	0.020	3298850
Xylene (Total)	ug/g	ND	ND	3298850	ND	0.020	3298850
Trichlorofluoromethane (FREON 11)	ug/g	ND	ND	3298850	ND	0.050	3298850
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	94	94	3298850	94		3298850
D10-o-Xylene	%	114	115	3298850	108		3298850
D4-1,2-Dichloroethane	%	104	106	3298850	106		3298850
D8-Toluene	%	101	100	3298850	102		3298850

ND = Not detected
 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B3C2252
 Report Date: 2013/08/02

 Ecoplans Limited
 Client Project #: YONGE SUBWAY EXTENSION

O'REG 153 VOLATILE ORGANICS (SOIL)

Maxxam ID		SK6017	SK6021	SK6029		
Sampling Date		2013/07/25	2013/07/25	2013/07/24		
COC Number		428431-01-01	428431-01-01	428431-01-01		
	Units	BH5(21'3"-22') YONGE SUBWAY EXTENSION	MW4(0-2') YONGE SUBWAY EXTENSION	MW5(8'.5-9'.5) YONGE SUBWAY EXTENSION	RDL	QC Batch

Inorganics						
Moisture	%	16			1.0	3299442
Calculated Parameters						
1,3-Dichloropropene (cis+trans)	ug/g	ND	ND	ND	0.050	3297327
Volatile Organics						
Acetone (2-Propanone)	ug/g	ND	ND	ND	0.50	3298850
Benzene	ug/g	ND	ND	ND	0.020	3298850
Bromodichloromethane	ug/g	ND	ND	ND	0.050	3298850
Bromoform	ug/g	ND	ND	ND	0.050	3298850
Bromomethane	ug/g	ND	ND	ND	0.050	3298850
Carbon Tetrachloride	ug/g	ND	ND	ND	0.050	3298850
Chlorobenzene	ug/g	ND	ND	ND	0.050	3298850
Chloroform	ug/g	ND	ND	ND	0.050	3298850
Dibromochloromethane	ug/g	ND	ND	ND	0.050	3298850
1,2-Dichlorobenzene	ug/g	ND	ND	ND	0.050	3298850
1,3-Dichlorobenzene	ug/g	ND	ND	ND	0.050	3298850
1,4-Dichlorobenzene	ug/g	ND	ND	ND	0.050	3298850
Dichlorodifluoromethane (FREON 12)	ug/g	ND	ND	ND	0.050	3298850
1,1-Dichloroethane	ug/g	ND	ND	ND	0.050	3298850
1,2-Dichloroethane	ug/g	ND	ND	ND	0.050	3298850
1,1-Dichloroethylene	ug/g	ND	ND	ND	0.050	3298850
cis-1,2-Dichloroethylene	ug/g	ND	ND	ND	0.050	3298850
trans-1,2-Dichloroethylene	ug/g	ND	ND	ND	0.050	3298850
1,2-Dichloropropane	ug/g	ND	ND	ND	0.050	3298850
cis-1,3-Dichloropropene	ug/g	ND	ND	ND	0.030	3298850
trans-1,3-Dichloropropene	ug/g	ND	ND	ND	0.040	3298850
Ethylbenzene	ug/g	ND	ND	ND	0.020	3298850
Ethylene Dibromide	ug/g	ND	ND	ND	0.050	3298850
Hexane	ug/g	ND	ND	ND	0.050	3298850
Methylene Chloride(Dichloromethane)	ug/g	ND	ND	ND	0.050	3298850
Methyl Isobutyl Ketone	ug/g	ND	ND	ND	0.50	3298850
ND = Not detected RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B3C2252
 Report Date: 2013/08/02

 Ecoplans Limited
 Client Project #: YONGE SUBWAY EXTENSION

O'REG 153 VOLATILE ORGANICS (SOIL)

Maxxam ID		SK6017	SK6021	SK6029		
Sampling Date		2013/07/25	2013/07/25	2013/07/24		
COC Number		428431-01-01	428431-01-01	428431-01-01		
	Units	BH5(21'3"-22') YONGE SUBWAY EXTENSION	MW4(0-2') YONGE SUBWAY EXTENSION	MW5(8'.5-9'.5) YONGE SUBWAY EXTENSION	RDL	QC Batch

Methyl Ethyl Ketone (2-Butanone)	ug/g	ND	ND	ND	0.50	3298850
Methyl t-butyl ether (MTBE)	ug/g	ND	ND	ND	0.050	3298850
Styrene	ug/g	ND	ND	ND	0.050	3298850
1,1,1,2-Tetrachloroethane	ug/g	ND	ND	ND	0.050	3298850
1,1,2,2-Tetrachloroethane	ug/g	ND	ND	ND	0.050	3298850
Tetrachloroethylene	ug/g	ND	ND	ND	0.050	3298850
Toluene	ug/g	ND	ND	ND	0.020	3298850
1,1,1-Trichloroethane	ug/g	ND	ND	ND	0.050	3298850
1,1,2-Trichloroethane	ug/g	ND	ND	ND	0.050	3298850
Trichloroethylene	ug/g	ND	ND	ND	0.050	3298850
Vinyl Chloride	ug/g	ND	ND	ND	0.020	3298850
p+m-Xylene	ug/g	ND	ND	ND	0.020	3298850
o-Xylene	ug/g	ND	ND	ND	0.020	3298850
Xylene (Total)	ug/g	ND	ND	ND	0.020	3298850
Trichlorofluoromethane (FREON 11)	ug/g	ND	ND	ND	0.050	3298850
Surrogate Recovery (%)						
4-Bromofluorobenzene	%	94	95	94		3298850
D10-o-Xylene	%	127	115	122		3298850
D4-1,2-Dichloroethane	%	107	110	110		3298850
D8-Toluene	%	101	101	99		3298850
ND = Not detected RDL = Reportable Detection Limit QC Batch = Quality Control Batch						

Maxxam Job #: B3C2252
 Report Date: 2013/08/02

Ecoplans Limited
 Client Project #: YONGE SUBWAY EXTENSION

RESULTS OF ANALYSES OF SOIL

Maxxam ID		SK6012	SK6022	
Sampling Date		2013/07/25	2013/07/25	
COC Number		428431-01-01	428431-01-01	
	Units	BH4(10-12')	MW4(2'.5-4'.5)	QC Batch
		YONGE SUBWAY EXTENSION	YONGE SUBWAY EXTENSION	

Miscellaneous Parameters				
Grain Size	%	FINE	FINE	3300131
Sieve - #200 (<0.075mm)	%	61	71	3300131
Sieve - #200 (>0.075mm)	%	39	29	3300131
QC Batch = Quality Control Batch				

Maxxam Job #: B3C2252
 Report Date: 2013/08/02

Ecoplans Limited
 Client Project #: YONGE SUBWAY EXTENSION

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		SK6021		
Sampling Date		2013/07/25		
COC Number		428431-01-01		
	Units	MW4(0-2')	RDL	QC Batch
		YONGE SUBWAY EXTENSION		

F2-F4 Hydrocarbons				
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	180	100	3301361
RDL = Reportable Detection Limit QC Batch = Quality Control Batch				

Maxxam Job #: B3C2252
Report Date: 2013/08/02

Ecoplans Limited
Client Project #: YONGE SUBWAY EXTENSION

Test Summary

Maxxam ID SK6004
Sample ID BH7(0-2') YONGE SUBWAY EXTENSION
Matrix Soil

Collected 2013/07/24
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3300848	2013/08/01	2013/08/02	Azita Fazaeli
Free (WAD) Cyanide	TECH	3299379	N/A	2013/08/01	Louise Harding
Conductivity	COND	3300619	N/A	2013/08/01	Lemeneh Addis
Hexavalent Chromium in Soil by IC	IC/SPEC	3299513	2013/07/31	2013/07/31	Yogesh Patel
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3300582	2013/08/01	2013/08/01	Viviana Canzonieri
Moisture	BAL	3299336	N/A	2013/07/31	Min Yang
pH CaCl2 EXTRACT		3300312	2013/08/01	2013/08/01	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	3297687	2013/08/02	2013/08/02	Automated Statchk

Maxxam ID SK6004 Dup
Sample ID BH7(0-2') YONGE SUBWAY EXTENSION
Matrix Soil

Collected 2013/07/24
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3300848	2013/08/01	2013/08/02	Azita Fazaeli

Maxxam ID SK6005
Sample ID BH7(7'.5-9'.5) YONGE SUBWAY EXTENSION
Matrix Soil

Collected 2013/07/24
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	3297327	N/A	2013/08/02	Automated Statchk
Moisture	BAL	3299442	N/A	2013/07/31	Min Yang
Volatile Organic Compounds in Soil	P&T/MS	3298850	2013/07/31	2013/08/01	Rebecca Schultz

Maxxam ID SK6006
Sample ID BH7(10'-12') YONGE SUBWAY EXTENSION
Matrix Soil

Collected 2013/07/24
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3300621	2013/08/01	2013/08/02	Azita Fazaeli
Free (WAD) Cyanide	TECH	3299379	N/A	2013/08/01	Louise Harding
Conductivity	COND	3300619	N/A	2013/08/01	Lemeneh Addis
Hexavalent Chromium in Soil by IC	IC/SPEC	3299513	2013/07/31	2013/07/31	Yogesh Patel
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3300582	2013/08/01	2013/08/01	Viviana Canzonieri
Moisture	BAL	3299336	N/A	2013/07/31	Min Yang
pH CaCl2 EXTRACT		3300312	2013/08/01	2013/08/01	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	3297687	2013/08/02	2013/08/02	Automated Statchk

Maxxam ID SK6007
Sample ID BH7(13'.5-14'.5) YONGE SUBWAY EXTENSION
Matrix Soil

Collected 2013/07/24
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3298693	2013/07/30	2013/07/31	Mamdouh Salib
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3298698	2013/07/30	2013/08/01	Zhiyue (Frank) Zhu
Moisture	BAL	3299336	N/A	2013/07/31	Min Yang

Maxxam Job #: B3C2252
Report Date: 2013/08/02

Ecoplans Limited
Client Project #: YONGE SUBWAY EXTENSION

Test Summary

Maxxam ID SK6007 Dup
Sample ID BH7(13'.5-14'.5) YONGE SUBWAY EXTENSION
Matrix Soil
Collected 2013/07/24
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Moisture	BAL	3299336	N/A	2013/07/31	Min Yang

Maxxam ID SK6008
Sample ID BH7(15'-17') YONGE SUBWAY EXTENSION
Matrix Soil
Collected 2013/07/25
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Methylnaphthalene Sum	CALC	3297326	N/A	2013/08/01	Automated Statchk
Moisture	BAL	3299390	N/A	2013/07/31	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3298946	2013/07/31	2013/08/01	Darryl Tiller

Maxxam ID SK6009
Sample ID BH4(0-2') YONGE SUBWAY EXTENSION
Matrix Soil
Collected 2013/07/25
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Methylnaphthalene Sum	CALC	3297326	N/A	2013/08/01	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3298693	2013/07/30	2013/07/31	Mamdouh Salib
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3298698	2013/07/30	2013/08/01	Zhiyue (Frank) Zhu
Moisture	BAL	3299390	N/A	2013/07/31	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3298946	2013/07/31	2013/08/01	Darryl Tiller

Maxxam ID SK6010
Sample ID BH4(2'.5-4'.5) YONGE SUBWAY EXTENSION
Matrix Soil
Collected 2013/07/25
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3300621	2013/08/01	2013/08/02	Azita Fazaeli
Free (WAD) Cyanide	TECH	3299379	N/A	2013/08/01	Louise Harding
Conductivity	COND	3300619	N/A	2013/08/01	Lemeneh Addis
Hexavalent Chromium in Soil by IC	IC/SPEC	3299513	2013/07/31	2013/07/31	Yogesh Patel
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3300582	2013/08/01	2013/08/01	Viviana Canzonieri
Moisture	BAL	3299336	N/A	2013/07/31	Min Yang
pH CaCl ₂ EXTRACT		3300312	2013/08/01	2013/08/01	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	3297687	2013/08/02	2013/08/02	Automated Statchk

Maxxam ID SK6011
Sample ID BH4(7'.5-8'.5) YONGE SUBWAY EXTENSION
Matrix Soil
Collected 2013/07/25
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	3297327	N/A	2013/08/02	Automated Statchk
Moisture	BAL	3299442	N/A	2013/07/31	Min Yang
Volatile Organic Compounds in Soil	P&T/MS	3298850	2013/07/31	2013/08/01	Rebecca Schultz

Maxxam Job #: B3C2252
Report Date: 2013/08/02

Ecoplans Limited
Client Project #: YONGE SUBWAY EXTENSION

Test Summary

Maxxam ID SK6012
Sample ID BH4(10-12') YONGE SUBWAY EXTENSION
Matrix Soil
Collected 2013/07/25
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Sieve, 75um	PSIV	3300131	N/A	2013/07/31	Min Yang

Maxxam ID SK6013
Sample ID BH4(12'.5-14'.2) YONGE SUBWAY EXTENSION
Matrix Soil
Collected 2013/07/25
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3300621	2013/08/01	2013/08/02	Azita Fazaeli
Free (WAD) Cyanide	TECH	3299379	N/A	2013/08/01	Louise Harding
Conductivity	COND	3300619	N/A	2013/08/01	Lemeneh Addis
Hexavalent Chromium in Soil by IC	IC/SPEC	3299513	2013/07/31	2013/07/31	Yogesh Patel
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3300582	2013/08/01	2013/08/01	Viviana Canzonieri
Moisture	BAL	3299336	N/A	2013/07/31	Min Yang
pH CaCl2 EXTRACT		3300312	2013/08/01	2013/08/01	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	3297687	2013/08/02	2013/08/02	Automated Statchk

Maxxam ID SK6013 Dup
Sample ID BH4(12'.5-14'.2) YONGE SUBWAY EXTENSION
Matrix Soil
Collected 2013/07/25
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Free (WAD) Cyanide	TECH	3299379	N/A	2013/08/01	Louise Harding

Maxxam ID SK6014
Sample ID D5
Matrix Soil
Collected 2013/07/25
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	3297327	N/A	2013/08/02	Automated Statchk
Moisture	BAL	3300191	N/A	2013/08/01	Min Yang
Volatile Organic Compounds in Soil	P&T/MS	3298850	2013/07/31	2013/08/01	Rebecca Schultz

Maxxam ID SK6015
Sample ID BH5(2'.5-4'.5) YONGE SUBWAY EXTENSION
Matrix Soil
Collected 2013/07/25
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3300621	2013/08/01	2013/08/02	Azita Fazaeli
Free (WAD) Cyanide	TECH	3299379	N/A	2013/08/01	Louise Harding
Conductivity	COND	3300619	N/A	2013/08/01	Lemeneh Addis
Hexavalent Chromium in Soil by IC	IC/SPEC	3299513	2013/07/31	2013/07/31	Yogesh Patel
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3300582	2013/08/01	2013/08/01	Viviana Canzonieri
Moisture	BAL	3299336	N/A	2013/07/31	Min Yang
pH CaCl2 EXTRACT		3300523	2013/08/01	2013/08/01	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	3297687	2013/08/02	2013/08/02	Automated Statchk

Maxxam Job #: B3C2252
Report Date: 2013/08/02

Ecoplans Limited
Client Project #: YONGE SUBWAY EXTENSION

Test Summary

Maxxam ID SK6016
Sample ID BH5(5'-7') YONGE SUBWAY EXTENSION
Matrix Soil

Collected 2013/07/25
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Methylnaphthalene Sum	CALC	3297326	N/A	2013/08/01	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3298693	2013/07/30	2013/07/31	Mamdouh Salib
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3298698	2013/07/30	2013/08/01	Zhiyue (Frank) Zhu
Moisture	BAL	3299390	N/A	2013/07/31	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3298946	2013/07/31	2013/08/01	Darryl Tiller

Maxxam ID SK6017
Sample ID BH5(21'3"-22') YONGE SUBWAY EXTENSION
Matrix Soil

Collected 2013/07/25
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	3297327	N/A	2013/08/02	Automated Statchk
Moisture	BAL	3299442	N/A	2013/07/31	Min Yang
Volatile Organic Compounds in Soil	P&T/MS	3298850	2013/07/31	2013/08/01	Rebecca Schultz

Maxxam ID SK6018
Sample ID BH5(27'.5-29'.5) YONGE SUBWAY EXTENSION
Matrix Soil

Collected 2013/07/25
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3300621	2013/08/01	2013/08/02	Azita Fazaeli
Free (WAD) Cyanide	TECH	3299379	N/A	2013/08/01	Louise Harding
Conductivity	COND	3300619	N/A	2013/08/01	Lemeneh Addis
Hexavalent Chromium in Soil by IC	IC/SPEC	3299513	2013/07/31	2013/07/31	Yogesh Patel
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3300582	2013/08/01	2013/08/01	Viviana Canzonieri
Moisture	BAL	3299336	N/A	2013/07/31	Min Yang
pH CaCl ₂ EXTRACT		3300511	2013/08/01	2013/08/01	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	3297687	2013/08/02	2013/08/02	Automated Statchk

Maxxam ID SK6019
Sample ID D1
Matrix Soil

Collected 2013/07/25
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3300621	2013/08/01	2013/08/02	Azita Fazaeli
Free (WAD) Cyanide	TECH	3299379	N/A	2013/08/01	Louise Harding
Conductivity	COND	3300619	N/A	2013/08/01	Lemeneh Addis
Hexavalent Chromium in Soil by IC	IC/SPEC	3299513	2013/07/31	2013/07/31	Yogesh Patel
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3300582	2013/08/01	2013/08/01	Viviana Canzonieri
Moisture	BAL	3299336	N/A	2013/07/31	Min Yang
pH CaCl ₂ EXTRACT		3300511	2013/08/01	2013/08/01	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	3297687	2013/08/02	2013/08/02	Automated Statchk

Maxxam Job #: B3C2252
Report Date: 2013/08/02

Ecoplans Limited
Client Project #: YONGE SUBWAY EXTENSION

Test Summary

Maxxam ID SK6020
Sample ID D2
Matrix Soil

Collected 2013/07/25
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3300621	2013/08/01	2013/08/02	Azita Fazaeli
Free (WAD) Cyanide	TECH	3299379	N/A	2013/08/01	Louise Harding
Conductivity	COND	3300619	N/A	2013/08/01	Lemeneh Addis
Hexavalent Chromium in Soil by IC	IC/SPEC	3299513	2013/07/31	2013/07/31	Yogesh Patel
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3300582	2013/08/01	2013/08/01	Viviana Canzonieri
Moisture	BAL	3299336	N/A	2013/07/31	Min Yang
pH CaCl2 EXTRACT		3300312	2013/08/01	2013/08/01	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	3297687	2013/08/02	2013/08/02	Automated Statchk

Maxxam ID SK6021
Sample ID MW4(0-2') YONGE SUBWAY EXTENSION
Matrix Soil

Collected 2013/07/25
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	3297327	N/A	2013/08/02	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3299931	2013/07/31	2013/08/01	Yang Yu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3298698	2013/07/30	2013/08/01	Zhiyue (Frank) Zhu
F4G (CCME Hydrocarbons Gravimetric)	BAL	3301361	2013/08/01	2013/08/01	Raheela Usmani
Moisture	BAL	3299336	N/A	2013/07/31	Min Yang
Volatile Organic Compounds in Soil	P&T/MS	3298850	2013/07/31	2013/08/01	Rebecca Schultz

Maxxam ID SK6022
Sample ID MW4(2'.5-4'.5) YONGE SUBWAY EXTENSION
Matrix Soil

Collected 2013/07/25
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3300621	2013/08/01	2013/08/02	Azita Fazaeli
Free (WAD) Cyanide	TECH	3299379	N/A	2013/08/01	Louise Harding
Conductivity	COND	3300619	N/A	2013/08/01	Lemeneh Addis
Hexavalent Chromium in Soil by IC	IC/SPEC	3299513	2013/07/31	2013/07/31	Yogesh Patel
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3300582	2013/08/01	2013/08/01	Viviana Canzonieri
Moisture	BAL	3299336	N/A	2013/07/31	Min Yang
pH CaCl2 EXTRACT		3300312	2013/08/01	2013/08/01	Surinder Rai
Sieve, 75um	PSIV	3300131	N/A	2013/07/31	Min Yang
Sodium Adsorption Ratio (SAR)	CALC/MET	3297687	2013/08/02	2013/08/02	Automated Statchk

Maxxam ID SK6023
Sample ID MW4(5'-7') YONGE SUBWAY EXTENSION
Matrix Soil

Collected 2013/07/25
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Methylnaphthalene Sum	CALC	3297326	N/A	2013/08/01	Automated Statchk
Moisture	BAL	3299390	N/A	2013/07/31	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3298946	2013/07/31	2013/08/01	Darryl Tiller

Maxxam Job #: B3C2252
Report Date: 2013/08/02

Ecoplans Limited
Client Project #: YONGE SUBWAY EXTENSION

Test Summary

Maxxam ID SK6024
Sample ID MW4(12'.5-13'.3") YONGE SUBWAY EXTENSION
Matrix Soil

Collected 2013/07/25
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Methylnaphthalene Sum	CALC	3297326	N/A	2013/08/01	Automated Statchk
Moisture	BAL	3299390	N/A	2013/07/31	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3298946	2013/07/31	2013/08/01	Darryl Tiller

Maxxam ID SK6025
Sample ID MW4(27'.5-28.7") YONGE SUBWAY EXTENSION
Matrix Soil

Collected 2013/07/25
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3300621	2013/08/01	2013/08/02	Azita Fazaeli
Free (WAD) Cyanide	TECH	3299379	N/A	2013/08/01	Louise Harding
Conductivity	COND	3300619	N/A	2013/08/01	Lemeneh Addis
Hexavalent Chromium in Soil by IC	IC/SPEC	3299513	2013/07/31	2013/07/31	Yogesh Patel
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3300582	2013/08/01	2013/08/01	Viviana Canzonieri
Moisture	BAL	3299336	N/A	2013/07/31	Min Yang
pH CaCl2 EXTRACT		3300511	2013/08/01	2013/08/01	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	3297687	2013/08/02	2013/08/02	Automated Statchk

Maxxam ID SK6025 Dup
Sample ID MW4(27'.5-28.7") YONGE SUBWAY EXTENSION
Matrix Soil

Collected 2013/07/25
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hexavalent Chromium in Soil by IC	IC/SPEC	3299513	2013/07/31	2013/07/31	Yogesh Patel

Maxxam ID SK6026
Sample ID D3
Matrix Soil

Collected 2013/07/25
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Methylnaphthalene Sum	CALC	3297326	N/A	2013/08/01	Automated Statchk
Moisture	BAL	3299390	N/A	2013/07/31	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3298946	2013/07/31	2013/08/01	Darryl Tiller

Maxxam ID SK6027
Sample ID D4
Matrix Soil

Collected 2013/07/25
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Methylnaphthalene Sum	CALC	3297326	N/A	2013/08/01	Automated Statchk
Moisture	BAL	3299390	N/A	2013/07/31	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3298946	2013/07/31	2013/07/31	Darryl Tiller

Maxxam Job #: B3C2252
Report Date: 2013/08/02

Ecoplans Limited
Client Project #: YONGE SUBWAY EXTENSION

Test Summary

Maxxam ID SK6027 Dup
Sample ID D4
Matrix Soil
Collected 2013/07/25
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3298946	2013/07/31	2013/07/31	Darryl Tiller

Maxxam ID SK6028
Sample ID MW5(2'.5-4'.5) YONGE SUBWAY EXTENSION
Matrix Soil
Collected 2013/07/24
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3300621	2013/08/01	2013/08/02	Azita Fazaeli
Free (WAD) Cyanide	TECH	3299379	N/A	2013/08/01	Louise Harding
Conductivity	COND	3300619	N/A	2013/08/01	Lemeneh Addis
Hexavalent Chromium in Soil by IC	IC/SPEC	3299513	2013/07/31	2013/07/31	Yogesh Patel
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3300582	2013/08/01	2013/08/01	Viviana Canzonieri
Moisture	BAL	3299336	N/A	2013/07/31	Min Yang
pH CaCl2 EXTRACT		3300511	2013/08/01	2013/08/01	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	3297687	2013/08/02	2013/08/02	Automated Statchk

Maxxam ID SK6029
Sample ID MW5(8'.5-9'.5) YONGE SUBWAY EXTENSION
Matrix Soil
Collected 2013/07/24
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Methylnaphthalene Sum	CALC	3297326	N/A	2013/08/01	Automated Statchk
1,3-Dichloropropene Sum	CALC	3297327	N/A	2013/08/02	Automated Statchk
Moisture	BAL	3299390	N/A	2013/07/31	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3298946	2013/07/31	2013/08/01	Darryl Tiller
Volatile Organic Compounds in Soil	P&T/MS	3298850	2013/07/31	2013/08/01	Rebecca Schultz

Maxxam ID SK6030
Sample ID MW5(10'.5-12') YONGE SUBWAY EXTENSION
Matrix Soil
Collected 2013/07/24
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Methylnaphthalene Sum	CALC	3297326	N/A	2013/08/01	Automated Statchk
Moisture	BAL	3299390	N/A	2013/07/31	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3298946	2013/07/31	2013/08/01	Darryl Tiller

Maxxam ID SK6031
Sample ID MW5(12'.5-13') YONGE SUBWAY EXTENSION
Matrix Soil
Collected 2013/07/24
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3298693	2013/07/30	2013/07/31	Mamdouh Salib
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3298698	2013/07/30	2013/08/01	Zhiyue (Frank) Zhu
Moisture	BAL	3299336	N/A	2013/07/31	Min Yang

Maxxam Job #: B3C2252
Report Date: 2013/08/02

Ecoplans Limited
Client Project #: YONGE SUBWAY EXTENSION

Test Summary

Maxxam ID SK6031 Dup
Sample ID MW5(12'.5-13') YONGE SUBWAY EXTENSION
Matrix Soil

Collected 2013/07/24
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3298693	2013/07/30	2013/07/31	Mamdouh Salib

Maxxam ID SK6032
Sample ID MW5(27'.5-29'.5) YONGE SUBWAY EXTENSION
Matrix Soil

Collected 2013/07/24
Shipped
Received 2013/07/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3300621	2013/08/01	2013/08/02	Azita Fazaeli
Free (WAD) Cyanide	TECH	3299379	N/A	2013/08/01	Louise Harding
Conductivity	COND	3300619	N/A	2013/08/01	Lemeneh Addis
Hexavalent Chromium in Soil by IC	IC/SPEC	3299513	2013/07/31	2013/07/31	Yogesh Patel
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3300582	2013/08/01	2013/08/01	Viviana Canzonieri
Moisture	BAL	3299336	N/A	2013/07/31	Min Yang
pH CaCl2 EXTRACT		3300312	2013/08/01	2013/08/01	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	3297687	2013/08/02	2013/08/02	Automated Statchk

Maxxam Job #: B3C2252
Report Date: 2013/08/02

Ecoplans Limited
Client Project #: YONGE SUBWAY EXTENSION

Package 1	16.7°C
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Each temperature is the average of up to three cooler temperatures taken at receipt

GENERAL COMMENTS

Sample SK6004-01: SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample SK6015-01: SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample SK6018-01: SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample SK6019-01: SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample SK6020-01: SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample SK6025-01: SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample SK6028-01: SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample SK6032-01: SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Results relate only to the items tested.

Ecoplans Limited
 Attention: Natalia Codoban
 Client Project #: YONGE SUBWAY EXTENSION
 P.O. #:
 Site Location:

Quality Assurance Report

Maxxam Job Number: MB3C2252

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits		
3298693 MSB	Matrix Spike [SK6031-01]	1,4-Difluorobenzene	2013/07/31		99	%	60 - 140		
		4-Bromofluorobenzene	2013/07/31		96	%	60 - 140		
		D10-Ethylbenzene	2013/07/31		80	%	60 - 140		
		D4-1,2-Dichloroethane	2013/07/31		88	%	60 - 140		
		Benzene	2013/07/31		80	%	60 - 140		
		Toluene	2013/07/31		90	%	60 - 140		
		Ethylbenzene	2013/07/31		83	%	60 - 140		
		o-Xylene	2013/07/31		87	%	60 - 140		
		p+m-Xylene	2013/07/31		79	%	60 - 140		
		F1 (C6-C10)	2013/07/31		79	%	60 - 140		
		Spiked Blank	1,4-Difluorobenzene	2013/07/31		98	%	60 - 140	
			4-Bromofluorobenzene	2013/07/31		97	%	60 - 140	
			D10-Ethylbenzene	2013/07/31		78	%	60 - 140	
			D4-1,2-Dichloroethane	2013/07/31		91	%	60 - 140	
			Benzene	2013/07/31		84	%	60 - 130	
	Toluene		2013/07/31		93	%	60 - 130		
	Ethylbenzene		2013/07/31		82	%	60 - 130		
	o-Xylene		2013/07/31		89	%	60 - 130		
	p+m-Xylene		2013/07/31		83	%	60 - 130		
	F1 (C6-C10)		2013/07/31		80	%	80 - 120		
	Method Blank		1,4-Difluorobenzene	2013/07/31		97	%	60 - 140	
			4-Bromofluorobenzene	2013/07/31		89	%	60 - 140	
			D10-Ethylbenzene	2013/07/31		76	%	60 - 140	
			D4-1,2-Dichloroethane	2013/07/31		89	%	60 - 140	
			Benzene	2013/07/31	ND, RDL=0.020		ug/g		
		Toluene	2013/07/31	ND, RDL=0.020		ug/g			
		Ethylbenzene	2013/07/31	ND, RDL=0.020		ug/g			
		o-Xylene	2013/07/31	ND, RDL=0.020		ug/g			
		p+m-Xylene	2013/07/31	ND, RDL=0.040		ug/g			
		Total Xylenes	2013/07/31	ND, RDL=0.040		ug/g			
		F1 (C6-C10)	2013/07/31	ND, RDL=10		ug/g			
		F1 (C6-C10) - BTEX	2013/07/31	ND, RDL=10		ug/g			
	RPD [SK6031-01]	Benzene	2013/07/31	NC		%	50		
		Toluene	2013/07/31	NC		%	50		
		Ethylbenzene	2013/07/31	NC		%	50		
		o-Xylene	2013/07/31	NC		%	50		
		p+m-Xylene	2013/07/31	NC		%	50		
		Total Xylenes	2013/07/31	NC		%	50		
		F1 (C6-C10)	2013/07/31	NC		%	50		
		F1 (C6-C10) - BTEX	2013/07/31	NC		%	50		
		3298698 ZZ	Matrix Spike	o-Terphenyl	2013/08/01		89	%	50 - 130
				F2 (C10-C16 Hydrocarbons)	2013/08/01		102	%	50 - 130
F3 (C16-C34 Hydrocarbons)				2013/08/01		107	%	50 - 130	
F4 (C34-C50 Hydrocarbons)				2013/08/01		106	%	50 - 130	
Spiked Blank			o-Terphenyl	2013/08/01		87	%	50 - 130	
			F2 (C10-C16 Hydrocarbons)	2013/08/01		93	%	80 - 120	
			F3 (C16-C34 Hydrocarbons)	2013/08/01		99	%	80 - 120	
	F4 (C34-C50 Hydrocarbons)		2013/08/01		98	%	80 - 120		
Method Blank	o-Terphenyl		2013/08/01		91	%	50 - 130		
	F2 (C10-C16 Hydrocarbons)		2013/08/01	ND, RDL=10		ug/g			
	F3 (C16-C34 Hydrocarbons)		2013/08/01	ND, RDL=50		ug/g			
	F4 (C34-C50 Hydrocarbons)		2013/08/01	ND, RDL=50		ug/g			
	RPD		F2 (C10-C16 Hydrocarbons)	2013/08/01	NC		%	30	
F3 (C16-C34 Hydrocarbons)			2013/08/01	NC		%	30		

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3298698 ZZ	RPD	F4 (C34-C50 Hydrocarbons)	2013/08/01	NC		%	30
3298850 RSC	Matrix Spike	4-Bromofluorobenzene	2013/08/01		97	%	60 - 140
		D10-o-Xylene	2013/08/01		115	%	60 - 130
		D4-1,2-Dichloroethane	2013/08/01		108	%	60 - 140
		D8-Toluene	2013/08/01		104	%	60 - 140
		Acetone (2-Propanone)	2013/08/01		109	%	60 - 140
		Benzene	2013/08/01		104	%	60 - 140
		Bromodichloromethane	2013/08/01		102	%	60 - 140
		Bromoform	2013/08/01		75	%	60 - 140
		Bromomethane	2013/08/01		102	%	60 - 140
		Carbon Tetrachloride	2013/08/01		103	%	60 - 140
		Chlorobenzene	2013/08/01		98	%	60 - 140
		Chloroform	2013/08/01		97	%	60 - 140
		Dibromochloromethane	2013/08/01		96	%	60 - 140
		1,2-Dichlorobenzene	2013/08/01		95	%	60 - 140
		1,3-Dichlorobenzene	2013/08/01		95	%	60 - 140
		1,4-Dichlorobenzene	2013/08/01		96	%	60 - 140
		Dichlorodifluoromethane (FREON 12)	2013/08/01		98	%	60 - 140
		1,1-Dichloroethane	2013/08/01		109	%	60 - 140
		1,2-Dichloroethane	2013/08/01		106	%	60 - 140
		1,1-Dichloroethylene	2013/08/01		116	%	60 - 140
		cis-1,2-Dichloroethylene	2013/08/01		100	%	60 - 140
		trans-1,2-Dichloroethylene	2013/08/01		100	%	60 - 140
		1,2-Dichloropropane	2013/08/01		105	%	60 - 140
		cis-1,3-Dichloropropene	2013/08/01		98	%	60 - 140
		trans-1,3-Dichloropropene	2013/08/01		101	%	60 - 140
		Ethylbenzene	2013/08/01		98	%	60 - 140
		Ethylene Dibromide	2013/08/01		102	%	60 - 140
		Hexane	2013/08/01		122	%	60 - 140
		Methylene Chloride(Dichloromethane)	2013/08/01		98	%	60 - 140
		Methyl Isobutyl Ketone	2013/08/01		115	%	60 - 140
		Methyl Ethyl Ketone (2-Butanone)	2013/08/01		104	%	60 - 140
		Methyl t-butyl ether (MTBE)	2013/08/01		108	%	60 - 140
		Styrene	2013/08/01		102	%	60 - 140
		1,1,1,2-Tetrachloroethane	2013/08/01		100	%	60 - 140
		1,1,2,2-Tetrachloroethane	2013/08/01		104	%	60 - 140
		Tetrachloroethylene	2013/08/01		93	%	60 - 140
		Toluene	2013/08/01		98	%	60 - 140
		1,1,1-Trichloroethane	2013/08/01		104	%	60 - 140
		1,1,2-Trichloroethane	2013/08/01		120	%	60 - 140
		Trichloroethylene	2013/08/01		96	%	60 - 140
		Vinyl Chloride	2013/08/01		116	%	60 - 140
		p+m-Xylene	2013/08/01		98	%	60 - 140
		o-Xylene	2013/08/01		98	%	60 - 140
		Trichlorofluoromethane (FREON 11)	2013/08/01		106	%	60 - 140
	Spiked Blank	4-Bromofluorobenzene	2013/08/01		95	%	60 - 140
		D10-o-Xylene	2013/08/01		99	%	60 - 130
		D4-1,2-Dichloroethane	2013/08/01		110	%	60 - 140
		D8-Toluene	2013/08/01		100	%	60 - 140
		Acetone (2-Propanone)	2013/08/01		100	%	60 - 140
		Benzene	2013/08/01		100	%	60 - 130
		Bromodichloromethane	2013/08/01		100	%	60 - 130
		Bromoform	2013/08/01		73	%	60 - 130
		Bromomethane	2013/08/01		107	%	60 - 140
		Carbon Tetrachloride	2013/08/01		103	%	60 - 130

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3298850 RSC	Spiked Blank	Chlorobenzene	2013/08/01		95	%	60 - 130
		Chloroform	2013/08/01		97	%	60 - 130
		Dibromochloromethane	2013/08/01		96	%	60 - 130
		1,2-Dichlorobenzene	2013/08/01		92	%	60 - 130
		1,3-Dichlorobenzene	2013/08/01		92	%	60 - 130
		1,4-Dichlorobenzene	2013/08/01		92	%	60 - 130
		Dichlorodifluoromethane (FREON 12)	2013/08/01		96	%	60 - 140
		1,1-Dichloroethane	2013/08/01		106	%	60 - 130
		1,2-Dichloroethane	2013/08/01		104	%	60 - 130
		1,1-Dichloroethylene	2013/08/01		110	%	60 - 130
		cis-1,2-Dichloroethylene	2013/08/01		98	%	60 - 130
		trans-1,2-Dichloroethylene	2013/08/01		98	%	60 - 130
		1,2-Dichloropropane	2013/08/01		100	%	60 - 130
		cis-1,3-Dichloropropene	2013/08/01		94	%	60 - 130
		trans-1,3-Dichloropropene	2013/08/01		100	%	60 - 130
		Ethylbenzene	2013/08/01		96	%	60 - 130
		Ethylene Dibromide	2013/08/01		98	%	60 - 130
		Hexane	2013/08/01		112	%	60 - 130
		Methylene Chloride(Dichloromethane)	2013/08/01		95	%	60 - 130
		Methyl Isobutyl Ketone	2013/08/01		104	%	60 - 130
		Methyl Ethyl Ketone (2-Butanone)	2013/08/01		98	%	60 - 140
		Methyl t-butyl ether (MTBE)	2013/08/01		102	%	60 - 130
		Styrene	2013/08/01		95	%	60 - 130
		1,1,1,2-Tetrachloroethane	2013/08/01		99	%	60 - 130
		1,1,2,2-Tetrachloroethane	2013/08/01		100	%	60 - 130
		Tetrachloroethylene	2013/08/01		91	%	60 - 130
		Toluene	2013/08/01		95	%	60 - 130
		1,1,1-Trichloroethane	2013/08/01		103	%	60 - 130
		1,1,2-Trichloroethane	2013/08/01		94	%	60 - 130
		Trichloroethylene	2013/08/01		93	%	60 - 130
		Vinyl Chloride	2013/08/01		112	%	60 - 130
		p+m-Xylene	2013/08/01		94	%	60 - 130
		o-Xylene	2013/08/01		94	%	60 - 130
		Trichlorofluoromethane (FREON 11)	2013/08/01		102	%	60 - 130
	Method Blank	4-Bromofluorobenzene	2013/08/01		93	%	60 - 140
		D10-o-Xylene	2013/08/01		97	%	60 - 130
		D4-1,2-Dichloroethane	2013/08/01		106	%	60 - 140
		D8-Toluene	2013/08/01		100	%	60 - 140
		Acetone (2-Propanone)	2013/08/01	ND, RDL=0.50		ug/g	
		Benzene	2013/08/01	ND, RDL=0.020		ug/g	
		Bromodichloromethane	2013/08/01	ND, RDL=0.050		ug/g	
		Bromoform	2013/08/01	ND, RDL=0.050		ug/g	
		Bromomethane	2013/08/01	ND, RDL=0.050		ug/g	
		Carbon Tetrachloride	2013/08/01	ND, RDL=0.050		ug/g	
		Chlorobenzene	2013/08/01	ND, RDL=0.050		ug/g	
		Chloroform	2013/08/01	ND, RDL=0.050		ug/g	
		Dibromochloromethane	2013/08/01	ND, RDL=0.050		ug/g	
		1,2-Dichlorobenzene	2013/08/01	ND, RDL=0.050		ug/g	
		1,3-Dichlorobenzene	2013/08/01	ND, RDL=0.050		ug/g	
		1,4-Dichlorobenzene	2013/08/01	ND, RDL=0.050		ug/g	
		Dichlorodifluoromethane (FREON 12)	2013/08/01	ND, RDL=0.050		ug/g	
		1,1-Dichloroethane	2013/08/01	ND, RDL=0.050		ug/g	
		1,2-Dichloroethane	2013/08/01	ND, RDL=0.050		ug/g	
		1,1-Dichloroethylene	2013/08/01	ND, RDL=0.050		ug/g	
		cis-1,2-Dichloroethylene	2013/08/01	ND, RDL=0.050		ug/g	

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3298850	RSC	Method Blank					
		trans-1,2-Dichloroethylene	2013/08/01	ND, RDL=0.050		ug/g	
		1,2-Dichloropropane	2013/08/01	ND, RDL=0.050		ug/g	
		cis-1,3-Dichloropropene	2013/08/01	ND, RDL=0.030		ug/g	
		trans-1,3-Dichloropropene	2013/08/01	ND, RDL=0.040		ug/g	
		Ethylbenzene	2013/08/01	ND, RDL=0.020		ug/g	
		Ethylene Dibromide	2013/08/01	ND, RDL=0.050		ug/g	
		Hexane	2013/08/01	ND, RDL=0.050		ug/g	
		Methylene Chloride(Dichloromethane)	2013/08/01	ND, RDL=0.050		ug/g	
		Methyl Isobutyl Ketone	2013/08/01	ND, RDL=0.50		ug/g	
		Methyl Ethyl Ketone (2-Butanone)	2013/08/01	ND, RDL=0.50		ug/g	
		Methyl t-butyl ether (MTBE)	2013/08/01	ND, RDL=0.050		ug/g	
		Styrene	2013/08/01	ND, RDL=0.050		ug/g	
		1,1,1,2-Tetrachloroethane	2013/08/01	ND, RDL=0.050		ug/g	
		1,1,2,2-Tetrachloroethane	2013/08/01	ND, RDL=0.050		ug/g	
		Tetrachloroethylene	2013/08/01	ND, RDL=0.050		ug/g	
		Toluene	2013/08/01	ND, RDL=0.020		ug/g	
		1,1,1-Trichloroethane	2013/08/01	ND, RDL=0.050		ug/g	
		1,1,2-Trichloroethane	2013/08/01	ND, RDL=0.050		ug/g	
		Trichloroethylene	2013/08/01	ND, RDL=0.050		ug/g	
		Vinyl Chloride	2013/08/01	ND, RDL=0.020		ug/g	
		p+m-Xylene	2013/08/01	ND, RDL=0.020		ug/g	
		o-Xylene	2013/08/01	ND, RDL=0.020		ug/g	
		Xylene (Total)	2013/08/01	ND, RDL=0.020		ug/g	
		Trichlorofluoromethane (FREON 11)	2013/08/01	ND, RDL=0.050		ug/g	
	RPD	Acetone (2-Propanone)	2013/08/01	NC		%	50
		Benzene	2013/08/01	3.2		%	50
		Bromodichloromethane	2013/08/01	NC		%	50
		Bromoform	2013/08/01	NC		%	50
		Bromomethane	2013/08/01	NC		%	50
		Carbon Tetrachloride	2013/08/01	NC		%	50
		Chlorobenzene	2013/08/01	NC		%	50
		Chloroform	2013/08/01	NC		%	50
		Dibromochloromethane	2013/08/01	NC		%	50
		1,2-Dichlorobenzene	2013/08/01	NC		%	50
		1,3-Dichlorobenzene	2013/08/01	NC		%	50
		1,4-Dichlorobenzene	2013/08/01	NC		%	50
		Dichlorodifluoromethane (FREON 12)	2013/08/01	NC		%	50
		1,1-Dichloroethane	2013/08/01	NC		%	50
		1,2-Dichloroethane	2013/08/01	NC		%	50
		1,1-Dichloroethylene	2013/08/01	NC		%	50
		cis-1,2-Dichloroethylene	2013/08/01	NC		%	50
		trans-1,2-Dichloroethylene	2013/08/01	NC		%	50
		1,2-Dichloropropane	2013/08/01	NC		%	50
		cis-1,3-Dichloropropene	2013/08/01	NC		%	50
		trans-1,3-Dichloropropene	2013/08/01	NC (1)		%	50
		Ethylbenzene	2013/08/01	6.4		%	50
		Ethylene Dibromide	2013/08/01	NC		%	50
		Hexane	2013/08/01	3.4		%	50
		Methylene Chloride(Dichloromethane)	2013/08/01	NC		%	50
		Methyl Isobutyl Ketone	2013/08/01	NC		%	50
		Methyl Ethyl Ketone (2-Butanone)	2013/08/01	NC		%	50
		Methyl t-butyl ether (MTBE)	2013/08/01	NC		%	50
		Styrene	2013/08/01	NC		%	50
		1,1,1,2-Tetrachloroethane	2013/08/01	NC		%	50
		1,1,2,2-Tetrachloroethane	2013/08/01	NC		%	50

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3298850	RSC RPD	Tetrachloroethylene	2013/08/01	NC		%	50
		Toluene	2013/08/01	2.8		%	50
		1,1,1-Trichloroethane	2013/08/01	NC		%	50
		1,1,2-Trichloroethane	2013/08/01	NC		%	50
		Trichloroethylene	2013/08/01	NC		%	50
		Vinyl Chloride	2013/08/01	NC		%	50
		p+m-Xylene	2013/08/01	4.0		%	50
		o-Xylene	2013/08/01	6.4		%	50
		Xylene (Total)	2013/08/01	4.5		%	50
		Trichlorofluoromethane (FREON 11)	2013/08/01	NC		%	50
3298946	DTI Matrix Spike [SK6027-01]	D10-Anthracene	2013/07/31		80	%	50 - 130
		D14-Terphenyl (FS)	2013/07/31		89	%	50 - 130
		D8-Acenaphthylene	2013/07/31		73	%	50 - 130
		Acenaphthene	2013/07/31		79	%	50 - 130
		Acenaphthylene	2013/07/31		77	%	50 - 130
		Anthracene	2013/07/31		82	%	50 - 130
		Benzo(a)anthracene	2013/07/31		89	%	50 - 130
		Benzo(a)pyrene	2013/07/31		70	%	50 - 130
		Benzo(b,j)fluoranthene	2013/07/31		75	%	50 - 130
		Benzo(g,h,i)perylene	2013/07/31		74	%	50 - 130
		Benzo(k)fluoranthene	2013/07/31		76	%	50 - 130
		Chrysene	2013/07/31		82	%	50 - 130
		Dibenz(a,h)anthracene	2013/07/31		79	%	50 - 130
		Fluoranthene	2013/07/31		84	%	50 - 130
		Fluorene	2013/07/31		78	%	50 - 130
		Indeno(1,2,3-cd)pyrene	2013/07/31		79	%	50 - 130
		1-Methylnaphthalene	2013/07/31		77	%	50 - 130
		2-Methylnaphthalene	2013/07/31		75	%	50 - 130
		Naphthalene	2013/07/31		75	%	50 - 130
		Phenanthrene	2013/07/31		80	%	50 - 130
		Pyrene	2013/07/31		85	%	50 - 130
	Spiked Blank	D10-Anthracene	2013/07/31		85	%	50 - 130
		D14-Terphenyl (FS)	2013/07/31		90	%	50 - 130
		D8-Acenaphthylene	2013/07/31		78	%	50 - 130
		Acenaphthene	2013/07/31		84	%	50 - 130
		Acenaphthylene	2013/07/31		82	%	50 - 130
		Anthracene	2013/07/31		86	%	50 - 130
		Benzo(a)anthracene	2013/07/31		91	%	50 - 130
		Benzo(a)pyrene	2013/07/31		80	%	50 - 130
		Benzo(b,j)fluoranthene	2013/07/31		87	%	50 - 130
		Benzo(g,h,i)perylene	2013/07/31		86	%	50 - 130
		Benzo(k)fluoranthene	2013/07/31		89	%	50 - 130
		Chrysene	2013/07/31		86	%	50 - 130
		Dibenz(a,h)anthracene	2013/07/31		89	%	50 - 130
		Fluoranthene	2013/07/31		87	%	50 - 130
		Fluorene	2013/07/31		83	%	50 - 130
		Indeno(1,2,3-cd)pyrene	2013/07/31		90	%	50 - 130
		1-Methylnaphthalene	2013/07/31		84	%	50 - 130
		2-Methylnaphthalene	2013/07/31		81	%	50 - 130
		Naphthalene	2013/07/31		83	%	50 - 130
		Phenanthrene	2013/07/31		84	%	50 - 130
		Pyrene	2013/07/31		87	%	50 - 130
	Method Blank	D10-Anthracene	2013/07/31		87	%	50 - 130
		D14-Terphenyl (FS)	2013/07/31		91	%	50 - 130

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3298946 DTI	Method Blank	D8-Acenaphthylene	2013/07/31		75	%	50 - 130
		Acenaphthene	2013/07/31	ND, RDL=0.0050		ug/g	
		Acenaphthylene	2013/07/31	ND, RDL=0.0050		ug/g	
		Anthracene	2013/07/31	ND, RDL=0.0050		ug/g	
		Benzo(a)anthracene	2013/07/31	ND, RDL=0.0050		ug/g	
		Benzo(a)pyrene	2013/07/31	ND, RDL=0.0050		ug/g	
		Benzo(b/j)fluoranthene	2013/07/31	ND, RDL=0.0050		ug/g	
		Benzo(g,h,i)perylene	2013/07/31	ND, RDL=0.0050		ug/g	
		Benzo(k)fluoranthene	2013/07/31	ND, RDL=0.0050		ug/g	
		Chrysene	2013/07/31	ND, RDL=0.0050		ug/g	
		Dibenz(a,h)anthracene	2013/07/31	ND, RDL=0.0050		ug/g	
		Fluoranthene	2013/07/31	ND, RDL=0.0050		ug/g	
		Fluorene	2013/07/31	ND, RDL=0.0050		ug/g	
		Indeno(1,2,3-cd)pyrene	2013/07/31	ND, RDL=0.0050		ug/g	
		1-Methylnaphthalene	2013/07/31	ND, RDL=0.0050		ug/g	
		2-Methylnaphthalene	2013/07/31	ND, RDL=0.0050		ug/g	
		Naphthalene	2013/07/31	ND, RDL=0.0050		ug/g	
		Phenanthrene	2013/07/31	ND, RDL=0.0050		ug/g	
		Pyrene	2013/07/31	ND, RDL=0.0050		ug/g	
	RPD [SK6027-01]	Acenaphthene	2013/07/31	NC		%	40
		Acenaphthylene	2013/07/31	NC		%	40
		Anthracene	2013/07/31	NC		%	40
		Benzo(a)anthracene	2013/07/31	NC		%	40
		Benzo(a)pyrene	2013/07/31	NC		%	40
		Benzo(b/j)fluoranthene	2013/07/31	NC		%	40
		Benzo(g,h,i)perylene	2013/07/31	NC		%	40
		Benzo(k)fluoranthene	2013/07/31	NC		%	40
		Chrysene	2013/07/31	NC		%	40
		Dibenz(a,h)anthracene	2013/07/31	NC		%	40
		Fluoranthene	2013/07/31	NC		%	40
		Fluorene	2013/07/31	NC		%	40
		Indeno(1,2,3-cd)pyrene	2013/07/31	NC		%	40
		1-Methylnaphthalene	2013/07/31	NC		%	40
		2-Methylnaphthalene	2013/07/31	NC		%	40
		Naphthalene	2013/07/31	NC		%	40
		Phenanthrene	2013/07/31	NC		%	40
		Pyrene	2013/07/31	NC		%	40
3299336 JK1	RPD [SK6007-01]	Moisture	2013/07/31	1		%	20
3299379 LHA	Matrix Spike						
	[SK6013-01]	Free Cyanide	2013/08/01		103	%	75 - 125
	Spiked Blank	Free Cyanide	2013/08/01		102	%	80 - 120
	Method Blank	Free Cyanide	2013/08/01	ND, RDL=0.01		ug/g	
	RPD [SK6013-01]	Free Cyanide	2013/08/01	NC		%	35
3299390 JK1	RPD	Moisture	2013/07/31	1.6		%	20
3299442 JV1	RPD	Moisture	2013/07/31	1.7		%	20
3299513 YPA	Matrix Spike						
	[SK6025-01]	Chromium (VI)	2013/07/31		0.33 (2)	%	75 - 125
	QC Standard	Chromium (VI)	2013/07/31		102	%	75 - 125
	Spiked Blank	Chromium (VI)	2013/07/31		95	%	80 - 120
	Method Blank	Chromium (VI)	2013/07/31	ND, RDL=0.2		ug/g	
	RPD [SK6025-01]	Chromium (VI)	2013/07/31	NC		%	35
3299931 YY	Matrix Spike	1,4-Difluorobenzene	2013/08/01		100	%	60 - 140
		4-Bromofluorobenzene	2013/08/01		106	%	60 - 140
		D10-Ethylbenzene	2013/08/01		108	%	60 - 140
		D4-1,2-Dichloroethane	2013/08/01		89	%	60 - 140

Ecoplans Limited
 Attention: Natalia Codoban
 Client Project #: YONGE SUBWAY EXTENSION
 P.O. #:
 Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: MB3C2252

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits	
3299931 YY	Matrix Spike	F1 (C6-C10)	2013/08/01		97	%	60 - 140	
	Spiked Blank	1,4-Difluorobenzene	2013/08/01		101	%	60 - 140	
		4-Bromofluorobenzene	2013/08/01		103	%	60 - 140	
		D10-Ethylbenzene	2013/08/01		100	%	60 - 140	
		D4-1,2-Dichloroethane	2013/08/01		91	%	60 - 140	
	Method Blank	F1 (C6-C10)	2013/08/01		98	%	80 - 120	
		1,4-Difluorobenzene	2013/08/01		96	%	60 - 140	
		4-Bromofluorobenzene	2013/08/01		100	%	60 - 140	
		D10-Ethylbenzene	2013/08/01		106	%	60 - 140	
	RPD	D4-1,2-Dichloroethane	2013/08/01		92	%	60 - 140	
		F1 (C6-C10)	2013/08/01		ND, RDL=10		ug/g	
		F1 (C6-C10) - BTEX	2013/08/01		ND, RDL=10		ug/g	
		F1 (C6-C10)	2013/08/01		NC		%	50
	3300131 DEE	QC Standard	Sieve - #200 (<0.075mm)	2013/07/31		89	%	86 - 91
Sieve - #200 (>0.075mm)			2013/07/31		11	%	9 - 14	
RPD		Sieve - #200 (<0.075mm)	2013/07/31	18.2		%	20	
		Sieve - #200 (>0.075mm)	2013/07/31	4.9		%	20	
3300191 VTH	RPD	Moisture	2013/08/01	NC		%	20	
3300582 VIV	Matrix Spike	Acid Extractable Antimony (Sb)	2013/08/01		94	%	75 - 125	
		Acid Extractable Arsenic (As)	2013/08/01		95	%	75 - 125	
		Acid Extractable Barium (Ba)	2013/08/01		86	%	75 - 125	
		Acid Extractable Beryllium (Be)	2013/08/01		97	%	75 - 125	
		Acid Extractable Boron (B)	2013/08/01		90	%	75 - 125	
		Acid Extractable Cadmium (Cd)	2013/08/01		96	%	75 - 125	
		Acid Extractable Chromium (Cr)	2013/08/01		93	%	75 - 125	
		Acid Extractable Cobalt (Co)	2013/08/01		97	%	75 - 125	
		Acid Extractable Copper (Cu)	2013/08/01		95	%	75 - 125	
		Acid Extractable Lead (Pb)	2013/08/01		96	%	75 - 125	
		Acid Extractable Molybdenum (Mo)	2013/08/01		95	%	75 - 125	
		Acid Extractable Nickel (Ni)	2013/08/01		94	%	75 - 125	
		Acid Extractable Selenium (Se)	2013/08/01		99	%	75 - 125	
		Acid Extractable Silver (Ag)	2013/08/01		96	%	75 - 125	
		Acid Extractable Thallium (Tl)	2013/08/01		93	%	75 - 125	
		Acid Extractable Uranium (U)	2013/08/01		105	%	75 - 125	
		Acid Extractable Vanadium (V)	2013/08/01		97	%	75 - 125	
		Acid Extractable Zinc (Zn)	2013/08/01		NC	%	75 - 125	
		Spiked Blank	Acid Extractable Mercury (Hg)	2013/08/01		100	%	75 - 125
			Acid Extractable Antimony (Sb)	2013/08/01		93	%	80 - 120
			Acid Extractable Arsenic (As)	2013/08/01		98	%	80 - 120
			Acid Extractable Barium (Ba)	2013/08/01		95	%	80 - 120
			Acid Extractable Beryllium (Be)	2013/08/01		92	%	80 - 120
			Acid Extractable Boron (B)	2013/08/01		88	%	80 - 120
	Acid Extractable Cadmium (Cd)		2013/08/01		98	%	80 - 120	
	Acid Extractable Chromium (Cr)		2013/08/01		93	%	80 - 120	
	Acid Extractable Cobalt (Co)		2013/08/01		99	%	80 - 120	
	Acid Extractable Copper (Cu)		2013/08/01		97	%	80 - 120	
	Acid Extractable Lead (Pb)		2013/08/01		101	%	80 - 120	
	Acid Extractable Molybdenum (Mo)		2013/08/01		93	%	80 - 120	
	Acid Extractable Nickel (Ni)	2013/08/01		99	%	80 - 120		
	Acid Extractable Selenium (Se)	2013/08/01		100	%	80 - 120		
	Acid Extractable Silver (Ag)	2013/08/01		98	%	80 - 120		
	Acid Extractable Thallium (Tl)	2013/08/01		88	%	80 - 120		
	Acid Extractable Uranium (U)	2013/08/01		101	%	80 - 120		
	Acid Extractable Vanadium (V)	2013/08/01		93	%	80 - 120		

Ecoplans Limited
 Attention: Natalia Codoban
 Client Project #: YONGE SUBWAY EXTENSION
 P.O. #:
 Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: MB3C2252

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
3300582 VIV	Spiked Blank	Acid Extractable Zinc (Zn)	2013/08/01		100	%	80 - 120
		Acid Extractable Mercury (Hg)	2013/08/01		105	%	80 - 120
	Method Blank	Acid Extractable Antimony (Sb)	2013/08/01	ND, RDL=0.20		ug/g	
		Acid Extractable Arsenic (As)	2013/08/01	ND, RDL=1.0		ug/g	
		Acid Extractable Barium (Ba)	2013/08/01	ND, RDL=0.50		ug/g	
		Acid Extractable Beryllium (Be)	2013/08/01	ND, RDL=0.20		ug/g	
		Acid Extractable Boron (B)	2013/08/01	ND, RDL=5.0		ug/g	
		Acid Extractable Cadmium (Cd)	2013/08/01	ND, RDL=0.10		ug/g	
		Acid Extractable Chromium (Cr)	2013/08/01	ND, RDL=1.0		ug/g	
		Acid Extractable Cobalt (Co)	2013/08/01	ND, RDL=0.10		ug/g	
		Acid Extractable Copper (Cu)	2013/08/01	ND, RDL=0.50		ug/g	
		Acid Extractable Lead (Pb)	2013/08/01	ND, RDL=1.0		ug/g	
		Acid Extractable Molybdenum (Mo)	2013/08/01	ND, RDL=0.50		ug/g	
		Acid Extractable Nickel (Ni)	2013/08/01	ND, RDL=0.50		ug/g	
		Acid Extractable Selenium (Se)	2013/08/01	ND, RDL=0.50		ug/g	
		Acid Extractable Silver (Ag)	2013/08/01	ND, RDL=0.20		ug/g	
		Acid Extractable Thallium (Tl)	2013/08/01	ND, RDL=0.050		ug/g	
		Acid Extractable Uranium (U)	2013/08/01	ND, RDL=0.050		ug/g	
		Acid Extractable Vanadium (V)	2013/08/01	ND, RDL=5.0		ug/g	
		Acid Extractable Zinc (Zn)	2013/08/01	ND, RDL=5.0		ug/g	
	RPD	Acid Extractable Mercury (Hg)	2013/08/01	ND, RDL=0.050		ug/g	
		Acid Extractable Antimony (Sb)	2013/08/01	NC		%	30
		Acid Extractable Arsenic (As)	2013/08/01	NC		%	30
		Acid Extractable Barium (Ba)	2013/08/01	3.1		%	30
		Acid Extractable Beryllium (Be)	2013/08/01	NC		%	30
		Acid Extractable Boron (B)	2013/08/01	NC		%	30
		Acid Extractable Cadmium (Cd)	2013/08/01	NC		%	30
		Acid Extractable Chromium (Cr)	2013/08/01	NC		%	30
		Acid Extractable Cobalt (Co)	2013/08/01	7.9		%	30
		Acid Extractable Copper (Cu)	2013/08/01	0.3		%	30
		Acid Extractable Lead (Pb)	2013/08/01	7.8		%	30
		Acid Extractable Molybdenum (Mo)	2013/08/01	NC		%	30
		Acid Extractable Nickel (Ni)	2013/08/01	0.8		%	30
		Acid Extractable Selenium (Se)	2013/08/01	NC		%	30
		Acid Extractable Silver (Ag)	2013/08/01	NC		%	30
		Acid Extractable Thallium (Tl)	2013/08/01	NC		%	30
		Acid Extractable Uranium (U)	2013/08/01	10.3		%	30
		Acid Extractable Vanadium (V)	2013/08/01	NC		%	30
		Acid Extractable Zinc (Zn)	2013/08/01	2.8		%	30
		Acid Extractable Mercury (Hg)	2013/08/01	NC		%	30
3300619 L_A	Spiked Blank	Conductivity	2013/08/01		100	%	90 - 110
	Method Blank	Conductivity	2013/08/01	ND, RDL=0.002		mS/cm	
	RPD	Conductivity	2013/08/01	8.8		%	10
3300621 AFZ	Matrix Spike	Hot Water Ext. Boron (B)	2013/08/01		94	%	75 - 125
	Spiked Blank	Hot Water Ext. Boron (B)	2013/08/01		96	%	75 - 125
	Method Blank	Hot Water Ext. Boron (B)	2013/08/01	ND, RDL=0.050		ug/g	
	RPD	Hot Water Ext. Boron (B)	2013/08/01	NC		%	35
3300848 AFZ	Matrix Spike [SK6004-01]	Hot Water Ext. Boron (B)	2013/08/02		100	%	75 - 125
	Spiked Blank	Hot Water Ext. Boron (B)	2013/08/02		101	%	75 - 125
	Method Blank	Hot Water Ext. Boron (B)	2013/08/02	ND, RDL=0.050		ug/g	
	RPD [SK6004-01]	Hot Water Ext. Boron (B)	2013/08/02	NC		%	35
3301361 RUS	Matrix Spike	F4G-sg (Grav. Heavy Hydrocarbons)	2013/08/01		94	%	65 - 135
	Spiked Blank	F4G-sg (Grav. Heavy Hydrocarbons)	2013/08/01		94	%	65 - 135
	Method Blank	F4G-sg (Grav. Heavy Hydrocarbons)	2013/08/01	ND, RDL=100		ug/g	

Ecoplans Limited
 Attention: Natalia Codoban
 Client Project #: YONGE SUBWAY EXTENSION
 P.O. #:
 Site Location:

Quality Assurance Report (Continued)

Maxxam Job Number: MB3C2252

QA/QC Batch				Date Analyzed				
Num Init	QC Type	Parameter		yyyy/mm/dd	Value	Recovery	Units	QC Limits
3301361	RUS	RPD	F4G-sg (Grav. Heavy Hydrocarbons)	2013/08/01	NC		%	50
<p> Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement. Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference. QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy. Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy. Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination. Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency. NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation. NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation. (1) VOC Analysis: (compounds) Detection limit raised due to interference. (2) The matrix spike recovery was below the lower control limit. This may be due in part to the reducing environment of the sample. </p>								

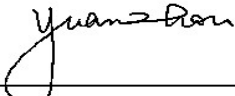
Validation Signature Page

Maxxam Job #: B3C2252

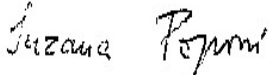
The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Mamdouh Salib, Analyst, Hydrocarbons



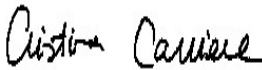
Yuan Zhou, gc/ms Technician



Suzana Popovic, Supervisor, Hydrocarbons



Jeevaraj Jeevaratnam, Senior Analyst



Cristina Carriere, Scientific Services

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

INVOICE INFORMATION:

Company Name: #8866 Ecoplans Limited
 Contact Name: Accounts Payable
 Address: 2655 North Sheridan Way Suite 280
 Mississauga ON L5K 2P8
 Phone: (905)823-4988 Fax: (905)823-2669
 Email: accountspayable@mmm.ca

REPORT INFORMATION (if differs from invoice):

Company Name:
 Contact Name: Natalia Codoban
 Address:
 Phone: (905)823-4988 x1347 Fax:
 Email: CodobanN@mmm.ca

PROJECT INFORMATION:

Quotation #: B34521
 P.O. #:
 Project #: Yonge Subway Extension
 Project Name:
 Site #:
 Sampled By:

26-Jul-13 09:45
 Jolanta Goralczyk

 B3C2252
 GAU ENV-598

BOTTLE ORDER #:

 428431
PROJECT MANAGER:
 Jolanta Goralczyk

Regulation 153 (2011)
 Table 1 Res/Park Medium/Fine
 Table 2 Ind/Comm Coarse
 Table 3 Agri/Other
 Table For RSC

Other Regulations
 CCME Sanitary Sewer Bylaw
 Reg. 558 Storm Sewer Bylaw
 MISA Municipality
 PWOO
 Other

SPECIAL INSTRUCTIONS

Regulated Drinking Water? (Y/N)
 Metals Field Filtered? (Y/N)

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT:
 (will be applied if Rush TAT is not specified)
 Standard TAT = 5-7 Working days for most tests.
 Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
 Date Required: _____ Time Required: _____

Rush Confirmation Number: _____ (call lab for #)

Include Criteria on Certificate of Analysis (Y/N)? Y
 Note: For MCE regulated drinking water samples - please use the Drinking Water Chain of Custody Form
SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	O'Reg 153 Metals & Inorganics Pkg (Soil)	O'Reg 153 PAHs (Soil)	O'Reg 153 Volatile Organics (Soil) Moisture	O'Reg 153 Petroleum Hydrocarbons (Soil)	O'Reg 568 TCLP Inorganics Package	O'Reg 568 TCLP Leachate Preparation	Sieve Analysis PT Sieve	# of Bottles	Comments
1 BH7(0-2')	Yong Subway Extension	24 July		Soil			✓							1	TCLP - pl. hold the sample until further instructions are provided.
2 BH7(7.5-9.5')		N							✓			✓		5	
3 BH7(10'-12')		N					✓							1	
4 BH7(13.5-14.5')		N								✓				1	
5 BH7(15'-17')		25 July					✓							1	
6 BH4(0-2')		N					✓			✓				2	
7 BH4(2.5-4.5')		N					✓							1	
8 BH4(7.5-8.5')		N							✓					1	
9 BH4(10-12')		N										✓		1	
10 BH4(12.5-14.2')		N					✓							1	

***RELINQUISHED BY: (Signature/Print)** J. Rahmanian **Date: (YY/MM/DD)** 13/07/26 **Time:** 9:50



RECEIVED BY: (Signature/Print) [Signature] **Date: (YY/MM/DD)** 26/07/26 **Time:** 09:45

Jars Used and Not Submitted

Laboratory Use Only

Time Sensitive: _____ Temperature (°C) on Receipt: 14.8, 18.0
 Custody Seal: Present Intact
 Yes No

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
 Maxxam Analytics International Corporation o/a Maxxam Analytics
 Page 32 of 35
 ice melted

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name: #8866 Ecoplans Limited	Company Name:	Contact Name: Natalia Codoban	Quotation #: B34521	P.O. #:		MAXXAM JOB #:	BOTTLE ORDER #:
Contact Name: Accounts Payable	Contact Name:	Address:	Project #: Yonge Subway Extension	Project Name:		 428431	
Address: 2655 North Sheridan Way Suite 280 Mississauga ON L5K 2P8	Address:	Phone: (905)823-4988 Fax: (905)823-2669	Project Name:	Site #:			
Phone: (905)823-4988 Fax: (905)823-2669	Phone:	Email: accounts payable@mmm.ca	Email: CodobanN@mmm.ca	Sampled By:		 C#428431-06-01 Jolanta Goralczyk	

Regulation 153 (2011)	Other Regulations	SPECIAL INSTRUCTIONS	ANALYSIS REQUESTED (Please be specific):	TURNAROUND TIME (TAT) REQUIRED:
<input checked="" type="checkbox"/> Table 1 <input type="checkbox"/> Table 2 <input checked="" type="checkbox"/> Table 3 <input type="checkbox"/> Table _____	<input type="checkbox"/> Res/Park <input checked="" type="checkbox"/> Ind/Comm <input type="checkbox"/> Agri/Other <input type="checkbox"/> For RSC	<input type="checkbox"/> CCME <input type="checkbox"/> Reg. 558 <input type="checkbox"/> MISA <input type="checkbox"/> PWOO <input type="checkbox"/> Other: _____	Regulated Drinking Water? (Y/N) _____ Metals Field Filtered? (Y/N) _____ O'Reg 153 Metals & Inorganics Pkg (Soil) _____ O'Reg 153 PAHs (Soil) _____ O'Reg 153 Volatile Organics (Soil) + moisture _____ O'Reg 153 Petroleum Hydrocarbons (Soil) _____ O'Reg 558 TCLP Inorganics Package _____ O'Reg 558 TCLP Leachate Preparation _____ Sieve Analysis PT Sieve _____	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS Regular (Standard) TAT: <input checked="" type="checkbox"/> (will be applied if Rush TAT is not specified): Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) Date Required: _____ Time Required: _____ Rush Confirmation Number: _____ (call lab for #)

Include Criteria on Certificate of Analysis (CM)? _____
 Note: For MCE regulated drinking water samples - please use the Drinking Water Chain of Custody Form
 SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	O'Reg 153 Metals & Inorganics Pkg (Soil)	O'Reg 153 PAHs (Soil)	O'Reg 153 Volatile Organics (Soil) + moisture	O'Reg 153 Petroleum Hydrocarbons (Soil)	O'Reg 558 TCLP Inorganics Package	O'Reg 558 TCLP Leachate Preparation	Sieve Analysis PT Sieve	# of Bottles	Comments
1 D5	Yonge Subway Extension	25 July		Soil					✓					4	
2 BH5(2'5-4'5)	↓	N					✓							1	
3 BH5(5'-7')		N					✓		✓					2	
4 BH5(2'3"-2'2")		N							✓					4	
5 BH5(2'7.5"-2'9.5")		N						✓						1	
6 D1		N						✓						1	
7 D2		N						✓						1	
8 MW4(0-2')		N							✓	✓				5	
9 MW4(2'5.4'5)		N						✓				✓		2	
10 MW4(5'-7')		N						✓						1	

*RELINQUISHED BY: (Signature/Print) J. Rahmanian	Date: (YY/MM/DD) 13/07/26	Time: 9:50	RECEIVED BY: (Signature/Print) JULIUS MURAT MOZ	Date: (YY/MM/DD) 25/07/26	Time: 09:45	# Jars Used and Not Submitted	Laboratory Use Only		
Time Sensitive	Temperature (°C) on Receipt 14, 18, 18°C	Custody Seal	Yes	No					

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
 Maxxam Analytics International Corporation Page 33 of 35

Ice melted

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name: #8866 Ecoplans Limited	Company Name:	Company Name: Natalia Codoban	Quotation #: B34521	MAXXAM JOB #:		BOTTLE ORDER #:	
Contact Name: Accounts Payable	Contact Name:	Address:	P.O. #:	Project #: Yonge Subway Extension		CHAIN OF CUSTODY #:	
Address: 2655 North Sheridan Way Suite 280 Mississauga ON L5K 2P8	Address:	Phone: (905)823-4988 Fax: (905)823-2669	Project Name:	Site #:		PROJECT MANAGER:	
Phone: (905)823-4988 Fax: (905)823-2669	Phone: (905)823-4988 x1347 Fax:	Email: accountspayable@mmm.ca	Sampled By:	Sampled By:		Jolanta Goralczyk	

Regulation 153 (2011)		Other Regulations		SPECIAL INSTRUCTIONS		ANALYSIS REQUESTED (Please be specific):		TURNAROUND TIME (TAT) REQUIRED:		
<input checked="" type="checkbox"/> Table 1 <input type="checkbox"/> Table 2 <input checked="" type="checkbox"/> Table 3 <input type="checkbox"/> Table	<input type="checkbox"/> Res/Park <input checked="" type="checkbox"/> Ind/Comm <input type="checkbox"/> Agri/Other	<input type="checkbox"/> Medium/Fine <input type="checkbox"/> Coarse <input type="checkbox"/> For RSC	<input type="checkbox"/> CCME <input type="checkbox"/> Reg. 558 <input type="checkbox"/> MISA <input type="checkbox"/> PWQO <input type="checkbox"/> Other:	<input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> Municipality			Regular (Standard) TAT: (will be applied if Rush TAT is not specified): Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS <input checked="" type="checkbox"/>	

Include Criteria on Certificate of Analysis (Y/N)? Y

Note: For MOE regulated drinking water samples - please use the Drinking Water Chain of Custody Form

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

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	O'Reg 153 Metals & Inorganics Pkg (Soil)	O'Reg 153 PAHs (Soil)	O'Reg 153 Volatile Organics (Soil) + moisture	O'Reg 153 Petroleum Hydrocarbons (Soil)	O'Reg 558 TCLP Inorganics Package	O'Reg 558 TCLP Leachate Preparation	# of Bottles	Comments
1 MW4(12.5-13.3)	Yong Subway Extension	25/July		Soil			✓						1	
2 MW4(27.5-28.7)	(27.5-28.7)	N					✓						1	
3 D3		N					✓						1	
4 D4		N					✓						1	
5 MW5(2.5-4.5)		24/July					✓						1	
6 MW5(8.5-8.5)		N					✓	✓					5	
7 MW5(10'-12' 8.5-9.5)		N					✓						1	
8 MW5(12.5-13)		N							✓				1	
9 MW5(27.5-29.5)		N					✓						1	
10														

*RELINQUISHED BY: (Signature/Print) J. Rahmian		Date: (YY/MM/DD) 13/07/26	Time: 9:50	RECEIVED BY: (Signature/Print) Z. de Nussat Mar		Date: (YY/MM/DD) 26/07/26	Time: 09:45	# Jars Used and Not Submitted	Laboratory Use Only		
Time Sensitive		Temperature (°C) on Receipt 14, 18, 18°C		Custody Seal		Yes		No		Intact	

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

Maxxam Analytics International Corporation Page 34 of 35

Ice melted



6740 Campobello Road, Mississauga, ON L5N 2L8
 Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: (800)

26-Jul-13 09:45

Jolanta Goralczyk

CHAIN OF CUSTODY RECORD

83658

Page ___ of ___



B3C2252

INVOICE INFORMATION		REPORT INFORMATION		PROJECT INFORMATION		MAXXAM JOB NUMBER	
Company Name: 2655 North Sheridan		Company Name:		B34521			
Contact Name: Way, Mississauga, ON		Contact Name:					
Address: MUM Group Ltd		Address:		Project #:		CHAIN OF CUSTODY #	
Phone: (905) 823 8500 Fax: (905) 823 2669		Phone: Fax:		Site Location: Yang Shway Extension		00	
Email: cadobann@mum.ca		Email:		Site #:			
				Sampled By: S.R.			

Note: For MOE Regulated Drinking Water samples, please use the Drinking Water CoC.

Regulation 153 (2011)				Other Regulations				ANALYSIS REQUESTED (Please be specific)				TURNAROUND TIME (TAT) REQUIRED				
<input checked="" type="checkbox"/> Table 1	<input type="checkbox"/> Res/Park	<input type="checkbox"/> Med/Fine	<input type="checkbox"/> CCME	<input type="checkbox"/> Sanitary Sewer Bylaw												
<input type="checkbox"/> Table 2	<input checked="" type="checkbox"/> Ind/Comm	<input type="checkbox"/> Coarse	<input type="checkbox"/> Reg. 558	<input type="checkbox"/> Storm Sewer Bylaw												
<input checked="" type="checkbox"/> Table 3	<input type="checkbox"/> Agri/Other	<input type="checkbox"/> For RSC	<input type="checkbox"/> MISA	Municipality:												
<input type="checkbox"/> Table	<input type="checkbox"/> Yes	<input type="checkbox"/> PWQO														
	<input type="checkbox"/> No	Other (specify):														

Include Criteria on Certificate of Analysis (Y/N)?

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

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	MOE Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	moisture Analysis	# of Cont.	COMMENTS / TAT COMMENTS
1	DS	25/July		Soil				1	
2									
3									
4									
5									
6									
7									
8									
9									
10									

*RELIQUISHED BY (Signature/Print)	Date (YYYY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date (YYYY/MM/DD)	Time:	#JARS USED AND NOT SUBMITTED	Laboratory Use Only	
J. Rahman	13/07/29		DAVID CHAN	2013/07/29	18:57		Custody Seal	Temperature (°C) on Receipt
							Present <input checked="" type="checkbox"/>	7/8/7c
							Intact <input checked="" type="checkbox"/>	

*MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

APPENDIX C – CERTIFICATE OF ANALYSIS FOR GROUNDWATER SAMPLES

Table C1: Summary of Analytical Results
Metals and Inorganic Parameters in Groundwater
 Yonge Subway Extension EPR Addendum

Sample ID Well Screen (mbgs) Job # Sampling Date	MOE Table 3 - Non-potable, fine textured	MOE Table 1 - Background, fine textured	Reporting Limit	Units	MW4	MW5
					8.2 - 9.8	9.8 - 11.3
					VO6878	VO6877
					16-Apr-14	16-Apr-14
Antimony (Dissolved)	20000	1.5	0.50	ug/L	<0.50	1.1
Arsenic (Dissolved)	1900	13	1.0	ug/L	2.3	1.6
Barium (Dissolved)	29000	610	2.0	ug/L	47	240
Beryllium (Dissolved)	67	0.5	0.50	ug/L	<0.50	<0.50
Boron (Dissolved)	45000	1700	10	ug/L	160	51
Cadmium (Dissolved)	2.7	0.5	0.10	ug/L	<0.10	<0.10
Chloride (Dissolved)	2300000	790000	1	mg/L	23	21
Chromium (Dissolved)	810	11	5.0	ug/L	<5.0	<5.0
Chromium (VI)	140	25	0.5	ug/L	<0.5	<0.5
Cobalt (Dissolved)	66	3.8	0.50	ug/L	<0.50	<0.50
Copper (Dissolved)	87	5	1.0	ug/L	1.0	<1.0
Free Cyanide	66	5	2.0	ug/L	<2.0	<2.0
Lead (Dissolved)	25	1.9	0.50	ug/L	<0.50	<0.50
Molybdenum (Dissolved)	9200	23	0.50	ug/L	<u>150</u>	<u>27</u>
Nickel (Dissolved)	490	14	1.0	ug/L	1.0	<1.0
Selenium (Dissolved)	63	5	2.0	ug/L	<2.0	<2.0
Silver (Dissolved)	1.5	0.3	0.10	ug/L	<0.10	<0.10
Sodium (Dissolved)	2300000	490000	100	ug/L	210000	33000
Thallium (Dissolved)	510	0.5	0.050	ug/L	<0.050	<0.050
Uranium (Dissolved)	420	8.9	0.10	ug/L	<u>58</u>	3.1
Vanadium (Dissolved)	250	3.9	0.50	ug/L	3.5	<u>5.2</u>
Zinc (Dissolved)	1100	160	5.0	ug/L	<5.0	<5.0

Notes:

NM = Not Measured; NV = No Value

Criteria Used: Soil, Groundwater and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act, MOE (2011). Table 3 "Non-potable Ground Water - All Types of Property Use, Medium/Fine textured soil", AND Table 1 "Background - All Types of Property Use, Medium/Fine textured soil".

<u>10</u>	Exceeds Table 3 - Non-potable ground water limits
<u>10</u>	Exceeds Table 1 - Background Limits
<u>10</u>	Exceeds Table 1 - Background AND Table 3 - Non-potable ground water limits

**Table C2: Summary of Analytical Results
Petroleum Hydrocarbons in Groundwater
Yonge Subway Extension EPR Addendum**

Sample ID Well Screen (mbgs) Job # Sampling Date	MOE Table 3 - Non-potable, fine textured	MOE Table 1 - Background, fine textured	Reporting Limit	Units	MW4	MW5
					8.2 - 9.8	9.8 - 11.3
					VO6878	VO6877
					16-Apr-14	16-Apr-14
F1 (C6-C10)	750	420	100	ug/L	<25	<25
F1 (C6-C10) - BTEX	750	420	200	ug/L	<25	<25
F2 (C10-C16 Hydrocarbons)	150	150	100	ug/L	<100	<100
F3 (C16-C34 Hydrocarbons)	500	500	200	ug/L	<200	<200
F4 (C34-C50 Hydrocarbons)	500	500	200	ug/L	<200	<200
Reached Baseline at C50	NV	NV	NV	NV	YES	YES

Notes:

NM = Not Measured

NV = No Value

Criteria Used: Soil, Groundwater and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act, MOE (2011). Table 3 "Non-potable Ground Water - All Types of Property Use, Medium/Fine textured soil", AND Table 1 "Background - All Types of Property Use, Medium/Fine textured soil".

10	Exceeds Table 3 - Non-potable ground water limits
10	Exceeds Table 1 - Background Limits
10	Exceeds Table 1 - Background AND Table 3 - Non-potable ground water limits

Table C3: Summary of Analytical Results
Volatile Organic Compounds in Groundwater
 Yonge Subway Extension EPR Addendum

Sample ID Well Screen (mbgs) Job # Sampling Date	MOE Table 3 - Non-potable, fine textured	MOE Table 1 - Background, fine textured	Reporting Limit	Units	MW4	MW5
					8.2 - 9.8	9.8 - 11.3
					VO6878	VO6877
					16-Apr-14	16-Apr-14
Acetone	130000	2700	10	ug/L	<10	<10
Benzene	430	0.5	0.20	ug/L	<0.20	<0.20
Bromodichloromethane	85000	2	0.50	ug/L	<0.50	<0.50
Bromoform	770	5	1	ug/L	<1.0	<1.0
Bromomethane	56	0.89	0.50	ug/L	<0.50	<0.50
Carbon Tetrachloride	8.4	0.2	0.20	ug/L	<0.20	<0.20
Chlorobenzene	630	0.5	0.20	ug/L	<0.20	<0.20
Chloroform	22	2	0.20	ug/L	<0.20	<0.20
Dibromochloromethane	82000	2	0.50	ug/L	<0.50	<0.50
1,2-Dichlorobenzene	9600	0.5	0.50	ug/L	<0.50	<0.50
1,3-Dichlorobenzene	9600	0.5	0.50	ug/L	<0.50	<0.50
1,4-Dichlorobenzene	67	0.5	0.50	ug/L	<0.50	<0.50
1,1-Dichloroethane	3100	0.5	0.20	ug/L	<0.20	<0.20
1,2-Dichloroethane	12	0.5	0.50	ug/L	<0.50	<0.50
1,1-Dichloroethylene	17	0.5	0.20	ug/L	<0.20	<0.20
Cis-1,2-Dichloroethylene	17	1.6	0.50	ug/L	<0.50	<0.50
Trans-1,2-Dichloroethylene	17	1.6	0.50	ug/L	<0.50	<0.50
1,2-Dichloropropane	140	0.5	0.20	ug/L	<0.20	<0.20
Cis-1,3-Dichloropropylene	45	0.5	0.30	ug/L	<0.30	<0.30
Trans-1,3-Dichloropropylene	45	0.5	0.40	ug/L	<0.40	<0.40
Ethylbenzene	2300	0.5	0.20	ug/L	<0.20	<0.20
Ethylene Dibromide	0.83	0.2	0.20	ug/L	<0.20	<0.20
Methyl Ethyl Ketone	1500000	400	10	ug/L	<10	<10
Methylene Chloride	5500	5.0	2.0	ug/L	<2.0	<2.0
Methyl Isobutyl Ketone	580000	640	5.0	ug/L	<5.0	<5.0
Methyl-t-Butyl Ether	1400	15	0.50	ug/L	<0.50	<0.50
Styrene	9100	0.5	0.50	ug/L	<0.50	<0.50
1,1,1,2-Tetrachloroethane	28	1.1	0.50	ug/L	<0.50	<0.50
1,1,2,2-Tetrachloroethane	15	0.5	0.50	ug/L	<0.50	<0.50
Toluene	18000	0.8	0.20	ug/L	<0.20	<0.20
Tetrachloroethylene	17	0.5	0.20	ug/L	<0.20	<0.20
1,1,1-Trichloroethane	6700	0.5	0.20	ug/L	<0.20	<0.20
1,1,2-Trichloroethane	30	0.5	0.50	ug/L	<0.50	<0.50
Trichloroethylene	17	0.5	0.20	ug/L	<0.20	<0.20
Vinyl Chloride	1.7	0.5	0.20	ug/L	<0.20	<0.20
m-Xylene & p-Xylene	NV	NV	0.20	ug/L	<0.20	<0.20
o-Xylene	NV	NV	0.20	ug/L	<0.20	<0.20
Total Xylenes	4200	72	0.20	ug/L	<0.20	<0.20
Dichlorodifluoromethane	4400	590	1.0	ug/L	<1.0	<1.0
Dioxane, 1,4-	7300000	50	-	ug/L	-	-
Hexane(n)	520	5	1.0	ug/L	<1.0	<1.0
Trichlorofluoromethane	2500	150	0.50	ug/L	<0.50	<0.50

Notes:

NM = Not Measured
 NV = No Value

Criteria Used: Soil, Groundwater and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act, MOE (2011). Table 3 "Non-potable Ground Water - All Types of Property Use, Medium/Fine textured soil", AND Table 1 "Background - All Types of Property Use, Medium/Fine textured soil".

10	Exceeds Table 3 - Non-potable ground water limits
10	Exceeds Table 1 - Background Limits
10	Exceeds Table 1 - Background AND Table 3 - Non-potable ground water limits

Your P.O. #: 3277670-000-800-094
 Your Project #: 3277670
 Site Location: YONGE SUBWAY EXTENSION
 Your C.O.C. #: 46693801, 466938-01-01

Attention: Sanam Rahmanian

MMM Group Limited
 2655 North Sheridan Way
 Suite 280
 Mississauga, ON
 CANADA L5K 2P8

Report Date: 2014/04/24
Report #: R3010161
Version: 2

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B461969

Received: 2014/04/17, 08:00

Sample Matrix: Water
 # Samples Received: 2

Analyses	Quantity	Date		Laboratory Method	Method Reference
		Extracted	Analyzed		
1,3-Dichloropropene Sum	2	N/A	2014/04/24	CAM SOP-00226	EPA 8260
Chloride by Automated Colourimetry	2	N/A	2014/04/22	CAM SOP-00463	EPA 325.2
Chromium (VI) in Water	2	N/A	2014/04/17	CAM SOP-00436	EPA 7199
Free (WAD) Cyanide	2	N/A	2014/04/22	CAM SOP-00457	Ontario MOE CN-E3015
Petroleum Hydro. CCME F1 & BTEX in Water	2	N/A	2014/04/23	CAM SOP-00315	CCME CWS
Petroleum Hydrocarbons F2-F4 in Water	2	2014/04/17	2014/04/21	CAM SOP-00316	CCME Hydrocarbons
Lab Filtered Metals by ICPMS	2	2014/04/22	2014/04/22	CAM SOP-00447	EPA 6020
Volatile Organic Compounds in Water	2	N/A	2014/04/23	CAM SOP 00228	EPA 8260 modified

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. Reporting results to two significant figures at the RDL is to permit statistical evaluation and is not intended to be an indication of analytical precision.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

- * RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
- * Results relate only to the items tested.

Maxxam Job #: B461969
Report Date: 2014/04/24

MMM Group Limited
Client Project #: 3277670
Site Location: YONGE SUBWAY EXTENSION
Your P.O. #: 3277670-000-800-094

-2-

Encryption Key

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

Jolanta Goralczyk, Project Manager
Email: JGoralczyk@maxxam.ca
Phone# (905) 817-5751

=====
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 2

Maxxam Job #: B461969
 Report Date: 2014/04/24

MMM Group Limited
 Client Project #: 3277670
 Site Location: YONGE SUBWAY EXTENSION
 Your P.O. #: 3277670-000-800-094

RESULTS OF ANALYSES OF WATER

Maxxam ID		VO6877	VO6878		
Sampling Date		2014/04/16 16:10	2014/04/16 15:00		
	Units	MW5	MW4	RDL	QC Batch
Inorganics					
Free Cyanide	ug/L	ND	ND	2	3579604
Dissolved Chloride (Cl)	mg/L	21	23	1	3578324

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		VO6877	VO6878		
Sampling Date		2014/04/16 16:10	2014/04/16 15:00		
	Units	MW5	MW4	RDL	QC Batch
Metals					
Chromium (VI)	ug/L	ND	ND	0.50	3576804
Dissolved Antimony (Sb)	ug/L	1.1	ND	0.50	3579733
Dissolved Arsenic (As)	ug/L	1.6	2.3	1.0	3579733
Dissolved Barium (Ba)	ug/L	240	47	2.0	3579733
Dissolved Beryllium (Be)	ug/L	ND	ND	0.50	3579733
Dissolved Boron (B)	ug/L	51	160	10	3579733
Dissolved Cadmium (Cd)	ug/L	ND	ND	0.10	3579733
Dissolved Chromium (Cr)	ug/L	ND	ND	5.0	3579733
Dissolved Cobalt (Co)	ug/L	ND	ND	0.50	3579733
Dissolved Copper (Cu)	ug/L	ND	1.0	1.0	3579733
Dissolved Lead (Pb)	ug/L	ND	ND	0.50	3579733
Dissolved Molybdenum (Mo)	ug/L	27	150	0.50	3579733
Dissolved Nickel (Ni)	ug/L	ND	1.0	1.0	3579733
Dissolved Selenium (Se)	ug/L	ND	ND	2.0	3579733
Dissolved Silver (Ag)	ug/L	ND	ND	0.10	3579733
Dissolved Sodium (Na)	ug/L	33000	210000	100	3579733
Dissolved Thallium (Tl)	ug/L	ND	ND	0.050	3579733
Dissolved Uranium (U)	ug/L	3.1	58	0.10	3579733
Dissolved Vanadium (V)	ug/L	5.2	3.5	0.50	3579733
Dissolved Zinc (Zn)	ug/L	ND	ND	5.0	3579733

ND = Not detected

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Maxxam Job #: B461969
 Report Date: 2014/04/24

 MMM Group Limited
 Client Project #: 3277670
 Site Location: YONGE SUBWAY EXTENSION
 Your P.O. #: 3277670-000-800-094

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		VO6877	VO6878		
Sampling Date		2014/04/16 16:10	2014/04/16 15:00		
	Units	MW5	MW4	RDL	QC Batch
Calculated Parameters					
1,3-Dichloropropene (cis+trans)	ug/L	ND	ND	0.50	3576564
Volatile Organics					
Acetone (2-Propanone)	ug/L	ND	ND	10	3578787
Benzene	ug/L	ND	ND	0.20	3578787
Bromodichloromethane	ug/L	ND	ND	0.50	3578787
Bromoform	ug/L	ND	ND	1.0	3578787
Bromomethane	ug/L	ND	ND	0.50	3578787
Carbon Tetrachloride	ug/L	ND	ND	0.20	3578787
Chlorobenzene	ug/L	ND	ND	0.20	3578787
Chloroform	ug/L	ND	ND	0.20	3578787
Dibromochloromethane	ug/L	ND	ND	0.50	3578787
1,2-Dichlorobenzene	ug/L	ND	ND	0.50	3578787
1,3-Dichlorobenzene	ug/L	ND	ND	0.50	3578787
1,4-Dichlorobenzene	ug/L	ND	ND	0.50	3578787
Dichlorodifluoromethane (FREON 12)	ug/L	ND	ND	1.0	3578787
1,1-Dichloroethane	ug/L	ND	ND	0.20	3578787
1,2-Dichloroethane	ug/L	ND	ND	0.50	3578787
1,1-Dichloroethylene	ug/L	ND	ND	0.20	3578787
cis-1,2-Dichloroethylene	ug/L	ND	ND	0.50	3578787
trans-1,2-Dichloroethylene	ug/L	ND	ND	0.50	3578787
1,2-Dichloropropane	ug/L	ND	ND	0.20	3578787
cis-1,3-Dichloropropene	ug/L	ND	ND	0.30	3578787
trans-1,3-Dichloropropene	ug/L	ND	ND	0.40	3578787
Ethylbenzene	ug/L	ND	ND	0.20	3578787
Ethylene Dibromide	ug/L	ND	ND	0.20	3578787
Hexane	ug/L	ND	ND	1.0	3578787
Methylene Chloride(Dichloromethane)	ug/L	ND	ND	2.0	3578787
Methyl Isobutyl Ketone	ug/L	ND	ND	5.0	3578787
Methyl Ethyl Ketone (2-Butanone)	ug/L	ND	ND	10	3578787
Methyl t-butyl ether (MTBE)	ug/L	ND	ND	0.50	3578787
Styrene	ug/L	ND	ND	0.50	3578787
1,1,1,2-Tetrachloroethane	ug/L	ND	ND	0.50	3578787
1,1,2,2-Tetrachloroethane	ug/L	ND	ND	0.50	3578787

ND = Not detected

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Maxxam Job #: B461969
 Report Date: 2014/04/24

MMM Group Limited
 Client Project #: 3277670
 Site Location: YONGE SUBWAY EXTENSION
 Your P.O. #: 3277670-000-800-094

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		VO6877	VO6878		
Sampling Date		2014/04/16 16:10	2014/04/16 15:00		
	Units	MW5	MW4	RDL	QC Batch
Tetrachloroethylene	ug/L	ND	ND	0.20	3578787
Toluene	ug/L	ND	ND	0.20	3578787
1,1,1-Trichloroethane	ug/L	ND	ND	0.20	3578787
1,1,2-Trichloroethane	ug/L	ND	ND	0.50	3578787
Trichloroethylene	ug/L	ND	ND	0.20	3578787
Vinyl Chloride	ug/L	ND	ND	0.20	3578787
p+m-Xylene	ug/L	ND	ND	0.20	3578787
o-Xylene	ug/L	ND	ND	0.20	3578787
Xylene (Total)	ug/L	ND	ND	0.20	3578787
Trichlorofluoromethane (FREON 11)	ug/L	ND	ND	0.50	3578787
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	100	98		3578787
D4-1,2-Dichloroethane	%	104	107		3578787
D8-Toluene	%	96	95		3578787

ND = Not detected
 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B461969
 Report Date: 2014/04/24

MMM Group Limited
 Client Project #: 3277670
 Site Location: YONGE SUBWAY EXTENSION
 Your P.O. #: 3277670-000-800-094

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		VO6877	VO6878		
Sampling Date		2014/04/16 16:10	2014/04/16 15:00		
	Units	MW5	MW4	RDL	QC Batch
BTEX & F1 Hydrocarbons					
F1 (C6-C10)	ug/L	ND	ND	25	3580407
F1 (C6-C10) - BTEX	ug/L	ND	ND	25	3580407
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/L	ND	ND	100	3577450
F3 (C16-C34 Hydrocarbons)	ug/L	ND	ND	200	3577450
F4 (C34-C50 Hydrocarbons)	ug/L	ND	ND	200	3577450
Reached Baseline at C50	ug/L	YES	YES		3577450
Surrogate Recovery (%)					
1,4-Difluorobenzene	%	99	101		3580407
4-Bromofluorobenzene	%	97	96		3580407
D10-Ethylbenzene	%	116	113		3580407
D4-1,2-Dichloroethane	%	97	98		3580407
o-Terphenyl	%	98	96		3577450

ND = Not detected
 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B461969
Report Date: 2014/04/24

MMM Group Limited
Client Project #: 3277670
Site Location: YONGE SUBWAY EXTENSION
Your P.O. #: 3277670-000-800-094

Test Summary

Maxxam ID VO6877
Sample ID MW5
Matrix Water

Collected 2014/04/16
Shipped
Received 2014/04/17

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	3576564	N/A	2014/04/24	Automated Statchk
Chloride by Automated Colourimetry	AC	3578324	N/A	2014/04/22	Alina Dobreanu
Chromium (VI) in Water	IC	3576804	N/A	2014/04/17	Lang Le
Free (WAD) Cyanide	TECH/CN	3579604	N/A	2014/04/22	Xuanhong Qiu
Petroleum Hydro. CCME F1 & BTEX in Wat	HSGC/MSFD	3580407	N/A	2014/04/23	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	3577450	2014/04/17	2014/04/21	Biljana Lazovic
Lab Filtered Metals by ICPMS	ICP/MS	3579733	2014/04/22	2014/04/22	John Bowman
Volatile Organic Compounds in Water	GC/MS	3578787	N/A	2014/04/23	Karen Hughes

Maxxam ID VO6878
Sample ID MW4
Matrix Water

Collected 2014/04/16
Shipped
Received 2014/04/17

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	3576564	N/A	2014/04/24	Automated Statchk
Chloride by Automated Colourimetry	AC	3578324	N/A	2014/04/22	Alina Dobreanu
Chromium (VI) in Water	IC	3576804	N/A	2014/04/17	Lang Le
Free (WAD) Cyanide	TECH/CN	3579604	N/A	2014/04/22	Xuanhong Qiu
Petroleum Hydro. CCME F1 & BTEX in Wat	HSGC/MSFD	3580407	N/A	2014/04/23	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	3577450	2014/04/17	2014/04/21	Biljana Lazovic
Lab Filtered Metals by ICPMS	ICP/MS	3579733	2014/04/22	2014/04/22	John Bowman
Volatile Organic Compounds in Water	GC/MS	3578787	N/A	2014/04/23	Karen Hughes

Maxxam Job #: B461969
Report Date: 2014/04/24

MMM Group Limited
Client Project #: 3277670
Site Location: YONGE SUBWAY EXTENSION
Your P.O. #: 3277670-000-800-094

GENERAL COMMENTS

Sample VO6877-01: F2-F4 Analysis: Sample was decanted prior to analyses according to client request.

Maxxam Job #: B461969
 Report Date: 2014/04/24

 MMM Group Limited
 Client Project #: 3277670
 Site Location: YONGE SUBWAY EXTENSION
 Your P.O. #: 3277670-000-800-094

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3576804	Chromium (VI)	2014/04/17	102	80 - 120	104	80 - 120	ND, RDL=0.50	ug/L	NC	20
3577450	o-Terphenyl	2014/04/21	99	60 - 130	98	60 - 130	94	%		
3577450	F2 (C10-C16 Hydrocarbons)	2014/04/21	105	50 - 130	108	60 - 130	ND, RDL=100	ug/L	NC	30
3577450	F3 (C16-C34 Hydrocarbons)	2014/04/21	94	50 - 130	102	60 - 130	ND, RDL=200	ug/L	NC	30
3577450	F4 (C34-C50 Hydrocarbons)	2014/04/21	83	50 - 130	100	60 - 130	ND, RDL=200	ug/L	NC	30
3578324	Dissolved Chloride (Cl)	2014/04/22	NC	80 - 120	101	80 - 120	ND, RDL=1	mg/L	0.6	20
3578787	4-Bromofluorobenzene	2014/04/23	102	70 - 130	102	70 - 130	99	%		
3578787	D4-1,2-Dichloroethane	2014/04/23	105	70 - 130	105	70 - 130	103	%		
3578787	D8-Toluene	2014/04/23	98	70 - 130	99	70 - 130	96	%		
3578787	Acetone (2-Propanone)	2014/04/23	107	60 - 140	97	60 - 140	ND, RDL=10	ug/L		
3578787	Benzene	2014/04/23	100	70 - 130	101	70 - 130	ND, RDL=0.20	ug/L	NC	30
3578787	Bromodichloromethane	2014/04/23	102	70 - 130	104	70 - 130	ND, RDL=0.50	ug/L		
3578787	Bromoform	2014/04/23	104	70 - 130	104	70 - 130	ND, RDL=1.0	ug/L		
3578787	Bromomethane	2014/04/23	106	60 - 140	108	60 - 140	ND, RDL=0.50	ug/L		
3578787	Carbon Tetrachloride	2014/04/23	102	70 - 130	105	70 - 130	ND, RDL=0.20	ug/L		
3578787	Chlorobenzene	2014/04/23	100	70 - 130	102	70 - 130	ND, RDL=0.20	ug/L		
3578787	Chloroform	2014/04/23	100	70 - 130	103	70 - 130	ND, RDL=0.20	ug/L		
3578787	Dibromochloromethane	2014/04/23	107	70 - 130	108	70 - 130	ND, RDL=0.50	ug/L		
3578787	1,2-Dichlorobenzene	2014/04/23	97	70 - 130	100	70 - 130	ND, RDL=0.50	ug/L		
3578787	1,3-Dichlorobenzene	2014/04/23	94	70 - 130	97	70 - 130	ND, RDL=0.50	ug/L		
3578787	1,4-Dichlorobenzene	2014/04/23	93	70 - 130	96	70 - 130	ND, RDL=0.50	ug/L		
3578787	Dichlorodifluoromethane (FREON 12)	2014/04/23	97	60 - 140	99	60 - 140	ND, RDL=1.0	ug/L		
3578787	1,1-Dichloroethane	2014/04/23	102	70 - 130	104	70 - 130	ND, RDL=0.20	ug/L		
3578787	1,2-Dichloroethane	2014/04/23	104	70 - 130	106	70 - 130	ND, RDL=0.50	ug/L		
3578787	1,1-Dichloroethylene	2014/04/23	107	70 - 130	110	70 - 130	ND, RDL=0.20	ug/L		
3578787	cis-1,2-Dichloroethylene	2014/04/23	97	70 - 130	98	70 - 130	ND, RDL=0.50	ug/L		
3578787	trans-1,2-Dichloroethylene	2014/04/23	97	70 - 130	99	70 - 130	ND, RDL=0.50	ug/L		
3578787	1,2-Dichloropropane	2014/04/23	99	70 - 130	101	70 - 130	ND, RDL=0.20	ug/L		
3578787	cis-1,3-Dichloropropene	2014/04/23	100	70 - 130	101	70 - 130	ND, RDL=0.30	ug/L		
3578787	trans-1,3-Dichloropropene	2014/04/23	105	70 - 130	105	70 - 130	ND, RDL=0.40	ug/L		
3578787	Ethylbenzene	2014/04/23	93	70 - 130	94	70 - 130	ND, RDL=0.20	ug/L	NC	30
3578787	Ethylene Dibromide	2014/04/23	106	70 - 130	106	70 - 130	ND, RDL=0.20	ug/L		
3578787	Hexane	2014/04/23	94	70 - 130	97	70 - 130	ND, RDL=1.0	ug/L		
3578787	Methylene Chloride (Dichloromethane)	2014/04/23	107	70 - 130	108	70 - 130	ND, RDL=2.0	ug/L		
3578787	Methyl Isobutyl Ketone	2014/04/23	102	70 - 130	100	70 - 130	ND, RDL=5.0	ug/L		
3578787	Methyl Ethyl Ketone (2-Butanone)	2014/04/23	115	60 - 140	109	60 - 140	ND, RDL=10	ug/L		
3578787	Methyl t-butyl ether (MTBE)	2014/04/23	98	70 - 130	98	70 - 130	ND, RDL=0.50	ug/L	NC	30
3578787	Styrene	2014/04/23	97	70 - 130	101	70 - 130	ND, RDL=0.50	ug/L		
3578787	1,1,1,2-Tetrachloroethane	2014/04/23	104	70 - 130	105	70 - 130	ND, RDL=0.50	ug/L		

Maxxam Job #: B461969
 Report Date: 2014/04/24

 MMM Group Limited
 Client Project #: 3277670
 Site Location: YONGE SUBWAY EXTENSION
 Your P.O. #: 3277670-000-800-094

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3578787	1,1,1,2-Tetrachloroethane	2014/04/23	102	70 - 130	103	70 - 130	ND, RDL=0.50	ug/L		
3578787	Tetrachloroethylene	2014/04/23	109	70 - 130	110	70 - 130	ND, RDL=0.20	ug/L		
3578787	Toluene	2014/04/23	96	70 - 130	99	70 - 130	ND, RDL=0.20	ug/L	NC	30
3578787	1,1,1-Trichloroethane	2014/04/23	99	70 - 130	102	70 - 130	ND, RDL=0.20	ug/L		
3578787	1,1,2-Trichloroethane	2014/04/23	100	70 - 130	99	70 - 130	ND, RDL=0.50	ug/L		
3578787	Trichloroethylene	2014/04/23	103	70 - 130	105	70 - 130	ND, RDL=0.20	ug/L		
3578787	Vinyl Chloride	2014/04/23	100	70 - 130	102	70 - 130	ND, RDL=0.20	ug/L		
3578787	p+m-Xylene	2014/04/23	92	70 - 130	95	70 - 130	ND, RDL=0.20	ug/L	NC	30
3578787	o-Xylene	2014/04/23	93	70 - 130	96	70 - 130	ND, RDL=0.20	ug/L	NC	30
3578787	Trichlorofluoromethane (FREON 11)	2014/04/23	105	70 - 130	108	70 - 130	ND, RDL=0.50	ug/L		
3578787	Xylene (Total)	2014/04/23					ND, RDL=0.20	ug/L	NC	30
3579604	Free Cyanide	2014/04/22	111	80 - 120	109	80 - 120	ND, RDL=2	ug/L	NC	20
3579733	Dissolved Antimony (Sb)	2014/04/22	111	80 - 120	107	80 - 120	ND, RDL=0.50	ug/L		
3579733	Dissolved Arsenic (As)	2014/04/22	113	80 - 120	107	80 - 120	ND, RDL=1.0	ug/L		
3579733	Dissolved Barium (Ba)	2014/04/22	108	80 - 120	106	80 - 120	ND, RDL=2.0	ug/L		
3579733	Dissolved Beryllium (Be)	2014/04/22	112	80 - 120	108	80 - 120	ND, RDL=0.50	ug/L		
3579733	Dissolved Boron (B)	2014/04/22	115	80 - 120	112	80 - 120	ND, RDL=10	ug/L		
3579733	Dissolved Cadmium (Cd)	2014/04/22	110	80 - 120	107	80 - 120	ND, RDL=0.10	ug/L		
3579733	Dissolved Chromium (Cr)	2014/04/22	113	80 - 120	107	80 - 120	ND, RDL=5.0	ug/L		
3579733	Dissolved Cobalt (Co)	2014/04/22	110	80 - 120	105	80 - 120	ND, RDL=0.50	ug/L		
3579733	Dissolved Copper (Cu)	2014/04/22	107	80 - 120	104	80 - 120	ND, RDL=1.0	ug/L		
3579733	Dissolved Lead (Pb)	2014/04/22	107	80 - 120	104	80 - 120	ND, RDL=0.50	ug/L		
3579733	Dissolved Molybdenum (Mo)	2014/04/22	110	80 - 120	105	80 - 120	ND, RDL=0.50	ug/L		
3579733	Dissolved Nickel (Ni)	2014/04/22	109	80 - 120	105	80 - 120	ND, RDL=1.0	ug/L		
3579733	Dissolved Selenium (Se)	2014/04/22	112	80 - 120	106	80 - 120	ND, RDL=2.0	ug/L		
3579733	Dissolved Silver (Ag)	2014/04/22	106	80 - 120	102	80 - 120	ND, RDL=0.10	ug/L		
3579733	Dissolved Sodium (Na)	2014/04/22	110	80 - 120	109	80 - 120	ND, RDL=100	ug/L	1.4	20
3579733	Dissolved Thallium (Tl)	2014/04/22	111	80 - 120	107	80 - 120	ND, RDL=0.050	ug/L		
3579733	Dissolved Uranium (U)	2014/04/22	111	80 - 120	106	80 - 120	ND, RDL=0.10	ug/L		
3579733	Dissolved Vanadium (V)	2014/04/22	110	80 - 120	105	80 - 120	ND, RDL=0.50	ug/L		
3579733	Dissolved Zinc (Zn)	2014/04/22	107	80 - 120	104	80 - 120	ND, RDL=5.0	ug/L		
3580407	1,4-Difluorobenzene	2014/04/23	101	70 - 130	100	70 - 130	100	%		
3580407	4-Bromofluorobenzene	2014/04/23	99	70 - 130	101	70 - 130	98	%		
3580407	D10-Ethylbenzene	2014/04/23	103	70 - 130	99	70 - 130	111	%		
3580407	D4-1,2-Dichloroethane	2014/04/23	98	70 - 130	100	70 - 130	101	%		

Maxxam Job #: B461969
 Report Date: 2014/04/24

MMM Group Limited
 Client Project #: 3277670
 Site Location: YONGE SUBWAY EXTENSION
 Your P.O. #: 3277670-000-800-094

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3580407	F1 (C6-C10)	2014/04/23	75	70 - 130	87	70 - 130	ND, RDL=25	ug/L	NC	30
3580407	F1 (C6-C10) - BTEX	2014/04/23					ND, RDL=25	ug/L	NC	30

N/A = Not Applicable

RDL = Reportable Detection Limit

RPD = Relative Percent Difference

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.


Validation Signature Page

Maxxam Job #: B461969

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere

Cristina Carriere, Scientific Services

Ewa Pranjic



Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Medhat Riskallah

Medhat Riskallah, Manager, Hydrocarbon Department

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name: #8866 MMM Group Limited	Contact Name: Natalia Codoban	Company Name: <u>MMM Group</u>	Contact Name: <u>Saram Rahmawati / Natalia Codoban</u>	Quotation #: A72109	Project #: <u>3277670-000-800-094</u>	Maxxam Job #:	Bottle Order #:
Address: 2655 North Sheridan Way Suite 280 Mississauga ON L5K 2P8	Phone: (905) 823-4988 x1347 Fax: (905) 823-8503 x	Address: <u>2655 North Sheridan way Mississauga, ON</u>	Phone: <u>905-823-8500</u> Fax: <u>905-823-2669</u>	Project Name: <u>Vange subway Extension</u>	Site #: <u>S.R.</u>	Chain of Custody #:	Project Manager:
Email: CodobanN@mmm.ca, edd@mmm.ca		Email: <u>codoban@mmm.ca / rahmawati@mmm.ca</u>		Sampled By: <u>S.R.</u>			Jolanta Goralczyk

Regulation 153 (2011) <input type="checkbox"/> Table 1 <input type="checkbox"/> Table 2 <input checked="" type="checkbox"/> Table 3 <input type="checkbox"/> Table	Other Regulations <input type="checkbox"/> Res/Park <input checked="" type="checkbox"/> In/Comm <input type="checkbox"/> Agri/Other <input type="checkbox"/> For RSC <input type="checkbox"/> Medium/Fine <input type="checkbox"/> Coarse	Special Instructions <input type="checkbox"/> CCME <input type="checkbox"/> Reg 558 <input type="checkbox"/> MISA <input type="checkbox"/> PWQO <input type="checkbox"/> Other	<input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> Storm Sewer Bylaw Municipality _____	ANALYSIS REQUESTED (Please be specific): Turnaround Time (TAT) Required: Please provide advance notice for rush projects
Include Criteria on Certificate of Analysis (Y/N)? _____ Note: For MOE regulated drinking water samples - please use the Drinking Water Chain of Custody Form SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM				Regular (Standard) TAT: (will be applied if Rush TAT is not specified): Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) Date Required: _____ Time Required: _____ Rush Confirmation Number: _____ (call lab for #)

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	O.Reg 153 Metals & Inorganics Pkg (Wtr)	O.Reg 153 Petroleum Hydrocarbons (Water)	O.Reg 153 Volatile Organics (Water)	ANALYSIS REQUESTED (Please be specific)	# of Bottles	Comments
	MW 5	16/ Apr	4:10	water	N	N	✓	✓	✓	17-Apr-14 08:00 Jolanta Goralczyk B461969 MAF ENV-713	12	* please do not analyze Mercury
	MW 4	16/ Apr	3:00	water			✓	✓	✓		12	* please filter & preserve chromium VI & Dissolved metals

RELINQUISHED BY: (Signature/Print) <u>S. Rahmawati</u>	Date: (YY/MM/DD) <u>14/04/16</u>	Time: <u>8pm</u>	RECEIVED BY: (Signature/Print) <u>AKIA DABEL</u>	Date: (YY/MM/DD) <u>20/11/17</u>	Time: <u>08:00</u>	# jars used and not submitted	Laboratory Use Only				
							Time Sensitive	Temperature (°C) on Receipt <u>5.6°C</u>	Custody Seal	Yes	No
									Present		<u>✓</u>
									Intact		

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

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name: #8866 MMM Group Limited		Company Name: <u>MMM Group</u>		Quotation #: A72109		Maxxam Job #:	
Contact Name: Natalia Codoban		Contact Name: <u>Saram Rahmanian/Natalia Codoban</u>		P.O. #: <u>3277670-000-800-094</u>		Bottle Order #:	
Address: 2655 North Sheridan Way Suite 280		Address: <u>2655 North Sheridan way</u>		Project #: 3277670		466938	
Mississauga ON L5K 2P8		Mississauga, ON		Project Name: <u>large subway extension</u>		Chain of Custody #:	
Phone: (905) 823-4988 x1347 Fax: (905) 823-8503 x		Phone: <u>905-823-8500</u> Fax: <u>905-823-2669</u>		Site #: <u>S.R.</u>		Project Manager:	
Email: CodobanN@mmm.ca, edd@mmm.ca		Email: <u>CodobanN@mmm.ca, srahmanian@mmm.ca</u>		Sampled By: <u>S.R.</u>		Jolanta Goralczyk	

Regulation 153 (2011)		Other Regulations		Special Instructions		ANALYSIS REQUESTED (Please be specific):		Turnaround Time (TAT) Required:	
<input type="checkbox"/> Table1	<input type="checkbox"/> Res/Park	<input checked="" type="checkbox"/> Medium/Fine	<input type="checkbox"/> CCME	<input type="checkbox"/> Sanitary Sewer Bylaw	Regulated Drinking Water? (Y/N) <u>(N)</u>	17-Apr-14 08:00 Jolanta Goralczyk B461969 MAF ENV-713		Please provide advance notice for rush projects	
<input type="checkbox"/> Table2	<input checked="" type="checkbox"/> Ind/Comm	<input type="checkbox"/> Coarse	<input type="checkbox"/> Reg 558	<input type="checkbox"/> Storm Sewer Bylaw				<input checked="" type="checkbox"/> Regular (Standard) TAT:	
<input checked="" type="checkbox"/> Table3	<input type="checkbox"/> Agri/Other	<input type="checkbox"/> For RSC	<input type="checkbox"/> MISA	Municipality _____				(will be applied if Rush TAT is not specified):	
<input type="checkbox"/> Table			<input type="checkbox"/> PWQO	Other _____				Standard TAT = 5-7 Working days for most tests.	

Note: For MOE regulated drinking water samples - please use the Drinking Water Chain of Custody Form

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

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water? (Y/N)	Metals Field Filtered? (Y/N)	O. Reg 153 Metals & Inorganics (Pkg (Wtr))	O. Reg 153 Petroleum Hydrocarbons (Water)	O. Reg 153 Volatile Organics (Water)	# of Bottles	Comments
1	MW 5	16/ APR	4:10	water			✓	✓	✓	12	* please do not analyze Mercury
2	MW 4	16/ APR	3:00	water			✓	✓	✓	12	* please filter & preserve chromium VI & Dissolved metals
3											
4											
5											
6											
7											
8											
9											
10											

*RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time:	# jars used and not submitted	Laboratory Use Only				
<u>S. Kohen</u>		14/04/16	8pm	<u>ASD ALMA ASBEL</u>		20/04/17	08:00		Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	No
										51.6°C	Present		✓
											Intact		

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

White: Maxxam Yellow: Client

STANDARD LIMITATIONS

ENVIRONMENTAL INVESTIGATIONS and CHARACTERIZATION PROGRAMS

These Standard Limitations form part of the Report to which they are appended and any use of the Report is subject to them.

1. EXCLUSIVE USE BY CLIENT

This Report was prepared for the exclusive use of the client identified as the intended recipient. Any use of the Report by any other party without the written consent of MMM Group Limited is the sole responsibility of such party. MMM Group Limited accepts no responsibility for damages that may be suffered by any third party as a result of decisions made or actions taken based on the Report.

2. SCOPE, TERMS AND CONDITIONS OF CONTRACT

The observations and investigations (hereinafter referred to as the "Work") upon which this Report is based were carried out in accordance with the scope, terms and conditions of the contract or the proposal pursuant to which the Work was commissioned. The conclusions presented in the Report are based solely upon the scope of services described in the contract or the proposal and governed by the time and budgetary constraints imposed by them.

3. STANDARD OF CARE

The principles, procedures and standards relevant to the nature of the services performed are not universally the same. The Work has been carried out in accordance with generally accepted environmental study and/or professional practices, industry standards and environmental regulations, where applicable. No other warranties are either expressed or implied with respect to the professional services provided under the terms of the contract or the proposal and represented in this Report.

4. SCOPE OF THE WORK

This Report may be based in part on information obtained at discrete sampling and/or monitoring locations. The conditions reported herein were those encountered at the subject property at the time the Work was performed and as present at the discrete sampling/monitoring locations, if any.

Conditions between sampling/monitoring locations may be different than those encountered at the sampling/monitoring locations and MMM Group Limited is not responsible for such differences.

5. REASONABLE CONCLUSIONS

The conclusions contained in this Report are based on the Work and may also consider a review of information from other sources as identified in the Report. The accuracy of information from other sources was not verified unless specifically noted in the Report, nor was it determined if the reviewed information constituted all information that exists and pertains to the subject property.

The conclusions made are based on reasonable and professional interpretation of the information considered. If additional information concerning conditions of relevance to this Report is obtained during future work at the subject property, MMM Group Limited should be notified in order that we may determine if modifications to the conclusions presented in this Report are necessary.

6. REPORT AS A COMPLETE DOCUMENT

This Report must be read as a whole and sections taken out of context may be misleading. If discrepancies occur between the preliminary (draft) and final versions of the Report, the final version of the report shall take precedence.

7. LIMITS OF LIABILITY

MMM Group Limited's liability with respect to the Work is limited to re-performing, without cost, any part of the Work that is unacceptable solely as a result of failure to comply with industry standards. MMM Group Limited's maximum liability is limited in accordance with terms in the original contract, provided that notice of claim is made within regulated timelines as of the date of delivery of the Report.