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PHASE TWO ENVIRONMENTAL ASSESSMENT
INVESTIGATION OF SUBSURFACE SOIL AND GROUNDWATER CONDITIONS

For the subject property located at

401 March Road,
Ottawa, Ontario

Prepared for:
Starbank Developments
329 Brooke Avenue
Toronto, Ontario M5M 2L4

Project No. 1609-13

October 30th, 2013

EXECUTIVE SUMMARY

Our firm reviewed a Phase One Environmental Site Assessment (ESA1) prepared by Houle Chevrier Engineering for the subject site at 401 March Road, in Ottawa, Ontario. The ESA1 Report dated September 2013 was prepared for Starbank Properties Corporation (the client) and purchaser of the subject site. The ESA1 Report confirmed that the subject site is vacant and undeveloped land, originally part of a larger farmland property. The adjacent and neighbouring properties that now support large commercial office uses were previously farmland as well.

The site reconnaissance and review of topographical materials indicated that a significant quantity of imported fill, from unknown sources, was placed on the subject site, likely about four (4) feet in depth. Also, an established rail line was observed on raised bed of land, immediately south of the subject site.

A Phase Two Environmental drilling program (ESA2) was recommended to assess the condition of the fill for evidence of environmental impacts; to assess the subsurface soil at the south part of the site for possible impacts from the rail line; and to assess potential impacts to the native top soil. Also, the ESA2 study would assess the ambient local shallow groundwater for possible impacts from the fill, the rail line operations, or possibly drainage residues from the neighbouring sites or roadways.

Our firm was subsequently retained by the client to carry out the recommended ESA2 for the subject site, and the field investigations were carried out between October 9th and October 16th, 2013. The scope of the ESA2 field work consisted of the strategic placement of 16 boreholes in the exterior land; the installation of 11 groundwater monitoring wells at selected test locations; and the collection and field testing of 84 soil and groundwater samples for evidence of environmental impacts.

In this study, a total of 43 selected soil selected soil samples and 19 selected groundwater samples submitted to the lab for specific chemical testing including Petroleum Hydrocarbons F2-F4 (PHC F2-F4); Volatile Organic Compounds (VOCs); Polychlorinated Biphenols (PCBs); MOE regulated Metals; and Organochlorinated Pesticides.

The lab test results confirmed no significant chemical impacts to site soil or groundwater in excess of the applicable Ministry of the Environment (MOE) 2011 Standards, at the test locations consistent with field tests and site observations.

From our review of the ESA1 Report and the recent ESA2 Report findings, we are of the opinion that no further environmental investigations of subsurface soil and groundwater conditions at the site are necessary or warranted.

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October 30th, 2013 Project No. 1609-13

CLIENT FOR THE SUBJECT PROPERTY:
Starbank Developments
329 Brooke Avenue
Toronto, Ontario M5M 2L4
Attention: Mr. Dung Lam

SUBJECT SITE: 401 March Road, Ottawa, Ontario

Dear Sir:

1.0 INTRODUCTION

As you know, The Environment Management Group Ltd. (EMG) is a Toronto-based environmental consulting firm. We a team of professionals with over twenty five years of experience in a wide variety of environmental projects and issues. A four-page excerpt of supplementary information from our company profile has been provided in Appendix 10 of this report.

1.1 OBJECTIVE

The general purposes of the Phase Two Environmental Site Assessment (ESA2) is to assess the current subsurface soil and groundwater conditions at the subject site as recommended in the ESA1 Report prepared by Houle Chevrier Engineers (September 2013) and as recommended by our firm following our review of that ESA1 Report. All ESA2 work would be carried out in accordance with the prevailing Ministry of the Environment (MOE) 2011 Standards.

1.2 BACKGROUND

The subject site with the municipal address 401 March Road is located in the west end of Ottawa, Ontario. Refer to the Location Key Map in Appendix 1.

As mentioned earlier, an ESA1 Report was recently completed for the subject site by Houle Chevrier Engineer. The report descriptor is provided below:

- *Phase 1 Environmental Site Assessment*, dated September 2013, prepared by Houle Chevrier Engineers, for Starbank Development Corporation

Our firm was provided with a copy of this ESA1 Report from the client for our review and general environmental recommendations. A summary of the ESA1 Report findings is presented below:

- The ESA1 Report confirmed that the subject site is vacant and undeveloped land, originally part of a larger farmland property;

- The adjacent and neighbouring properties that now support large commercial office uses were previously farmland as well;

- The site reconnaissance and review of topographical support materials indicated that a significant quantity of imported fill, from unknown sources, was placed on the subject site, likely about four (4) feet in depth;

- The ESA1 Report noted that an established rail line was located in the south adjacent property, in close proximity to the south property line of the subject site;

- From the cursory viewing of the subject lands, were covered with tall wild grasses and several mature trees, there was no evidence of significant chemical spills or stains that would cause visible impacts to most types of vegetation; and,

- From the site inspection, there was no evidence of storage drums or storage tanks on the subject lands, and no visible evidence of stockpiled construction debris or foreign materials that might raise a potential environmental concern.

A Phase Two Environmental drilling program (ESA2) was recommended in the ESA1 Report to assess the subsurface soil and groundwater conditions related to the fill that was placed on the subject site.

Following our review of the ESA1 Report, we recommended that an ESA2 Study should be carried out to assess the mixed fill soil for evidence of environmental impacts; to assess the subsurface soil at the south part of the site for possible impacts from the rail line; and to assess the top soil for possible impacts from historical use of Pesticides or Lead-based sprays.

Also, the proposed ESA2 study would include an assessment of the ambient local shallow groundwater for possible impacts from the fill, the top soil, and the rail line operations, as well as possible drainage residues from the neighbouring sites or roadways onto the subject site.

Our firm was subsequently retained by the client to carry out the recommended ESA2 for the subject site, and details pertaining to the ESA2 field work, and lab testing and analysis follow.

1.3 SITE DESCRIPTION

The subject site with the municipal address 402 March Road is located on the southwest corner of March Road and Station Road, in the west end of Ottawa, Ontario.

LEGAL DESCRIPTION: The legal description for the subject site is : Part of Lot 6, Concession 3, Township of March (now Kanata), Regional Municipality of Ottawa- Carelton, Province of Ontario. A copy of the Site Survey Plan is provided in Appendix 2 of this report.

SUBJECT LOT: The subject property is about 1.4 hectares (3.4 acres) in size and is located On the west side of March Road. The site is undeveloped, vacant land with no building or structures on the site. The subject site is rectangular in shape with frontage of about 98 metres along March Road and 168 metres along Station Road.

ADJACENT PROPERTIES: As mentioned earlier, the south adjacent land is a Canadian National Railway Corridor supporting an active rail line on a raised soil berm, located in close proximity to the south property line of the subject site. The north adjacent site and the east and south neighbouring properties support large commercial office type buildings. The lands immediately west of the subject site support undeveloped land. Refer to the recent *Aerial Photograph* in Appendix 1 of this report.

1.4 SCOPE OF WORK

The work program for the ESA2 at the subject property consisted of the following activities:

- Arranging public utility locates with Ontario One Call, and also retaining the services of a private contractor, to determine the location of underground services including natural gas pipes, electrical wires, sewer pipes, water supply lines, telephone and communication cables;

- Advancing 16 boreholes in the exterior lands, at site specific locations, using a tract mounted drill rig fitted with a split spoon soil sampler;

- Installing groundwater monitoring wells in 11 of the boreholes to allow for the sampling of groundwater in this ESA2 study;

- Examination of extracted soil cores, and field testing of 68 selected and/or suspect soil samples for evidence of environmental impacts using a PID (Photo-Ionization Detector). Our firm utilizes a MiniRae 3000 series PID (details of performance and detection sensitivity are presented later in the report). Also, 16 water samples were field tested for evidence of chemical residues and environmental impacts. ;

- A laboratory testing program, carried out by Paracel Laboratories, an MOE accredited laboratory (hereafter referred to as *the lab)*, which included the testing of 43 selected representative or suspect soil and/or 19 groundwater samples for Total Petroleum Hydrocarbons (PHCs) in the F2 to F4 fractions, MOE regulated Metals, Volatile Organic Compounds (VOCs), Polychlorinated Biphenols (PCBs), and Organochlorine Pesticides;

- Measurement of stabilized groundwater levels in all 11 monitoring wells;

- Comparing the soil and groundwater laboratory analytical test results with the applicable criteria as stipulated by the MOE in *Soil, Ground Water and Sediment*

Standards for Use Under Part XV.1 of the Environmental Protection Act, July 2011; and,

- Analyses of the lab test results and the preparation of the ESA2 report including all support materials - Borehole Logs, a Borehole and Monitoring Well Location Plan, the Laboratory Test Results, and Comparison Tables of Lab Test Results and the applicable MOE Standards.

2.0 METHODOLOGY

The field work for the ESA2 Study was carried out between October 9th and October 16th, 2013.

Field work consisted of the layout of all boreholes/ test locations; clearing underground services; drilling, and field testing of extracted soil samples for evidence of impacts, including the use of a PID; installation of groundwater monitoring wells at pre-selected boreholes; and the collecting of selected soil and groundwater samples, for later laboratory analysis. Selected photographs of the ESA2 field work are provided in Appendix 3.

All work was carried out by, or under the direction and supervision of EMG field staff.

2.1 BOREHOLE INVESTIGATIONS

The field investigation and sampling was conducted in general conformity with MOE requirements under *Soil, Ground Water and Sediment Standards for Use* under Part XV.1 of the *Environment Protection Act*, effective July 2011; the MOE's *Guideline on Sampling and Analytical Methods for Use at Contaminated Sites In Ontario,* December 1996; and *Generally Accepted Standards for Environmental Investigations,* April 1993, Consulting Engineers of Ontario.

The ESA2 drilling program was undertaken on October 9th, 2013. The boreholes were advanced across the subject site to address the potential environmental concerns raised in the previous ESA1 Report and by our firm following the review of the ESA1 Report prepared by others.

As mentioned earlier, we recommended an ESA2 drilling program A Phase to assess the condition of the fill for evidence of environmental impacts; to assess the subsurface soil at the south part of the site for possible impacts from the rail line; and to assess potential impacts to the native top soil. Also, the ESA2 study would assess the ambient local shallow groundwater for possible impacts from the fill, the rail line operations, or possibly drainage residues from the neighbouring sites or roadways.

In this ESA2 study, a total of 16 boreholes were drilled at subject site. For discussion purposes, the site was divided into five (5) general work areas and the distribution of boreholes is as follows:

Area 1 was locate along the south end of the site in close proximity to the Canadian Pacific Rail corridor on the south adjacent site (MW102, MW103, MW106). Area 2 represents testing at the east end of the site (MW105, BH116). Area 3 was located at the north end of the site adjacent to Station Road (MW101, MW104, MW107, MW111). Area 4 is the land at the east end of the site adjacent to March Road (MW109, MW110). Area 5 is the mid area of the site not covered by the other 4 areas (MW108, BH112, BH113, BH114, BH115).

Refer to the *Borehole and Monitoring Well Location Plan* in Appendix 4 of this report for the approximate location for each borehole at the subject site.

All of the boreholes in this ESA2 study were advanced using a tract mounted drill rig fitted with a split spoon sampler that was used for the extraction of soil cores.

Each soil core was examined and field tested for visual, tactile, or olfactory indicators of environmental impacts.

Soil samples were further analyzed in the field for VOCs, where suspected, utilizing a PID (Photo-Ionization Detector), more specifically a MiniRae 3000 portable handheld VOC monitor. The PID detector is calibrated to Isobutylene, and is equipped with a 10.6 eV lamp with a detection range of 0 ppm (parts per million) to 10,000 ppm. To be clear, the PID readings will be a total of all organic and inorganic compounds with an ionization potential of 10.6 eV or less- it does not distinguish between compounds.

The field testing procedure consists of the collection a soil sample that is placed into a clean plastic bag that is sealed in such a way that there is enough air space (*headspace*) above the sample. The soil sample is agitated to thoroughly mix the soil sample with the headspace air within the jar. The soil sample is ideally equilibrated to room temperature (25C).

The air in the headspace is sampled with the PID through the sample bag wall. Digital readings are provided by the PID expressed in ppm, that are recorded in the EMG borehole logs. Sensitivity and accuracy of the PID depends on several variables including ambient air and soil sample temperature, soil type, and moisture content, as well as the VOC chemical type and concentration in the test sample.

The PID readings were recorded in the field and used to assist EMG staff in the selection of *worst case soil samples* to be forwarded to the lab for specific chemical analysis for VOCs, or PHCs, where applicable. These VOC readings were also used for future reference purposes when reviewing the analytical test results from the laboratory.

Discrete soil samples were collected from each soil core, placed in sterile glass jars then logged at the site by EMG field staff as to borehole location and sampling depth (expressed in inches below the adjacent ground). BH112-54, for example, refers to a soil sample collected at borehole location BH112, at a depth of 54 inches below the adjacent ground. If a groundwater well were installed at borehole BH112, then it would be referred to in this study as MW112.

Details of the soil stratigraphy encountered in each borehole is documented in the *Borehole Logs* (in Appendix 5) that include soil type, consistency, colour, and moisture characteristics and, where applicable, reference to staining, discoloration, odour, and/or foreign debris. The logs include the soil sample number and approximate depth for all samples submitted to the lab, and the type of laboratory analysis where a sample is tested.

2.2 MONITORING WELL PROGRAM

Groundwater monitoring wells were installed in 11 of the boreholes (MW1 to MW11, inclusive). Refer to the *Borehole and Monitoring Well Location Plan* in Appendix 4 for the approximate location for each of the groundwater monitoring wells installed at the subject site.

Each monitoring well was constructed with 2.0 inch (interior) diameter, flush threaded PVC riser(s), followed by a 5-foot length of 2.0-inch diameter No.10 slotted PVC screen that traversed the local shallow groundwater table. The screen was sealed using a threaded pointed cap, while the top of the riser was capped.

Silica/ filter sand was placed around and above (about 12 inches) the screen portion of the well , followed by a layer of Bentonite to within four (4) inches of the ground surface. An aluminum cover was installed over the riser pipe, flush to the ground surface, and cemented in place.

Typically, groundwater levels are obtained using a Dipper-T Water Level Meter that complies with US GGG-T-106E EEC Class II for tape accuracy. The probe tape is cleaned with distilled water and antiseptic liquid soap prior to each measurement.

The groundwater levels were measured on October 16th, 2013 at 10 of the 11 monitoring wells installed at the site in this ESA2 study. The placement of groundwater monitoring wells among the 16 boreholes advanced at the subject site in this ESA2 Study is presented below.

Area 1 was locate along the south end of the site in close proximity to the Canadian Pacific Rail corridor on the south adjacent site (MW102, MW103, MW106). Area 2 represents testing at the east end of the site (MW105). Area 3 was located at the north end of the site adjacent to Station Road (MW101, MW104, MW107, MW111). Area 4 is the land at the east end of the site adjacent to March Road (MW109, MW110). Area 5 is the mid area of the site not covered by the other 4 areas (MW108).

Following installation, each monitoring well was instrumented with a dedicated inertial sampler compromising low density polyethylene tubing and a foot valve that is used to extract a sample(s) of the local shallow groundwater from each well unit. The tubing and foot value remain in each well until the investigation is complete, then safely discarded.

Approximately three (3) well volumes of water were moved from each monitoring well, except where prevented due to slow groundwater recovery, prior to the collection of groundwater samples. Groundwater samples were collected in accordance with standard field practices, and placed in appropriate sterile glass vials or bottles, then logged at the site as to monitoring well location.

2.3 SOIL SAMPLING AND LABORATORY TESTS

All of the laboratory analysis of soil samples was carried out by Maxxam Analytics *(the lab)*, an independent, an MOE approved environmental testing centre.

All soil samples are first subjected to field testing for visual, tactile, or olfactory indicators of environmental impacts. Suspect soil samples are further screened in the field for PHCs and VOCs (includes BTEXs) using an PID to measure volatile vapour concentrations.

Volatile vapour concentrations were measured using the PID on 68 selected soil samples in the pre-lab selection process. When PID readings coupled with visual and /or olfactory considerations indicate the presence of PHCs, or VOCs at any borehole, then at least one

worst case soil sample must collected at that borehole and submitted to the lab for testing for PHCs , and VOCs.

In this ESA2 study, a total of 43 selected and/or suspect soil samples were collected from the boreholes and submitted to the lab for specific chemical testing, as noted in the following table:

Lab Analysis	**Borehole No.**	**Borehole Location & Number of Soil Samples Lab Tested**				
		East Part	**Mid Area**	**North Part**	**South Part**	**West Part**
Metals	MW102, MW106 ,MW110, BH113, BH115, BH116	2	3	1	3	3
Metals Extended	MW101, MW103, MW108		1	1	1	
Pesticides	MW101, MW102, MW103, MW104, MW107, MW109, MW110	3	0	2	2	
PHCs F2-F4	MW109,MW110, MW105, MW106, MW108, BH113	2	2		1	1
VOCs	MW101, MW102, MW109	1		1	1	
PCBs	MW109, MW104	1		1		
PAH	MW101, MW102, MW103			1	2	
	TOTALS	9	6	7	10	4

As per the above table, in this ESA2 study there has been good general coverage of all areas of the subject site for the recommended lab test parameters. An *Overview of the Laboratory Testing* for all soil and groundwater samples in this ESA2 study is presented in Appendix 6. To preserve PHCs in soil samples, each sample is typically placed in Teflon sealed, sterile glass jars provided by the lab, then stored and transported in chilled, insulated containers.

The *Borehole Technical Logs* presented in Appendix 5 also include the type of laboratory analysis when a soil sample is tested at the laboratory.

2.4 GROUNDWATER SAMPLING AND LABORATORY TESTS

All of the laboratory analysis of groundwater samples was carried out by Paracel Laboratories *(the lab)*, an independent, an MOE approved environmental testing centre.

As mentioned earlier, groundwater monitoring wells were installed in 11 of the 16 boreholes advanced across the subject site. In this study, there was sufficient groundwater available at

all wells to facilitate the required purging of water; groundwater collection for field testing; and groundwater collection for proposed lab tests at each well location.

The groundwater samples were collected in the field on October 16th, 2013 and submitted to the lab for specific chemical test the same day, as summarized below:

Lab Analysis	**Monitoring Well No.**	**Monitoring Well Location & Number of Groundwater Samples Lab Tested**				
		East Part	**Mid Area**	**North Part**	**South Part**	**West Part**
Metals	MW107, MW109, MW110	2		1		
Metals Extended						
Pesticides	MW106, MW108, MW110	1	1		1	
PHCs F2-F4	MW103, MW109	1			1	
VOCs	MW102,MW106, MW108		1		2	
PCBs						
PAH	MW106, MW111			1	1	
	TOTALS	4	2	2	5	

As per the above table, in this ESA2 study there has been good general coverage of all areas of the subject site for the recommended lab test parameters.

As noted earlier, an *Overview of the Laboratory Testing* for all soil and groundwater samples in this ESA2 study is provided in Appendix 6. To preserve PHCs in groundwater samples, each sample is placed in Teflon sealed, sterile glass vials or jars provided by the lab, then stored and transported in chilled, insulated containers. The *Borehole Technical Logs* in Appendix 5 also include the type of laboratory analysis when a groundwater sample is tested at the laboratory.

2.5 QA/QC PROTOCOLS

Quality assurance/ quality control (QA/QC) protocols were strictly followed during the ESA2 study to ensure that all soil and groundwater samples collected from boreholes and/or monitoring wells were properly and safely managed in the field and in transport to Maxxam Laboratories. Accordingly, the subsequent laboratory analyses and test results are considered reliable and representative of the conditions only at the test locations at the subject property.

Field protocols that were employed include:

- After each soil core is examined, and selected samples were field tested and/or placed in suitable glass jars (for later transport to the lab), the remaining core material was safely discarded and the metal split spoon sampler was thoroughly washed with Methyl Hydrate prior to re-use;

- Each soil sample was placed in a sterilized glass jar provided by the lab, then the jar was sealed and labeled with the soil sample name eg. BH1-15 or MW4-22, and the sample information was carefully noted on the borehole field log;

- The sample jars were then placed in a chilled insulated cooler, awaiting transport to the lab once that the current drilling program was completed. Specific amber coloured glass jars with Teflon sealed lids were provided by the lab to preserve PHCs or VOCs in soil samples;

- Once an PID test for volatile organic concentration was completed, the contents of the plastic bag used in field testing were safely discarded;

- EMG field staff used disposable nitrile gloves for the safe collection of groundwater samples at each monitoring well, which were discarded prior to sampling at other well locations, to prevent potential environmental cross-contamination;

- Groundwater samples were collected from each monitoring well using a length of dedicated polyethylene tubing and a foot valve. The tubing and foot valve remain in each well until the investigation is complete and the monitoring well is de-commissioned;

- Whenever feasible, approximately three (3) well volumes of water were removed from each monitoring well, to remove stagnant water and draw in water from the surrounding area, prior to the collection of representative groundwater samples;

- PHCs or VOCs in groundwater samples were preserved using special Teflon sealed caps, until field testing was completed;

- In general, sample collection and handling procedures were performed in conformity with the MOE *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario (*February 1997);

- For this ESA2 study, all soil samples were transported directly to Paracel Laboratories, in Ottawa, Ontario for immediate processing. Paracel Labs is accredited by the Standards Council of Canada for the testing of all required parameters as listed in Ontario Regulation 153/04 under the Environmental Protection Act; and,

- Analytical methods used by the laboratory are referenced in the *Certificates of Analysis* presented in Appendix 7 of this report for tested soil samples and Appendix 8 for tested water samples. All lab field collection, transport, and lab testing was completed in accordance with the MOE *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.I of the Environmental Protection Act* (July 2011).

3.0 RESULTS

3.1 SUBSURFACE CONDITIONS

Detailed soil stratigraphy encountered and inferred at each borehole location is presented in the *Borehole Technical Logs* in Appendix 5. It should be noted that the log data has been inferred from recovered soil samples, and the subsurface conditions may vary between and beyond the borehole and sampling locations.

Typically across the site, we encountered mixed clay fill (mixed clay and some gravel at one test location), varying in depth from 29 inches (northeast part of site) to 67inches (westerly part of the site), except for a deep pocket at one borehole (MW104) at 94 inches below grade. The mixed clayey fill was underlain by native undisturbed top soil that varied in thickness from 10 to about 18 inches. We have provided a drawing titled *Depth to Native Top Soil Plan* in Appendix 9 that illustrates the depth to native top soil on the site and the thickness of the top soil layer at each of our boreholes. We presume that this information will be very useful for review at a later date as the top soil will necessarily have to be removed beneath proposed site buildings, asphalt-covered driveway and parking lot areas, and sidewalks.

The native top soil layer was underlain by weathered silty clay, wet to saturated, as a result of a high stabilized water table on the property. This silty clay or clay layer was encountered to the maximum termination depth of our boreholes in this ESA2 study, at 25 feet below adjacent grade. The weathered silty clay became more compact with increased depth.

Also, 68 soil samples from extracted soil cores were field tested for possible environmental impacts. From our review of the soil core profiles, we did not encounter any construction debris or other foreign debris at an y of the boreholes. EMG staff did not report any visible or olfactory evidence of environmental impacts to either the fill soil or the native soil encountered at the subject site.

3.2 SUBSURFACE CONDITIONS – GROUNDWATER

As mentioned earlier, the groundwater levels were measured at 10 of the 11 wells installed on the subject site in this study. Depth to stabilized groundwater was measured on October 16th, 2013. The field data is presented in a table entitled *Groundwater Monitoring Data* presented in Appendix 9 of this report. Review of the water data reveal depth to shallow groundwater varying from 5.1 to 8.2 feet depth below adjacent grade. From our review of the field data, the inferred direction of groundwater flow across the subject site is northeasterly. Refer to the *Shallow Groundwater Flow Plan* in Appendix 9.

It should be noted that there was neither a visible sheen nor an olfactory evidence of hydrocarbon product in the groundwater during all field work including well purging and sample collection operations, from the monitoring wells in this ESA2 study. Also, there was no visible standing water at the site during the ESA2 study that may contain Petroleum -based residues.

3.3 APPLICABLE MOE GUIDELINE CRITERIA

Selected soil samples were submitted for laboratory analysis for presence and concentration of specific chemicals. The *Laboratory Certificates of Analyses for Soil* are provided in Appendix 7, and the *Laboratory Certificates of Analysis for Groundwater* are presented in Appendix 8.

For the current ESA2 Report, the analytical test results for the soil and groundwater samples were compared to the *Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition for Industrial/ Commercial Use* (Table 3) of the *Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (2011)* (hereafter referred to in this report as the *MOE Table 3 Standards*).

This ESA2 Study included a required Grain Size Analysis carried out by the lab to determine the appropriate criteria for assessing the soil and groundwater at the subject site under MOE Table 3 Standards. The lab test for Grain Size confirmed Medium-Fine textured soil criteria for the site soils. Refer to Appendix 9 of this report.

3.4 ANALYTICAL RESULTS – SOIL

All soil test results, presented in *The Certificates of Analysis* prepared by the lab, are presented in Appendix 7. The soil test results are presented in parts per million (ppm).

All soil samples that were collected in the field and submitted to the lab are noted on the *Borehole Logs* in Appendix 5, and the type of chemical analysis is provided when a sample is lab tested.

As mentioned earlier, the ESA2 field work included the examination of extracted soil cores, and field testing of 68 selected and/or suspect soil samples for evidence of environmental impacts using a PID (Photo-Ionization Detector). In this ESA2 study, there was no evidence of VOC impacts to any of the tested soil samples, and no visible or olfactory evidence of chemical impacts.

For this study, a lab testing program was carried out by Paracel Laboratories, an MOE accredited laboratory, which included the testing of 43 selected representative or suspect soil for Total Petroleum Hydrocarbons (PHCs) in the F2 to F4 fractions, MOE regulated Metals, Volatile Organic Compounds (VOCs), Polychlorinated Biphenols (PCBs), and Organochlorine Pesticides.

Tables comparing the soil test results to the applicable MOE 2011 Standards are presented in Appendix 7. As mentioned above, all soil test results are reported at concentrations, expressed as parts per million (ppm).

Upon completion of the field testing and lab program for soils, the following summary remarks have been made:

- The lab test results reveal low concentrations for MOE regulated Metals, generally consistent with Background Parameters for Ontario Soils. All lab test results for Metals were well below the applicable MOE 2011 Standards for the subject site;

- The lab results confirm no detectable concentrations for PHC F2-F4, VOC, and PAHs in the selected soil samples from among our ESA2 boreholes;

- Pesticides (Organochlorine Pesticides) were not detected in any of the soil samples collected from the native top soil layer across the subject site (formerly open farmland); and,

- PCBs were not detected in the selected soil samples that were tested in this ESA2 Study.

In sum, consistent with field tests, there was no evidence of significant chemical impacts in any of the fill soil or native soil samples extracted from boreholes in this ESA2 Study.

3.5 ANALYTICAL RESULTS – GROUNDWATER

All of the test results for groundwater samples are presented in *The Certificates of Analysis* prepared by Paracel Labs, and provided in Appendix 8 of this report. The groundwater lab test results are presented in parts per billion (ppb).

As mentioned earlier, 16 samples of groundwater were field tested for possible environmental impacts in the field prior to final selected of samples to be submitted to the lab for specific chemical tests. In this study, there was no evidence of chemical residues in water samples including visual and olfactory tests.

An *Overview of the Laboratory Testing* for Soil and Groundwater is presented in Appendix 6 of this report.

For this study, a lab testing program was carried out by Paracel Laboratories, an MOE accredited laboratory, which included the testing of 19 selected groundwater samples for Total Petroleum Hydrocarbons (PHCs) in the F2 to F4 fractions, MOE regulated Metals, Volatile Organic Compounds (VOCs), Polychlorinated Biphenols (PCBs), and Organochlorine Pesticides.

Tables comparing the groundwater test results to the applicable MOE 2011 Standards are presented in Appendix 8. As mentioned above, all groundwater test results are reported at concentrations, expressed as parts per billion (ppb).

Upon completion of the field testing and lab program for groundwater, the following summary remarks have been made:

- The lab test results reveal low concentrations for MOE regulated Metals, generally consistent with Ontario background parameters, and all lab test results for Metals were well below the applicable MOE 2011 Standards for the subject site;

- The lab results confirm no detectable concentrations for PHC F2-F4, VOC, and PAHs in either the shallow or deep groundwater samples, where tested, in this ESA2 Study;
- Pesticides (Organochlorine Pesticides) were not detected in the lab tested groundwater

samples in this study; and,

- PCBs were not detected in the selected shallow and groundwater samples that were tested in this ESA2 Study.

In sum, consistent with field tests, there was no evidence of significant chemical impacts in any of the shallow or deep groundwater well samples in this ESA2 Study. Also, there was no field evidence of Petroleum Hydrocarbon residues on the subject lands or in groundwater monitoring wells during well purging or water sampling activities during this ESA2 study.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Our firm reviewed a Phase One Environmental Site Assessment (ESA1) prepared by Houle Chevrier Engineering for the subject site at 401 March Road, in Ottawa, Ontario. The ESA1 Report dated September 2013 was prepared for Starbank Properties Corporation (the client) and purchaser of the subject site.

The ESA1 Report confirmed that the subject site is vacant and undeveloped land, originally part of a larger farmland property. The adjacent and neighbouring properties that now support large commercial office uses were previously farmland as well.

The ESA1 site reconnaissance and review of topographical materials indicated that a significant quantity of imported fill, likely about four (40 feet in depth, had been placed on the subject site. The source(s) of the fill is not known. Also, an established rail line was observed on a raised soil bed on the south adjacent property, in close proximity to the south property line of the subject site. The ESA1 Report recommended a Phase Two Environmental drilling program (ESA2) on the subject site

We recommended an ESA2 subsurface investigation to assess the site soils for impacts including an assessment of the fill from unknown sources; to assess the soil at the south part of the site in proximity to the rail line; and to assess potential impacts to the native top soil. Also, the ESA2 study would assess the ambient local shallow groundwater for possible impacts from the fill, the rail line operations, from possible Pesticide impacts in top soil, or possibly drainage residues from the neighbouring sites or roadways.

Our firm was subsequently retained by the client to carry out the recommended ESA2 for the subject site, and the field investigations were carried out between October 9th and October 16th, 2013.

The scope of the ESA2 field work consisted of the strategic placement of 16 boreholes in the exterior land; the installation of 11 groundwater monitoring wells at selected test locations; and the collection and field testing of 68 soil samples and 16 groundwater samples for evidence of environmental impacts.

In this study, a total of 43 selected soil selected soil samples and 19 selected groundwater samples were submitted to the lab for specific chemical testing including Petroleum Hydrocarbons F2-F4 (PHC F2-F4); Volatile Organic Compounds (VOCs); Polychlorinated Biphenols (PCBs); MOE regulated Metals; and Organochlorinated Pesticides .

The lab test results confirmed no significant chemical impacts to site soil or groundwater in excess of the applicable Ministry of the Environment (MOE) 2011 Standards, at the test locations consistent with field tests and site observations.

RECOMMENDATION:

From our review of the ESA1 Report and the recent ESA2 Report findings, we are of the opinion that no further environmental investigations of subsurface soil and groundwater conditions at the site are necessary or warranted.

The Environment Management Group is a Toronto-based consulting firm specializing in environmental issues. EMG has completed the field investigations and the laboratory testing and analysis in accordance with Ministry of the Environment Standards and the generally established practices for environmental investigations as required by Professional Engineers Ontario.

We warrant that the information enclosed in this report is true and accurate to the best of our knowledge including copies of all support materials found in the Appendices. There are limitations and conditions regarding the use and interpretation of this report. Refer to the *General Terms and Conditions for Contracted Services* in Appendix 10 of this report.

5.0 LIMITATIONS AND THE USE OF THIS REPORT

The Environment Management Group Ltd. (EMG) and affiliates and subcontractors have neither created nor contributed to the creation or existence of any type of hazardous waste or environmental contamination or pollution, whether latent or patent, or the release thereof or the violation of any law or regulation relating thereto, at the site of the Project or in connection with the Performance of the Project Work, and it is understood that EMG shall have no liability for any such condition.

EMG and its affiliates and subcontractors have performed all environmental services in a professional manner exercising all precaution, discretion and technical expertise as is expected of environmental consulting professionals in the performance of similar work and circumstances.

In the preparation of an environmental report including environmental assessments, audits, and compliance studies, all reasonable care is taken to access pertinent historical information from a variety of publications and document sources. EMG takes no responsibility for any errors or omissions in an environmental report or other site related studies due to inaccuracies or deficiencies in the available literature, or the absence of certain historical documents or records, or site features that are hidden from view or inaccessible for purposes of the on-site inspection.

The comments and recommendations presented in the Phase Two Environmental Site Assessments (ESA2) and Phase Three Environmental Assessments (ESA3) are based on the geological and chemical testing of samples gathered from bore holes, test pits, etc. from pre-determined area(s) of the site.

The reported information is believed to provide a reasonable representation of the general environmental conditions at the site, in the defined work area, however the data are collected at specific locations and conditions may vary at other locations. The environmental work is also limited to a study of those chemical parameters that have been specifically addressed in this report.

Due to the nature of environmental inquiry including and not limited to subsurface conditions of soil and groundwater, even the most rigorous professional inquiry and assessment may fail to identify all existing conditions of environmental risk, pollution, or contamination at the site.

EMG responsibility and liability is limited to the accurate interpretation of the current soil, chemical analysis, and groundwater conditions prevailing at the test locations and the depth at each boring. Accordingly, there is no warranty, expressed or implied, by EMG that all potential contaminants in subsurface soil or groundwater have been identified on the site.

EMG assumes no liability for injuries, claims, losses, expenses or damages whatsoever arising from the performance of the environmental work as a direct or indirect result of the uncovering and required disclosure and reporting of site contamination to the appropriate authorities.

Any and all additional environmental work required by the Client, government agency or others as a direct or indirect result of the Performance of the Agreement shall be negotiated with the Client as part and parcel of a new and separate contract for professional services.

The environmental report and related site work was conducted by EMG for the named client in this report only. EMG takes no responsibility or liability for the use or interpretation by third parties/ others regarding the contents of the report or the field work upon which it has been developed, without written consent. No reliance on the information contained in the report to persons or parties other than the named client is expressed or implied.

Any reproduction of this report, in whole or in part, by any parties without written consent from EMG is unlawful.

Finally, EMG has completed the environmental work at the subject property as of the date of the report. EMG has no control as to how the subject property or neighbouring properties are used or environmental outcomes that may directly or indirectly effect the site once that we have completed our contracted work at the subject property. Accordingly, EMG takes no responsibility or liability for the environmental conditions at the subject property after the date of this report.

6.0 CLOSURE

This project and report have been prepared in accordance with the terms of reference for this project, as agreed upon by the Client and our firm, and generally accepted environmental consulting practices. The reported information is believed to provide a reasonable representation of the general environmental conditions at the site, in the defined work area, however, as noted above, the data were collected at specific locations and conditions may vary at other locations. The ESA2 investigations were also limited to a study of those chemical parameters that have been specifically addressed in this report.

We trust that you will find the enclosed information satisfactory for your purposes.
Please direct any questions you may have regarding the contents of this report or related matters to the author(s) of this report.

Sincerely Yours,

Aaron Levine, M.A., MARP, CCEP
Head, Environmental Planning & Engineering

The Environment Management Group Ltd.
Environmental Planners, Consultants & Engineers

7.0 APPENDICES

EMG

THE ENVIRONMENT
MANAGEMENT GROUP LTD.

* *Environmental Site Assessments*
* *Subsurface Soil & Groundwater Studies*
* *Geotechnical Soil Investigations*
* *Planning Strategies & Cost Analysis*
* *Site Remediation & Project Management*

ENVIRONMENTAL PLANNERS, CONSULTANTS & ENGINEERS

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PHASE TWO ENVIRONMENTAL ASSESSMENT
INVESTIGATION OF SUBSURFACE SOIL AND GROUNDWATER CONDITIONS

For the subject property located at

401 March Road,
Ottawa, Ontario

Prepared for:
Starbank Developments
329 Brooke Avenue
Toronto, Ontario M5M 2L4

Project No. 1609-13

October 30th, 2013

EXECUTIVE SUMMARY

Our firm reviewed a Phase One Environmental Site Assessment (ESA1) prepared by Houle Chevrier Engineering for the subject site at 401 March Road, in Ottawa, Ontario. The ESA1 Report dated September 2013 was prepared for Starbank Properties Corporation (the client) and purchaser of the subject site. The ESA1 Report confirmed that the subject site is vacant and undeveloped land, originally part of a larger farmland property. The adjacent and neighbouring properties that now support large commercial office uses were previously farmland as well.

The site reconnaissance and review of topographical materials indicated that a significant quantity of imported fill, from unknown sources, was placed on the subject site, likely about four (4) feet in depth. Also, an established rail line was observed on raised bed of land, immediately south of the subject site.

A Phase Two Environmental drilling program (ESA2) was recommended to assess the condition of the fill for evidence of environmental impacts; to assess the subsurface soil at the south part of the site for possible impacts from the rail line; and to assess potential impacts to the native top soil. Also, the ESA2 study would assess the ambient local shallow groundwater for possible impacts from the fill, the rail line operations, or possibly drainage residues from the neighbouring sites or roadways.

Our firm was subsequently retained by the client to carry out the recommended ESA2 for the subject site, and the field investigations were carried out between October 9th and October 16th, 2013. The scope of the ESA2 field work consisted of the strategic placement of 16 boreholes in the exterior land; the installation of 11 groundwater monitoring wells at selected test locations; and the collection and field testing of 84 soil and groundwater samples for evidence of environmental impacts.

In this study, a total of 43 selected soil selected soil samples and 19 selected groundwater samples submitted to the lab for specific chemical testing including Petroleum Hydrocarbons F2-F4 (PHC F2-F4); Volatile Organic Compounds (VOCs); Polychlorinated Biphenols (PCBs); MOE regulated Metals; and Organochlorinated Pesticides.

The lab test results confirmed no significant chemical impacts to site soil or groundwater in excess of the applicable Ministry of the Environment (MOE) 2011 Standards, at the test locations consistent with field tests and site observations.

From our review of the ESA1 Report and the recent ESA2 Report findings, we are of the opinion that no further environmental investigations of subsurface soil and groundwater conditions at the site are necessary or warranted.

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PHASE TWO ENVIRONMENTAL ASSESSMENT OF SUBSURFACE SOIL AND GROUNDWATER CONDITIONS: UPDATE

October 30th, 2013 Project No. 1609-13

CLIENT FOR THE SUBJECT PROPERTY:
Starbank Developments
329 Brooke Avenue
Toronto, Ontario M5M 2L4
Attention: Mr. Dung Lam

SUBJECT SITE: 401 March Road, Ottawa, Ontario

Dear Sir:

1.0 INTRODUCTION

As you know, The Environment Management Group Ltd. (EMG) is a Toronto-based environmental consulting firm. We a team of professionals with over twenty five years of experience in a wide variety of environmental projects and issues. A four-page excerpt of supplementary information from our company profile has been provided in Appendix 10 of this report.

1.1 OBJECTIVE

The general purposes of the Phase Two Environmental Site Assessment (ESA2) is to assess the current subsurface soil and groundwater conditions at the subject site as recommended in the ESA1 Report prepared by Houle Chevrier Engineers (September 2013) and as recommended by our firm following our review of that ESA1 Report. All ESA2 work would be carried out in accordance with the prevailing Ministry of the Environment (MOE) 2011 Standards.

1.2 BACKGROUND

The subject site with the municipal address 401 March Road is located in the west end of Ottawa, Ontario. Refer to the Location Key Map in Appendix 1.

As mentioned earlier, an ESA1 Report was recently completed for the subject site by Houle Chevrier Engineer. The report descriptor is provided below:

- *Phase 1 Environmental Site Assessment*, dated September 2013, prepared by Houle Chevrier Engineers, for Starbank Development Corporation

Our firm was provided with a copy of this ESA1 Report from the client for our review and general environmental recommendations. A summary of the ESA1 Report findings is presented below:

- The ESA1 Report confirmed that the subject site is vacant and undeveloped land, originally part of a larger farmland property;

- The adjacent and neighbouring properties that now support large commercial office uses were previously farmland as well;

- The site reconnaissance and review of topographical support materials indicated that a significant quantity of imported fill, from unknown sources, was placed on the subject site, likely about four (4) feet in depth;

- The ESA1 Report noted that an established rail line was located in the south adjacent property, in close proximity to the south property line of the subject site;

- From the cursory viewing of the subject lands, were covered with tall wild grasses and several mature trees, there was no evidence of significant chemical spills or stains that would cause visible impacts to most types of vegetation; and,

- From the site inspection, there was no evidence of storage drums or storage tanks on the subject lands, and no visible evidence of stockpiled construction debris or foreign materials that might raise a potential environmental concern.

A Phase Two Environmental drilling program (ESA2) was recommended in the ESA1 Report to assess the subsurface soil and groundwater conditions related to the fill that was placed on the subject site.

Following our review of the ESA1 Report, we recommended that an ESA2 Study should be carried out to assess the mixed fill soil for evidence of environmental impacts; to assess the subsurface soil at the south part of the site for possible impacts from the rail line; and to assess the top soil for possible impacts from historical use of Pesticides or Lead-based sprays.

Also, the proposed ESA2 study would include an assessment of the ambient local shallow groundwater for possible impacts from the fill, the top soil, and the rail line operations, as well as possible drainage residues from the neighbouring sites or roadways onto the subject site.

Our firm was subsequently retained by the client to carry out the recommended ESA2 for the subject site, and details pertaining to the ESA2 field work, and lab testing and analysis follow.

1.3 SITE DESCRIPTION

The subject site with the municipal address 402 March Road is located on the southwest corner of March Road and Station Road, in the west end of Ottawa, Ontario.

LEGAL DESCRIPTION: The legal description for the subject site is : Part of Lot 6, Concession 3, Township of March (now Kanata), Regional Municipality of Ottawa- Carelton, Province of Ontario. A copy of the Site Survey Plan is provided in Appendix 2 of this report.

SUBJECT LOT: The subject property is about 1.4 hectares (3.4 acres) in size and is located On the west side of March Road. The site is undeveloped, vacant land with no building or structures on the site. The subject site is rectangular in shape with frontage of about 98 metres along March Road and 168 metres along Station Road.

ADJACENT PROPERTIES: As mentioned earlier, the south adjacent land is a Canadian National Railway Corridor supporting an active rail line on a raised soil berm, located in close proximity to the south property line of the subject site. The north adjacent site and the east and south neighbouring properties support large commercial office type buildings. The lands immediately west of the subject site support undeveloped land. Refer to the recent *Aerial Photograph* in Appendix 1 of this report.

1.4 SCOPE OF WORK

The work program for the ESA2 at the subject property consisted of the following activities:

- Arranging public utility locates with Ontario One Call, and also retaining the services of a private contractor, to determine the location of underground services including natural gas pipes, electrical wires, sewer pipes, water supply lines, telephone and communication cables;

- Advancing 16 boreholes in the exterior lands, at site specific locations, using a tract mounted drill rig fitted with a split spoon soil sampler;

- Installing groundwater monitoring wells in 11 of the boreholes to allow for the sampling of groundwater in this ESA2 study;

- Examination of extracted soil cores, and field testing of 68 selected and/or suspect soil samples for evidence of environmental impacts using a PID (Photo-Ionization Detector). Our firm utilizes a MiniRae 3000 series PID (details of performance and detection sensitivity are presented later in the report). Also, 16 water samples were field tested for evidence of chemical residues and environmental impacts. ;

- A laboratory testing program, carried out by Paracel Laboratories, an MOE accredited laboratory (hereafter referred to as *the lab)*, which included the testing of 43 selected representative or suspect soil and/or 19 groundwater samples for Total Petroleum Hydrocarbons (PHCs) in the F2 to F4 fractions, MOE regulated Metals, Volatile Organic Compounds (VOCs), Polychlorinated Biphenols (PCBs), and Organochlorine Pesticides;

- Measurement of stabilized groundwater levels in all 11 monitoring wells;

- Comparing the soil and groundwater laboratory analytical test results with the applicable criteria as stipulated by the MOE in *Soil, Ground Water and Sediment*

Standards for Use Under Part XV.1 of the Environmental Protection Act, July 2011; and,

- Analyses of the lab test results and the preparation of the ESA2 report including all support materials - Borehole Logs, a Borehole and Monitoring Well Location Plan, the Laboratory Test Results, and Comparison Tables of Lab Test Results and the applicable MOE Standards.

2.0 METHODOLOGY

The field work for the ESA2 Study was carried out between October 9th and October 16th, 2013.

Field work consisted of the layout of all boreholes/ test locations; clearing underground services; drilling, and field testing of extracted soil samples for evidence of impacts, including the use of a PID; installation of groundwater monitoring wells at pre-selected boreholes; and the collecting of selected soil and groundwater samples, for later laboratory analysis. Selected photographs of the ESA2 field work are provided in Appendix 3.

All work was carried out by, or under the direction and supervision of EMG field staff.

2.1 BOREHOLE INVESTIGATIONS

The field investigation and sampling was conducted in general conformity with MOE requirements under *Soil, Ground Water and Sediment Standards for Use* under Part XV.1 of the *Environment Protection Act*, effective July 2011; the MOE's *Guideline on Sampling and Analytical Methods for Use at Contaminated Sites In Ontario,* December 1996; and *Generally Accepted Standards for Environmental Investigations,* April 1993, Consulting Engineers of Ontario.

The ESA2 drilling program was undertaken on October 9th, 2013. The boreholes were advanced across the subject site to address the potential environmental concerns raised in the previous ESA1 Report and by our firm following the review of the ESA1 Report prepared by others.

As mentioned earlier, we recommended an ESA2 drilling program A Phase to assess the condition of the fill for evidence of environmental impacts; to assess the subsurface soil at the south part of the site for possible impacts from the rail line; and to assess potential impacts to the native top soil. Also, the ESA2 study would assess the ambient local shallow groundwater for possible impacts from the fill, the rail line operations, or possibly drainage residues from the neighbouring sites or roadways.

In this ESA2 study, a total of 16 boreholes were drilled at subject site. For discussion purposes, the site was divided into five (5) general work areas and the distribution of boreholes is as follows:

Area 1 was locate along the south end of the site in close proximity to the Canadian Pacific Rail corridor on the south adjacent site (MW102, MW103, MW106). Area 2 represents testing at the east end of the site (MW105, BH116). Area 3 was located at the north end of the site adjacent to Station Road (MW101, MW104, MW107, MW111). Area 4 is the land at the east end of the site adjacent to March Road (MW109, MW110). Area 5 is the mid area of the site not covered by the other 4 areas (MW108, BH112, BH113, BH114, BH115).

Refer to the *Borehole and Monitoring Well Location Plan* in Appendix 4 of this report for the approximate location for each borehole at the subject site.

All of the boreholes in this ESA2 study were advanced using a tract mounted drill rig fitted with a split spoon sampler that was used for the extraction of soil cores.

Each soil core was examined and field tested for visual, tactile, or olfactory indicators of environmental impacts.

Soil samples were further analyzed in the field for VOCs, where suspected, utilizing a PID (Photo-Ionization Detector), more specifically a MiniRae 3000 portable handheld VOC monitor. The PID detector is calibrated to Isobutylene, and is equipped with a 10.6 eV lamp with a detection range of 0 ppm (parts per million) to 10,000 ppm. To be clear, the PID readings will be a total of all organic and inorganic compounds with an ionization potential of 10.6 eV or less- it does not distinguish between compounds.

The field testing procedure consists of the collection a soil sample that is placed into a clean plastic bag that is sealed in such a way that there is enough air space (*headspace*) above the sample. The soil sample is agitated to thoroughly mix the soil sample with the headspace air within the jar. The soil sample is ideally equilibrated to room temperature (25C).

The air in the headspace is sampled with the PID through the sample bag wall. Digital readings are provided by the PID expressed in ppm, that are recorded in the EMG borehole logs. Sensitivity and accuracy of the PID depends on several variables including ambient air and soil sample temperature, soil type, and moisture content, as well as the VOC chemical type and concentration in the test sample.

The PID readings were recorded in the field and used to assist EMG staff in the selection of *worst case soil samples* to be forwarded to the lab for specific chemical analysis for VOCs, or PHCs, where applicable. These VOC readings were also used for future reference purposes when reviewing the analytical test results from the laboratory.

Discrete soil samples were collected from each soil core, placed in sterile glass jars then logged at the site by EMG field staff as to borehole location and sampling depth (expressed in inches below the adjacent ground). BH112-54, for example, refers to a soil sample collected at borehole location BH112, at a depth of 54 inches below the adjacent ground. If a groundwater well were installed at borehole BH112, then it would be referred to in this study as MW112.

Details of the soil stratigraphy encountered in each borehole is documented in the *Borehole Logs* (in Appendix 5) that include soil type, consistency, colour, and moisture characteristics and, where applicable, reference to staining, discoloration, odour, and/or foreign debris. The logs include the soil sample number and approximate depth for all samples submitted to the lab, and the type of laboratory analysis where a sample is tested.

2.2 MONITORING WELL PROGRAM

Groundwater monitoring wells were installed in 11 of the boreholes (MW1 to MW11, inclusive). Refer to the *Borehole and Monitoring Well Location Plan* in Appendix 4 for the approximate location for each of the groundwater monitoring wells installed at the subject site.

Each monitoring well was constructed with 2.0 inch (interior) diameter, flush threaded PVC riser(s), followed by a 5-foot length of 2.0-inch diameter No.10 slotted PVC screen that traversed the local shallow groundwater table. The screen was sealed using a threaded pointed cap, while the top of the riser was capped.

Silica/ filter sand was placed around and above (about 12 inches) the screen portion of the well , followed by a layer of Bentonite to within four (4) inches of the ground surface. An aluminum cover was installed over the riser pipe, flush to the ground surface, and cemented in place.

Typically, groundwater levels are obtained using a Dipper-T Water Level Meter that complies with US GGG-T-106E EEC Class II for tape accuracy. The probe tape is cleaned with distilled water and antiseptic liquid soap prior to each measurement.

The groundwater levels were measured on October 16th, 2013 at 10 of the 11 monitoring wells installed at the site in this ESA2 study. The placement of groundwater monitoring wells among the 16 boreholes advanced at the subject site in this ESA2 Study is presented below.

Area 1 was locate along the south end of the site in close proximity to the Canadian Pacific Rail corridor on the south adjacent site (MW102, MW103, MW106). Area 2 represents testing at the east end of the site (MW105). Area 3 was located at the north end of the site adjacent to Station Road (MW101, MW104, MW107, MW111). Area 4 is the land at the east end of the site adjacent to March Road (MW109, MW110). Area 5 is the mid area of the site not covered by the other 4 areas (MW108).

Following installation, each monitoring well was instrumented with a dedicated inertial sampler compromising low density polyethylene tubing and a foot valve that is used to extract a sample(s) of the local shallow groundwater from each well unit. The tubing and foot value remain in each well until the investigation is complete, then safely discarded.

Approximately three (3) well volumes of water were moved from each monitoring well, except where prevented due to slow groundwater recovery, prior to the collection of groundwater samples. Groundwater samples were collected in accordance with standard field practices, and placed in appropriate sterile glass vials or bottles, then logged at the site as to monitoring well location.

2.3 SOIL SAMPLING AND LABORATORY TESTS

All of the laboratory analysis of soil samples was carried out by Maxxam Analytics *(the lab)*, an independent, an MOE approved environmental testing centre.

All soil samples are first subjected to field testing for visual, tactile, or olfactory indicators of environmental impacts. Suspect soil samples are further screened in the field for PHCs and VOCs (includes BTEXs) using an PID to measure volatile vapour concentrations.

Volatile vapour concentrations were measured using the PID on 68 selected soil samples in the pre-lab selection process. When PID readings coupled with visual and /or olfactory considerations indicate the presence of PHCs, or VOCs at any borehole, then at least one

worst case soil sample must collected at that borehole and submitted to the lab for testing for PHCs , and VOCs.

In this ESA2 study, a total of 43 selected and/or suspect soil samples were collected from the boreholes and submitted to the lab for specific chemical testing, as noted in the following table:

Lab Analysis	**Borehole No.**	**Borehole Location & Number of Soil Samples Lab Tested**				
		East Part	**Mid Area**	**North Part**	**South Part**	**West Part**
Metals	MW102, MW106 ,MW110, BH113, BH115, BH116	2	3	1	3	3
Metals Extended	MW101, MW103, MW108		1	1	1	
Pesticides	MW101, MW102, MW103, MW104, MW107, MW109, MW110	3	0	2	2	
PHCs F2-F4	MW109,MW110, MW105, MW106, MW108, BH113	2	2		1	1
VOCs	MW101, MW102, MW109	1		1	1	
PCBs	MW109, MW104	1		1		
PAH	MW101, MW102, MW103			1	2	
	TOTALS	9	6	7	10	4

As per the above table, in this ESA2 study there has been good general coverage of all areas of the subject site for the recommended lab test parameters. An *Overview of the Laboratory Testing* for all soil and groundwater samples in this ESA2 study is presented in Appendix 6. To preserve PHCs in soil samples, each sample is typically placed in Teflon sealed, sterile glass jars provided by the lab, then stored and transported in chilled, insulated containers.

The *Borehole Technical Logs* presented in Appendix 5 also include the type of laboratory analysis when a soil sample is tested at the laboratory.

2.4 GROUNDWATER SAMPLING AND LABORATORY TESTS

All of the laboratory analysis of groundwater samples was carried out by Paracel Laboratories *(the lab)*, an independent, an MOE approved environmental testing centre.

As mentioned earlier, groundwater monitoring wells were installed in 11 of the 16 boreholes advanced across the subject site. In this study, there was sufficient groundwater available at

all wells to facilitate the required purging of water; groundwater collection for field testing; and groundwater collection for proposed lab tests at each well location.

The groundwater samples were collected in the field on October 16th, 2013 and submitted to the lab for specific chemical test the same day, as summarized below:

Lab Analysis	**Monitoring Well No.**	**Monitoring Well Location & Number of Groundwater Samples Lab Tested**				
		East Part	**Mid Area**	**North Part**	**South Part**	**West Part**
Metals	MW107, MW109, MW110	2		1		
Metals Extended						
Pesticides	MW106, MW108, MW110	1	1		1	
PHCs F2-F4	MW103, MW109	1			1	
VOCs	MW102,MW106, MW108		1		2	
PCBs						
PAH	MW106, MW111			1	1	
	TOTALS	4	2	2	5	

As per the above table, in this ESA2 study there has been good general coverage of all areas of the subject site for the recommended lab test parameters.

As noted earlier, an *Overview of the Laboratory Testing* for all soil and groundwater samples in this ESA2 study is provided in Appendix 6. To preserve PHCs in groundwater samples, each sample is placed in Teflon sealed, sterile glass vials or jars provided by the lab, then stored and transported in chilled, insulated containers. The *Borehole Technical Logs* in Appendix 5 also include the type of laboratory analysis when a groundwater sample is tested at the laboratory.

2.5 QA/QC PROTOCOLS

Quality assurance/ quality control (QA/QC) protocols were strictly followed during the ESA2 study to ensure that all soil and groundwater samples collected from boreholes and/or monitoring wells were properly and safely managed in the field and in transport to Maxxam Laboratories. Accordingly, the subsequent laboratory analyses and test results are considered reliable and representative of the conditions only at the test locations at the subject property.

Field protocols that were employed include:

- After each soil core is examined, and selected samples were field tested and/or placed in suitable glass jars (for later transport to the lab), the remaining core material was safely discarded and the metal split spoon sampler was thoroughly washed with Methyl Hydrate prior to re-use;

- Each soil sample was placed in a sterilized glass jar provided by the lab, then the jar was sealed and labeled with the soil sample name eg. BH1-15 or MW4-22, and the sample information was carefully noted on the borehole field log;

- The sample jars were then placed in a chilled insulated cooler, awaiting transport to the lab once that the current drilling program was completed. Specific amber coloured glass jars with Teflon sealed lids were provided by the lab to preserve PHCs or VOCs in soil samples;

- Once an PID test for volatile organic concentration was completed, the contents of the plastic bag used in field testing were safely discarded;

- EMG field staff used disposable nitrile gloves for the safe collection of groundwater samples at each monitoring well, which were discarded prior to sampling at other well locations, to prevent potential environmental cross-contamination;

- Groundwater samples were collected from each monitoring well using a length of dedicated polyethylene tubing and a foot valve. The tubing and foot valve remain in each well until the investigation is complete and the monitoring well is de-commissioned;

- Whenever feasible, approximately three (3) well volumes of water were removed from each monitoring well, to remove stagnant water and draw in water from the surrounding area, prior to the collection of representative groundwater samples;

- PHCs or VOCs in groundwater samples were preserved using special Teflon sealed caps, until field testing was completed;

- In general, sample collection and handling procedures were performed in conformity with the MOE *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario (*February 1997);

- For this ESA2 study, all soil samples were transported directly to Paracel Laboratories, in Ottawa, Ontario for immediate processing. Paracel Labs is accredited by the Standards Council of Canada for the testing of all required parameters as listed in Ontario Regulation 153/04 under the Environmental Protection Act; and,

- Analytical methods used by the laboratory are referenced in the *Certificates of Analysis* presented in Appendix 7 of this report for tested soil samples and Appendix 8 for tested water samples. All lab field collection, transport, and lab testing was completed in accordance with the MOE *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.I of the Environmental Protection Act* (July 2011).

3.0 RESULTS

3.1 SUBSURFACE CONDITIONS

Detailed soil stratigraphy encountered and inferred at each borehole location is presented in the *Borehole Technical Logs* in Appendix 5. It should be noted that the log data has been inferred from recovered soil samples, and the subsurface conditions may vary between and beyond the borehole and sampling locations.

Typically across the site, we encountered mixed clay fill (mixed clay and some gravel at one test location), varying in depth from 29 inches (northeast part of site) to 67inches (westerly part of the site), except for a deep pocket at one borehole (MW104) at 94 inches below grade. The mixed clayey fill was underlain by native undisturbed top soil that varied in thickness from 10 to about 18 inches. We have provided a drawing titled *Depth to Native Top Soil Plan* in Appendix 9 that illustrates the depth to native top soil on the site and the thickness of the top soil layer at each of our boreholes. We presume that this information will be very useful for review at a later date as the top soil will necessarily have to be removed beneath proposed site buildings, asphalt-covered driveway and parking lot areas, and sidewalks.

The native top soil layer was underlain by weathered silty clay, wet to saturated, as a result of a high stabilized water table on the property. This silty clay or clay layer was encountered to the maximum termination depth of our boreholes in this ESA2 study, at 25 feet below adjacent grade. The weathered silty clay became more compact with increased depth.

Also, 68 soil samples from extracted soil cores were field tested for possible environmental impacts. From our review of the soil core profiles, we did not encounter any construction debris or other foreign debris at an y of the boreholes. EMG staff did not report any visible or olfactory evidence of environmental impacts to either the fill soil or the native soil encountered at the subject site.

3.2 SUBSURFACE CONDITIONS – GROUNDWATER

As mentioned earlier, the groundwater levels were measured at 10 of the 11 wells installed on the subject site in this study. Depth to stabilized groundwater was measured on October 16th, 2013. The field data is presented in a table entitled *Groundwater Monitoring Data* presented in Appendix 9 of this report. Review of the water data reveal depth to shallow groundwater varying from 5.1 to 8.2 feet depth below adjacent grade. From our review of the field data, the inferred direction of groundwater flow across the subject site is northeasterly. Refer to the *Shallow Groundwater Flow Plan* in Appendix 9.

It should be noted that there was neither a visible sheen nor an olfactory evidence of hydrocarbon product in the groundwater during all field work including well purging and sample collection operations, from the monitoring wells in this ESA2 study. Also, there was no visible standing water at the site during the ESA2 study that may contain Petroleum -based residues.

3.3 APPLICABLE MOE GUIDELINE CRITERIA

Selected soil samples were submitted for laboratory analysis for presence and concentration of specific chemicals. The *Laboratory Certificates of Analyses for Soil* are provided in Appendix 7, and the *Laboratory Certificates of Analysis for Groundwater* are presented in Appendix 8.

For the current ESA2 Report, the analytical test results for the soil and groundwater samples were compared to the *Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition for Industrial/ Commercial Use* (Table 3) of the *Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (2011)* (hereafter referred to in this report as the *MOE Table 3 Standards*).

This ESA2 Study included a required Grain Size Analysis carried out by the lab to determine the appropriate criteria for assessing the soil and groundwater at the subject site under MOE Table 3 Standards. The lab test for Grain Size confirmed Medium-Fine textured soil criteria for the site soils. Refer to Appendix 9 of this report.

3.4 ANALYTICAL RESULTS – SOIL

All soil test results, presented in *The Certificates of Analysis* prepared by the lab, are presented in Appendix 7. The soil test results are presented in parts per million (ppm).

All soil samples that were collected in the field and submitted to the lab are noted on the *Borehole Logs* in Appendix 5, and the type of chemical analysis is provided when a sample is lab tested.

As mentioned earlier, the ESA2 field work included the examination of extracted soil cores, and field testing of 68 selected and/or suspect soil samples for evidence of environmental impacts using a PID (Photo-Ionization Detector). In this ESA2 study, there was no evidence of VOC impacts to any of the tested soil samples, and no visible or olfactory evidence of chemical impacts.

For this study, a lab testing program was carried out by Paracel Laboratories, an MOE accredited laboratory, which included the testing of 43 selected representative or suspect soil for Total Petroleum Hydrocarbons (PHCs) in the F2 to F4 fractions, MOE regulated Metals, Volatile Organic Compounds (VOCs), Polychlorinated Biphenols (PCBs), and Organochlorine Pesticides.

Tables comparing the soil test results to the applicable MOE 2011 Standards are presented in Appendix 7. As mentioned above, all soil test results are reported at concentrations, expressed as parts per million (ppm).

Upon completion of the field testing and lab program for soils, the following summary remarks have been made:

- The lab test results reveal low concentrations for MOE regulated Metals, generally consistent with Background Parameters for Ontario Soils. All lab test results for Metals were well below the applicable MOE 2011 Standards for the subject site;

- The lab results confirm no detectable concentrations for PHC F2-F4, VOC, and PAHs in the selected soil samples from among our ESA2 boreholes;

- Pesticides (Organochlorine Pesticides) were not detected in any of the soil samples collected from the native top soil layer across the subject site (formerly open farmland); and,

- PCBs were not detected in the selected soil samples that were tested in this ESA2 Study.

In sum, consistent with field tests, there was no evidence of significant chemical impacts in any of the fill soil or native soil samples extracted from boreholes in this ESA2 Study.

3.5 ANALYTICAL RESULTS – GROUNDWATER

All of the test results for groundwater samples are presented in *The Certificates of Analysis* prepared by Paracel Labs, and provided in Appendix 8 of this report. The groundwater lab test results are presented in parts per billion (ppb).

As mentioned earlier, 16 samples of groundwater were field tested for possible environmental impacts in the field prior to final selected of samples to be submitted to the lab for specific chemical tests. In this study, there was no evidence of chemical residues in water samples including visual and olfactory tests.

An *Overview of the Laboratory Testing* for Soil and Groundwater is presented in Appendix 6 of this report.

For this study, a lab testing program was carried out by Paracel Laboratories, an MOE accredited laboratory, which included the testing of 19 selected groundwater samples for Total Petroleum Hydrocarbons (PHCs) in the F2 to F4 fractions, MOE regulated Metals, Volatile Organic Compounds (VOCs), Polychlorinated Biphenols (PCBs), and Organochlorine Pesticides.

Tables comparing the groundwater test results to the applicable MOE 2011 Standards are presented in Appendix 8. As mentioned above, all groundwater test results are reported at concentrations, expressed as parts per billion (ppb).

Upon completion of the field testing and lab program for groundwater, the following summary remarks have been made:

- The lab test results reveal low concentrations for MOE regulated Metals, generally consistent with Ontario background parameters, and all lab test results for Metals were well below the applicable MOE 2011 Standards for the subject site;

- The lab results confirm no detectable concentrations for PHC F2-F4, VOC, and PAHs in either the shallow or deep groundwater samples, where tested, in this ESA2 Study;
- Pesticides (Organochlorine Pesticides) were not detected in the lab tested groundwater

samples in this study; and,

- PCBs were not detected in the selected shallow and groundwater samples that were tested in this ESA2 Study.

In sum, consistent with field tests, there was no evidence of significant chemical impacts in any of the shallow or deep groundwater well samples in this ESA2 Study. Also, there was no field evidence of Petroleum Hydrocarbon residues on the subject lands or in groundwater monitoring wells during well purging or water sampling activities during this ESA2 study.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Our firm reviewed a Phase One Environmental Site Assessment (ESA1) prepared by Houle Chevrier Engineering for the subject site at 401 March Road, in Ottawa, Ontario. The ESA1 Report dated September 2013 was prepared for Starbank Properties Corporation (the client) and purchaser of the subject site.

The ESA1 Report confirmed that the subject site is vacant and undeveloped land, originally part of a larger farmland property. The adjacent and neighbouring properties that now support large commercial office uses were previously farmland as well.

The ESA1 site reconnaissance and review of topographical materials indicated that a significant quantity of imported fill, likely about four (40 feet in depth, had been placed on the subject site. The source(s) of the fill is not known. Also, an established rail line was observed on a raised soil bed on the south adjacent property, in close proximity to the south property line of the subject site. The ESA1 Report recommended a Phase Two Environmental drilling program (ESA2) on the subject site

We recommended an ESA2 subsurface investigation to assess the site soils for impacts including an assessment of the fill from unknown sources; to assess the soil at the south part of the site in proximity to the rail line; and to assess potential impacts to the native top soil. Also, the ESA2 study would assess the ambient local shallow groundwater for possible impacts from the fill, the rail line operations, from possible Pesticide impacts in top soil, or possibly drainage residues from the neighbouring sites or roadways.

Our firm was subsequently retained by the client to carry out the recommended ESA2 for the subject site, and the field investigations were carried out between October 9th and October 16th, 2013.

The scope of the ESA2 field work consisted of the strategic placement of 16 boreholes in the exterior land; the installation of 11 groundwater monitoring wells at selected test locations; and the collection and field testing of 68 soil samples and 16 groundwater samples for evidence of environmental impacts.

In this study, a total of 43 selected soil selected soil samples and 19 selected groundwater samples were submitted to the lab for specific chemical testing including Petroleum Hydrocarbons F2-F4 (PHC F2-F4); Volatile Organic Compounds (VOCs); Polychlorinated Biphenols (PCBs); MOE regulated Metals; and Organochlorinated Pesticides .

The lab test results confirmed no significant chemical impacts to site soil or groundwater in excess of the applicable Ministry of the Environment (MOE) 2011 Standards, at the test locations consistent with field tests and site observations.

RECOMMENDATION:

From our review of the ESA1 Report and the recent ESA2 Report findings, we are of the opinion that no further environmental investigations of subsurface soil and groundwater conditions at the site are necessary or warranted.

The Environment Management Group is a Toronto-based consulting firm specializing in environmental issues. EMG has completed the field investigations and the laboratory testing and analysis in accordance with Ministry of the Environment Standards and the generally established practices for environmental investigations as required by Professional Engineers Ontario.

We warrant that the information enclosed in this report is true and accurate to the best of our knowledge including copies of all support materials found in the Appendices. There are limitations and conditions regarding the use and interpretation of this report. Refer to the *General Terms and Conditions for Contracted Services* in Appendix 10 of this report.

5.0 LIMITATIONS AND THE USE OF THIS REPORT

The Environment Management Group Ltd. (EMG) and affiliates and subcontractors have neither created nor contributed to the creation or existence of any type of hazardous waste or environmental contamination or pollution, whether latent or patent, or the release thereof or the violation of any law or regulation relating thereto, at the site of the Project or in connection with the Performance of the Project Work, and it is understood that EMG shall have no liability for any such condition.

EMG and its affiliates and subcontractors have performed all environmental services in a professional manner exercising all precaution, discretion and technical expertise as is expected of environmental consulting professionals in the performance of similar work and circumstances.

In the preparation of an environmental report including environmental assessments, audits, and compliance studies, all reasonable care is taken to access pertinent historical information from a variety of publications and document sources. EMG takes no responsibility for any errors or omissions in an environmental report or other site related studies due to inaccuracies or deficiencies in the available literature, or the absence of certain historical documents or records, or site features that are hidden from view or inaccessible for purposes of the on-site inspection.

The comments and recommendations presented in the Phase Two Environmental Site Assessments (ESA2) and Phase Three Environmental Assessments (ESA3) are based on the geological and chemical testing of samples gathered from bore holes, test pits, etc. from pre-determined area(s) of the site.

The reported information is believed to provide a reasonable representation of the general environmental conditions at the site, in the defined work area, however the data are collected at specific locations and conditions may vary at other locations. The environmental work is also limited to a study of those chemical parameters that have been specifically addressed in this report.

Due to the nature of environmental inquiry including and not limited to subsurface conditions of soil and groundwater, even the most rigorous professional inquiry and assessment may fail to identify all existing conditions of environmental risk, pollution, or contamination at the site.

EMG responsibility and liability is limited to the accurate interpretation of the current soil, chemical analysis, and groundwater conditions prevailing at the test locations and the depth at each boring. Accordingly, there is no warranty, expressed or implied, by EMG that all potential contaminants in subsurface soil or groundwater have been identified on the site.

EMG assumes no liability for injuries, claims, losses, expenses or damages whatsoever arising from the performance of the environmental work as a direct or indirect result of the uncovering and required disclosure and reporting of site contamination to the appropriate authorities.

Any and all additional environmental work required by the Client, government agency or others as a direct or indirect result of the Performance of the Agreement shall be negotiated with the Client as part and parcel of a new and separate contract for professional services.

The environmental report and related site work was conducted by EMG for the named client in this report only. EMG takes no responsibility or liability for the use or interpretation by third parties/ others regarding the contents of the report or the field work upon which it has been developed, without written consent. No reliance on the information contained in the report to persons or parties other than the named client is expressed or implied.

Any reproduction of this report, in whole or in part, by any parties without written consent from EMG is unlawful.

Finally, EMG has completed the environmental work at the subject property as of the date of the report. EMG has no control as to how the subject property or neighbouring properties are used or environmental outcomes that may directly or indirectly effect the site once that we have completed our contracted work at the subject property. Accordingly, EMG takes no responsibility or liability for the environmental conditions at the subject property after the date of this report.

6.0 CLOSURE

This project and report have been prepared in accordance with the terms of reference for this project, as agreed upon by the Client and our firm, and generally accepted environmental consulting practices. The reported information is believed to provide a reasonable representation of the general environmental conditions at the site, in the defined work area, however, as noted above, the data were collected at specific locations and conditions may vary at other locations. The ESA2 investigations were also limited to a study of those chemical parameters that have been specifically addressed in this report.

We trust that you will find the enclosed information satisfactory for your purposes.
Please direct any questions you may have regarding the contents of this report or related matters to the author(s) of this report.

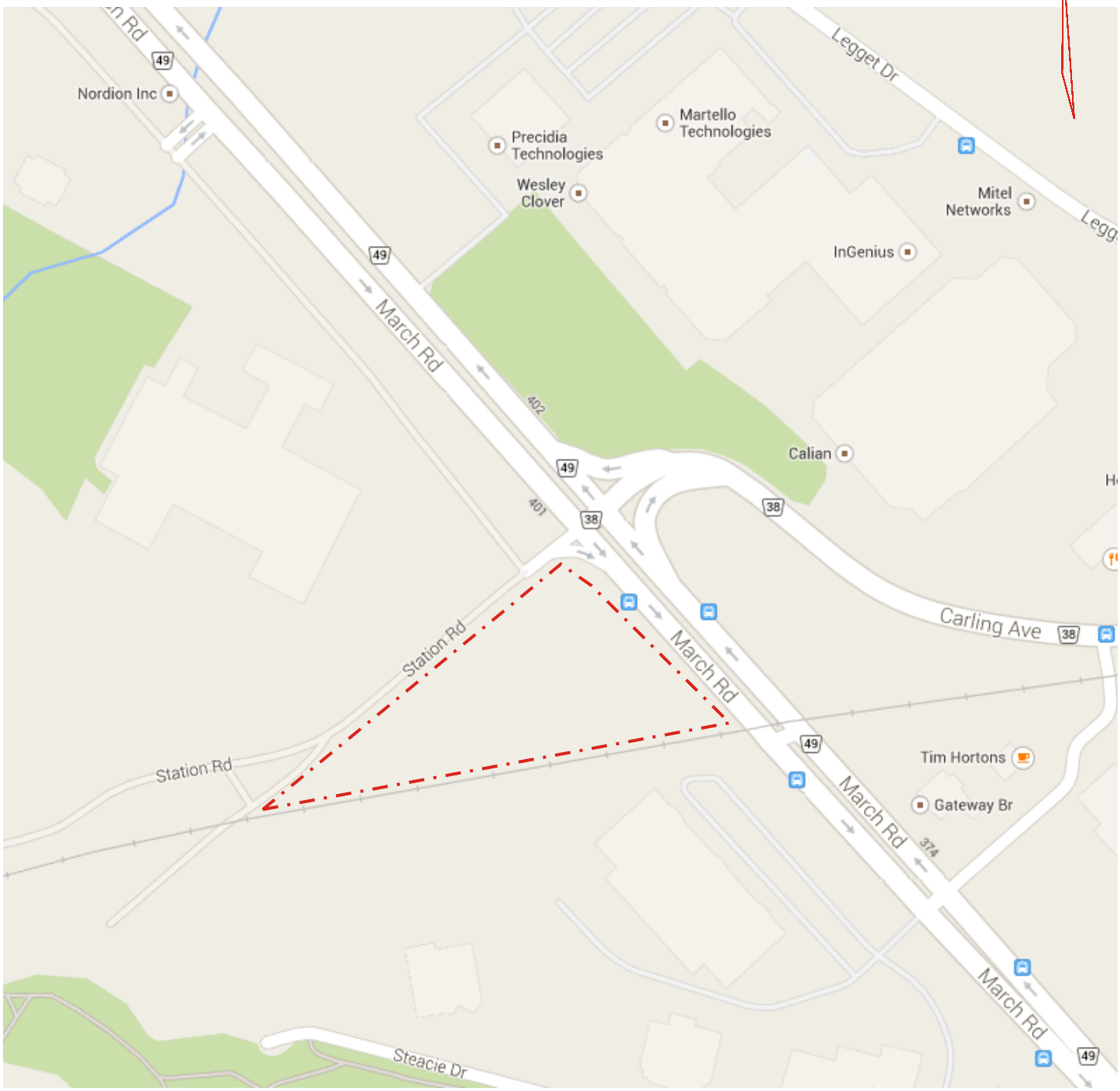
Sincerely Yours,

Aaron Levine, M.A., MARP, CCEP
Head, Environmental Planning & Engineering

The Environment Management Group Ltd.
Environmental Planners, Consultants & Engineers

7.0 APPENDICES

Appendix 1



: SUBJECT SITE

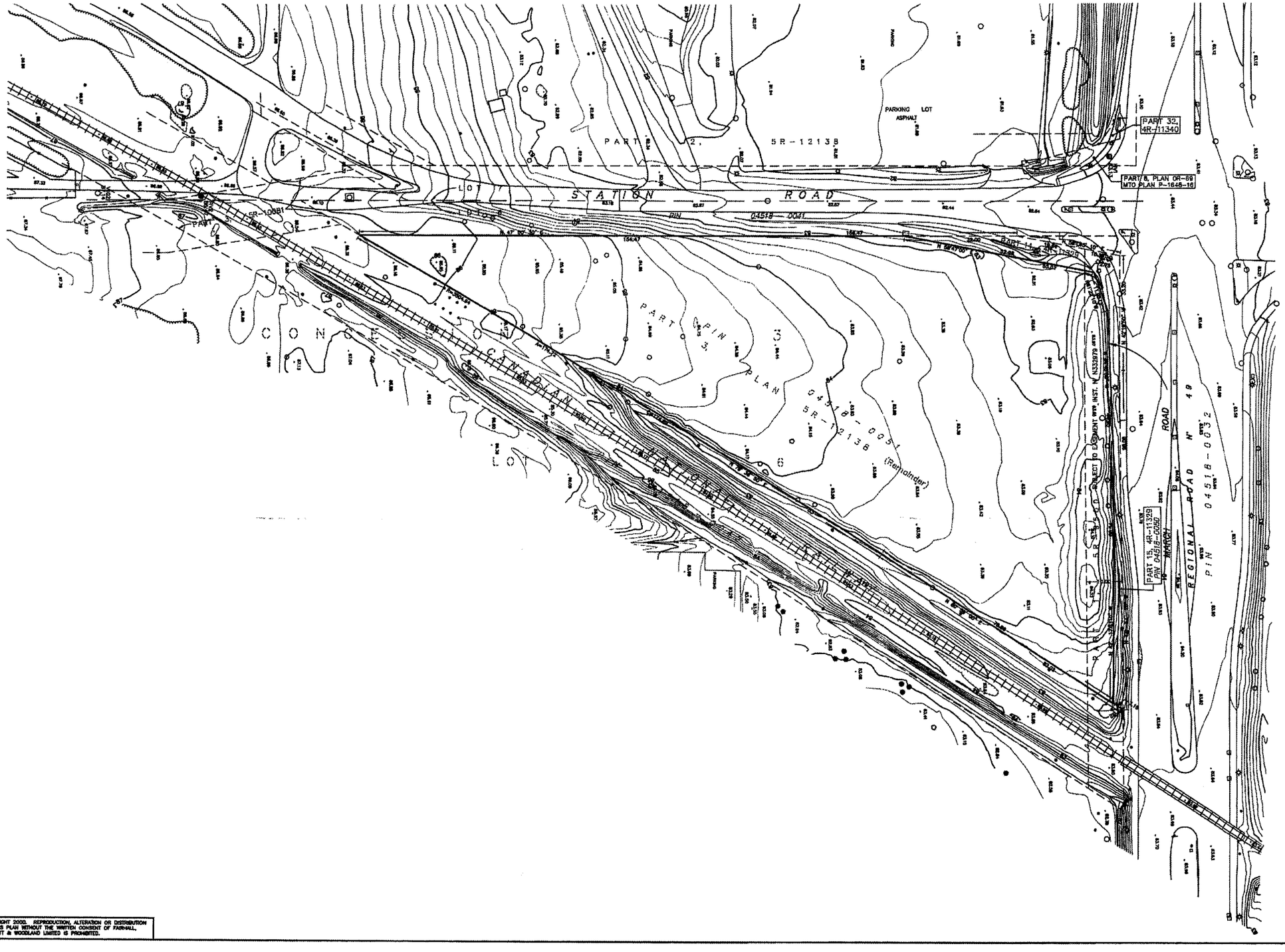
EMG	29 QUEEN ANNE RD ETOBICOKE, ONTARIO M8X 1T1 (416) 239-6643
TITLE:	LOCATION MAP
	401 MARCH ROAD
LOCATION:	OTTAWA, ONT
DATE: OCT, 2013	PREPARED BY: JG

: SUBJECT SITE

EMG	29 QUEEN ANNE RD ETOBICOKE, ONTARIO M8X 1T1 (416) 239-6643
TITLE:	AERIAL PHOTO (2012)
	401 MARCH ROAD
LOCATION:	OTTAWA, ONT
DATE: OCT, 2013	PREPARED BY: JG

Appendix 2

METRIC DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048



PLAN OF
PART OF LOT 6
CONCESSION 3
TOWNSHIP OF MARCH
Now In The CITY OF KANATA
REGIONAL MUNICIPALITY OF OTTAWA-CARLETON

SCALE 1 : 500
0 10 20 50 metres

FAIRHALL, MOFFATT & WOODLAND LIMITED
ONTARIO LAND SURVEYORS

BEARING NOTE

BEARINGS ARE GRID BEARINGS AND ARE REFERRED TO THE CENTRAL MERIDIAN OF ZONE 9 OF THE ONTARIO COORDINATE SYSTEM, LONGITUDE 76° 30' W.

NOTES

1. TOPOGRAPHICAL DETAIL WAS DERIVED BY DIGITAL PHOTOGRAMMETRIC COMPILATION USING 1:2400 AERIAL PHOTOGRAPHY DATED NOVEMBER 14, 1998.
2. UNLESS OTHERWISE INDICATED, WALKWAYS AND PARKING LOTS ARE ASPHALT.
3. NOT ALL SMALL SIGNS HAVE BEEN SHOWN.
4. BOUNDARY INFORMATION WAS COMPILED FROM LAND REGISTRY OFFICE RECORDS.

ELEVATION NOTES

1. ELEVATIONS SHOWN HEREON ARE REFERRED TO GEODETIC DATUM (CGVD28).
2. CONTOUR INTERVAL IS 0.25 METRE.

LEGEND

POLE	PAVED ROAD
POST	LOOSE ROAD
LIGHT STANDARD	PAVED DRIVE
CULVERT	LOOSE DRIVE
MANHOLE	DITCH / STREAM
CATCH BASIN	SHORELINE / PILES
FIRE HYDRANT	INDEX CONTOUR 125
TREE CONIF/DECID	INTERMEDIATE CONTOUR
WOODED AREA	
153.4 SPOT ELEVATION	

THIS IS NOT A VALID COPY UNLESS EMBOSSED WITH SEAL

Fairhall Moffatt & Woodland
LIMITED
ONTARIO LAND SURVEYORS
OTTAWA KANATA

JOB No. B46200
FILE No.
REFERENCE No. 196 - 3-MARCH
S:\JOBS\B46200 13/12/2002 B46200.dwg (lo)

Appendix 3

Photo 1:
The subject site is a parcel of vacant and undeveloped land. We completed a Phase Two Environmental Study that consisted of 16 boreholes, advanced to a maximum depth of 25 feet below adjacent grade, and the installation of 11 groundwater monitoring wells. View of Borehole MW101 located in the north portion of the site, in proximity to Station Road.

Photo 2:
Viewing along the south portion of the site at borehole MW102. This monitoring well was advanced to a depth of 20 feet in close proximity to a raised CP rail line, located on the south adjacent property. The typical soil profile consisted of mixed clay fill varying from 29 to 94 inches deep, underlain by a layer of native top soil (10 to 18 inches deep). The top soil layer was underlain by wet to saturated clay or silty clay.

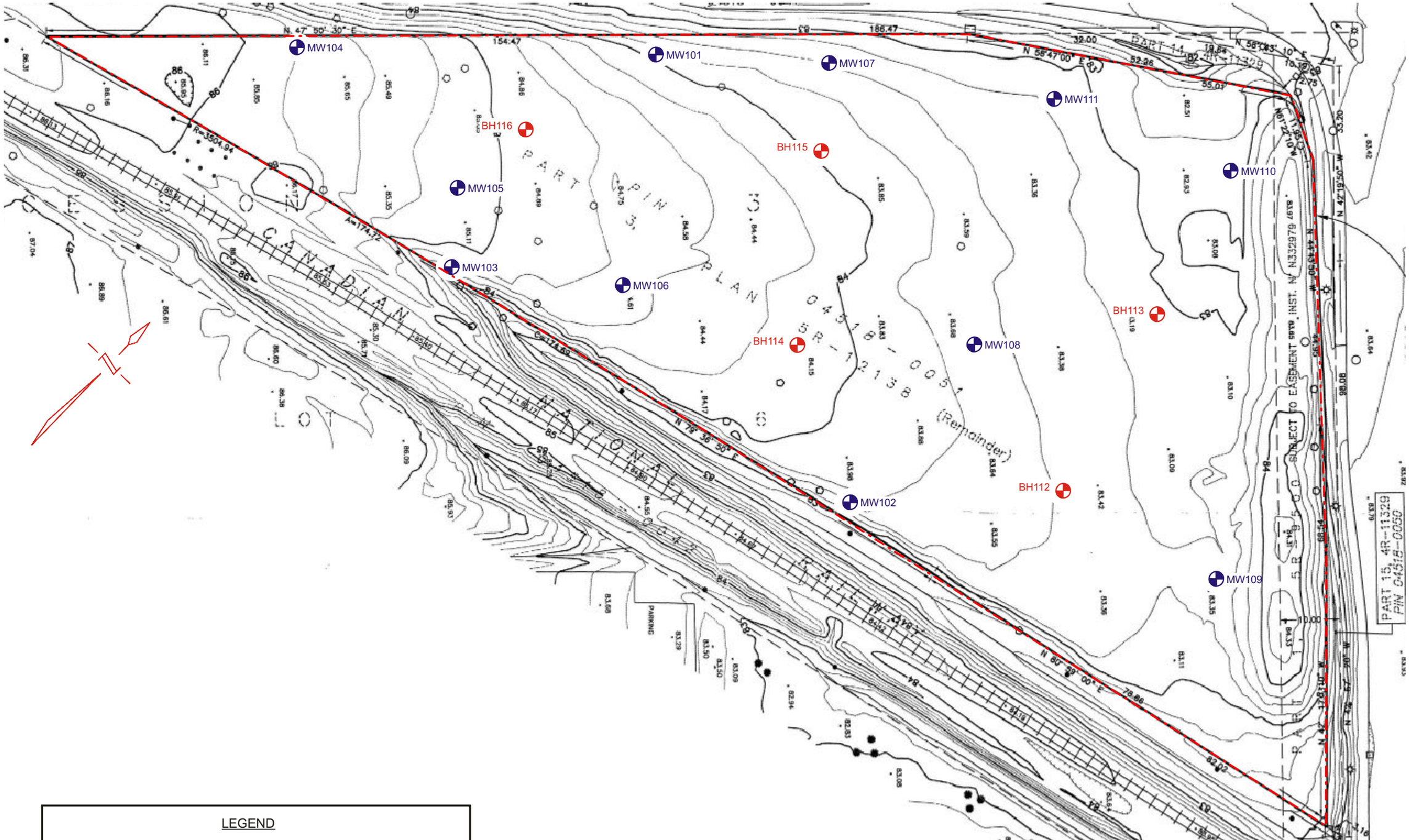
Photo 3:
Viewing borehole MW103 located in the south portion of the site. In this study, a total of 84 soil and water samples were collected from all boreholes and tested for presence of potential environmental contaminant. A total 43 soil samples and 19 groundwater samples were forwarded to the lab for specific chemical tests.

Photo 4:
View of typical sampling of mixed clay fill with gravel and clay observed at some test holes. The clay fill was generally loosely placed on the subject site. The stabilized groundwater levels on the subject site varied from 5.1 to 8.2 feet below adjacent grade. At most test locations, the stabilized groundwater was at or just beneath the native top soil layer. Notably, the current fall season has seen higher than usual rainfall.

Photo 5:
Viewing MW104 located in the north portion of the site, adjacent to Station Road. The lab test results confirmed no significant chemical impacts to soil or groundwater samples in this ESA2 study.

Photo 6:
Viewing borehole MW107 located in the north portion of the site. The ESA2 drilling work was completed on October 9th, 2013 including the installation of the 11 well units. EMG staff collected groundwater for field and lab testing on October 167th, 2013. Notably, there was no visible evidence of environmental impacts in the water samples.

Appendix 4



LEGEND

MW101 MONITORING WELL 101

BH116 BOREHOLE 116

PROPERTY LINE

EMG

29 QUEEN ANNE RD
ETOBICOKE, ONTARIO M8X 1T1
(416) 239-6643

DRAWING TITLE:	BOREHOLE LOCATION PLAN	
	401 MARCH ROAD	
LOCATION:	OTTAWA, ONTARIO	
DATE:	OCTOBER, 2013	DRAWN BY: JG

Appendix 5

Log of Borehole: MW101

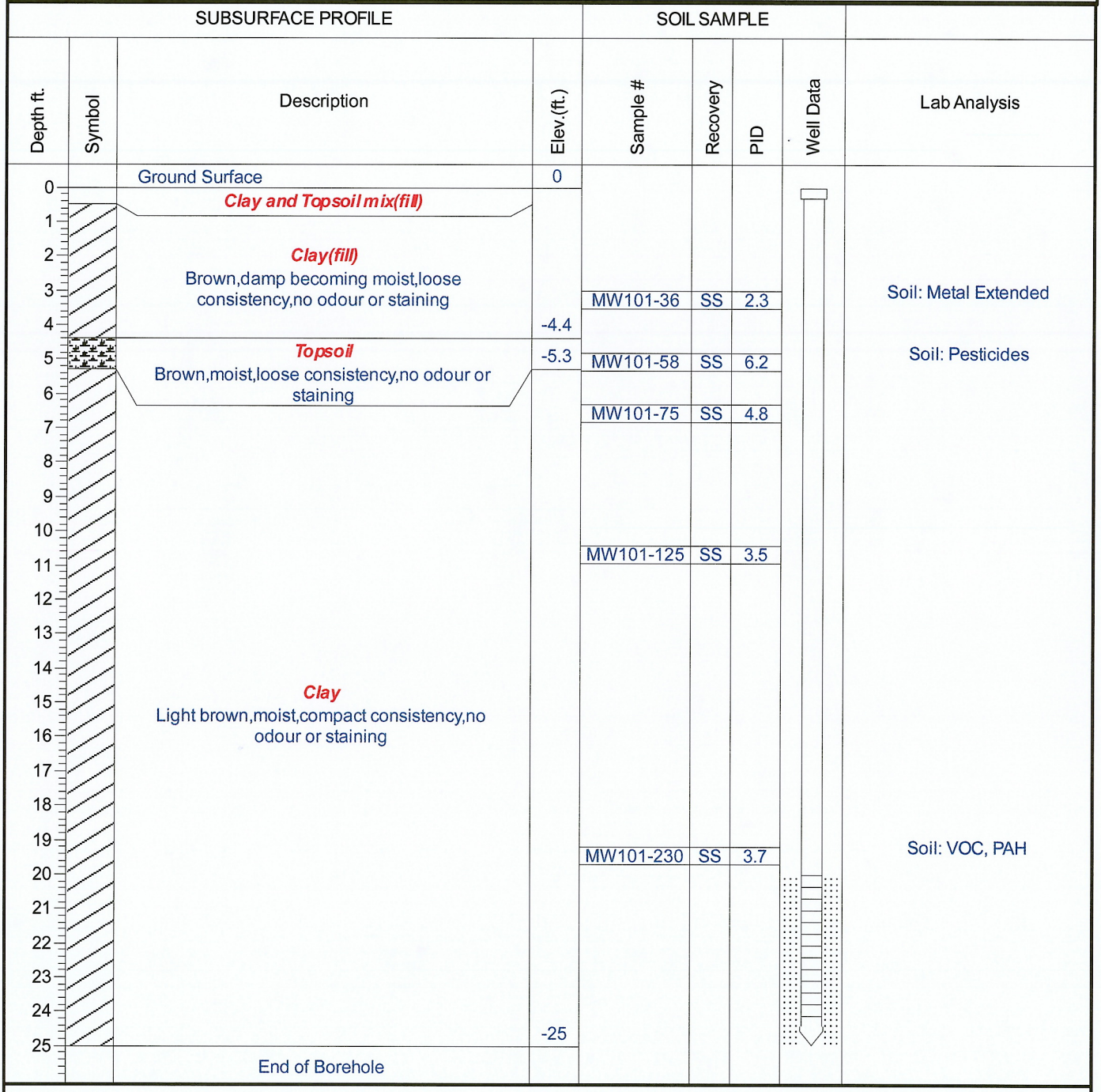
Project No: 1609-13

Project: 401 March Rd.

Location of Boring : 18T 0428484 5020886 Elev 277'

Street: 401 March Road

City/ Province: Ottawa, Ontario



Drill Method: Auger Split Spoon

Drill Date: October 9th, 2013

Hole Size: 2"

Environment Management Group Ltd.
29 Queen Anne Road
Etobicoke, Ontario M8X 1T1
Bus:416-239-6643 Fax:416-239-0300

Datum: Geo-Environmental

Checked by: L.L

Sheet: 1 of 1

Log of Borehole: MW102

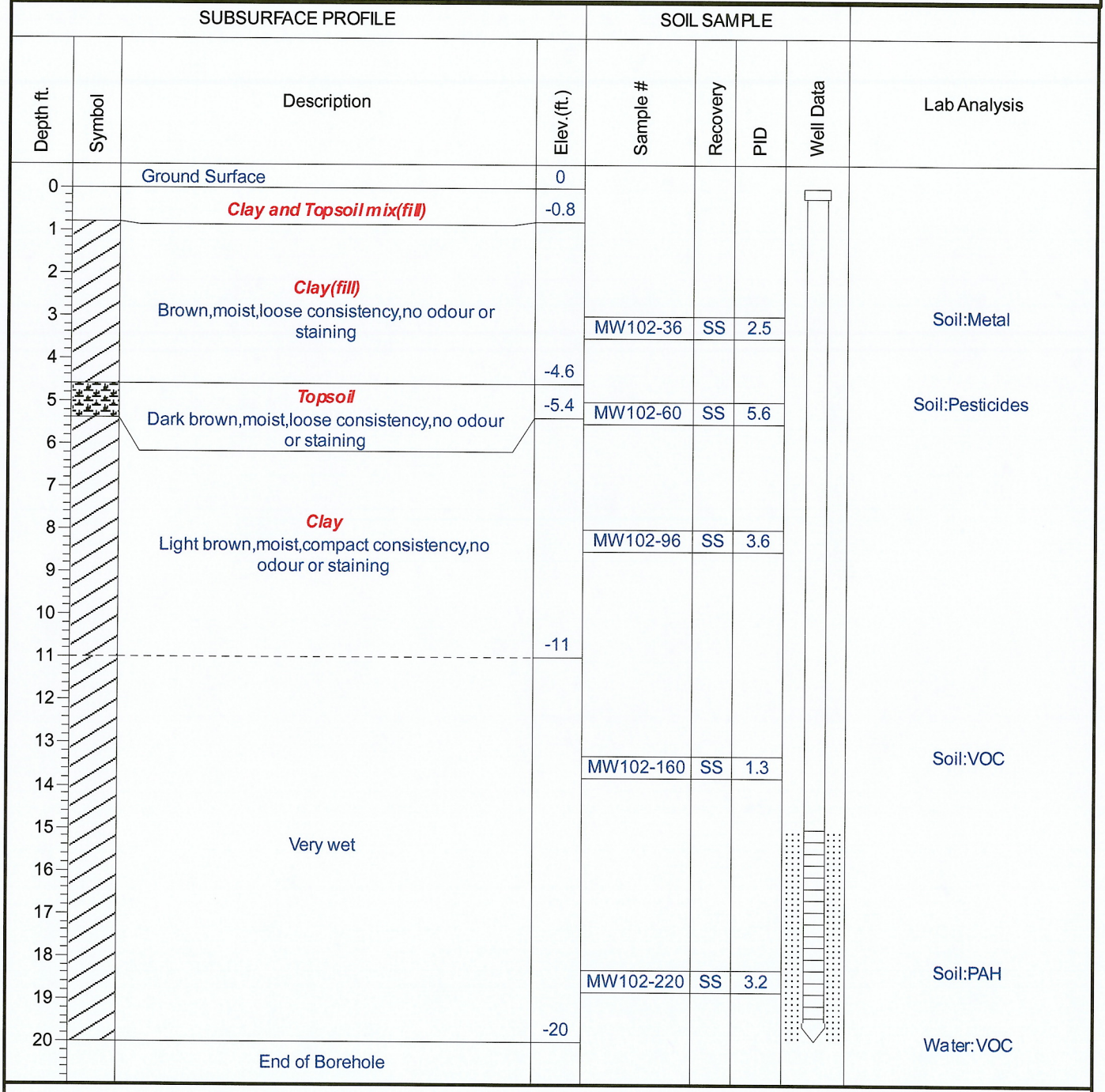
Project No: 1609-13

Project: 401 March Rd.

Location of Boring : 18T 0428567 5020846 Elev 275'

Street: 401 March Road

City/ Province: Ottawa, Ontario



Drill Method: Auger Split Spoon

Drill Date: October 9th, 2013

Hole Size: 2"

Environment Management Group Ltd.
29 Queen Anne Road
Etobicoke, Ontario M8X 1T1
Bus:416-239-6643 Fax:416-239-0300

Datum: Geo-Environmental

Checked by: L.L

Sheet: 1 of 1

Log of Borehole: MW103

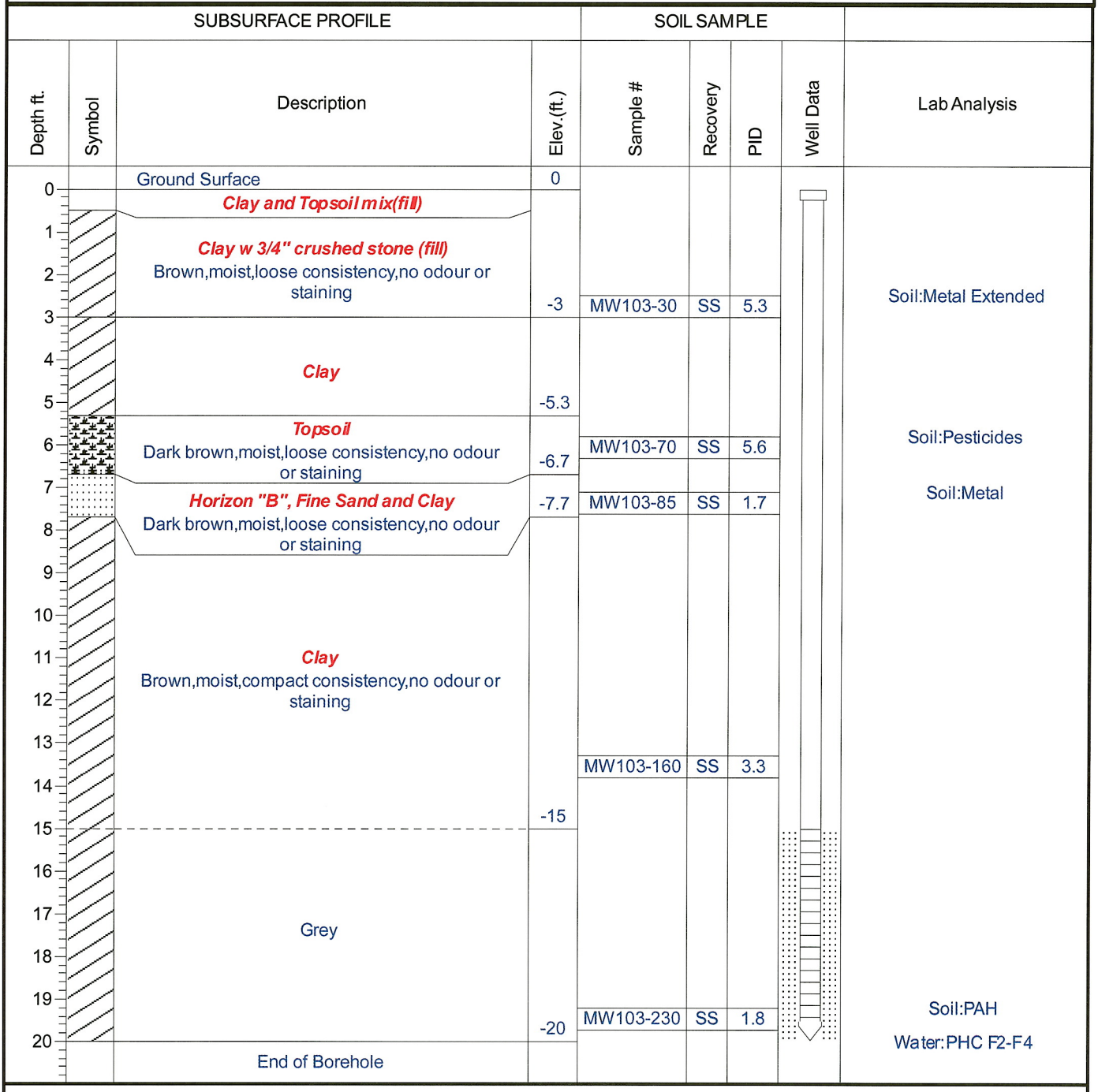
Project No: 1609-13

Project: 401 March Rd.

Location of Boring : 18T 0428498 5020838 Elev 295'

Street: 401 March Road

City/ Province: Ottawa, Ontario



Drill Method: Auger Split Spoon

Drill Date: October 9th, 2013

Hole Size: 2"

Environment Management Group Ltd.
29 Queen Anne Road
Etobicoke, Ontario M8X 1T1
Bus:416-239-6643 Fax:416-239-0300

Datum: Geo-Environmental

Checked by: L.L

Sheet: 1 of 1

Log of Borehole: MW104

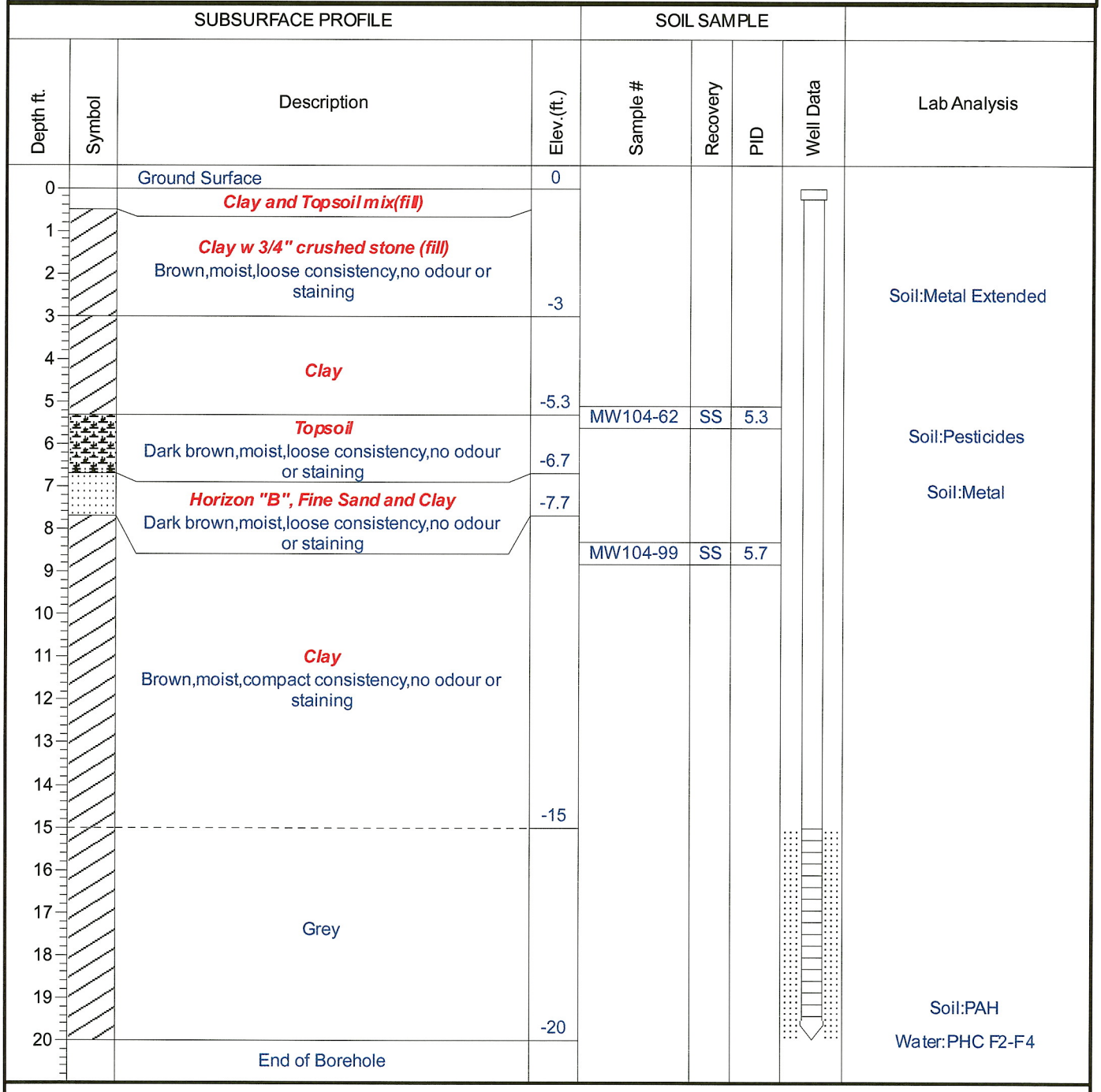
Project No: 1609-13

Project: 401 March Rd.

Location of Boring : 18T 0428448 5020858 Elev 290'

Street: 401 March Road

City/ Province: Ottawa, Ontario



Drill Method: Auger Split Spoon

Drill Date: October 9th, 2013

Hole Size: 2"

Environment Management Group Ltd.
29 Queen Anne Road
Etobicoke, Ontario M8X 1T1
Bus:416-239-6643 Fax:416-239-0300

Datum: Geo-Environmental

Checked by: L.L

Sheet: 1 of 1

Log of Borehole: MW105

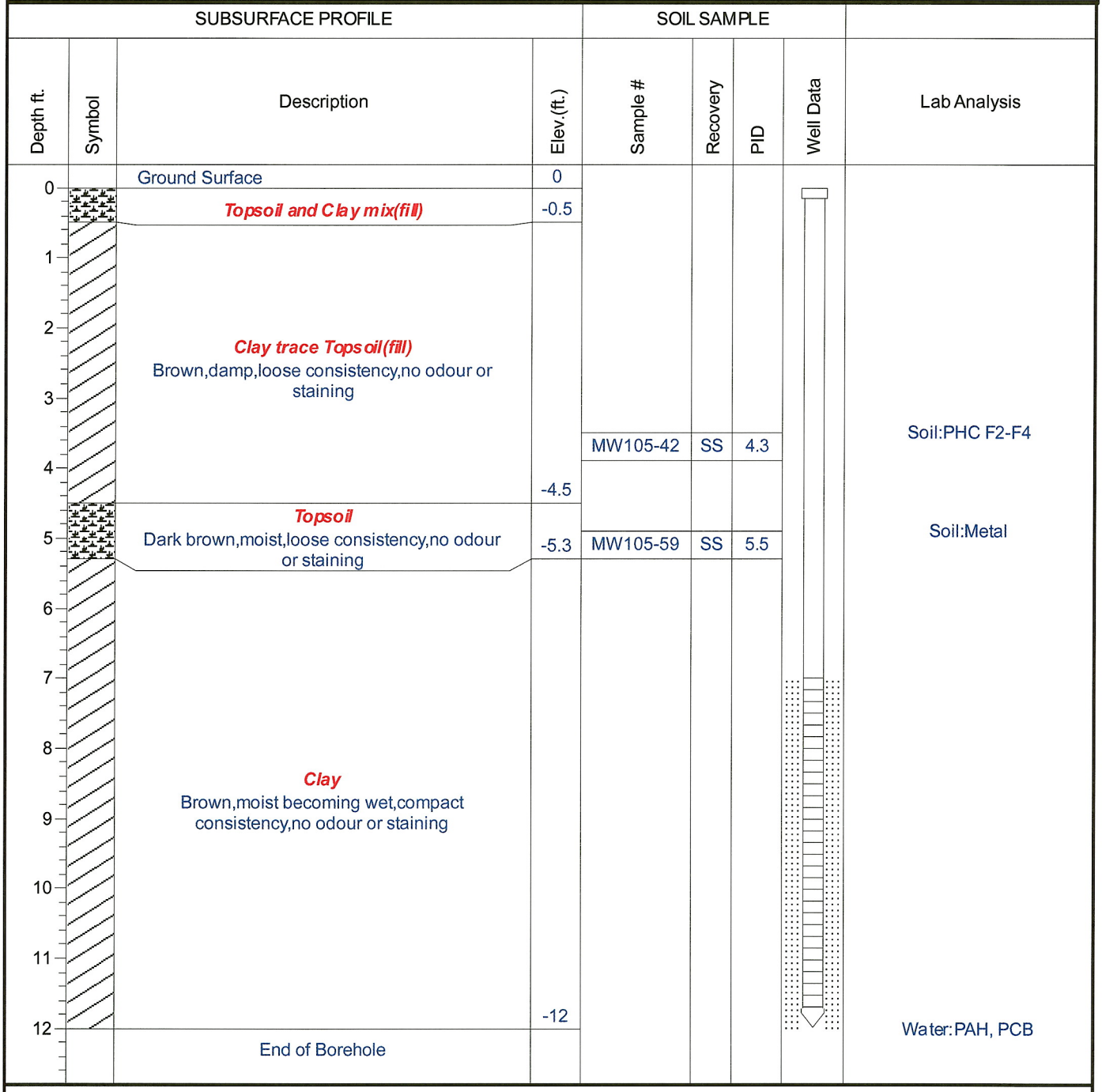
Project No: 1609-13

Project: 401 March Rd.

Location of Boring : 18T 0428475 5020847 Elev 285'

Street: 401 March Road

City/ Province: Ottawa, Ontario



Drill Method: Auger Split Spoon

Drill Date: October 9th, 2013

Hole Size: 2"

Environment Management Group Ltd.
29 Queen Anne Road
Etobicoke, Ontario M8X 1T1
Bus:416-239-6643 Fax:416-239-0300

Datum: Geo-Environmental

Checked by: L.L

Sheet: 1 of 1

Log of Borehole: MW106

Project No: 1609-13

Project: 401 March Rd.

Location of Boring : 18T 0428521 5020851 Elev 286'

Street: 401 March Road

City/ Province: Ottawa, Ontario

SUBSURFACE PROFILE				SOIL SAMPLE				
Depth ft.	Symbol	Description	Elev.(ft.)	Sample #	Recovery	PID	Well Data	Lab Analysis
0		Ground Surface	0					
		Topsoil and Clay mix(fill)	-0.4					
1								
2								
3		***Clay(fill)*** Brown,damp,loose consistency,no odour or staining						
4								
5				MW106-58	SS	5.3		Soil:Metal
			-5.6					
6		***Topsoil*** Dark brown,moist,loose consistency,no odour or staining	-6.7	MW106-76	SS	5.5		Soil:PHC F2-F4
7								
8		***Clay*** Brown,moist,compact consistency,no odour or staining						
9			-9					
10								
11		Wet						
12								
13			-13					Water:VOC,Metal
		End of Borehole						Pesticides

Drill Method: Auger Split Spoon

Drill Date: October 9th, 2013

Hole Size: 2"

Environment Management Group Ltd.
29 Queen Anne Road
Etobicoke, Ontario M8X 1T1
Bus:416-239-6643 Fax:416-239-0300

Datum: Geo-Environmental

Checked by: L.L

Sheet: 1 of 1

Log of Borehole: MW107

Project No: 1609-13

Project: 401 March Rd.

Location of Boring : 18T 0428505 5020904 Elev 275'

Street: 401 March Road

City/ Province: Ottawa, Ontario

Depth ft.	Symbol	Description	Elev.(ft.)	Sample #	Recovery	PID	Well Data	Lab Analysis
0		Ground Surface	0					
		Topsoil and Clay mix(fill)	-0.4					
1								
2		***Clay(fill)*** Brown,damp,loose consistency,no odour or staining						
3								
4			-4.6					
5		***Topsoil*** Dark brown,moist,loose consistency,no odour or staining	-5.6	MW107-59	SS	7.6		Soil:Pesticides
6								
7								
8								
9		***Clay*** Brown,moist becoming wet,compact consistency,no odour or staining						
10								
11								
12				MW107-139	SS	4.8		Soil:Metal
13			-13					Water:Metal
		End of Borehole						

Drill Method: Auger Split Spoon

Drill Date: October 9th, 2013

Hole Size: 2"

Environment Management Group Ltd.
29 Queen Anne Road
Etobicoke, Ontario M8X 1T1
Bus:416-239-6643 Fax:416-239-0300

Datum: Geo-Environmental

Checked by: L.L

Sheet: 1 of 1

Log of Borehole: MW108

Project No: 1609-13

Project: 401 March Rd.

Location of Boring : 18T 0428548 5020883 Elev 280'

Street: 401 March Road

City/ Province: Ottawa, Ontario

SUBSURFACE PROFILE				SOIL SAMPLE				
Depth ft.	Symbol	Description	Elev.(ft.)	Sample #	Recovery	PID	Well Data	Lab Analysis
0		Ground Surface	0					
1		***Clay and Topsoil mix(fill)***	-1.5					
2		***Clay with Stone Gravel mix(fill)*** Brown,damp,loose becoming compact consistency,no odour or staining						
3				MW108-38	SS	1.8		Soil:Metal Extended
4			-4.2					
5		***Clay*** Grey,moist,loose consistency,no odour or staining	-5.4					
6		***Clay and Topsoil*** Brown becoming dark brown,moist,compact consistency,no odour or staining	-6.3	MW108-71	SS	4.3		Soil:PHC F2-F4
7								
8		***Clay*** Grey,moist,compact consistency,no odour or staining						
9								
10			-10.4					
11		Brown,wet						
12				MW108-145	SS	3.1		Soil:Metal
13			-13					Water: VOC,Pesticides
		End of Borehole						

Drill Method: Auger Split Spoon

Drill Date: October 9th, 2013

Hole Size: 2"

Environment Management Group Ltd.
29 Queen Anne Road
Etobicoke, Ontario M8X 1T1
Bus:416-239-6643 Fax:416-239-0300

Datum: Geo-Environmental

Checked by: L.L

Sheet: 1 of 1

Log of Borehole: MW109

Project No: 1609-13

Project: 401 March Rd.

Location of Boring : 18T 0428595 5020881 Elev 270'

Street: 401 March Road

City/ Province: Ottawa, Ontario

Depth ft.	Symbol	Description	Elev.(ft.)	Sample #	Recovery	PID	Well Data	Lab Analysis
0		Ground Surface	0					
1		***Clay and Topsoil mix(fill)***	-1.7					
2		***Clay with Stone Gravel(fill)*** Brown,damp,loose,consistency,no odour or staining		MW109-32	SS	1.2		Soil:VOC, PCB
3			-3.8					
4		***Topsoil*** Dark brown,moist,loose consistency,no odour or staining	-4.7	MW109-50	SS	6.8		Soil:PHC F2-F4,Pesticides
5								
6								
7								
8		***Clay*** Brown,moist,compact consistency,no odour or staining						
9								
10								
11			-11.7					
12		Grey,wet	-13					
13		End of Borehole						Water:Metal, PHC F2-F4

Drill Method: Auger Split Spoon

Drill Date: October 9th, 2013

Hole Size: 2"

Environment Management Group Ltd.
29 Queen Anne Road
Etobicoke, Ontario M8X 1T1
Bus:416-239-6643 Fax:416-239-0300

Datum: Geo-Environmental

Checked by: L.L

Sheet: 1 of 1

Log of Borehole: MW110

Project No: 1609-13

Project: 401 March Rd.

Location of Boring : 18T 0428568 5020920 Elev 280'

Street: 401 March Road

City/ Province: Ottawa, Ontario

SUBSURFACE PROFILE				SOIL SAMPLE				
Depth ft.	Symbol	Description	Elev.(ft.)	Sample #	Recovery	PID	Well Data	Lab Analysis
0		Ground Surface	0					
		Topsoil and Clay mix(fill)	-0.7					
1		***Clay trace Sand(fill)*** Brown,damp,loose,consistency,no odour or staining		MW110-18	SS	2.4		Soil:Metals Extended PHC F2-F4
2			-2.4					
3		***Topsoil*** Dark brown,damp,loose consistency,no odour or staining	-3.4	MW110-34	SS	4.8		Soil:Pesticides
4								
5								
6								
7		***Clay***						
8								
9								
10								
11			-11.7					
12		Brown,wet,compact consistency,no odour or staining		MW110-148	SS	3.9		Soil:Metal
13			-13					Water:Pesticides,Metals
		End of Borehole						

Drill Method: Auger Split Spoon

Drill Date: October 9th, 2013

Hole Size: 2"

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Checked by: L.L

Sheet: 1 of 1

Log of Borehole: MW111

Project No: 1609-13

Project: 401 March Rd.

Location of Boring :

Street: 401 March Road

City/ Province: Ottawa, Ontario

SUBSURFACE PROFILE				SOIL SAMPLE				
Depth ft.	Symbol	Description	Elev.(ft.)	Sample #	Recovery	PID	Well Data	Lab Analysis
0		Ground Surface	0					
		Topsoil and Clay mix(fill)	-0.6					
1		***Clay trace Sand(fill)*** Brown,damp,loose,consistency,no odour or staining						
2				MW111-23	SS	2.4		
			-2.7					
3		***Topsoil*** Dark brown,damp,loose consistency,no odour or staining	-3.5	MW111-38	SS	4.8		
4								
5								
6								
7		***Clay***						
8								
9								
10								
11			-11.3					
12		Brown,wet,compact consistency,no odour or staining						
13			-13	MW111-152	SS	3.9		Water:PAH
		End of Borehole						

Drill Method: Auger Split Spoon

Drill Date: October 9th, 2013

Hole Size: 2"

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29 Queen Anne Road
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Datum: Geo-Environmental

Checked by: L.L

Sheet: 1 of 1

Log of Borehole: BH112

Project No: 1609-13

Project: 401 March Rd.

Location of Boring :

Street: 401 March Road

City/ Province: Ottawa, Ontario

Depth ft.	Symbol	Description	Elev.(ft.)	Sample #	Recovery	PID	Well Data	Lab Analysis
		SUBSURFACE PROFILE		SOIL SAMPLE				
0		Ground Surface	0					
		Topsoil and Clay mix(fill)	-0.5					
1								
2		***Clay(fill)*** Brown,moist,loose,consistency,no odour or staining		BH112-38	SS	3.5		
3								
4			-4.2					
		Topsoil Dark brown,moist,loose consistency,no odour or staining	-4.8	BH112-54	SS	6.7		
5								
6								
7		***Clay*** Light brown,moist,compact consistency,no odour or staining						
8								
9								
10			-10					
		End of Borehole						

Drill Method: Auger Split Spoon

Drill Date: October 9th, 2013

Hole Size: 2"

Environment Management Group Ltd.
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Etobicoke, Ontario M8X 1T1
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Datum: Geo-Environmental

Checked by: L.L

Sheet: 1 of 1

Log of Borehole: BH113

Project No: 1609-13

Project: 401 March Rd.

Location of Boring :

Street: 401 March Road

City/ Province: Ottawa, Ontario

Depth ft.	Symbol	Description	Elev.(ft.)	Sample #	Recovery	PID	Well Data	Lab Analysis
0		Ground Surface	0					
		Topsoil and Clay mix(fill)	-0.5					
1		***Clay(fill)*** Brown,moist,loose,consistency,no odour or staining						
2				BH113-22	SS	4.5		Soil:Metal Soil: PHC F2-F4
			-2.8					
3		***Topsoil*** Dark brown,moist,loose consistency,no odour or staining	-3.5	BH113-38	SS	4.7		
4								
5								
6								
7		***Clay*** Light brown,moist,compact consistency,no odour or staining						
8								
9								
10			-10					
		End of Borehole						

Drill Method: Auger Split Spoon

Drill Date: October 9th, 2013

Hole Size: 2"

Environment Management Group Ltd.
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Etobicoke, Ontario M8X 1T1
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Sheet: 1 of 1

Log of Borehole: BH114

Project No: 1609-13

Project: 401 March Rd.

Location of Boring :

Street: 401 March Road

City/ Province: Ottawa, Ontario

SUBSURFACE PROFILE				SOIL SAMPLE				
Depth ft.	Symbol	Description	Elev.(ft.)	Sample #	Recovery	PID	Well Data	Lab Analysis
0		Ground Surface	0					
		Topsoil and Clay mix(fill)	-0.4					
1				BH114-13	SS	4.9		
2		***Clay(fill)*** Brown,moist,loose,consistency,no odour or staining						
3								
4								
5			-5.1					
		Topsoil Dark brown,moist,loose consistency,no odour or staining		BH114-65	SS	8.7		
6			-6.1					
7		***Clay*** Light brown,moist,compact consistency,no odour or staining						
8								
9								
10			-10					
		End of Borehole						

Drill Method: Auger Split Spoon

Drill Date: October 9th, 2013

Hole Size: 2"

Environment Management Group Ltd.
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Datum: Geo-Environmental

Checked by: L.L

Sheet: 1 of 1

Log of Borehole: BH115

Project No: 1609-13

Project: 401 March Rd.

Location of Boring :

Street: 401 March Road

City/ Province: Ottawa, Ontario

SUBSURFACE PROFILE				SOIL SAMPLE				
Depth ft.	Symbol	Description	Elev.(ft.)	Sample #	Recovery	PID	Well Data	Lab Analysis
0		Ground Surface	0					
		Clay and Topsoil mix(fill)	-0.5					
1		***Clay trace fine Sand(fill)*** Brown,moist,loose,consistency,no odour or staining						
2								
3								
4				BH115-42	SS	5.5		Soil:Metal
			-4.5					
5		***Topsoil*** Dark brown,moist,loose consistency,no odour or staining	-5.4	BH115-58	SS	6.7		
6								
7		***Clay*** Light brown,moist,compact consistency,no odour or staining						
8								
9								
			-10					
10		End of Borehole						

Drill Method: Auger Split Spoon

Drill Date: October 9th, 2013

Hole Size: 2"

Environment Management Group Ltd.
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Etobicoke, Ontario M8X 1T1
Bus:416-239-6643 Fax:416-239-0300

Datum: Geo-Environmental

Checked by: L.L

Sheet: 1 of 1

Log of Borehole: BH116

Project No: 1609-13

Project: 401 March Rd.

Location of Boring :

Street: 401 March Road

City/ Province: Ottawa, Ontario

Depth ft.	Symbol	Description	Elev.(ft.)	Sample #	Recovery	PID	Well Data	Lab Analysis
0		Ground Surface	0					
		Clay and Topsoil mix(fill)	-0.5					
1								
2								Soil:Metal
				BH116-27	SS	3.2		
		Clay trace fine Sand(fill) Brown,moist,loose,consistency,no odour or staining						
3								
4								
5			-5.3					
		Topsoil Dark brown,moist,loose consistency,no odour or staining	-6.2	BH116-70	SS	6.6		Soil:Metal
6								
7								
		Clay Light brown,moist,compact consistency,no odour or staining						
8								
9								
			-10					
10		End of Borehole						

Drill Method: Auger Split Spoon

Drill Date: October 9th, 2013

Hole Size: 2"

Environment Management Group Ltd.
29 Queen Anne Road
Etobicoke, Ontario M8X 1T1
Bus:416-239-6643 Fax:416-239-0300

Datum: Geo-Environmental

Checked by: L.L

Sheet: 1 of 1

Appendix 6

Overview of Laboratory Testing by EMG

Field Testing for the Period: October 9th, 2013

Project: 401 March Road, Ottawa, Ontario

Borehole #	Soil Sample Number	Location	PHC F2-F4	VOC	PCB	PAH	METAL	Metal Extended	Pesticides	PID
MW101	MW101-36	North End of Site						X		2.3
	MW101-58								X	6.5
	MW101-75									4.8
	MW101-125									3.5
	MW101-230			X		X				3.7
MW102	MW102-36	South End Adjacent to Rail line					X			2.5
	MW102-60								X	5.6
	MW102-96									3.6
	MW102-160			X						1.3
	MW102-220					X				3.2
MW103	MW103-30	South End Adjacent to Rail line						X		5.3
	MW103-70								X	5.6
	MW103-85						X			1.7
	MW103-160									3.3
	MW103-230					X				1.8
MW104	MW104-62	North End of Site			X					5.3
	MW104-99								X	5.7
MW105	MW105-42	West End	X							4.3
	MW105-59						X			5.5
MW106	MW106-58	South End Adjacent to Rail line					X			5.3
	MW106-76		X							5.5

Overview of Laboratory Testing by EMG

Field Testing for the Period: October 9th, 2013

Project: 401 March Road, Ottawa, Ontario

Borehole #	Soil Sample Number	Location	PHC F2-F4	VOC	PCB	PAH	METAL	Metal Extended	Pesticides	PID
MW107	MW107-59	North End of Site							X	7.6
	MW107-139						X			4.8
MW108	MW108-38	Mid Area						X		1.8
	MW108-71		X							4.3
	MW108-145						X			3.1
MW109	MW109-32	East End		X	X					1.2
	MW109-50		X						X	6.8
MW110	MW110-18	East End	X				X			2.4
	MW110-34								X	4.8
	MW110-148						X			3.9
MW111	MW111-23	North End of Site								2.4
	MW111-38									4.8
	MW111-152									3.9
BH112	BH112-39	Mid Area								3.5
	BH112-54									6.7
BH113	BH113-22	Mid Area	X				X			4.5
	BH113-38									4.7
BH114	BH114-13	Mid Area								4.9
	BH114-65									8.7
BH115	BH115-42	Mid Area					X			5.5
	BH115-58									6.7
BH116	BH116-27	West End					X			5.3

Overview of Laboratory Testing by EMG

Field Testing for the Period: October 9th, 2013

Project: 401 March Road, Ottawa, Ontario

Borehole #	Soil Sample Number	Location	PHC F2-F4	VOC	PCB	PAH	METAL	Metal Extended	Pesticides	PID
	BH116-70						X			5.5
	Soil Totals		**6**	**3**	**2**	**3**	**12**	**3**	**7**	
Duplicate and Trip Samples										
Duplicate 401- 1		MW102-36					**X**			
Duplicate 401- 2		MW102-160		**X**						
Duplicate 401- 3		MW102-220				**X**				
Duplicate 401-4		MW108-38						**X**		
Duplicate 401-5		MW109-32			**X**					
Duplicate 401-6		MW109-50	**X**							
Duplicate 401-7		MW112.54							**X**	

Overview of Laboratory Testing by EMG

Field Testing for the Period: October 9th, 2013

Project: 401 March Road, Ottawa, Ontario

Borehole #	Groundwater Sample Number	Location	PHC F2-F4	VOC	PCB	PAH	METAL	Metal Extended	Pesticides
MW101	MW101	North End of Site							
MW102	MW102	South End Adjacent to Rail line		X					
MW103	MW103	South End Adjacent to Rail line	X						
MW105	MW105	West End							
MW106	MW106	South End Adjacent to Rail line		X		X			X
MW107	MW107	North End of Site					X		
MW108	MW108	Mid Area		X					X
MW109	MW109	East End	X				X		
MW110	MW110	East End					X		X
MW111	MW111	North End of Site				X			
Totals			**2**	**3**		**2**	**3**		**3**
Duplicate and Trip Samples									
Duplicate 401- 8		MW103	X						
Duplicate 401- 9		MW106				X			
Duplicate 401- 10		MW108		X					
Duplicate 401-11		MW110					X		X
TRIP 1				X					

Appendix 7

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Certificate of Analysis

The Environment Management Group Ltd. (EMG)

29 Queen Anne Rd.
Etobicoke, ON M8X 1T1
Attn: Aaron Levine

Phone: (416) 239-6643
Fax: (416) 239-0300

Client PO:
Project: 401 March Road, Ottawa
Custody: 94283/94306/307

Report Date: 17-Oct-2013
Order Date: 10-Oct-2013
Order #: 1341285

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1341285-01	MW101-36
1341285-03	MW101-230
1341285-04	MW102-36
1341285-06	MW102-160
1341285-07	MW102-220
1341285-08	MW103-30
1341285-10	MW103-85
1341285-11	MW103-230
1341285-12	MW104-62
1341285-14	MW105-42
1341285-15	MW105-59
1341285-16	MW106-58
1341285-17	MW106-76
1341285-19	MW107-139
1341285-20	MW108-38
1341285-21	MW108-71
1341285-22	MW108-145
1341285-23	MW109-32
1341285-24	MW109-50
1341285-25	MW110-18
1341285-27	MW110-148
1341285-28	BH113-22
1341285-29	BH115-42
1341285-30	BH116-27
1341285-31	BH116-70

Approved By: Mark Foto

Mark Foto, M.Sc. For Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 17-Oct-2013
Order Date:10-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road, Ottawa

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Boron, available	MOE (HWE), EPA 200.7 - ICP-OES	16-Oct-13	17-Oct-13
Chromium, hexavalent	MOE E3056 - Extraction, colourimetric	10-Oct-13	16-Oct-13
MOE Metals by ICP-OES, soil Reg 153	based on MOE E3470, ICP-OES	15-Oct-13	15-Oct-13
PAHs by GC-MS	EPA 8270 - GC-MS, extraction	10-Oct-13	15-Oct-13
PCBs, total	SW846 8082A - GC-ECD	16-Oct-13	16-Oct-13
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	15-Oct-13	15-Oct-13
Solids, %	Gravimetric, calculation	11-Oct-13	11-Oct-13
VOCs by P&T GC-MS	EPA 8260 - P&T GC-MS	14-Oct-13	15-Oct-13

Certificate of Analysis

Report Date: 17-Oct-2013
Order Date:10-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road, Ottawa

	Client ID:	MW101-36	MW101-230	MW102-36	MW102-160
	Sample Date:	09-Oct-13	09-Oct-13	09-Oct-13	09-Oct-13
	Sample ID:	1341285-01	1341285-03	1341285-04	1341285-06
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	82.1	67.1	81.7	69.7
Metals					
Antimony	1.0 ug/g dry	<1.0	-	<1.0	-
Arsenic	1.0 ug/g dry	1.8	-	3.0	-
Barium	1.0 ug/g dry	180	-	131	-
Beryllium	1.0 ug/g dry	<1.0	-	<1.0	-
Boron	1.0 ug/g dry	5.2	-	4.7	-
Boron, available	0.5 ug/g dry	<0.5	-	-	-
Cadmium	0.5 ug/g dry	<0.5	-	<0.5	-
Chromium	1.0 ug/g dry	42.7	-	31.9	-
Chromium (VI)	0.2 ug/g dry	0.2	-	-	-
Cobalt	1.0 ug/g dry	9.9	-	9.0	-
Copper	1.0 ug/g dry	20.2	-	16.1	-
Lead	1.0 ug/g dry	6.4	-	6.1	-
Molybdenum	1.0 ug/g dry	<1.0	-	<1.0	-
Nickel	1.0 ug/g dry	20.7	-	18.0	-
Selenium	1.0 ug/g dry	<1.0	-	<1.0	-
Silver	0.5 ug/g dry	<0.5	-	<0.5	-
Thallium	1.0 ug/g dry	<1.0	-	<1.0	-
Uranium	1.0 ug/g dry	<1.0	-	<1.0	-
Vanadium	1.0 ug/g dry	54.9	-	44.6	-
Zinc	1.0 ug/g dry	66.1	-	53.9	-
Volatiles					
Acetone	0.50 ug/g dry	-	<0.50	-	<0.50
Benzene	0.02 ug/g dry	-	<0.02	-	<0.02
Bromodichloromethane	0.05 ug/g dry	-	<0.05	-	<0.05
Bromoform	0.05 ug/g dry	-	<0.05	-	<0.05
Bromomethane	0.05 ug/g dry	-	<0.05	-	<0.05
Carbon Tetrachloride	0.05 ug/g dry	-	<0.05	-	<0.05
Chlorobenzene	0.05 ug/g dry	-	<0.05	-	<0.05
Chloroethane	0.05 ug/g dry	-	<0.05	-	<0.05
Chloroform	0.05 ug/g dry	-	<0.05	-	<0.05
Chloromethane	0.20 ug/g dry	-	<0.20	-	<0.20

Certificate of Analysis

Report Date: 17-Oct-2013
Order Date:10-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road, Ottawa

	Client ID:	MW101-36	MW101-230	MW102-36	MW102-160
	Sample Date:	09-Oct-13	09-Oct-13	09-Oct-13	09-Oct-13
	Sample ID:	1341285-01	1341285-03	1341285-04	1341285-06
	MDL/Units	Soil	Soil	Soil	Soil
Dibromochloromethane	0.05 ug/g dry	-	<0.05	-	<0.05
Dichlorodifluoromethane	0.05 ug/g dry	-	<0.05	-	<0.05
1,2-Dibromoethane	0.05 ug/g dry	-	<0.05	-	<0.05
1,2-Dichlorobenzene	0.05 ug/g dry	-	<0.05	-	<0.05
1,3-Dichlorobenzene	0.05 ug/g dry	-	<0.05	-	<0.05
1,4-Dichlorobenzene	0.05 ug/g dry	-	<0.05	-	<0.05
1,1-Dichloroethane	0.05 ug/g dry	-	<0.05	-	<0.05
1,2-Dichloroethane	0.05 ug/g dry	-	<0.05	-	<0.05
1,1-Dichloroethylene	0.05 ug/g dry	-	<0.05	-	<0.05
cis-1,2-Dichloroethylene	0.05 ug/g dry	-	<0.05	-	<0.05
trans-1,2-Dichloroethylene	0.05 ug/g dry	-	<0.05	-	<0.05
1,2-Dichloroethylene, total	0.05 ug/g dry	-	<0.05	-	<0.05
1,2-Dichloropropane	0.05 ug/g dry	-	<0.05	-	<0.05
cis-1,3-Dichloropropylene	0.05 ug/g dry	-	<0.05	-	<0.05
trans-1,3-Dichloropropylene	0.05 ug/g dry	-	<0.05	-	<0.05
1,3-Dichloropropene, total	0.05 ug/g dry	-	<0.05	-	<0.05
Ethylbenzene	0.05 ug/g dry	-	<0.05	-	<0.05
Hexane	0.05 ug/g dry	-	<0.05	-	<0.05
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	-	<0.50	-	<0.50
Methyl Butyl Ketone (2-Hexanone)	2.00 ug/g dry	-	<2.00	-	<2.00
Methyl Isobutyl Ketone	0.50 ug/g dry	-	<0.50	-	<0.50
Methyl tert-butyl ether	0.05 ug/g dry	-	<0.05	-	<0.05
Methylene Chloride	0.05 ug/g dry	-	<0.05	-	<0.05
Styrene	0.05 ug/g dry	-	<0.05	-	<0.05
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	-	<0.05	-	<0.05
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	-	<0.05	-	<0.05
Tetrachloroethylene	0.05 ug/g dry	-	<0.05	-	<0.05
Toluene	0.05 ug/g dry	-	<0.05	-	<0.05
1,2,4-Trichlorobenzene	0.05 ug/g dry	-	<0.05	-	<0.05
1,1,1-Trichloroethane	0.05 ug/g dry	-	<0.05	-	<0.05
1,1,2-Trichloroethane	0.05 ug/g dry	-	<0.05	-	<0.05
Trichloroethylene	0.05 ug/g dry	-	<0.05	-	<0.05
Trichlorofluoromethane	0.05 ug/g dry	-	<0.05	-	<0.05
1,3,5-Trimethylbenzene	0.05 ug/g dry	-	<0.05	-	<0.05

Certificate of Analysis

Report Date: 17-Oct-2013
Order Date:10-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road, Ottawa

	Client ID:	MW101-36	MW101-230	MW102-36	MW102-160
	Sample Date:	09-Oct-13	09-Oct-13	09-Oct-13	09-Oct-13
	Sample ID:	1341285-01	1341285-03	1341285-04	1341285-06
	MDL/Units	Soil	Soil	Soil	Soil
Vinyl chloride	0.02 ug/g dry	-	<0.02	-	<0.02
m,p-Xylenes	0.05 ug/g dry	-	<0.05	-	<0.05
o-Xylene	0.05 ug/g dry	-	<0.05	-	<0.05
Xylenes, total	0.05 ug/g dry	-	<0.05	-	<0.05
4-Bromofluorobenzene	Surrogate	-	91.7%	-	91.2%
Dibromofluoromethane	Surrogate	-	84.7%	-	84.7%
Toluene-d8	Surrogate	-	91.8%	-	91.6%
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	-	<0.02	-	-
Acenaphthylene	0.02 ug/g dry	-	<0.02	-	-
Anthracene	0.02 ug/g dry	-	<0.02	-	-
Benzo [a] anthracene	0.02 ug/g dry	-	<0.02	-	-
Benzo [a] pyrene	0.02 ug/g dry	-	<0.02	-	-
Benzo [b] fluoranthene	0.02 ug/g dry	-	<0.02	-	-
Benzo [g,h,i] perylene	0.02 ug/g dry	-	<0.02	-	-
Benzo [k] fluoranthene	0.02 ug/g dry	-	<0.02	-	-
Biphenyl	0.02 ug/g dry	-	<0.02	-	-
Chrysene	0.02 ug/g dry	-	<0.02	-	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	-	<0.02	-	-
Fluoranthene	0.02 ug/g dry	-	<0.02	-	-
Fluorene	0.02 ug/g dry	-	<0.02	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	-	<0.02	-	-
1-Methylnaphthalene	0.02 ug/g dry	-	<0.02	-	-
2-Methylnaphthalene	0.02 ug/g dry	-	<0.02	-	-
Methylnaphthalene (1&2)	0.04 ug/g dry	-	<0.04	-	-
Naphthalene	0.01 ug/g dry	-	<0.01	-	-
Phenanthrene	0.02 ug/g dry	-	<0.02	-	-
Pyrene	0.02 ug/g dry	-	<0.02	-	-
2-Fluorobiphenyl	Surrogate	-	99.0%	-	-
Terphenyl-d14	Surrogate	-	65.5%	-	-

Certificate of Analysis

Report Date: 17-Oct-2013
Order Date:10-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road, Ottawa

	Client ID:	MW102-220	MW103-30	MW103-85	MW103-230
	Sample Date:	09-Oct-13	09-Oct-13	09-Oct-13	09-Oct-13
	Sample ID:	1341285-07	1341285-08	1341285-10	1341285-11
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	66.3	80.7	83.5	70.7
Metals					
Antimony	1.0 ug/g dry	-	<1.0	<1.0	-
Arsenic	1.0 ug/g dry	-	2.1	1.3	-
Barium	1.0 ug/g dry	-	145	54.8	-
Beryllium	1.0 ug/g dry	-	<1.0	<1.0	-
Boron	1.0 ug/g dry	-	5.4	1.9	-
Boron, available	0.5 ug/g dry	-	<0.5	-	-
Cadmium	0.5 ug/g dry	-	<0.5	<0.5	-
Chromium	1.0 ug/g dry	-	31.8	15.5	-
Chromium (VI)	0.2 ug/g dry	-	0.4	-	-
Cobalt	1.0 ug/g dry	-	9.2	5.3	-
Copper	1.0 ug/g dry	-	19.6	4.3	-
Lead	1.0 ug/g dry	-	5.6	2.9	-
Molybdenum	1.0 ug/g dry	-	<1.0	<1.0	-
Nickel	1.0 ug/g dry	-	19.2	8.6	-
Selenium	1.0 ug/g dry	-	<1.0	<1.0	-
Silver	0.5 ug/g dry	-	<0.5	<0.5	-
Thallium	1.0 ug/g dry	-	<1.0	<1.0	-
Uranium	1.0 ug/g dry	-	<1.0	<1.0	-
Vanadium	1.0 ug/g dry	-	43.0	22.6	-
Zinc	1.0 ug/g dry	-	50.2	23.4	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	-	-	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	-	-	<0.02
Anthracene	0.02 ug/g dry	<0.02	-	-	<0.02
Benzo [a] anthracene	0.02 ug/g dry	<0.02	-	-	<0.02
Benzo [a] pyrene	0.02 ug/g dry	<0.02	-	-	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	-	-	<0.02
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	-	-	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	-	-	<0.02
Biphenyl	0.02 ug/g dry	<0.02	-	-	<0.02
Chrysene	0.02 ug/g dry	<0.02	-	-	<0.02

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Report Date: 17-Oct-2013
Order Date:10-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road, Ottawa

	Client ID:	MW102-220	MW103-30	MW103-85	MW103-230
	Sample Date:	09-Oct-13	09-Oct-13	09-Oct-13	09-Oct-13
	Sample ID:	1341285-07	1341285-08	1341285-10	1341285-11
	MDL/Units	Soil	Soil	Soil	Soil
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	-	-	<0.02
Fluoranthene	0.02 ug/g dry	<0.02	-	-	<0.02
Fluorene	0.02 ug/g dry	<0.02	-	-	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	-	-	<0.02
1-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	<0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	-	-	<0.04
Naphthalene	0.01 ug/g dry	<0.01	-	-	<0.01
Phenanthrene	0.02 ug/g dry	<0.02	-	-	<0.02
Pyrene	0.02 ug/g dry	<0.02	-	-	<0.02
2-Fluorobiphenyl	Surrogate	102%	-	-	84.2%
Terphenyl-d14	Surrogate	59.9%	-	-	64.5%

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Report Date: 17-Oct-2013
Order Date:10-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road, Ottawa

	Client ID	MW104-62	MW105-42	MW105-59	MW106-58
	Sample Date	09-Oct-13	09-Oct-13	09-Oct-13	09-Oct-13
	Sample ID:	1341285-12	1341285-14	1341285-15	1341285-16
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	81.3	83.6	78.6	77.5
Metals					
Antimony	1.0 ug/g dry	-	-	<1.0	<1.0
Arsenic	1.0 ug/g dry	-	-	1.5	<1.0
Barium	1.0 ug/g dry	-	-	189	189
Beryllium	1.0 ug/g dry	-	-	<1.0	<1.0
Boron	1.0 ug/g dry	-	-	5.6	4.9
Cadmium	0.5 ug/g dry	-	-	<0.5	<0.5
Chromium	1.0 ug/g dry	-	-	44.4	44.2
Cobalt	1.0 ug/g dry	-	-	9.6	9.9
Copper	1.0 ug/g dry	-	-	20.2	19.6
Lead	1.0 ug/g dry	-	-	6.2	6.2
Molybdenum	1.0 ug/g dry	-	-	<1.0	<1.0
Nickel	1.0 ug/g dry	-	-	20.1	20.8
Selenium	1.0 ug/g dry	-	-	<1.0	<1.0
Silver	0.5 ug/g dry	-	-	<0.5	<0.5
Thallium	1.0 ug/g dry	-	-	<1.0	<1.0
Uranium	1.0 ug/g dry	-	-	<1.0	<1.0
Vanadium	1.0 ug/g dry	-	-	55.5	55.3
Zinc	1.0 ug/g dry	-	-	68.3	68.9
Volatiles					
Acetone	0.50 ug/g dry	<0.50	-	-	-
Benzene	0.02 ug/g dry	<0.02	-	-	-
Bromodichloromethane	0.05 ug/g dry	<0.05	-	-	-
Bromoform	0.05 ug/g dry	<0.05	-	-	-
Bromomethane	0.05 ug/g dry	<0.05	-	-	-
Carbon Tetrachloride	0.05 ug/g dry	<0.05	-	-	-
Chlorobenzene	0.05 ug/g dry	<0.05	-	-	-
Chloroethane	0.05 ug/g dry	<0.05	-	-	-
Chloroform	0.05 ug/g dry	<0.05	-	-	-
Chloromethane	0.20 ug/g dry	<0.20	-	-	-
Dibromochloromethane	0.05 ug/g dry	<0.05	-	-	-
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	-	-	-

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Report Date: 17-Oct-2013
Order Date:10-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road, Ottawa

	Client ID:	MW104-62	MW105-42	MW105-59	MW106-58
	Sample Date:	09-Oct-13	09-Oct-13	09-Oct-13	09-Oct-13
	Sample ID:	1341285-12	1341285-14	1341285-15	1341285-16
	MDL/Units	Soil	Soil	Soil	Soil
1,2-Dibromoethane	0.05 ug/g dry	<0.05	-	-	-
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,1-Dichloroethane	0.05 ug/g dry	<0.05	-	-	-
1,2-Dichloroethane	0.05 ug/g dry	<0.05	-	-	-
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-
1,2-Dichloroethylene, total	0.05 ug/g dry	<0.05	-	-	-
1,2-Dichloropropane	0.05 ug/g dry	<0.05	-	-	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	-	-	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	-	-	-
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	-	-	-
Ethylbenzene	0.05 ug/g dry	<0.05	-	-	-
Hexane	0.05 ug/g dry	<0.05	-	-	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	-	-	-
Methyl Butyl Ketone (2-Hexanone)	2.00 ug/g dry	<2.00	-	-	-
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	-	-	-
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	-	-	-
Methylene Chloride	0.05 ug/g dry	<0.05	-	-	-
Styrene	0.05 ug/g dry	<0.05	-	-	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	-	-	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	-	-	-
Tetrachloroethylene	0.05 ug/g dry	<0.05	-	-	-
Toluene	0.05 ug/g dry	<0.05	-	-	-
1,2,4-Trichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	-	-	-
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	-	-	-
Trichloroethylene	0.05 ug/g dry	<0.05	-	-	-
Trichlorofluoromethane	0.05 ug/g dry	<0.05	-	-	-
1,3,5-Trimethylbenzene	0.05 ug/g dry	<0.05	-	-	-
Vinyl chloride	0.02 ug/g dry	<0.02	-	-	-
m,p-Xylenes	0.05 ug/g dry	<0.05	-	-	-

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Report Date: 17-Oct-2013
Order Date:10-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road, Ottawa

	Client ID:	MW104-62	MW105-42	MW105-59	MW106-58
	Sample Date	09-Oct-13	09-Oct-13	09-Oct-13	09-Oct-13
	Sample ID:	1341285-12	1341285-14	1341285-15	1341285-16
	MDL/Units	Soil	Soil	Soil	Soil
o-Xylene	0.05 ug/g dry	<0.05	-	-	-
Xylenes, total	0.05 ug/g dry	<0.05	-	-	-
4-Bromofluorobenzene	Surrogate	89.5%	-	-	-
Dibromofluoromethane	Surrogate	84.8%	-	-	-
Toluene-d8	Surrogate	93.6%	-	-	-
Hydrocarbons					
F2 PHCs (C10-C16)	4 ug/g dry	-	<4	-	-
F3 PHCs (C16-C34)	8 ug/g dry	-	<8	-	-
F4 PHCs (C34-C50)	6 ug/g dry	-	<6	-	-
PCBs					
PCBs, total	0.05 ug/g dry	<0.05	-	-	-
Decachlorobiphenyl	Surrogate	92.3%	-	-	-

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Report Date: 17-Oct-2013
Order Date:10-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road, Ottawa

	Client ID	MW106-76	MW107-139	MW108-38	MW108-71
	Sample Date	09-Oct-13	09-Oct-13	09-Oct-13	09-Oct-13
	Sample ID:	1341285-17	1341285-19	1341285-20	1341285-21
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	74.6	71.9	84.6	74.3
Metals					
Antimony	1.0 ug/g dry	-	<1.0	<1.0	-
Arsenic	1.0 ug/g dry	-	<1.0	<1.0	-
Barium	1.0 ug/g dry	-	188	110	-
Beryllium	1.0 ug/g dry	-	<1.0	<1.0	-
Boron	1.0 ug/g dry	-	5.7	5.4	-
Boron, available	0.5 ug/g dry	-	-	<0.5	-
Cadmium	0.5 ug/g dry	-	<0.5	<0.5	-
Chromium	1.0 ug/g dry	-	43.4	26.1	-
Chromium (VI)	0.2 ug/g dry	-	-	0.2	-
Cobalt	1.0 ug/g dry	-	10.0	7.7	-
Copper	1.0 ug/g dry	-	21.1	16.9	-
Lead	1.0 ug/g dry	-	5.7	7.1	-
Molybdenum	1.0 ug/g dry	-	<1.0	<1.0	-
Nickel	1.0 ug/g dry	-	21.5	15.6	-
Selenium	1.0 ug/g dry	-	<1.0	<1.0	-
Silver	0.5 ug/g dry	-	<0.5	<0.5	-
Thallium	1.0 ug/g dry	-	<1.0	<1.0	-
Uranium	1.0 ug/g dry	-	<1.0	<1.0	-
Vanadium	1.0 ug/g dry	-	57.6	37.8	-
Zinc	1.0 ug/g dry	-	67.4	41.5	-
Hydrocarbons					
F2 PHCs (C10-C16)	4 ug/g dry	<4	-	-	<4
F3 PHCs (C16-C34)	8 ug/g dry	<8	-	-	<8
F4 PHCs (C34-C50)	6 ug/g dry	<6	-	-	<6

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Report Date: 17-Oct-2013
Order Date:10-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road, Ottawa

	Client ID	MW108-145	MW109-32	MW109-50	MW110-18
	Sample Date	09-Oct-13	09-Oct-13	09-Oct-13	09-Oct-13
	Sample ID:	1341285-22	1341285-23	1341285-24	1341285-25
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	72.3	71.2	84.8	82.4
Metals					
Antimony	1.0 ug/g dry	<1.0	-	-	<1.0
Arsenic	1.0 ug/g dry	<1.0	-	-	2.1
Barium	1.0 ug/g dry	179	-	-	131
Beryllium	1.0 ug/g dry	<1.0	-	-	<1.0
Boron	1.0 ug/g dry	5.2	-	-	4.8
Boron, available	0.5 ug/g dry	-	-	-	<0.5
Cadmium	0.5 ug/g dry	<0.5	-	-	<0.5
Chromium	1.0 ug/g dry	40.8	-	-	29.4
Chromium (VI)	0.2 ug/g dry	-	-	-	0.2
Cobalt	1.0 ug/g dry	9.4	-	-	8.5
Copper	1.0 ug/g dry	19.2	-	-	17.0
Lead	1.0 ug/g dry	5.9	-	-	5.1
Molybdenum	1.0 ug/g dry	<1.0	-	-	<1.0
Nickel	1.0 ug/g dry	19.5	-	-	17.1
Selenium	1.0 ug/g dry	<1.0	-	-	<1.0
Silver	0.5 ug/g dry	<0.5	-	-	<0.5
Thallium	1.0 ug/g dry	<1.0	-	-	<1.0
Uranium	1.0 ug/g dry	<1.0	-	-	<1.0
Vanadium	1.0 ug/g dry	53.8	-	-	40.7
Zinc	1.0 ug/g dry	63.7	-	-	45.8
Volatiles					
Acetone	0.50 ug/g dry	-	<0.50	-	-
Benzene	0.02 ug/g dry	-	<0.02	-	-
Bromodichloromethane	0.05 ug/g dry	-	<0.05	-	-
Bromoform	0.05 ug/g dry	-	<0.05	-	-
Bromomethane	0.05 ug/g dry	-	<0.05	-	-
Carbon Tetrachloride	0.05 ug/g dry	-	<0.05	-	-
Chlorobenzene	0.05 ug/g dry	-	<0.05	-	-
Chloroethane	0.05 ug/g dry	-	<0.05	-	-
Chloroform	0.05 ug/g dry	-	<0.05	-	-
Chloromethane	0.20 ug/g dry	-	<0.20	-	-

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Report Date: 17-Oct-2013
Order Date:10-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road, Ottawa

	Client ID:	MW108-145	MW109-32	MW109-50	MW110-18
	Sample Date:	09-Oct-13	09-Oct-13	09-Oct-13	09-Oct-13
	Sample ID:	1341285-22	1341285-23	1341285-24	1341285-25
	MDL/Units	Soil	Soil	Soil	Soil
Dibromochloromethane	0.05 ug/g dry	-	<0.05	-	-
Dichlorodifluoromethane	0.05 ug/g dry	-	<0.05	-	-
1,2-Dibromoethane	0.05 ug/g dry	-	<0.05	-	-
1,2-Dichlorobenzene	0.05 ug/g dry	-	<0.05	-	-
1,3-Dichlorobenzene	0.05 ug/g dry	-	<0.05	-	-
1,4-Dichlorobenzene	0.05 ug/g dry	-	<0.05	-	-
1,1-Dichloroethane	0.05 ug/g dry	-	<0.05	-	-
1,2-Dichloroethane	0.05 ug/g dry	-	<0.05	-	-
1,1-Dichloroethylene	0.05 ug/g dry	-	<0.05	-	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	-	<0.05	-	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	-	<0.05	-	-
1,2-Dichloroethylene, total	0.05 ug/g dry	-	<0.05	-	-
1,2-Dichloropropane	0.05 ug/g dry	-	<0.05	-	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	-	<0.05	-	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	-	<0.05	-	-
1,3-Dichloropropene, total	0.05 ug/g dry	-	<0.05	-	-
Ethylbenzene	0.05 ug/g dry	-	<0.05	-	-
Hexane	0.05 ug/g dry	-	<0.05	-	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	-	<0.50	-	-
Methyl Butyl Ketone (2-Hexanone)	2.00 ug/g dry	-	<2.00	-	-
Methyl Isobutyl Ketone	0.50 ug/g dry	-	<0.50	-	-
Methyl tert-butyl ether	0.05 ug/g dry	-	<0.05	-	-
Methylene Chloride	0.05 ug/g dry	-	<0.05	-	-
Styrene	0.05 ug/g dry	-	<0.05	-	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	-	<0.05	-	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	-	<0.05	-	-
Tetrachloroethylene	0.05 ug/g dry	-	<0.05	-	-
Toluene	0.05 ug/g dry	-	<0.05	-	-
1,2,4-Trichlorobenzene	0.05 ug/g dry	-	<0.05	-	-
1,1,1-Trichloroethane	0.05 ug/g dry	-	<0.05	-	-
1,1,2-Trichloroethane	0.05 ug/g dry	-	<0.05	-	-
Trichloroethylene	0.05 ug/g dry	-	<0.05	-	-
Trichlorofluoromethane	0.05 ug/g dry	-	<0.05	-	-

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Report Date: 17-Oct-2013
Order Date:10-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road, Ottawa

	Client ID:	MW108-145	MW109-32	MW109-50	MW110-18
	Sample Date	09-Oct-13	09-Oct-13	09-Oct-13	09-Oct-13
	Sample ID:	1341285-22	1341285-23	1341285-24	1341285-25
	MDL/Units	Soil	Soil	Soil	Soil
1,3,5-Trimethylbenzene	0.05 ug/g dry	-	<0.05	-	-
Vinyl chloride	0.02 ug/g dry	-	<0.02	-	-
m,p-Xylenes	0.05 ug/g dry	-	<0.05	-	-
o-Xylene	0.05 ug/g dry	-	<0.05	-	-
Xylenes, total	0.05 ug/g dry	-	<0.05	-	-
4-Bromofluorobenzene	Surrogate	-	90.2%	-	-
Dibromofluoromethane	Surrogate	-	85.5%	-	-
Toluene-d8	Surrogate	-	92.1%	-	-
Hydrocarbons					
F2 PHCs (C10-C16)	4 ug/g dry	-	-	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	-	-	<8	<8
F4 PHCs (C34-C50)	6 ug/g dry	-	-	<6	<6
PCBs					
PCBs, total	0.05 ug/g dry	-	<0.05	-	-
Decachlorobiphenyl	Surrogate	-	77.2%	-	-

Certificate of Analysis

Report Date: 17-Oct-2013
Order Date:10-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road, Ottawa

	Client ID:	MW110-148	MW113-22	BH115-42	BH116-27
	Sample Date:	09-Oct-13	09-Oct-13	09-Oct-13	09-Oct-13
	Sample ID:	1341285-27	1341285-28	1341285-29	1341285-30
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	70.7	76.4	72.9	78.4
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	1.8	<1.0	<1.0	<1.0
Barium	1.0 ug/g dry	139	182	93	88
Beryllium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Boron	1.0 ug/g dry	4.9	5.3	5.2	4.8
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	1.0 ug/g dry	31.4	44.3	40.8	29.4
Cobalt	1.0 ug/g dry	8.9	9.0	9.4	8.5
Copper	1.0 ug/g dry	18.7	20.1	19.2	17.0
Lead	1.0 ug/g dry	5.4	5.7	5.9	9.4
Molybdenum	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Nickel	1.0 ug/g dry	19.1	21.5	19.5	23.1
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	1.0 ug/g dry	43.3	57.6	53.8	40.7
Zinc	1.0 ug/g dry	50.1	67.4	45.8	76.1
Hydrocarbons					
F2 PHCs (C10-C16)	4 ug/g dry	-	<4	-	-
F3 PHCs (C16-C34)	8 ug/g dry	-	<8	-	-
F4 PHCs (C34-C50)	6 ug/g dry	-	<6	-	-

Certificate of Analysis

Report Date: 17-Oct-2013
Order Date:10-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**

7 Client PO: Project Description: 401 March Road, Ottawa

	Client ID:	BH116-70			
	Sample Date:	09-Oct-13			
	Sample ID:	1341285-31			
	MDL/Units	Soil			
Physical Characteristics					
% Solids	0.1 % by Wt.	70.7			
Metals					
Antimony	1.0 ug/g dry	<1.0			
Arsenic	1.0 ug/g dry	<1.0			
Barium	1.0 ug/g dry	188			
Beryllium	1.0 ug/g dry	<1.0			
Boron	1.0 ug/g dry	5.7			
Cadmium	0.5 ug/g dry	<0.5			
Chromium	1.0 ug/g dry	43.4			
Cobalt	1.0 ug/g dry	10.0			
Copper	1.0 ug/g dry	21.1			
Lead	1.0 ug/g dry	5.7			
Molybdenum	1.0 ug/g dry	<1.0			
Nickel	1.0 ug/g dry	21.5			
Selenium	1.0 ug/g dry	<1.0			
Silver	0.5 ug/g dry	<0.5			
Thallium	1.0 ug/g dry	<1.0			
Uranium	1.0 ug/g dry	<1.0			
Vanadium	1.0 ug/g dry	57.6			
Zinc	1.0 ug/g dry	67.4			

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Ottawa, Ontario K1G 4J8
p: 1-800-749-1947
e: paracel@paracellabs.com
www.paracellabs.com

Subcontracted Analysis

The Environment Management Group Ltd. (EMG)
29 Queen Anne Rd.
Etobicoke, ON M8X 1T1
Attn: Aaron Levine

Tel: (416) 239-6643
Fax: (416) 239-0300

Paracel Report No.: **1341285**
Client Project(s): **401 March Road, Ottawa**
Client PO:
Reference:
CoC Number: **94283/94306/307**

Order Date: 10-Oct-13
Report Date: 21-Oct-13

Sample(s) from this project were subcontracted for the listed parameters. A copy of the subcontractor's report is attached

Paracel ID	Client ID	Analysis
1341285-02	MW101-58	Pesticides, Organochlorine
1341285-05	MW102-60	Pesticides, Organochlorine
1341285-09	MW103-70	Pesticides, Organochlorine
1341285-13	MW104-99	Pesticides, Organochlorine
1341285-18	MW107-59	Pesticides, Organochlorine
1341285-24	MW109-50	Pesticides, Organochlorine
1341285-26	MW110-34	Pesticides, Organochlorine

Testmark Laboratories Ltd.

Commited to Quality and Service

WorkOrder: 195053
Project: 1341285
Company: Paracel Laboratories Ltd.

Certificate of Analysis

Contact:	Robertson, Dale	Date Received:	10/11/2013 12:00:00 AM
Company:	Paracel Laboratories Ltd.	Regulation:	O.Reg 153/July'11 Table 3 Soil Stringent
	300-2319 St. Laurent Blvd.	PO#:	None Given
	Ottawa, ON, K1G 4J8	Project:	1341285
Phone:	(613) 731-9577	DWS#:	None Given
Fax:	(613) 731-9064	Sampled By:	None Given
Email:	paracel@paracellabs.com		

Work Order Summary:

Analyses were performed on the following samples:

The results relate only to the items tested

Sample Name	Lab #	Matrix	Type	Temp (°C)	Date Collected	Time Collected
MW101-58	518431	Soil	None	7	10/9/2013	12:00:00 AM
MW102-60	518432	Soil	None	7	10/9/2013	12:00:00 AM
MW103-70	518433	Soil	None	7	10/9/2013	12:00:00 AM
MW104-99	518434	Soil	None	7	10/9/2013	12:00:00 AM
MW107-59	518435	Soil	None	7	10/9/2013	12:00:00 AM
MW109-50	518436	Soil	None	7	10/9/2013	12:00:00 AM
MW110-34	518437	Soil	None	7	10/9/2013	12:00:00 AM

The following methods were used for your sample(s):

Method Name	Reference
Moisture	In House
OCPs Soil	Based on SW846-8081B

Laboratory Comments:

This report has been approved by:

Adam Tam, M.Sc.

Inorganic Section Head

7 Margaret Street, Garson Ontario Canada, P3L 1E1
Phone: (705) 693-1121 Fax: (705) 693-1124 Web: www.testmark.ca

QUALITY CONTROL DATA

	%RPD				Lab Control Sample 2				Matrix Spike				Method Blank			
	LCL	Result	UCL	Units	LCL	Result	UCL	Units	LCL	Result	UCL	Units	LCL	Result	UCL	Units
OCPs Soil																
2,4'-DDT	0	N/A	40	%	0.02	0.044	0.08	µg/g	50	56.1	140	% Rec	0	<0.03	0.3	µg/g
4,4'-DDD	0	N/A	40	%	0.02	0.025	0.08	µg/g	50	55	140	% Rec	0	<0.003	0.03	µg/g
4,4'-DDE	0	N/A	40	%	0.02	0.039	0.08	µg/g	50	69.3	140	% Rec	0	<0.01	0.1	µg/g
4,4'-DDT	0	N/A	40	%	0.02	0.031	0.08	µg/g	50	68	140	% Rec	0	<0.003	0.03	µg/g
Aldrin	0	N/A	40	%	0.02	0.045	0.08	µg/g	50	61.6	140	% Rec	0	<0.001	0.01	µg/g
Decachlorobiphenyl (Surr.)		N/A			50	N/A	140	% Rec		N/A			50	62	140	% Rec
Dieldrin	0	N/A	40	%	0.02	0.047	0.08	µg/g	50	56.1	140	% Rec	0	<0.01	0.1	µg/g
Endosulfan I	0	N/A	40	%	0.02	0.047	0.08	µg/g	50	61.6	140	% Rec	0	<0.03	0.3	µg/g
Endosulfan II	0	N/A	40	%	0.02	0.04	0.08	µg/g	50	51.7	140	% Rec	0	<0.01	0.1	µg/g
Endosulfan sulfate	0	N/A	40	%	0.02	0.042	0.08	µg/g	50	50.6	140	% Rec	0	<0.03	0.3	µg/g
Endrin	0	N/A	40	%	0.02	0.043	0.08	µg/g	50	60.5	140	% Rec	0	<0.002	0.02	µg/g
Endrin aldehyde	0	N/A	40	%	0.02	0.043	0.08	µg/g	50	60.5	140	% Rec	0	<0.06	0.6	µg/g
Heptachlor	0	N/A	40	%	0.02	0.045	0.08	µg/g	50	66	140	% Rec	0	<0.001	0.01	µg/g
Heptachlor epoxide	0	N/A	40	%	0.02	0.042	0.08	µg/g	50	61.6	140	% Rec	0	<0.01	0.1	µg/g
Hexachlorobenzene		N/A				N/A				N/A			0	<0.01	0.1	µg/g
Methoxychlor	0	N/A	40	%	0.02	0.029	0.08	µg/g	50	64.9	140	% Rec	0	<0.01	0.1	µg/g
Mirex	0	N/A	40	%	0.02	0.047	0.08	µg/g	50	55	140	% Rec	0	<0.01	0.1	µg/g
Oxychlordane	0	N/A	40	%		N/A				N/A				N/A		
α - Chlordane	0	N/A	40	%	0.02	0.049	0.08	µg/g	50	64.9	140	% Rec	0	<0.001	0.01	µg/g
α-BHC	0	N/A	40	%	0.02	0.043	0.08	µg/g	50	123	140	% Rec	0	<0.005	0.05	µg/g
β-BHC	0	N/A	40	%	0.02	0.042	0.08	µg/g	50	115	140	% Rec	0	<0.005	0.05	µg/g
γ - Chlordane	0	N/A	40	%	0.02	0.044	0.08	µg/g	50	59.4	140	% Rec	0	<0.005	0.05	µg/g
γ-BHC (Lindane)	0	N/A	40	%	0.02	0.038	0.08	µg/g	50	57.2	140	% Rec	0	<0.005	0.05	µg/g
δ-BHC	0	N/A	40	%	0.02	0.034	0.08	µg/g	50	55	140	% Rec	0	<0.005	0.05	µg/g
QAQC ID Analysis	20131018.R19ocps				20131018.R19ocps				20131018.R19ocps				20131018.R19ocps			

LCL Lower Control Limit
UCL Upper Control Limit

7 Margaret Street, Garson Ontario Canada, P3L 1E1
Phone: (705) 693-1121 Fax: (705) 693-1124 Web: www.testmark.ca

TABLE 1		**CLIENT: The Environment Management Group Ltd. (EMG)**																												
PARACEL LABORATORIES LTD.		**ATTENTION: Aaron Levine**												soil_results																
WORKORDER: 1341285		**PROJECT: 401 March Road, Ottawa**																												
REPORT DATE: 10/17/2013		**REFERENCE: Preferred Supplier Pricing- Tier 7**																												

Parameter	Units	MDL	Regulation	Sample																										
				MW101-36 1341285-01	MW101-230 1341285-03	MW102-36 1341285-04	MW102-160 1341285-06	MW102-220 1341285-07	MW103-30 1341285-08	MW103-85 1341285-10	MW103-230 1341285-11	MW104-62 1341285-12	MW105-42 1341285-14	MW105-59 1341285-15	MW106-58 1341285-16	MW106-76 1341285-17	MW107-139 1341285-19	MW108-38 1341285-20	MW108-71 1341285-21	MW108-145 1341285-22	MW109-32 1341285-23	MW109-50 1341285-24	MW110-18 1341285-25	MW110-148 1341285-27	BH113-22 1341285-28	BH115-42 1341285-29	BH116-27 1341285-30	BH116-70 1341285-31
Sample Date (d/m/y)			**Reg 153/04 (2011)-Table 3 Industrial, fine**	**10/09/2013**	**10/09/2013**	**10/09/2013**	**10/09/2013**	**10/09/2013**	**10/09/2013**	**10/09/2013**	**10/09/2013**	**10/09/2013**	**10/09/2013**	**10/09/2013**	**10/09/2013**	**10/09/2013**	**10/09/2013**	**10/09/2013**	**10/09/2013**	**10/09/2013**	**10/09/2013**	**10/09/2013**	**10/09/2013**	**10/09/2013**	**10/09/2013**	**10/09/2013**	**10/09/2013**	**10/09/2013**
Physical Characteristics																														
% Solids	% by Wt.	0.1		82.1	67.1	81.7	69.7	66.3	80.7	83.5	70.7	81.3	83.6	78.6	77.5	74.6	71.9	84.6	74.3	72.3	71.2	84.8	82.4	70.7	76.4	72.9	78.4	71.3
Metals																														
Boron, available	ug/g dry	0.5	2 ug/g dry	ND (0.5)	N/A	N/A	N/A	N/A	ND (0.5)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.5)	N/A	N/A	N/A	N/A	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Chromium (VI)	ug/g dry	0.2	10 ug/g dry	0.2	N/A	N/A	N/A	N/A	0.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.2	N/A	N/A	N/A	N/A	0.2	0.2	0.2	0.2	0.2	0.2
Antimony	ug/g dry	1.0	50 ug/g dry	ND (1.0)	N/A	ND (1.0)	N/A	N/A	ND (1.0)	ND (1.0)	N/A	N/A	N/A	ND (1.0)	ND (1.0)	N/A	ND (1.0)	ND (1.0)	N/A	ND (1.0)	N/A	N/A	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Arsenic	ug/g dry	1.0	18 ug/g dry	1.8	N/A	3.0	N/A	N/A	2.1	1.3	N/A	N/A	N/A	1.5	ND (1.0)	N/A	ND (1.0)	ND (1.0)	N/A	ND (1.0)	N/A	N/A	2.1	1.8	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Barium	ug/g dry	1.0	670 ug/g dry	180	N/A	131	N/A	N/A	145	54.8	N/A	N/A	N/A	189	189	N/A	188	110	N/A	179	N/A	N/A	131	139	182	93	88	188	
Beryllium	ug/g dry	1.0	10 ug/g dry	ND (1.0)	N/A	ND (1.0)	N/A	N/A	ND (1.0)	ND (1.0)	N/A	N/A	N/A	ND (1.0)	ND (1.0)	N/A	ND (1.0)	ND (1.0)	N/A	ND (1.0)	N/A	N/A	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Boron	ug/g dry	1.0	120 ug/g dry	5.2	N/A	4.7	N/A	N/A	5.4	1.9	N/A	N/A	N/A	5.6	4.9	N/A	5.7	5.4	N/A	5.2	N/A	N/A	4.8	4.9	5.5	5.2	4.8	5.7	
Cadmium	ug/g dry	0.5	1.9 ug/g dry	ND (0.5)	N/A	ND (0.5)	N/A	N/A	ND (0.5)	ND (0.5)	N/A	N/A	N/A	ND (0.5)	ND (0.5)	N/A	ND (0.5)	ND (0.5)	N/A	ND (0.5)	N/A	N/A	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Chromium	ug/g dry	1.0	160 ug/g dry	42.7	N/A	31.9	N/A	N/A	31.8	15.5	N/A	N/A	N/A	44.4	44.2	N/A	43.4	26.1	N/A	40.8	N/A	N/A	29.4	31.4	44.3	40.8	29.4	43.4	
Cobalt	ug/g dry	1.0	100 ug/g dry	9.9	N/A	9.0	N/A	N/A	9.2	5.3	N/A	N/A	N/A	9.6	9.9	N/A	10.0	7.7	N/A	9.4	N/A	N/A	8.5	8.9	9	9.4	8.5	10	
Copper	ug/g dry	1.0	300 ug/g dry	20.2	N/A	16.1	N/A	N/A	19.6	4.3	N/A	N/A	N/A	20.2	19.6	N/A	21.1	16.9	N/A	19.2	N/A	N/A	17.0	18.7	20.1	19.2	17	21.1	
Lead	ug/g dry	1.0	120 ug/g dry	6.4	N/A	6.1	N/A	N/A	5.6	2.9	N/A	N/A	N/A	6.2	6.2	N/A	5.7	7.1	N/A	5.9	N/A	N/A	5.1	5.4	5.7	5.9	9.4	5.7	
Molybdenum	ug/g dry	1.0	40 ug/g dry	ND (1.0)	N/A	ND (1.0)	N/A	N/A	ND (1.0)	ND (1.0)	N/A	N/A	N/A	ND (1.0)	ND (1.0)	N/A	ND (1.0)	ND (1.0)	N/A	ND (1.0)	N/A	N/A	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	
Nickel	ug/g dry	1.0	340 ug/g dry	20.7	N/A	18.0	N/A	N/A	19.2	8.6	N/A	N/A	N/A	20.1	20.8	N/A	21.5	15.6	N/A	19.5	N/A	N/A	17.1	19.1	21.5	19.5	23.1	21.5	
Selenium	ug/g dry	1.0	5.5 ug/g dry	ND (1.0)	N/A	ND (1.0)	N/A	N/A	ND (1.0)	ND (1.0)	N/A	N/A	N/A	ND (1.0)	ND (1.0)	N/A	ND (1.0)	ND (1.0)	N/A	ND (1.0)	N/A	N/A	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	
Silver	ug/g dry	0.5	50 ug/g dry	ND (0.5)	N/A	ND (0.5)	N/A	N/A	ND (0.5)	ND (0.5)	N/A	N/A	N/A	ND (0.5)	ND (0.5)	N/A	ND (0.5)	ND (0.5)	N/A	ND (0.5)	N/A	N/A	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	
Thallium	ug/g dry	1.0	3.3 ug/g dry	ND (1.0)	N/A	ND (1.0)	N/A	N/A	ND (1.0)	ND (1.0)	N/A	N/A	N/A	ND (1.0)	ND (1.0)	N/A	ND (1.0)	ND (1.0)	N/A	ND (1.0)	N/A	N/A	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	
Uranium	ug/g dry	1.0	33 ug/g dry	ND (1.0)	N/A	ND (1.0)	N/A	N/A	ND (1.0)	ND (1.0)	N/A	N/A	N/A	ND (1.0)	ND (1.0)	N/A	ND (1.0)	ND (1.0)	N/A	ND (1.0)	N/A	N/A	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	
Vanadium	ug/g dry	1.0	86 ug/g dry	54.9	N/A	44.6	N/A	N/A	43.0	22.6	N/A	N/A	N/A	55.5	55.3	N/A	57.6	37.8	N/A	53.8	N/A	N/A	40.7	43.3	57.6	53.8	40.7	57.6	
Zinc	ug/g dry	1.0	340 ug/g dry	66.1	N/A	53.9	N/A	N/A	50.2	23.4	N/A	N/A	N/A	68.3	68.9	N/A	67.4	41.5	N/A	63.7	N/A	N/A	45.8	50.1	67.4	45.8	76.1	67.4	
Volatiles																														
Acetone	ug/g dry	0.50	28 ug/g dry	N/A	ND (0.50)	N/A	ND (0.50)	N/A	N/A	N/A	N/A	ND (0.50)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.50)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Benzene	ug/g dry	0.02	0.4 ug/g dry	N/A	ND (0.02)	N/A	ND (0.02)	N/A	N/A	N/A	N/A	ND (0.02)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.02)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Bromodichloromethane	ug/g dry	0.05	18 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Bromoform	ug/g dry	0.05	1.7 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Bromomethane	ug/g dry	0.05	0.05 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Carbon Tetrachloride	ug/g dry	0.05	1.5 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Chlorobenzene	ug/g dry	0.05	2.7 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Chloroethane	ug/g dry	0.05		N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Chloroform	ug/g dry	0.05	0.18 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Chloromethane	ug/g dry	0.20		N/A	ND (0.20)	N/A	ND (0.20)	N/A	N/A	N/A	N/A	ND (0.20)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.20)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Dibromochloromethane	ug/g dry	0.05	13 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Dichlorodifluoromethane	ug/g dry	0.05	25 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
1,2-Dibromoethane	ug/g dry	0.05	0.05 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
1,2-Dichlorobenzene	ug/g dry	0.05	8.5 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
1,3-Dichlorobenzene	ug/g dry	0.05	12 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
1,4-Dichlorobenzene	ug/g dry	0.05	0.84 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
1,1-Dichloroethane	ug/g dry	0.05	21 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
1,2-Dichloroethane	ug/g dry	0.05	0.05 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
1,1-Dichloroethylene	ug/g dry	0.05	0.48 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
cis-1,2-Dichloroethylene	ug/g dry	0.05	37 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
trans-1,2-Dichloroethylene	ug/g dry	0.05	9.3 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
1,2-Dichloroethylene, total	ug/g dry	0.05		N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
1,2-Dichloropropane	ug/g dry	0.05	0.68 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
cis-1,3-Dichloropropylene	ug/g dry	0.05		N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
trans-1,3-Dichloropropylene	ug/g dry	0.05		N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
1,3-Dichloropropene, total	ug/g dry	0.05	0.21 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Ethylbenzene	ug/g dry	0.05	19 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Hexane	ug/g dry	0.05	88 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Methyl Ethyl Ketone (2-Butanone)	ug/g dry	0.50	88 ug/g dry	N/A	ND (0.50)	N/A	ND (0.50)	N/A	N/A	N/A	N/A	ND (0.50)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.50)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Methyl Butyl Ketone (2-Hexanone)	ug/g dry	2.00		N/A	ND (2.00)	N/A	ND (2.00)	N/A	N/A	N/A	N/A	ND (2.00)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (2.00)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Methyl Isobutyl Ketone	ug/g dry	0.50	210 ug/g dry	N/A	ND (0.50)	N/A	ND (0.50)	N/A	N/A	N/A	N/A	ND (0.50)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.50)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Methyl tert-butyl ether	ug/g dry	0.05	3.2 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Methylene Chloride	ug/g dry	0.05	2 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Styrene	ug/g dry	0.05	43 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
1,1,1,2-Tetrachloroethane	ug/g dry	0.05	0.11 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
1,1,2,2-Tetrachloroethane	ug/g dry	0.05	0.094 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Tetrachloroethylene	ug/g dry	0.05	21 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Toluene	ug/g dry	0.05	78 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	ug/g dry	0.05	16 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
1,1,1-Trichloroethane	ug/g dry	0.05	12 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
1,1,2-Trichloroethane	ug/g dry	0.05	0.11 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Trichloroethylene	ug/g dry	0.05	0.61 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Trichlorofluoromethane	ug/g dry	0.05	5.8 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
1,3,5-Trimethylbenzene	ug/g dry	0.05		N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Vinyl Chloride	ug/g dry	0.02	0.25 ug/g dry	N/A	ND (0.02)	N/A	ND (0.02)	N/A	N/A	N/A	N/A	ND (0.02)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.02)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
m/p-Xylene	ug/g dry	0.05		N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
o-Xylene	ug/g dry	0.05		N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Xylenes, total	ug/g dry	0.05	30 ug/g dry	N/A	ND (0.05)	N/A	ND (0.05)	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Hydrocarbons																														
F2 PHCs (C10-C16)	ug/g dry	4	250 ug/g dry	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (4)	N/A	N/A	ND (4)	N/A	N/A	ND (4)	N/A	N/A	ND (4)	ND (4)	N/A	ND (4)	ND (4)	N/A	N/A	
F3 PHCs (C16-C34)	ug/g dry	8	2500 ug/g dry	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (8)	N/A	N/A	ND (8)	N/A	N/A	ND (8)	N/A	N/A	ND (8)	ND (8)	N/A	ND (8)	ND (8)	N/A	N/A	
F4 PHCs (C34-C50)	ug/g dry	6	6600 ug/g dry	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (6)	N/A	N/A	ND (6)	N/A	N/A	ND (6)	N/A	N/A	ND (6)	ND (6)	N/A	ND (6)	ND (6)	N/A	N/A	
Semi-Volatiles																														
Acenaphthene	ug/g dry	0.02	96 ug/g dry	N/A	ND (0.02)	N/A	N/A	ND (0.02)	N/A	N/A	N/A	ND (0.02)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Acenaphthylene	ug/g dry	0.02	0.17 ug/g dry	N/A	ND (0.02)	N/A	N/A	ND (0.02)	N/A	N/A	N/A	ND (0.02)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Anthracene	ug/g dry	0.02	0.74 ug/g dry	N/A	ND (0.02)	N/A	N/A	ND (0.02)	N/A	N/A	N/A	ND (0.02)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Benzo[a]anthracene	ug/g dry	0.02	0.96 ug/g dry	N/A	ND (0.02)	N/A	N/A	ND (0.02)	N/A	N/A	N/A	ND (0.02)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Benzo[a]pyrene	ug/g dry	0.02	0.3 ug/g dry	N/A	ND (0.02)	N/A	N/A	ND (0.02)	N/A	N/A	N/A	ND (0.02)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Benzo[b]fluoranthene	ug/g dry	0.02	0.96 ug/g dry	N/A	ND (0.02)	N/A	N/A	ND (0.02)	N/A	N/A	N/A	ND (0.02)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Benzo[g,h,i]perylene	ug/g dry	0.02	9.6 ug/g dry	N/A	ND (0.02)	N/A	N/A	ND (0.02)	N/A	N/A	N/A	ND (0.02)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Benzo[k]fluoranthene	ug/g dry	0.02	0.96 ug/g dry	N/A	ND (0.02)	N/A	N/A	ND (0.02)	N/A	N/A	N/A	ND (0.02)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
1,1-Biphenyl	ug/g dry	0.02	210 ug/g dry	N/A	ND (0.02)	N/A	N/A	ND (0.02)	N/A	N/A	N/A	ND (0.02)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Chrysene	ug/g dry	0.02	9.6 ug/g dry	N/A	ND (0.02)	N/A	N/A	ND (0.02)	N/A	N/A	N/A	ND (0.02)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Dibenzo[a,h]anthracene	ug/g dry	0.02	0.1 ug/g dry	N/A	ND (0.02)	N/A	N/A	ND (0.02)	N/A	N/A	N/A	ND (0.02)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Fluoranthene	ug/g dry	0.02	9.6 ug/g dry	N/A	ND (0.02)	N/A	N/A	ND (0.02)	N/A	N/A	N/A	ND (0.02)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Fluorene	ug/g dry	0.02	69 ug/g dry	N/A	ND (0.02)	N/A	N/A	ND (0.02)	N/A	N/A	N/A	ND (0.02)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Indeno[1,2,3-cd]pyrene	ug/g dry	0.02	0.95 ug/g dry	N/A	ND (0.02)	N/A	N/A	ND (0.02)	N/A	N/A	N/A	ND (0.02)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
1-Methylnaphthalene	ug/g dry	0.02	85 ug/g dry	N/A	ND (0.02)	N/A	N/A	ND (0.02)	N/A	N/A	N/A	ND (0.02)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
2-Methylnaphthalene	ug/g dry	0.02	85 ug/g dry	N/A	ND (0.02)	N/A	N/A	ND (0.02)	N/A	N/A	N/A	ND (0.02)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Methylnaphthalene (1&2)	ug/g dry	0.04	85 ug/g dry	N/A	ND (0.04)	N/A	N/A	ND (0.04)	N/A	N/A	N/A	ND (0.04)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Naphthalene	ug/g dry	0.01	28 ug/g dry	N/A	ND (0.01)	N/A	N/A	ND (0.01)	N/A	N/A	N/A	ND (0.01)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Phenanthrene	ug/g dry	0.02	16 ug/g dry	N/A	ND (0.02)	N/A	N/A	ND (0.02)	N/A	N/A	N/A	ND (0.02)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Pyrene	ug/g dry	0.02	96 ug/g dry	N/A	ND (0.02)	N/A	N/A	ND (0.02)	N/A	N/A	N/A	ND (0.02)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
PCBs																														
PCBs, total	ug/g dry	0.05	1.1 ug/g dry	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

TABLE 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water

Condition

Table 3	Soil Standards (other than sediment) ^g/g		Non- Potable Ground Water ^g/L
Contaminant	Residential/ Parkland/Institutional Property Use	Industrial/ Commercial/Community Property Use	All Types of Property Use
Acenaphthene	(58) 7.9	96	(1700)600
Acenaphthylene	(0.17) 0.15	(0.17) 0.15	1.8
Acetone	(28) 16	(28) 16	130000
Aldrin	0.05	(0.11) 0.088	8.5
Anthracene	(0.74) 0.67	(0.74) 0.67	2.4
Antimony	7.5	(50) 40	20000
Arsenic	18	18	1900
Barium	390	670	29000
Benzene	(0.17) 0.21	(0.4) 0.32	(430) 44
Benz[a]anthracene	(0.63) 0.5	0.96	4.7
Benzo[a]pyrene	0.3	0.3	0.81
Benzo[b]fluoranthene	0.78	0.96	0.75
Benzo[ghi]perylene	(7.8) 6.6	9.6	0.2
Benzo[k]fluoranthene	0.78	0.96	0.4
Beryllium	(5) 4	(10) 8	67
Biphenyl 1,1'-	(1.1) 0.31	(210) 52	(2200)1000
Bis(2-chloroethyl)ether	0.5	0.5	300000
Bis(2-chloroisopropyl)ether	(1.8) 0.67	(14) 11	20000
Bis(2-ethylhexyl)phthalate	5	(35) 28	140
Boron (Hot Water Soluble)*	1.5	2	NA
Boron (total)	120	120	45000
Bromodichloromethane	13	18	85000
Bromoform	(0.26) 0.27	(1.7) 0.61	(770) 380
Bromomethane	0.05	0.05	(56) 5.6
Cadmium	1.2	1.9	2.7
Carbon Tetrachloride	(0.12) 0.05	(1.5) 0.21	(8.4) 0.79
Chlordane	0.05	0.05	28
Chloroaniline p-	(0.53)0.5	(0.53)0.5	400
Chlorobenzene	(2.7)2.4	(2.7)2.4	630
Chloroform	(0.18) 0.05	(0.18) 0.47	(22) 2.4
Chlorophenol, 2-	(2) 1.6	(3.9) 3.1	3300
Chromium Total	160	160	810
Chromium VI	(10) 8	(10) 8	140
Chrysene	(7.8)7	9.6	1
Cobalt	22	(100)80	66
Copper	(180) 140	(300) 230	87
Cyanide (CN-)	0.051	0.051	66
Dibenz[a h]anthracene	0.1	0.1	0.52
Dibromochloromethane	9.4	13	82000
Dichlorobenzene, 1,2-	(4.3) 3.4	(8.5) 6.8	(9600) 4600
Dichlorobenzene, 1,3-	(6) 4.8	(12)9.6	9600
Dichlorobenzene, 1,4-	(0.097) 0.083	(0.84)0.2	(67) 8
Dichlorobenzidine, 3,3'-	1	1	640

Dichlorodifluoromethane	(25)16	(25)16	4400
DDT (Total)	3.3	4.6	45
DDE (Total)	(0.33) 0.26	(0.65) 0.52	20
DDD (Total)	1.4	1.4	2.8
Dichloroethane, 1,1-	(11) 3.5	(21)17	(3100) 320
Dichloroethane, 1,2-	0.05	0.05	(12) 1.6
Dichloroethylene, 1,1-	0.05	(0.48) 0.064	(17) 1.6
Dichloroethylene, 1,2-cis-	(30) 3.4	(37) 55	(17) 1.6
Dichloroethylene, 1,2-trans-	(0.75) 0.084	(9.3) 1.3	(17) 1.6
Dichlorophenol, 2,4-	(2.1) 1.7	(4.2) 3.4	4600
Dichloropropane, 1,2-	(0.085) 0.05	(0.68) 0.16	(140) 16
Dichloropropene,1,3-	(0.083) 0.05	(0.21) 0.18	(45) 5.2
Dieldrin	0.05	(0.11) 0.088	0.75
Diethyl Phthalate	0.5	0.5	38
Dimethylphthalate	0.5	0.5	38
Dimethylphenol, 2,4-	(420) 390	(440) 390	39000
Dinitrophenol, 2,4-	38	(66) 59	11000
Dinitrotoluene, 2,4 & 2,6-	0.92	1.2	2900
Dioxane, 1,4	1.8	1.8	(7300000)1900000
Dioxin/Furan (TEQ)	0.000013	0.000099	(0.023) 0.014
Endosulfan	0.04	(0.38) 0.3	1.5
Endrin	0.04	0.04	0.48
Ethylbenzene	(15) 2	(19) 9.5	2300
Ethylene dibromide	0.05	0.05	(0.83) 0.25
Fluoranthene	0.69	9.6	130
Fluorene	(69)62	(69) 62	400
Heptachlor	0.15	0.19	2.5
Heptachlor Epoxide	0.05	0.05	0.048
Hexachlorobenzene	0.52	0.66	3.1
Hexachlorobutadiene	(0.014) 0.012	(0.095) 0.031	(4.5) 0.44
Hexachlorocyclohexane Gamma-	(0.063) 0.056	(0.063) 0.056	1.2
Hexachloroethane	(0.071) 0.089	(0.43) 0.21	(200) 94
Hexane (n)	(34) 2.8	(88) 46	(520) 51
Indeno[1 2 3-cd]pyrene	(0.48) 0.38	(0.95) 0.76	0.2
Lead	120	120	25
Mercury	(1.8) 0.27	(20) 3.9	(2.8) 0.29
Methoxychlor	0.13	1.6	6.5
Methyl Ethyl Ketone	(44)16	(88) 70	(1500000)470000
Methyl Isobutyl Ketone	(4.3) 1.7	(210)31	(580000)140000
Methyl Mercury **	(0.0094) 0.0084	(0.0094) 0.0084	0.15
Methyl tert-Butyl Ether (MTBE)	(1.4) 0.75	(3.2) 11	(1400)190
Methylene Chloride	(0.96) 0.1	(2) 1.6	(5500)610
Methlynaphthalene, 2-(1-) ***	(3.4) 0.99	(85)76	1800
Molybdenum	6.9	40	9200
Naphthalene	(0.75) 0.6	(28) 9.6	(6400) 1400
Nickel	(130) 100	(340) 270	490
Pentachlorophenol	0.1	(3.3) 2.9	62
Petroleum Hydrocarbons F1****	(65)55	(65) 55	750
Petroleum Hydrocarbons F2	(150) 98	(250) 230	150
Petroleum Hydrocarbons F3	(1300)300	(2500)1700	500
Petroleum Hydrocarbons F4	(5600)2800	(6600) 3300	500
Phenanthrene	(7.8) 6.2	(16) 12	580
Phenol	9.4	9.4	12000

Polychlorinated Biphenyls	0.35	1.1	(15) 7.8
Pyrene	78	96	68
Selenium	2.4	5.5	63
Silver	(25) 20	(50) 40	1.5
Styrene	(2.2) 0.7	(43)34	(9100)1300
Tetrachloroethane, 1,1,1,2-	(0.05) 0.058	(0.11) 0.087	(28) 3.3
Tetrachloroethane, 1,1,2,2-	0.05	(0.094) 0.05	(15) 3.2
Tetrachloroethylene	(2.3) 0.28	(21) 4.5	(17) 1.6
Thallium	1	3.3	510
Toluene	(6) 2.3	(78) 68	18000
Trichlorobenzene, 1,2,4-	(1.4) 0.36	(16) 3.2	(850)180
Trichloroethane, 1,1,1-	(3.4) 0.38	(12) 6.1	(6700) 640
Trichloroethane, 1,1,2-	0.05	(0.11) 0.05	(30) 4.7
Trichloroethylene	(0.52) 0.061	(0.61) 0.91	(17) 1.6
Trichlorofluoromethane	(5.8)4	(5.8) 4	2500
Trichlorophenol, 2,4,5-	(5.5) 4.4	10	1600
Trichlorophenol, 2,4,6-	(4.2) 3.8	(4.2) 3.8	230
Uranium	23	33	420
Vanadium	86	86	250
Vinyl Chloride	(0.022) 0.02	(0.25) 0.032	(1.7) 0.5
Xylene Mixture	(25) 3.1	(30)26	4200
Zinc	340	340	1100
Electrical Conductivity (mS/cm)	0.7	1.4	#N/A
Chloride	NA	NA	2300000
Sodium Adsorption Ratio	5	12	NA
Sodium	NA	NA	2300000

Appendix 8

PARACEL LABORATORIES LTD. | TRUSTED. RESPONSIVE. RELIABLE.

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Certificate of Analysis

The Environment Management Group Ltd. (EMG)

29 Queen Anne Rd.
Etobicoke, ON M8X 1T1
Attn: Aaron Levine

Phone: (416) 239-6643
Fax: (416) 239-0300

Client PO:
Project: 401 March Road
Custody: 94281

Report Date: 18-Oct-2013
Order Date: 16-Oct-2013
Order #: 1342188

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1342188-01	MW102
1342188-02	MW103
1342188-03	MW105
1342188-04	MW106
1342188-05	MW107
1342188-06	MW108
1342188-07	MW109
1342188-08	MW110
1342188-09	MW111

Approved By: 

Mark Foto, M.Sc. For Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 18-Oct-2013
Order Date:16-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Metals, ICP-MS	EPA 200.8 - ICP-MS	18-Oct-13	18-Oct-13
PAHs by GC-MS	EPA 625 - GC-MS, extraction	17-Oct-13	18-Oct-13
PCBs, total	EPA 608 - GC-ECD	18-Oct-13	18-Oct-13
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	17-Oct-13	18-Oct-13
VOCs by P&T GC-MS	EPA 624 - P&T GC-MS	17-Oct-13	18-Oct-13

PARACEL LABORATORIES LTD.

Order #: 1342188

Certificate of Analysis

Report Date: 18-Oct-2013
Order Date:16-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road

	Client ID:	MW102	MW103	MW105	MW106
	Sample Date:	16-Oct-13	16-Oct-13	16-Oct-13	16-Oct-13
	Sample ID:	1342188-01	1342188-02	1342188-03	1342188-04
	MDL/Units	Water	Water	Water	Water
Metals					
Antimony	0.5 ug/L	-	-	-	<0.5
Arsenic	1 ug/L	-	-	-	<1
Barium	1 ug/L	-	-	-	39
Beryllium	0.5 ug/L	-	-	-	<0.5
Boron	10 ug/L	-	-	-	38
Cadmium	0.1 ug/L	-	-	-	1.3
Chromium	1 ug/L	-	-	-	4
Cobalt	0.5 ug/L	-	-	-	3.2
Copper	0.5 ug/L	-	-	-	2.9
Lead	0.1 ug/L	-	-	-	0.2
Molybdenum	0.5 ug/L	-	-	-	<0.5
Nickel	1 ug/L	-	-	-	8
Selenium	1 ug/L	-	-	-	<1
Silver	0.1 ug/L	-	-	-	<0.1
Sodium	200 ug/L	-	-	-	36700
Thallium	0.1 ug/L	-	-	-	<0.1
Uranium	0.1 ug/L	-	-	-	0.9
Vanadium	0.5 ug/L	-	-	-	12.8
Zinc	5 ug/L	-	-	-	5
Volatiles					
Acetone	5.0 ug/L	47.8	-	-	<5.0
Benzene	0.5 ug/L	<0.5	-	-	<0.5
Bromodichloromethane	0.5 ug/L	<0.5	-	-	<0.5
Bromoform	0.5 ug/L	<0.5	-	-	<0.5
Bromomethane	0.5 ug/L	<0.5	-	-	<0.5
Carbon Tetrachloride	0.2 ug/L	<0.2	-	-	<0.2
Chlorobenzene	0.5 ug/L	<0.5	-	-	<0.5
Chloroethane	1.0 ug/L	<1.0	-	-	<1.0
Chloroform	0.5 ug/L	<0.5	-	-	<0.5
Chloromethane	3.0 ug/L	<3.0	-	-	<3.0
Dibromochloromethane	0.5 ug/L	<0.5	-	-	<0.5
Dichlorodifluoromethane	1.0 ug/L	<1.0	-	-	<1.0
1,2-Dibromoethane	0.2 ug/L	<0.2	-	-	<0.2

Certificate of Analysis

Report Date: 18-Oct-2013
Order Date:16-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road

	Client ID:	MW102	MW103	MW105	MW106
	Sample Date:	16-Oct-13	16-Oct-13	16-Oct-13	16-Oct-13
	Sample ID:	1342188-01	1342188-02	1342188-03	1342188-04
	MDL/Units	Water	Water	Water	Water
1,2-Dichlorobenzene	0.5 ug/L	<0.5	-	-	<0.5
1,3-Dichlorobenzene	0.5 ug/L	<0.5	-	-	<0.5
1,4-Dichlorobenzene	0.5 ug/L	<0.5	-	-	<0.5
1,1-Dichloroethane	0.5 ug/L	<0.5	-	-	<0.5
1,2-Dichloroethane	0.5 ug/L	<0.5	-	-	<0.5
1,1-Dichloroethylene	0.5 ug/L	<0.5	-	-	<0.5
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	<0.5
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	<0.5
1,2-Dichloroethylene, total	0.5 ug/L	<0.5	-	-	<0.5
1,2-Dichloropropane	0.5 ug/L	<0.5	-	-	<0.5
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	<0.5
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	<0.5
1,3-Dichloropropene, total	0.5 ug/L	<0.5	-	-	<0.5
Ethylbenzene	0.5 ug/L	<0.5	-	-	<0.5
Hexane	1.0 ug/L	<1.0	-	-	<1.0
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	-	-	<5.0
Methyl Butyl Ketone (2-Hexanone)	10.0 ug/L	<10.0	-	-	<10.0
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	-	-	<5.0
Methyl tert-butyl ether	2.0 ug/L	<2.0	-	-	<2.0
Methylene Chloride	5.0 ug/L	<5.0	-	-	<5.0
Styrene	0.5 ug/L	<0.5	-	-	<0.5
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	<0.5
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	<0.5
Tetrachloroethylene	0.5 ug/L	<0.5	-	-	<0.5
Toluene	0.5 ug/L	<0.5	-	-	<0.5
1,2,4-Trichlorobenzene	0.5 ug/L	<0.5	-	-	<0.5
1,1,1-Trichloroethane	0.5 ug/L	<0.5	-	-	<0.5
1,1,2-Trichloroethane	0.5 ug/L	<0.5	-	-	<0.5
Trichloroethylene	0.5 ug/L	<0.5	-	-	<0.5
Trichlorofluoromethane	1.0 ug/L	<1.0	-	-	<1.0
1,3,5-Trimethylbenzene	0.5 ug/L	<0.5	-	-	<0.5
Vinyl chloride	0.5 ug/L	<0.5	-	-	<0.5
m,p-Xylenes	0.5 ug/L	<0.5	-	-	<0.5
o-Xylene	0.5 ug/L	<0.5	-	-	<0.5

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Order Date:16-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road

	Client ID:	MW102	MW103	MW105	MW106
	Sample Date:	16-Oct-13	16-Oct-13	16-Oct-13	16-Oct-13
	Sample ID:	1342188-01	1342188-02	1342188-03	1342188-04
	MDL/Units	Water	Water	Water	Water
Xylenes, total	0.5 ug/L	<0.5	-	-	<0.5
4-Bromofluorobenzene	Surrogate	116%	-	-	119%
Dibromofluoromethane	Surrogate	83.0%	-	-	81.8%
Toluene-d8	Surrogate	123%	-	-	124%
Hydrocarbons					
F2 PHCs (C10-C16)	100 ug/L	-	<100	-	-
F3 PHCs (C16-C34)	100 ug/L	-	<100	-	-
F4 PHCs (C34-C50)	100 ug/L	-	<100	-	-
Semi-Volatiles					
Acenaphthene	0.05 ug/L	-	-	<0.05	-
Acenaphthylene	0.05 ug/L	-	-	<0.05	-
Anthracene	0.01 ug/L	-	-	<0.01	-
Benzo [a] anthracene	0.01 ug/L	-	-	<0.01	-
Benzo [a] pyrene	0.01 ug/L	-	-	<0.01	-
Benzo [b] fluoranthene	0.05 ug/L	-	-	<0.05	-
Benzo [g,h,i] perylene	0.05 ug/L	-	-	<0.05	-
Benzo [k] fluoranthene	0.05 ug/L	-	-	<0.05	-
Biphenyl	0.05 ug/L	-	-	<0.05	-
Chrysene	0.05 ug/L	-	-	<0.05	-
Dibenzo [a,h] anthracene	0.05 ug/L	-	-	<0.05	-
Fluoranthene	0.01 ug/L	-	-	<0.01	-
Fluorene	0.05 ug/L	-	-	<0.05	-
Indeno [1,2,3-cd] pyrene	0.05 ug/L	-	-	<0.05	-
1-Methylnaphthalene	0.05 ug/L	-	-	<0.05	-
2-Methylnaphthalene	0.05 ug/L	-	-	<0.05	-
Methylnaphthalene (1&2)	0.10 ug/L	-	-	<0.10	-
Naphthalene	0.05 ug/L	-	-	<0.05	-
Phenanthrene	0.05 ug/L	-	-	<0.05	-
Pyrene	0.01 ug/L	-	-	<0.01	-
2-Fluorobiphenyl	Surrogate	-	-	87.8%	-
Terphenyl-d14	Surrogate	-	-	82.7%	-
PCBs					
PCBs, total	0.05 ug/L	-	-	<0.05	-
Decachlorobiphenyl	Surrogate	-	-	87.1%	-

Certificate of Analysis

Report Date: 18-Oct-2013
Order Date:16-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road

	Client ID:	MW107	MW108	MW109	MW110
	Sample Date:	16-Oct-13	16-Oct-13	16-Oct-13	16-Oct-13
	Sample ID:	1342188-05	1342188-06	1342188-07	1342188-08
	MDL/Units	Water	Water	Water	Water
Metals					
Antimony	0.5 ug/L	<0.5	-	<0.5	<0.5
Arsenic	1 ug/L	<1	-	<1	<1
Barium	1 ug/L	39	-	29	37
Beryllium	0.5 ug/L	<0.5	-	<0.5	<0.5
Boron	10 ug/L	80	-	39	58
Cadmium	0.1 ug/L	<0.1	-	0.4	<0.1
Chromium	1 ug/L	3	-	3	2
Cobalt	0.5 ug/L	0.8	-	3.6	0.9
Copper	0.5 ug/L	1.8	-	3.1	1.2
Lead	0.1 ug/L	0.1	-	<0.1	<0.1
Molybdenum	0.5 ug/L	1.5	-	<0.5	<0.5
Nickel	1 ug/L	7	-	8	5
Selenium	1 ug/L	<1	-	<1	<1
Silver	0.1 ug/L	<0.1	-	<0.1	<0.1
Sodium	200 ug/L	60700	-	29900	31500
Thallium	0.1 ug/L	<0.1	-	<0.1	<0.1
Uranium	0.1 ug/L	1.9	-	0.8	1.1
Vanadium	0.5 ug/L	13.0	-	13.8	7.0
Zinc	5 ug/L	12	-	15	17
Volatiles					
Acetone	5.0 ug/L	-	<5.0	-	-
Benzene	0.5 ug/L	-	<0.5	-	-
Bromodichloromethane	0.5 ug/L	-	<0.5	-	-
Bromoform	0.5 ug/L	-	<0.5	-	-
Bromomethane	0.5 ug/L	-	<0.5	-	-
Carbon Tetrachloride	0.2 ug/L	-	<0.2	-	-
Chlorobenzene	0.5 ug/L	-	<0.5	-	-
Chloroethane	1.0 ug/L	-	<1.0	-	-
Chloroform	0.5 ug/L	-	<0.5	-	-
Chloromethane	3.0 ug/L	-	<3.0	-	-
Dibromochloromethane	0.5 ug/L	-	<0.5	-	-
Dichlorodifluoromethane	1.0 ug/L	-	<1.0	-	-
1,2-Dibromoethane	0.2 ug/L	-	<0.2	-	-

Certificate of Analysis

Report Date: 18-Oct-2013
Order Date:16-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road

	Client ID:	MW107	MW108	MW109	MW110
	Sample Date:	16-Oct-13	16-Oct-13	16-Oct-13	16-Oct-13
	Sample ID:	1342188-05	1342188-06	1342188-07	1342188-08
	MDL/Units	Water	Water	Water	Water
1,2-Dichlorobenzene	0.5 ug/L	-	<0.5	-	-
1,3-Dichlorobenzene	0.5 ug/L	-	<0.5	-	-
1,4-Dichlorobenzene	0.5 ug/L	-	<0.5	-	-
1,1-Dichloroethane	0.5 ug/L	-	<0.5	-	-
1,2-Dichloroethane	0.5 ug/L	-	<0.5	-	-
1,1-Dichloroethylene	0.5 ug/L	-	<0.5	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	-	<0.5	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	-	<0.5	-	-
1,2-Dichloroethylene, total	0.5 ug/L	-	<0.5	-	-
1,2-Dichloropropane	0.5 ug/L	-	<0.5	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	-	<0.5	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	-	<0.5	-	-
1,3-Dichloropropene, total	0.5 ug/L	-	<0.5	-	-
Ethylbenzene	0.5 ug/L	-	<0.5	-	-
Hexane	1.0 ug/L	-	<1.0	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	-	<5.0	-	-
Methyl Butyl Ketone (2-Hexanone)	10.0 ug/L	-	<10.0	-	-
Methyl Isobutyl Ketone	5.0 ug/L	-	<5.0	-	-
Methyl tert-butyl ether	2.0 ug/L	-	<2.0	-	-
Methylene Chloride	5.0 ug/L	-	<5.0	-	-
Styrene	0.5 ug/L	-	<0.5	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	-	<0.5	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	-	<0.5	-	-
Tetrachloroethylene	0.5 ug/L	-	<0.5	-	-
Toluene	0.5 ug/L	-	<0.5	-	-
1,2,4-Trichlorobenzene	0.5 ug/L	-	<0.5	-	-
1,1,1-Trichloroethane	0.5 ug/L	-	<0.5	-	-
1,1,2-Trichloroethane	0.5 ug/L	-	<0.5	-	-
Trichloroethylene	0.5 ug/L	-	<0.5	-	-
Trichlorofluoromethane	1.0 ug/L	-	<1.0	-	-
1,3,5-Trimethylbenzene	0.5 ug/L	-	<0.5	-	-
Vinyl chloride	0.5 ug/L	-	<0.5	-	-
m,p-Xylenes	0.5 ug/L	-	<0.5	-	-

Certificate of Analysis

Report Date: 18-Oct-2013
Order Date:16-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road

	Client ID:	MW107	MW108	MW109	MW110
	Sample Date:	16-Oct-13	16-Oct-13	16-Oct-13	16-Oct-13
	Sample ID:	1342188-05	1342188-06	1342188-07	1342188-08
	MDL/Units	Water	Water	Water	Water
o-Xylene	0.5 ug/L	-	<0.5	-	-
Xylenes, total	0.5 ug/L	-	<0.5	-	-
4-Bromofluorobenzene	Surrogate	-	118%	-	-
Dibromofluoromethane	Surrogate	-	84.6%	-	-
Toluene-d8	Surrogate	-	123%	-	-
Hydrocarbons					
F2 PHCs (C10-C16)	100 ug/L	-	-	<100	-
F3 PHCs (C16-C34)	100 ug/L	-	-	<100	-
F4 PHCs (C34-C50)	100 ug/L	-	-	<100	-

Certificate of Analysis

Report Date: 18-Oct-2013
Order Date:16-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road

	Client ID:	MW111	-	-	-
	Sample Date:	16-Oct-13	-	-	-
	Sample ID:	1342188-09	-	-	-
	MDL/Units	Water	-	-	-
Semi-Volatiles					
Acenaphthene	0.05 ug/L	0.12	-	-	-
Acenaphthylene	0.05 ug/L	<0.05	-	-	-
Anthracene	0.01 ug/L	0.03	-	-	-
Benzo [a] anthracene	0.01 ug/L	0.06	-	-	-
Benzo [a] pyrene	0.01 ug/L	<0.01	-	-	-
Benzo [b] fluoranthene	0.05 ug/L	<0.05	-	-	-
Benzo [g,h,i] perylene	0.05 ug/L	<0.05	-	-	-
Benzo [k] fluoranthene	0.05 ug/L	<0.05	-	-	-
Biphenyl	0.05 ug/L	<0.05	-	-	-
Chrysene	0.05 ug/L	<0.05	-	-	-
Dibenzo [a,h] anthracene	0.05 ug/L	<0.05	-	-	-
Fluoranthene	0.01 ug/L	0.08	-	-	-
Fluorene	0.05 ug/L	<0.05	-	-	-
Indeno [1,2,3-cd] pyrene	0.05 ug/L	<0.05	-	-	-
1-Methylnaphthalene	0.05 ug/L	<0.05	-	-	-
2-Methylnaphthalene	0.05 ug/L	<0.05	-	-	-
Methylnaphthalene (1&2)	0.10 ug/L	<0.10	-	-	-
Naphthalene	0.05 ug/L	0.07	-	-	-
Phenanthrene	0.05 ug/L	0.11	-	-	-
Pyrene	0.01 ug/L	0.07	-	-	-
2-Fluorobiphenyl	Surrogate	86.4%	-	-	-
Terphenyl-d14	Surrogate	81.7%	-	-	-

TABLE 1		CLIENT: The Environment Management Group Ltd. (EMG)										
PARACEL LABORATORIES LTD.		ATTENTION: Aaron Levine										
WORKORDER: 1342188		PROJECT: 401 March Road										
REPORT DATE: 10/18/2013		REFERENCE: Preferred Supplier Pricing- Tier 7										

Parameter	Units	MDL	Regulation	Sample								
				MW102 1342188-01	MW103 1342188-02	MW105 1342188-03	MW106 1342188-04	MW107 1342188-05	MW108 1342188-06	MW109 1342188-07	MW110 1342188-08	MW111 1342188-09
Sample Date (d/m/y)			Reg 153/04 (2011)-Table 3 Non Potable Groundwater, fine	10/16/2013	10/16/2013	10/16/2013	10/16/2013	10/16/2013	10/16/2013	10/16/2013	10/16/2013	10/16/2013
Metals												
Antimony	ug/L	0.5	20000 ug/L	N/A	N/A	N/A	ND (0.5)	ND (0.5)	N/A	ND (0.5)	ND (0.5)	N/A
Arsenic	ug/L	1	1900 ug/L	N/A	N/A	N/A	ND (1)	ND (1)	N/A	ND (1)	ND (1)	N/A
Barium	ug/L	1	29000 ug/L	N/A	N/A	N/A	39	39	N/A	29	37	N/A
Beryllium	ug/L	0.5	67 ug/L	N/A	N/A	N/A	ND (0.5)	ND (0.5)	N/A	ND (0.5)	ND (0.5)	N/A
Boron	ug/L	10	45000 ug/L	N/A	N/A	N/A	38	80	N/A	39	58	N/A
Cadmium	ug/L	0.1	2.7 ug/L	N/A	N/A	N/A	1.3	ND (0.1)	N/A	0.4	ND (0.1)	N/A
Chromium	ug/L	1	810 ug/L	N/A	N/A	N/A	4	3	N/A	3	2	N/A
Cobalt	ug/L	0.5	66 ug/L	N/A	N/A	N/A	3.2	0.8	N/A	3.6	0.9	N/A
Copper	ug/L	0.5	87 ug/L	N/A	N/A	N/A	2.9	1.8	N/A	3.1	1.2	N/A
Lead	ug/L	0.1	25 ug/L	N/A	N/A	N/A	0.2	0.1	N/A	ND (0.1)	ND (0.1)	N/A
Molybdenum	ug/L	0.5	9200 ug/L	N/A	N/A	N/A	ND (0.5)	1.5	N/A	ND (0.5)	ND (0.5)	N/A
Nickel	ug/L	1	490 ug/L	N/A	N/A	N/A	8	7	N/A	8	5	N/A
Selenium	ug/L	1	63 ug/L	N/A	N/A	N/A	ND (1)	ND (1)	N/A	ND (1)	ND (1)	N/A
Silver	ug/L	0.1	1.5 ug/L	N/A	N/A	N/A	ND (0.1)	ND (0.1)	N/A	ND (0.1)	ND (0.1)	N/A
Sodium	ug/L	200	2300000 ug/L	N/A	N/A	N/A	36700	60700	N/A	29900	31500	N/A
Thallium	ug/L	0.1	510 ug/L	N/A	N/A	N/A	ND (0.1)	ND (0.1)	N/A	ND (0.1)	ND (0.1)	N/A
Uranium	ug/L	0.1	420 ug/L	N/A	N/A	N/A	0.9	1.9	N/A	0.8	1.1	N/A
Vanadium	ug/L	0.5	250 ug/L	N/A	N/A	N/A	12.8	13.0	N/A	13.8	7.0	N/A
Zinc	ug/L	5	1100 ug/L	N/A	N/A	N/A	5	12	N/A	15	17	N/A
Volatiles												
Acetone	ug/L	5.0	130000 ug/L	47.8	N/A	N/A	ND (5.0)	N/A	ND (5.0)	N/A	N/A	N/A
Benzene	ug/L	0.5	430 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
Bromodichloromethane	ug/L	0.5	85000 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
Bromoform	ug/L	0.5	770 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
Bromomethane	ug/L	0.5	56 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
Carbon Tetrachloride	ug/L	0.2	8.4 ug/L	ND (0.2)	N/A	N/A	ND (0.2)	N/A	ND (0.2)	N/A	N/A	N/A
Chlorobenzene	ug/L	0.5	630 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
Chloroethane	ug/L	1.0		ND (1.0)	N/A	N/A	ND (1.0)	N/A	ND (1.0)	N/A	N/A	N/A
Chloroform	ug/L	0.5	22 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
Chloromethane	ug/L	3.0		ND (3.0)	N/A	N/A	ND (3.0)	N/A	ND (3.0)	N/A	N/A	N/A
Dibromochloromethane	ug/L	0.5	82000 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
Dichlorodifluoromethane	ug/L	1.0	4400 ug/L	ND (1.0)	N/A	N/A	ND (1.0)	N/A	ND (1.0)	N/A	N/A	N/A
1,2-Dibromoethane	ug/L	0.2	0.83 ug/L	ND (0.2)	N/A	N/A	ND (0.2)	N/A	ND (0.2)	N/A	N/A	N/A
1,2-Dichlorobenzene	ug/L	0.5	9600 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
1,3-Dichlorobenzene	ug/L	0.5	9600 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
1,4-Dichlorobenzene	ug/L	0.5	67 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
1,1-Dichloroethane	ug/L	0.5	3100 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
1,2-Dichloroethane	ug/L	0.5	12 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
1,1-Dichloroethylene	ug/L	0.5	17 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
cis-1,2-Dichloroethylene	ug/L	0.5	17 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
trans-1,2-Dichloroethylene	ug/L	0.5	17 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
1,2-Dichloroethylene, total	ug/L	0.5		ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
1,2-Dichloropropane	ug/L	0.5	140 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
cis-1,3-Dichloropropylene	ug/L	0.5		ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
trans-1,3-Dichloropropylene	ug/L	0.5		ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
1,3-Dichloropropene, total	ug/L	0.5	45 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
Ethylbenzene	ug/L	0.5	2300 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
Hexane	ug/L	1.0	520 ug/L	ND (1.0)	N/A	N/A	ND (1.0)	N/A	ND (1.0)	N/A	N/A	N/A
Methyl Ethyl Ketone (2-Butanone)	ug/L	5.0	1500000 ug/L	ND (5.0)	N/A	N/A	ND (5.0)	N/A	ND (5.0)	N/A	N/A	N/A
Methyl Butyl Ketone (2-Hexanone)	ug/L	10.0		ND (10.0)	N/A	N/A	ND (10.0)	N/A	ND (10.0)	N/A	N/A	N/A
Methyl Isobutyl Ketone	ug/L	5.0	580000 ug/L	ND (5.0)	N/A	N/A	ND (5.0)	N/A	ND (5.0)	N/A	N/A	N/A
Methyl tert-butyl ether	ug/L	2.0	1400 ug/L	ND (2.0)	N/A	N/A	ND (2.0)	N/A	ND (2.0)	N/A	N/A	N/A
Methylene Chloride	ug/L	5.0	5500 ug/L	ND (5.0)	N/A	N/A	ND (5.0)	N/A	ND (5.0)	N/A	N/A	N/A
Styrene	ug/L	0.5	9100 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
1,1,1,2-Tetrachloroethane	ug/L	0.5	28 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
1,1,2,2-Tetrachloroethane	ug/L	0.5	15 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
Tetrachloroethylene	ug/L	0.5	17 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
Toluene	ug/L	0.5	18000 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
1,2,4-Trichlorobenzene	ug/L	0.5	850 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
1,1,1-Trichloroethane	ug/L	0.5	6700 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
1,1,2-Trichloroethane	ug/L	0.5	30 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
Trichloroethylene	ug/L	0.5	17 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
Trichlorofluoromethane	ug/L	1.0	2500 ug/L	ND (1.0)	N/A	N/A	ND (1.0)	N/A	ND (1.0)	N/A	N/A	N/A
1,3,5-Trimethylbenzene	ug/L	0.5		ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
Vinyl Chloride	ug/L	0.5	1.7 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
m/p-Xylene	ug/L	0.5		ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
o-Xylene	ug/L	0.5		ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
Xylenes, total	ug/L	0.5	4200 ug/L	ND (0.5)	N/A	N/A	ND (0.5)	N/A	ND (0.5)	N/A	N/A	N/A
Hydrocarbons												
F2 PHCs (C10-C16)	ug/L	100	150 ug/L	N/A	ND (100)	N/A	N/A	N/A	N/A	ND (100)	N/A	N/A
F3 PHCs (C16-C34)	ug/L	100	500 ug/L	N/A	ND (100)	N/A	N/A	N/A	N/A	ND (100)	N/A	N/A
F4 PHCs (C34-C50)	ug/L	100	500 ug/L	N/A	ND (100)	N/A	N/A	N/A	N/A	ND (100)	N/A	N/A
Semi-Volatiles												
Acenaphthene	ug/L	0.05	1700 ug/L	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	0.12
Acenaphthylene	ug/L	0.05	1.8 ug/L	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	ND (0.05)
Anthracene	ug/L	0.01	2.4 ug/L	N/A	N/A	ND (0.01)	N/A	N/A	N/A	N/A	N/A	0.03
Benzo[a]anthracene	ug/L	0.01	4.7 ug/L	N/A	N/A	ND (0.01)	N/A	N/A	N/A	N/A	N/A	0.06
Benzo[a]pyrene	ug/L	0.01	0.81 ug/L	N/A	N/A	ND (0.01)	N/A	N/A	N/A	N/A	N/A	ND (0.01)
Benzo[b]fluoranthene	ug/L	0.05	0.75 ug/L	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	ND (0.05)
Benzo[g,h,i]perylene	ug/L	0.05	0.2 ug/L	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	ND (0.05)
Benzo[k]fluoranthene	ug/L	0.05	0.4 ug/L	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	ND (0.05)
1,1-Biphenyl	ug/L	0.05	2200 ug/L	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	ND (0.05)
Chrysene	ug/L	0.05	1 ug/L	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	ND (0.05)
Dibenzo[a,h]anthracene	ug/L	0.05	0.52 ug/L	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	ND (0.05)
Fluoranthene	ug/L	0.01	130 ug/L	N/A	N/A	ND (0.01)	N/A	N/A	N/A	N/A	N/A	0.08
Fluorene	ug/L	0.05	400 ug/L	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	ND (0.05)
Indeno[1,2,3-cd]pyrene	ug/L	0.05	0.2 ug/L	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	ND (0.05)
1-Methylnaphthalene	ug/L	0.05	1800 ug/L	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	ND (0.05)
2-Methylnaphthalene	ug/L	0.05	1800 ug/L	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	ND (0.05)
Methylnaphthalene (1&2)	ug/L	0.10	1800 ug/L	N/A	N/A	ND (0.10)	N/A	N/A	N/A	N/A	N/A	ND (0.10)
Naphthalene	ug/L	0.05	6400 ug/L	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	0.07
Phenanthrene	ug/L	0.05	580 ug/L	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	0.11
Pyrene	ug/L	0.01	68 ug/L	N/A	N/A	ND (0.01)	N/A	N/A	N/A	N/A	N/A	0.07
PCBs												
PCBs, total	ug/L	0.05	15 ug/L	N/A	N/A	ND (0.05)	N/A	N/A	N/A	N/A	N/A	N/A

Appendix 9

PARACEL LABORATORIES LTD. | TRUSTED. RESPONSIVE. RELIABLE.

OTTAWA • KINGSTON • NIAGARA • MISSISSAUGA • SARNIA

Head Office
300-2319 St. Laurent Blvd.
Ottawa, Ontario K1G 4J8
p: 1-800-749-1947
e: paracel@paracellabs.com
www.paracellabs.com

Certificate of Analysis

The Environment Management Group Ltd. (EMG)

29 Queen Anne Rd.
Etobicoke, ON M8X 1T1
Attn: Aaron Levine

Phone: (416) 239-6643
Fax: (416) 239-0300

Client PO:
Project: 401 March Road, Ottawa
Custody: 94284

Report Date: 15-Oct-2013
Order Date: 10-Oct-2013
Order #: 1341277

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1341277-01	Grain Size Analysis

Approved By:

Mark Foto, M.Sc. For Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 15-Oct-2013
Order Date:10-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road, Ottawa

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Grain Size - Sieve only	Based on ASTM D2487	11-Oct-13	15-Oct-13
Texture - Coarse Med/Fine	Based on ASTM D2487	11-Oct-13	15-Oct-13

Certificate of Analysis

Report Date: 15-Oct-2013
Order Date:10-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road, Ottawa

	Client ID:	Grain Size Analysis	-	-	-
	Sample Date:	09-Oct-13	-	-	-
	Sample ID:	1341277-01	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
>75 um	0.1 %	16.6	-	-	-
<75 um	0.1 %	88.4	-	-	-
Texture	0.1 %	Med/Fine	-	-	-
>19 mm	0.1 %	<0.1	-	-	-
<19 to >4.75 mm	0.1 %	6.0	-	-	-
<4.75 to >2.00 mm	0.1 %	3.1	-	-	-
<2.00 to >0.425 mm	0.1 %	6.4	-	-	-
<0.425 to >0.075 mm	0.1 %	8.6	-	-	-
<0.075 mm	0.1 %	75.9	-	-	-

Certificate of Analysis

Report Date: 15-Oct-2013
Order Date:10-Oct-2013

Client: **The Environment Management Group Ltd. (EMG)**
Client PO: Project Description: 401 March Road, Ottawa

Qualifier Notes:

Sample Qualifiers :

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

TABLE 1		CLIENT: The Environment Management Group Ltd. (EMG)		
PARACEL LABORATORIES LTD.		ATTENTION: Aaron Levine		
WORKORDER: 1341277		PROJECT: 401 March Road, Ottawa		
REPORT DATE: 10/15/2013		REFERENCE: Preferred Supplier Pricing- Tier 7		
Parameter	**Units**	**MDL**	**Regulation**	**Sample**
				Grain Size Analysis 1341277-01
Sample Date (d/m/y)			**Reg 153/04 (2011)-Table 3 Industrial, coarse**	**10/09/2013**
Physical Characteristics				
>0.075 mm	%	0.1		16.6
<0.075 mm	%	0.1		88.4
Texture	%	0.1		Med/Fine
>19 mm	%	0.1		ND (0.1)
<19 to >4.75 mm	%	0.1		6.0
<4.75 to >2.00 mm	%	0.1		3.1
<2.00 to >0.425 mm	%	0.1		6.4
<0.425 to >0.075 mm	%	0.1		8.6
<0.075 mm	%	0.1		75.9

PARACEL LABORATORIES LTD.

Order #: 1341277

Grain Size Distribution Charts

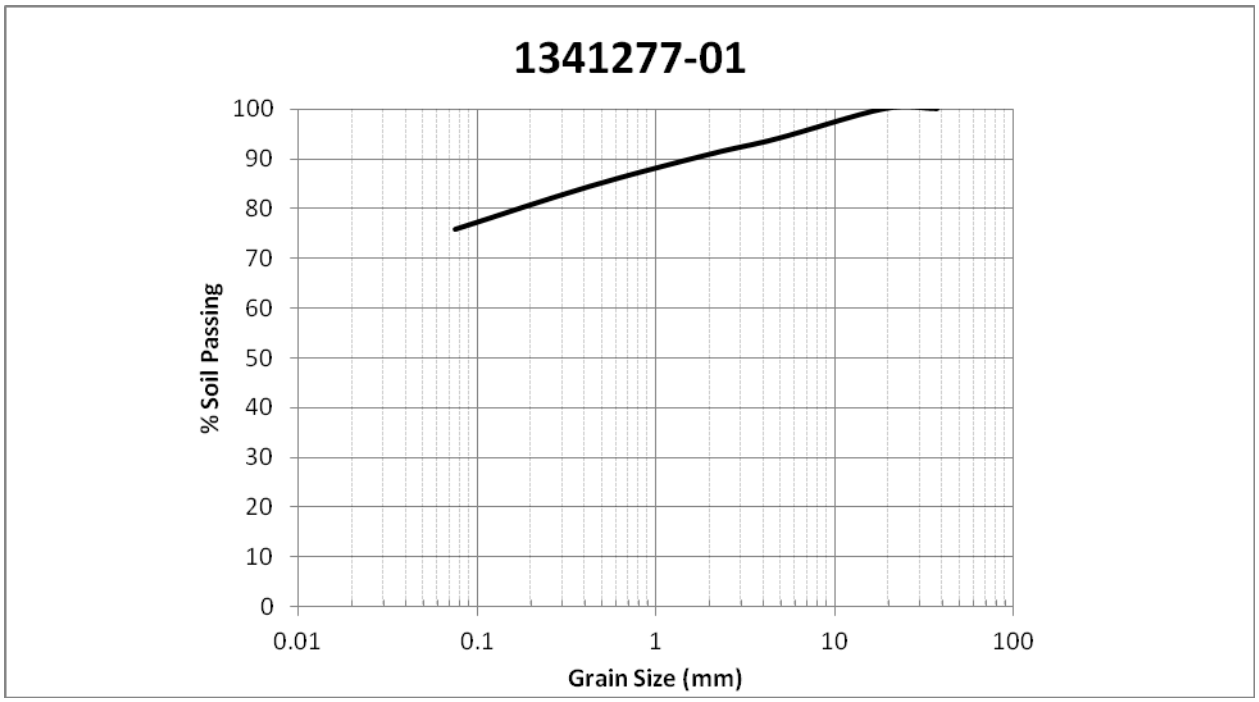
Client: **The Environmental Management Group**

Report Date: 18/09/2013

Project Description: **401 March Rd, Ottawa**

Order Date: 16-Sept-13

Figure 1: Grain Size Distribution for the sample 'Grain Size Analysis' ; Paracel ID: *1341277-01*



Sieve Range	% Fraction Retained in Sieve range	Sieve Size	% Passing Sieve Size
<0.075	25.1	0.075	75.9
.425 - 0.075	50.8	0.425	84.5
2 - .425	14.8	2	90.9
4.75 - 2	6.4	4.75	94
19 -4.75	2.9	19	100
>19	0	19	100.0

Based on the above results, this soil can be classified as having a medium-fine grained texture (assuming all particles greater than 2mm are removed from the calculation).

Groundwater Monitoring Data

Project: 401 March Road, Ottawa, Ontario

Water Levels Taken at: October 16th, 2013

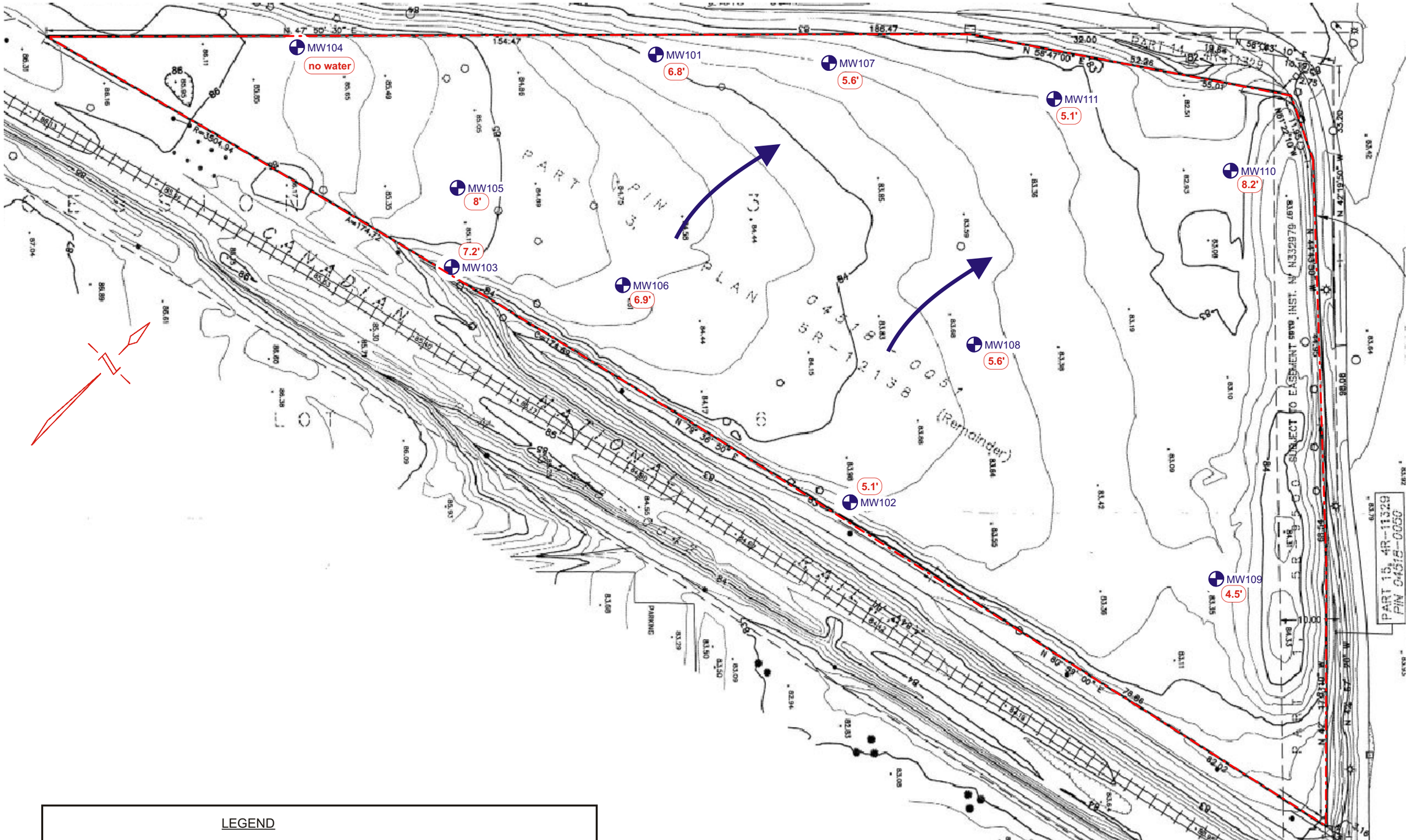
Groundwater Monitoring Well Number	Location	Depth of Monitoring Well (feet)	Ground Elevation[1]	Depth to Water from Ground [2]	Stabilized Groundwater Elevation [3]
MW101	North End of Site	25	277	6.8	270.2[4]
MW102	South End Adjacent to Rail line	20	275	5.1	269.9
MW103	South End Adjacent to Rail line	20	295	7.2	287.8
MW104	North End of Site	12	290	Not Measured	-
MW105	West End	12	285	8	277
MW106	South End Adjacent to Rail line	13	286	6.9	279.1
MW107	North End of Site	13	275	5.6	269.4
MW108	Mid Area	13	280	5.6	274.4
MW109	East End	13	270	4.5	265.5
MW110	East End	13	280	8.2	271.8
MW111	North End of Site	13	-	5.1	-

1. Existing elevation of ground surface measured in feet as detailed in site plan, and reproduced in Appendix 2.

2. Depth to groundwater, measured in feet, from adjacent ground surface.

3. Geodetic elevation of stabilized groundwater, measured in feet, at each monitoring well,

4. For example, this groundwater elevation of 270.2 (feet) indicates the geodetic elevation of the stabilized groundwater at Monitoring Well MW101.



LEGEND

MW101 MONITORING WELL 101

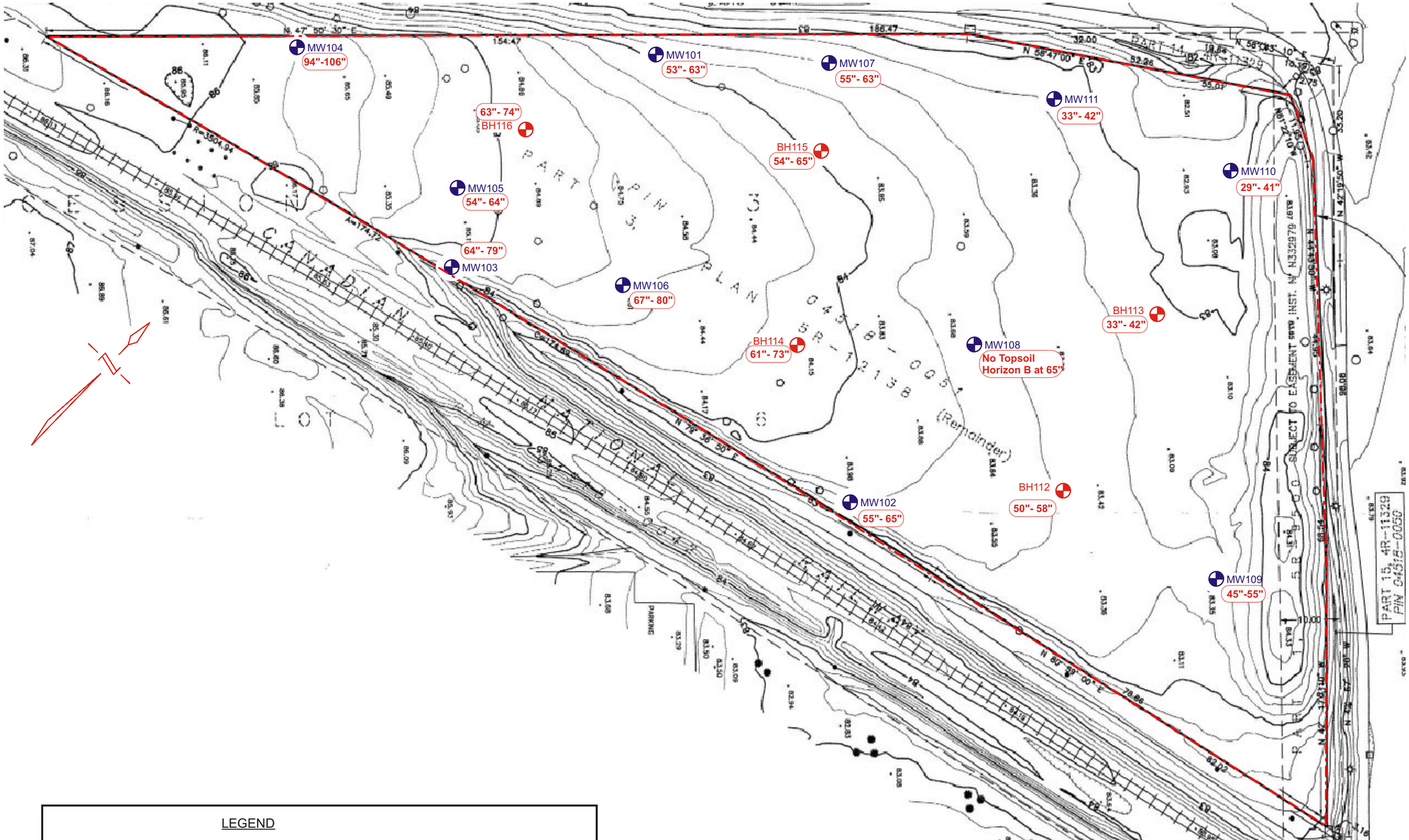
- INFERRED DIRECTION OF GROUNDWATER FLOW

PROPERTY LINE

EMG

29 QUEEN ANNE RD
ETOBICOKE, ONTARIO M8X 1T1
(416) 239-6643

DRAWING TITLE: Shallow Groundwater Flow Plan		
401 MARCH ROAD		
LOCATION: OTTAWA, ONTARIO		
DATE: OCTOBER, 2013	DRAWN BY: JG	



LEGEND

MW101 MONITORING WELL 101

BH116 BOREHOLE 116

45"- 65" - Depth Of Native Topsoil In Inches Below Adjacent Grade

PROPERTY LINE

EMG
29 QUEEN ANNE RD
ETOBICOKE, ONTARIO M8X 1T1
(416) 239-6643

DRAWING TITLE: Depth of Native Topsoil Layers

401 MARCH ROAD

LOCATION: OTTAWA, ONTARIO

DATE: OCTOBER, 2013 DRAWN BY: JG

Appendix 10

General Terms and Conditions for Contracted Services

INDEMNIFICATION AND DISCLAIMER

The Environment Management Group Ltd. (EMG) and affiliates and subcontractors have neither created nor contributed to the creation or existence of any type of hazardous waste or **environmental contamination** or pollution , whether latent or patent, or the release thereof or the violation of any law or regulation relating thereto, at the site of the Project or in connection with the Performance of the Project Work, and it is understood that EMG shall have no liability for any such condition.

EMG and its affiliates and subcontractors have performed all environmental services in a professional manner **exercising all precaution, discretion and technical expertise** as is expected of environmental consultant professionals in the performance of similar work and circumstances.

In the preparation of Phase One Environmental Site Assessments or other environmental site audits or inspections , all reasonable care is taken to access pertinent historical information from a variety of publications and document sources. EMG takes no responsibility for any errors or omissions in the Phase One Assessment Report or other site related studies due to **inaccuracies or deficiencies** in the available literature, or the absence of certain historical documents or records, or site features that are hidden from view or inaccessible for purposes of the ESA1 site inspection.

The comments and recommendations presented in the Phase 2 and Phase 3 Environmental Assessment reports, where applicable, are **based on the geological and chemical testing** of samples gathered from bore holes, test pits, etc. from pre-determined area(s) of the site.

Due to the nature of environmental inquiry including and not limited to subsurface conditions of soil and water, **even the most rigorous professional inquiry and assessment may fail** to identify all existing conditions of environmental risk, pollution, or contamination at the subject site.

EMG's responsibility and liability is limited to the accurate interpretation of the current soil, chemical analysis and groundwater conditions prevailing **at the test locations and the depth at each boring**. Accordingly, there is no warranty, expressed or implied, by EMG that all potential contaminants in subsurface soil or groundwater have been identified on the site.

EMG assumes no liability for injuries, claims, losses, expenses or damages whatsoever arising from the performance of the environmental work as a direct or indirect result of the uncovering and **required disclosure and reporting of site contamination** to the appropriate authorities.

Any and all additional environmental work required by the Client, government agency or
others as a direct or indirect result of the Performance of the Agreement shall be negotiated with the Client as part and parcel of a new and separate contract for professional services.

The environmental report and related site work was conducted by EMG for the named client in this report only. EMG takes no responsibility or liability for the use or interpretation **by third parties/ others** regarding the contents of the report or the field work upon which it has been developed, without written consent. No reliance on the information contained in the report to persons or parties other than named client is expressed or implied.

Any **reproduction of this report**, in whole or in part, by any parties without written consent from EMG is unlawful. Additional copies of report can be provided to the client upon written request for a reasonable fee.

Finally, EMG has completed the environmental work at the subject property as of the date of the report. EMG has no control as to how the subject property or neighbouring properties are used or environmental outcomes that may directly or indirectly effect the site once that we have completed our contracted work at the subject property. Accordingly, EMG takes no responsibility or liability for the environmental conditions at the subject property **after the date of this report.**

COPYRIGHT STATEMENT

You should be aware that all environmental reports, letters (including reliance letters), as well as drawings, plans, photographs, specifications, borehole data, lab test results and analysis, or other data which was created by our firm relating to this project is our professional work product and as such, is our intellectual property which is protected under the Copyright Act. The copyright to our intellectual property belongs to our firm.

We provide a licence to our clients and others, enabling them to use our copyrighted material under certain terms and conditions including, but not limited to the full payment of the outstanding account. **If the account is outstanding, our firm reserves the right to notify all those to whom we have provided, or we believe may be in possession of, our intellectual property, and to advise then that continued use of those materials constitutes a breach of our copyright, and is unlawful.**

INSURANCE

The Environment Management Group Ltd. maintains professional Environmental Error and Omissions Insurance; Comprehensive General Liability Insurance; and All-Risk Environmental Pollution Insurance.

Our Environmental Error and Omissions Insurance provides $2,000,000 coverage per incident per project, while our All-Risk Environmental Pollution Insurance policy is $1,000,000 coverage per incident. EMG can acquire additional insurance coverage as may be required on a site specific basis (to the extent that such insurance is available). Copies of all insurance coverages can be made available upon written request.

PROFESSIONAL PROFILE OF EMG TEAM PRINCIPALS

Aaron Levine, M.A., MARP, CEA, CCEP

Head, Environmental Planning & Engineering Department

Aaron Levine has over 24 years of professional planning experience specializing in environment management, building design, structures, and town planning. He has extensive consulting experience in a wide range of environmental planning and engineering projects related to soil and water management including site decommissioning and remediation. Mr. Levine has a solid foundation in Canadian and Ontario environmental regulations and guidelines with expertise in liaison and negotiation procedures with all levels of government regulatory agencies as well as all aspects of project management including contract administration and cost/ benefit strategies.

Education: Mr. Levine has a diversified academic background in the interdisciplinary fields of planning, environmental sciences, building design and structures. This includes a Masters Degree in Planning (University of Toronto, 1977); Doctoral Studies (University of Toronto, 1979); certification, Groundwater Management Systems (Ministry of Natural Resources, 1991); Environment Management & Remediation Technologies (University of Toronto, 1994).

Professional Memberships and Certifications: Certified Canadian Environmental Practitioner **-** Canadian Environmental Auditing Association **-** Ontario Professional Planners Institute **-** Ontario Society for Environmental Management **-** Canadian Environment Industry Association **-** Canadian Institute for Environmental Law and Policy **-** The Canadian Wildlife Federation

Mike Pazin, M.A.Sc., P. Eng., QP_{ESA}

Senior Engineer

Mike Pazin has over 40 years of experience in the geotechnical engineering field including 25 years as director and founder of Pazin Geotechnical Services Limited . During that time, he has applied his specialized engineering skills to several thousands of projects in Canada, United States and Europe. Mr. Pazin has a diverse background in engineering geology, hydrogeology, environmental and geotechnical engineering.

Education: Mr. Pazin holds a Bachelor of Engineering degree in Engineering Geology and Hydrogeology (1964, Zagreb, Croatia); Masters of Applied Science in Geotechnical Engineering (1974, University of Toronto); and studies in Environmental Property Assessment and Cleanup (University of Toronto, 1993). He is an Ontario Registered Professional Engineer since 1972.

Professional Memberships and Certifications: American Society of Civil Engineers **-** Canadian Geotechnical Society **-** International Society for Foundation Engineering and Soil Mechanic