

2014 ANNUAL REPORT

CERTIFICATE OF PROPERTY USE NO. 0371-8TYQMY LANSDOWNE PARK – URBAN PARK (ZONE C) 840 QUEEN ELIZABETH DRIVE (FORMERLY PART OF 945-1015 BANK STREET) OTTAWA, ONTARIO

Submitted to:

Ontario Ministry of the Environment and Climate Change Ottawa District Office 2430 Don Reid Drive Ottawa, Ontario K1H 1E1

Submitted by:

Amec Foster Wheeler Environment & Infrastructure A Division of Amec Foster Wheeler Americas Limited 300 – 210 Colonnade Road South Nepean, Ontario K2E 7L5

March 31, 2015

Project No. TZ10100106

IMPORTANT NOTICE

As of January 1, 2015, we have changed our company name from AMEC Environment & Infrastructure, a division of AMEC Americas Limited to Amec Foster Wheeler Environment & Infrastructure, A Division of Amec Foster Wheeler Americas Limited. This reflects the combination of our parent company, AMEC plc, and Foster Wheeler AG. This name change is administrative in nature and we assure you that we will continue to maintain the current resources, contracts or other existing services you have with AMEC. We will continue to provide the same quality of services and the same dedicated team of consultants, project managers, engineers and scientists. Our focus remains on delivering projects safely and successfully for you. You can find more information on Amec Foster Wheeler at www.amecfw.com.

This report was prepared exclusively for the City of Ottawa by Amec Foster Wheeler Environment & Infrastructure ("Amec Foster Wheeler"). The quality of information, conclusions and estimates contained herein is consistent with the level of effort involved in Amec Foster Wheeler services and based on: i) information available at the time of preparation, ii) data supplied by outside sources and iii) the assumptions, conditions and qualifications set forth in this report. This report is intended to be used for the City of Ottawa only, subject to the terms and conditions of its contract with Amec Foster Wheeler. Any other use of, or reliance on, this report by any third party is at that party's sole risk.

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March 31, 2015

TZ10100106

Ontario Ministry of the Environment and Climate Change Ottawa District Office 2430 Don Reid Drive Ottawa, Ontario K1H 1E1

Attention: Steve Burns Ottawa District Manager

Dear Mr. Burns:

RE: 2014 Annual Report Certificate of Property Use (CPU) No. 0371-8TYQMY Lansdowne Park – Urban Park (Zone C) 840 Queen Elizabeth Drive (Formerly Part of 945-1045 Bank Street), Ottawa, Ontario

Please find enclosed an electronic copy, in PDF format, of the 2014 Annual Report prepared in reference to the above noted property. The report has been prepared on behalf of the City of Ottawa to meet the annual reporting requirements stipulated under condition 4.2.10 of Certificate of Property Use No. 0371-8TYQMY.

Should you have any questions or require any additional information, please do not hesitate to contact the undersigned.

Yours truly,

AMEC Foster Wheeler Environment & Infrastructure A Division of Amec Foster Wheeler Americas Limited

ORIGINAL SIGNED BY

Kevin D. Hicks, M.Sc., P.Geo., QP_{ESA} Senior Associate Hydrogeologist

Enclosure (1)



VIA EMAIL



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LIST OF ACRONYMS AND ABBREVIATIONS

CCE	Central Canada Exhibition
COC	Contaminant of Concern
CSM	Conceptual Site Model
CPU	Certificate of Property Use
GWMP	Ground Water Monitoring Program
HASP	Health and Safety Plan
IMP	Inspection and Maintenance Plan
MMP	Methane Monitoring Plan
MOECC	Ministry of the Environment and Climate Change
OHSA	Occupational Health and Safety Act
OSEG	Ottawa Sports and Entertainment Group
PAH	Polynuclear Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PHC	Petroleum Hydrocarbons
PSS	Property Specific Standards
PVC	Polyvinyl Chloride
QP	Qualified Person
RA	Risk Assessment
RMM	Risk Management Measure
RMP	Risk Management Plan
RSC	Record of Site Condition
SCS	Site Condition Standards
SMP	Soil Management Plan
SOP	Standards Operating Procedure
VOC	Volatile Organic Compound



1.0 INTRODUCTION

On 25 November 25 2013 Certificate of Property Use (CPU) No. 0371-8TYQMY was issued by the Ontario Ministry of Environment and Climate Change (MOECC) for the Lansdowne Park – Urban Park (Zone C) property located at 840 Queen Elizabeth Drive (formerly part of 945 - 1015 Bank Street) in Ottawa, Ontario (hereinafter referred to as the "CPU Property"). A key plan showing the location of the CPU Property is provided on Figure 1.

The CPU Property is legally described as Part of Lots 20, 21 and 22 (Block 6), part of Lot 29 (Block 7) and part of O'Connor Street (Formerly Mary Street) (closed by Judge's Order Inst. LT1245216) on Plan 26085, part of Lots 57, 58, 59 and 60 and part of Lansdowne Avenue (closed by Judge's Order Inst. LT1245216) on Plan 35722, part of Lots 45 to 50 (Inclusive) on Plan 30307 and part of Lots I and K, Concession C (Rideau Front), Nepean, being Parts 1, 16, 17, 32 and 33 on Plan 4R-26535; City Of Ottawa and being all of PIN 04139-0264.

Condition 4.2.10 of the CPU stipulates that an annual report shall be prepared each year to document the activities carried out by the Owner in relation to the Risk Management Measures that have been implemented at the CPU Property and submitted to the MOECC by March 31 of the following year. This report has been prepared by Amec Foster Wheeler Environment & Infrastructure, a division of Amec Foster Wheeler Americas Limited ("Amec Foster Wheeler"), on behalf of the City of Ottawa (the "City") to meet the annual reporting requirements stipulated by Condition 4.2.10 of CPU No. 0371-8TYQMY for 2014.

1.1 Background Information

Lansdowne Park, which also includes the former adjacent Sylvia Holden Commemorative Park, comprises an area of 15.64 hectares located on the east side of Bank Street in the Glebe neighbourhood of the City of Ottawa, Ontario. Lansdowne Park is bordered by Bank Street to the west, Holmwood Avenue to the north and Queen Elizabeth Driveway followed by the Rideau Canal to the east and south.

Lansdowne Park was a historic exhibition, sports and entertainment facility originally developed in the mid-1800s as an agricultural fairground. Through well over 100 years of continuous use the site has undergone numerous changes including both the site infrastructure and physiography.

In 2007 the City of Ottawa initiated a review to redevelop Lansdowne Park. The Ottawa Sports and Entertainment Group (OSEG) proposed a public-private partnership with the City to rebuild the stadium and redevelop Lansdowne Park. The redevelopment plan was initiated in 2012 and includes three major components:

- Constructing a mixed-use area that includes retail, office, and residential property uses along the north and west portions of the site (Zone A);
- Refurbishing Frank Clair Stadium (sports stadium) / Civic Centre (arena complex) and relocating and refurbishing the Horticultural Building (Zone B); and,



• Creating a large urban park along the east and south portions of the site (Zone C).

A plan depicting the above-noted redevelopment plan for Lansdowne Park is provided on Figure 2.



2.0 CERTIFICATE OF PROPERTY USE

In recognition of the redevelopment to a more sensitive property use within Zone C, Amec Foster Wheeler (2012) submitted a Risk Assessment (RA) to the Environmental Assessment and Approvals Branch of the MOECC on March 16, 2012 in support of the filing of a Record of Site Condition (RSC). The RA (3678-8JPR93) was accepted by the Director in its letter to the City of Ottawa dated April 20, 2012. In recognition of its acceptance of the RA for Zone C, CPU No. 0371-8TYQMY was issued by the MOECC on November 25, 2013. CPU No. 0371-8TYQMY addresses the Risk Management Measures (RMM) to be implemented and maintained at the CPU Property to mitigate unacceptable risks to human health as described in the Risk Assessment (RA) and/or Part 4 of the CPU. The CPU also provides property-specific standards (PSS) for specific COC present in soil and groundwater beneath the CPU Property.

2.1 Risk Management Measures

The RMM to be implemented and maintained at the CPU Property are generalized as follows:

- 1. **Geotechnical Engineering:** Quality assurance and quality control for such earthworks as the placement and compaction of geotechnical materials and soils impacted by any COC shall be carried out by the representative of the geotechnical engineering firm responsible for the supervision of construction based on professional judgment.
- Former Easter Landfill: Construction of a non-woven geotextile marker horizon overlain by a combination soft soil and hard cap barrier, both extending 5 metres outward beyond the periphery of the Former Eastern Landfill. The hard cap shall consist of approved structural elements. The soft soil cap shall include 0.5 to 1.5 metres of clean soil meeting the Table 3 Site Conditions Standards (SCS) for residential / parkland / institutional property use.
- 3. East Berm: Construction of an earthen berm to contain contaminated soil excavated from Zone A. The berm shall be underlain by non-woven geotextile to demarcate the elevation above which soils have been placed. The contoured surface of the impacted soils shall be covered with a non-woven geotextile to demarcate the zone of impacted soils present underneath and covered with a minimum of one metre of clean soil meeting the Table 3 SCS for residential / parkland / institutional property use or other approved structural elements.
- 4. Former McElroy Building: Construction of a non-woven geotextile marker horizon overlain by a combination soft soil and hard cap barrier over the east portion of the footprint of the Former McElroy Building. The hard cap shall consist of approved structural elements. The soft soil cap shall include 0.5 to 1.5 metres of clean soil meeting the Table 3 SCS for residential / parkland / institutional property use.
- 5. **Soil Management Plan:** Development and implementation of a Soil Management Plan (SMP) to establish best practices and procedures to mitigate adverse effects and potential



exposure risks associated with the excavation, transportation, storage and handling of soil at the CPU Property.

- Health and Safety Plan: Development and implementation of a Health and Safety Plan (HASP) to provide guidance for the protection of workers from potential exposure to the COC known to be present at the CPU Property
- 7. **Ground Water Monitoring Program:** Development and implementation of a Ground Water Monitoring Program (GWMP), for a minimum of five years, to identify any changes in the hydrological components and ground water quality resulting from implementation of the risk management measures and establishing trigger levels and contingency activities in the event that the monitoring results show any concentration(s) greater than the Property Specific Standards (PSS).
- 8. **Methane Monitoring Program:** Development and implementation of a Methane Monitoring Program (MMP), for a minimum of five years, to address the influence of seasonal variations on landfill gas concentrations in the vicinity of the Former Eastern Landfill and related RMM and establishing trigger levels and contingency activities in case monitoring results show any concentration greater than the Property Specific Standards that are or may be related to the production of landfill gas
- Inspection and Maintenance Plan: Development and implementation of an Inspection and Maintenance Plan (IMP) to assess the integrity of the RMM on a routine and asneeded basis and identify any depreciation or failure of the RMM requiring repair or reinstatement.
- 10. **Annual Report:** An annual report shall be submitted to the MOECC by no later than March 31 of each year to document activities carried out by the Owner in relation to the RMM during the previous calendar year, including any activities in relation to: East Berm, Former Eastern Landfill, Former McElroy Building, SMP, HASP, GWMP, MMP and IMP.

A copy of the CPU is provided in Appendix A.



3.0 ANNUAL REPORTING ELEMENTS

3.1 East Berm

The construction of the East Berm was initiated in the summer of 2012 using impacted soil, exceeding Table 3 SCS for residential / parkland / institutional property use, sourced from areas excavated to construct underground parking structures within Zones A and B development parcels. Following excavation, remediation of Zone A was completed to obtain a Record of Site Condition. Parameters present in soil in these areas exceeding the applicable Table 3 SCS included various metals, polycyclic aromatic hydrocarbons and petroleum hydrocarbons. Impacted soils which could not be accommodated in the East Berm were temporarily stockpiled within Zone C while awaiting placement in the South Berm, an extension of the East Berm located south of the Stadium.

Construction of the South Berm began in the spring of 2013 using soil sourced from the temporary stockpile of contaminated soil as well as non-impacted soil sourced from areas excavated to construct the underground parking structures. Impacted soil that could not be accommodated in the berms due to on-site temporary storage/stockpile limitations or other site logistics were disposed off-site in accordance with applicable legislation.

While constructing the East and South Berms the following RMM were implemented;

- The existing ground surface beneath the berms was prepared by removing the existing asphalt where present, levelling and covering by eight-ounce non-woven geotextile fabric. The geotextile was placed to demarcate the interface between clean and impacted soil and to mitigate the potential for soil mixing.
- Soil known or suspected of being impacted was placed, compacted and contoured to a maximum elevation of at least 1 metre less than the final design elevation of the berms.
- Impacted soil contained within the East and South Berm was covered by eight-ounce nonwoven geotextile fabric. The geotextile was installed per the manufacturer's instructions. At the toe of the berms, both the bottom and overlying geotextiles were placed in an anchor trench measuring 0.5 wide by 0.5 m deep. The anchor trench was then backfilled with clean sand. Based on a design slope of 3:1, the geotextile and impacted soil is set-back of approximately 2.56 metres from the toe of the berms.
- The geotextile overlying the impacted soil was covered with no less than 1 metre of clean fill (i.e., soil meeting *Table 3 Site Condition Standards in a Non-Potable Ground Water Condition Residential/Parkland/Institutional Property Use*), which includes a layer of topsoil sufficient to support landscaping needs.
- In areas where trees were planted, sufficient soil depth was maintained around the rooting zones such that the roots of the mature trees would not have the potential for penetrating the underlying geotextile. At a minimum, trees were planted on compacted soil to prevent downward growth of rootmass. No plant species with tap root systems were placed above or within 5 metres of any areas subject to soil capping.



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- To ensure that migration of contaminants does not occur, utility trenches installed through the area of impacted soil contained within the berms were sealed with clay plugs at the transition from impacted to non-impacted soils. The clay seals were a minimum of 100 cm thick and extended from the base of the utility trench to the sub-base.
- With respect to utility conduit materials, concrete or polyvinyl chloride (PVC) conduits are generally not affected by the COC at the site. Therefore, either concrete or PVC conduits were used as utility conduits at the site. Gaskets used to connect conduct pipe sections within the area of impact were composed of chemically resistant materials, such as nitrile or fluorocarbon gaskets.
- As-built surveys were made during construction of the berms to ensure compliance with the design requirements and that the berms were constructed with the required minimum thicknesses of clean cover soil.
- The annual survey of the berms will be conducted in the fall of 2015 to assess differential settlement or consolidation. The East Berm will be surveyed on an annual basis for two consecutive years following construction to assess any differential settlement or consolidation of materials that could result in unwanted thinning of the clean cover. The Survey will note and record any areas showing evidence of erosion of surficial soils, slope failure and/or soil caving. Any areas subject to settlement greater than 0.10 metre will be subject to restoration using clean fill/topsoil.
- The as-build survey and annual surveys shall be maintained per Section 3.12 of this Risk Management Plan.

Annual and routine inspection of the East and South Berms will be conducted in 2015, once construction at the CPU Property is completed, as set out in the Inspection and Maintenance Plan dated June 2014.

3.2 Former Eastern Landfill

In the area of the former Eastern Landfill COC requiring risk management included metals (lead, zinc, cadmium, etc.), petroleum hydrocarbons and polycyclic aromatic hydrocarbons in soil, in addition to putrescible and non-putrescible waste. Based on the pre-construction grades, the zone of waste / impacted soil extended from approximately 0.8 metres below ground surface to 4.8 mbgs. Potential risks were mitigated via covering the waste and impacted soil with non-woven geotextile that was overlain with a combination soft soil cap and hard cap. Construction activities within the inferred extent of the Eastern Landfill were initiated in September of 2013. Capping of the Eastern Landfill was conducted in successive stages due to limited availability of staging area at the site and included breaks during the winter months.

Utilities were installed prior to the installation of the overlying geotextile and capping materials. The extents of the former landfill was verified through visual inspection of deleterious materials in the soil and locating the physical limits of the former landfill observed as being within the wood cribbing of the former inlet to the Rideau Canal. Final soft soil and hard caps placement over



areas of the former Eastern Landfill is on-going with expected completion by summer 2015. Excess impacted soil excavated during utility trenching and cap placement was disposed of offsite in accordance with applicable legislation.

The following RMM were implemented during the construction of the soft soil and hard caps over the Former Eastern Landfill;

- The existing surface cover consisting of asphalt and granular subbase was removed to the required depth. The surface was contoured to accommodate the placement of eightounce non-woven geotextile fabric. The geotextile was placed to demarcate the separation between underlying waste / contaminated soil and the overlying soft soil and hard caps. The eight-ounce non-woven geotextile was placed to extend a minimum of 5 metres beyond the limits of the Eastern Landfill.
- The geotextile was capped with a soft soil cover consisting of clean soil (i.e., soil meeting Table 3 Site Condition Standards in a Non-Potable Ground Water Condition Residential/Parkland/Institutional Property Use), a hard surface cap (asphalt, concrete or interlocking pavers and granular subbase), or a combination thereof. The thickness of the soft soil cap overlying the geotextile was determined based on landscaping needs but was not less than 500 millimetres inclusive of topsoil and/or surface treatment features such as paving. Examples of the different surface treatments include:
 - Concrete Unit Paving on Grade
 - Granite Paving
 - Reinforced and coloured asphalt paving
 - Resilient Play Surface
 - Refrigerated Concrete Slab for skating rink
- Where features were constructed that penetrated the geotextile such as foundations for light standards or playground equipment, at the point of penetration, the geotextile was placed to extend 0.3 m up and around the penetration point.
- In areas where trees were planted, sufficient soil depth was maintained around the rooting zones such that the roots of the mature trees would not have the potential for penetrating the underlying geotextile. At a minimum, trees were planted on compacted soil to prevent downward growth of rootmass. No plant species with tap root systems were placed above or within 5 metres of any areas subject to soil capping.
- To ensure that migration of contaminants does not occur, utility trenches installed through the area of impacted soil contained within the berms were sealed with clay plugs at the transition from impacted to non-impacted soils. The clay seals were a minimum of 100 cm thick and extended from the base of the utility trench to the sub-base.
- With respect to utility conduit materials, concrete or PVC conduits are generally not affected by the COC at the site. Therefore, either concrete or PVC conduits were used as utility conduits at the site. Gaskets used to connect conduct pipe sections within the



area of impact were composed of chemically resistant materials, such as nitrile or fluorocarbon gaskets.

- The storm water management system includes an underground stormwater retention tank encroaching the western limit of the east landfill. The retention tank was installed such that the geotextile liner was placed along the side of the tank and secured in place with backfilled soil. Any storm sewers draining in to or out of the tank passing through the impacted soil were sealed as noted above. Soil excavated during the installation of the tank was managed as per the risk management plan.
- Once completed, the boundaries defined by the risk management measures developed for the Eastern Landfill were surveyed. An as-built drawing will be maintained as per the risk management plan.

Annual and routine inspection of the cap over the Eastern Landfill will be conducted in 2015, once construction at the CPU Property is completed, as set out in the Inspection and Maintenance Plan dated June 2014.

3.3 Former McElroy Building

In the area of the former McElroy Building COC requiring risk management included polycyclic aromatic hydrocarbons in soil. Contaminants in soil were managed via covering the impacted soil with non-woven geotextile that was overlain with a combination soft soil cap and hard cap (i.e., soil and paving structures and granular subbase). In October 2014 a test pit sampling program was completed to further delineate the extent of the PAH impacted soil. The extent of the RMM was based on the refined extent of the impacted soil.

The following RMM were implemented during the construction of the soft and/or hard cap over the Former McElroy Building;

- The existing surface cover consisting of asphalt and granular subbase was removed to the required depth. The surface was contoured to accommodate the placement of eightounce non-woven geotextile fabric. The geotextile was placed to demarcate the separation between underlying waste / contaminated soil and the overlying soft soil and hard caps. The eight-ounce non-woven geotextile was placed to extend a minimum of 5 metres beyond the limits of the define limits of the impacted soil.
- The geotextile was capped with clean soil (i.e., soil meeting Table 3 Site Condition Standards in a Non-Potable Ground Water Condition - Residential/Parkland/Institutional Property Use), a hard surface cap (i.e., asphalt or concrete and granular sub base), or a combination thereof. The thickness of the soft soil cap overlying the geotextile was determined based on landscaping needs but was not less than 500 millimetres inclusive of topsoil and/or surface treatment features such as paving.
- Where features were constructed that penetrated the geotextile such as foundations for light standards, at the point of penetration, the geotextile was placed to extend 0.3 m up and around the penetration point.



- In areas where trees were planted, sufficient soil depth was maintained around the rooting zones such that the roots of the mature trees would not have the potential for penetrating the underlying geotextile. At a minimum, trees were planted on compacted soil to prevent downward growth of rootmass. No plant species with tap root systems were placed above or within 5 metres of any areas subject to soil capping.
- To ensure that migration of contaminants does not occur, utility trenches installed through the area of impacted soil contained within the berms were sealed with clay plugs at the transition from impacted to non-impacted soils. The clay seals were a minimum of 100 cm thick and extended from the base of the utility trench to the sub-base.
- With respect to utility conduit materials, concrete or PVC conduits are generally not affected by the COC at the site. Therefore, either concrete or PVC conduits were used as utility conduits at the site. Gaskets used to connect conduct pipe sections within the area of impact were composed of chemically resistant materials, such as nitrile or fluorocarbon gaskets.
- Once completed, the boundaries defined by the risk management measures developed for the McElroy Building were surveyed. An as-built drawing will be maintained as per the risk management plan.

Annual and routine inspection of the cap over the former McElroy Building impacted soil will be conducted in 2015, once construction at the CPU Property is completed, as set out in the Inspection and Maintenance Plan dated June 2014.

3.4 Soil Management Plan

A SMP was developed in support of the Lansdowne Park redevelopment project in February 2012. The SMP was revised in May 2014 to meet Condition 4.2.5 of the CPU (AMEC, 2014a). The objectives of the SMP for the RA RSC Property are as follows:

- Ensure that contaminated soil and ground water are managed in compliance with all applicable environmental laws including a CPU specific to the RA RSC Property portion of the site. In this context, "contaminated" soil is interpreted to mean soil that does not meet the standards for soil as laid out in the 2011 MOE document entitled "Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act", Table 3 Full Depth Generic SCS in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional (R/P/I) Land Use, coarse soil type (MOE 2011 Table 3 SCS);
- Provide a process to manage contaminated soil and/or ground water, including any excess soil;
- Provide a contingency plan to identify and manage any unknown contamination identified during the construction process or produced due to a spill or release during construction;



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- Support the execution of the site health and safety plan as it relates to the safety of the construction workforce and the neighbouring community where contamination is encountered;
- Outline the methodology and procedures to minimize dust created during the excavation, loading and importation, placement and compaction of soil;
- Outline the procedures for notification and reporting; and,
- Integrate into other management plans and procedures that could include quality, environmental management, emergency response, and sustainability.

The revised SMP to meet the requirements of Condition 4.2.5 of the CPU was submitted to the MOECC on June 2, 2014.

3.5 Health and Safety Plan

The health and safety requirements mandated under the Occupational Health and Safety Act (OHSA), including the development and implementation of any Health and Safety Plan (HASP) is the responsibility of the Constructor deemed to be in charge of any works being undertaken at the site. This includes contractors retained by the owner working on its behalf. To assist contractors working at the CPU Property, a HASP addendum was developed to establish the requirements and provide guidance for the protection of workers from potential exposure to the COC known to be present at the CPU Property. The HASP addendum does not address other Health and Safety requirements.

The HASP addendum identifies the COC present at the CPU Property and the potential exposure pathways through which workers at the CPU Property may be exposed to those COC. Recommendations for personal protective equipment (PPE), personal hygiene and fugitive dust control are also provided in the addendum.

The HASP addendum was developed in July 2013 (AMEC, 2013). No changes or amendments to the HASP addendum were made in 2014.

3.6 Ground Water Monitoring Program

A proposed GWMP outlining the proposed monitoring program to satisfy the requirements of Condition 4.2.7 of the CPU was submitted to the MOECC for its approval on September 2, 2014 (AMEC, 2014c). The primary objectives of the GWMP include, but are not necessarily limited to, addressing the following:

 Identifying changes in the hydrological components having a direct interaction with the CPU Property soils including well water levels, ground water flow details, infiltration rates and interflow details;



- Identifying any changes in ground water quality resulting from establishing the Risk Mitigation Measures;
- 3) Establishing the location and installation details of all ground water monitoring wells to be included in the program;
- 4) Establishing the frequency of all ground water sampling and monitoring events;
- 5) Establishing an itemized list of chemical parameters to be analyzed at each monitoring well location, including those identified in Schedule 5, Column 2 – Indicator List for Groundwater and Leachate contained in the Landfill Standards: A Guideline on the Regulatory and Approval Requirements for New or Expanding Landfilling Sites (PIBS 7792e) published by the MOE and dated January 2012, as it may be amended from time to time; and,
- 6) Establishing trigger levels and contingency activities in the event that the monitoring results show any concentration(s) greater than the Property Specific Standards (PSS).

The GWMP dated August 2014 will be implemented in 2015 with the first semi-annual monitoring and sampling event scheduled to occur in Fall 2015. The proposed groundwater monitoring locations to be constructed in 2015 are shown on Figure 3.

3.7 Methane Monitoring Program

A proposed MMP outlining the proposed monitoring program to satisfy the requirements of Condition 4.2.8 of the CPU was submitted to the MOECC for its approval on September 2, 2014 (AMEC, 2014d). The primary objectives of the MMP include, but are not necessarily limited to, addressing the following:

- 1) the influence of seasonal variations on landfill gas concentrations in the vicinity of the Former Eastern Landfill and related risk management measures at the Property;
- 2) location and installation details of all boreholes and landfill gas probes included in the program;
- 3) frequency of all sampling and monitoring events;
- trigger levels and contingency activities in case monitoring results show any concentration greater than the Property Specific Standards that are or may be related to the production of landfill gas; and,
- 5) the correlation between methane measured at the Property and changes in concentration for the chemical parameters identified in Schedule 5, Column 2 – Indicator List for Groundwater and Leachate contained in the Landfill Standards: A Guideline on the



Regulatory and Approval Requirements for New or Expanding Landfilling Sites (PIBS 7792e) published by the MOECC and dated January 2012, as it may be amended from time to time; and,

The MMP dated August 2014 will be implemented in 2015 with the first semi-annual monitoring event scheduled to occur in Fall 2015. The proposed methane monitoring locations to be constructed in 2015 are shown on Figure 4.

3.8 Inspection and Maintenance Plan

An IMP outlining the monitoring program to be implemented at the site to satisfy the requirements of Condition 4.2.8 of the CPU was submitted to the MOECC on June 30, 2014 (AMEC, 2014b). The primary objectives of the IMP include, but are not necessarily limited to, addressing the following items:

- 1. Inspection and maintenance during construction activities;
- 2. Inspection frequencies and routine maintenance requirements for the non-woven geotextile, and for the final surfaces of each of the East Berm, the Former Eastern Landfill and the Former McElroy Building;
- 3. Event-specific inspection and maintenance;
- 4. Weather-related inspection and maintenance, and,
- 5. Non-routine and incident inspection and maintenance.

The CPU Property remains under construction through which the RMM are being implemented at the site. As such, no post-construction inspection and maintenance was conducted in 2014. Completion of the construction works for the CPU Property is expected in Summer 2015.

3.9 Contingency Measures

No contingency measures were deemed necessary or implemented in 2014 because the CPU Property is still under construction.

3.10 Site Restoration Activities

No site restoration activities were undertaken at the CPU Property in 2014 because the CPU Property still under construction.



4.0 LIMITATIONS

This report was prepared for the exclusive use of the City of Ottawa for the property located at 840 Queen Elizabeth Drive in the City of Ottawa at the time of the site visit(s). Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of the third party. Should additional parties require reliance on this report, written authorization from Amec Foster Wheeler will be required. With respect to third parties, Amec Foster Wheeler has no liability or responsibility for losses of any kind whatsoever, including direct or consequential financial effects on transactions or property values, or requirements for follow-up actions and costs.

The investigation undertaken by Amec Foster Wheeler with respect to this report and any conclusions or recommendations made in this report reflect Amec Foster Wheeler's judgment based on the site conditions observed at the time of the site inspection(s) on the date(s) set out in this report and on information available at the time of preparation of this report. This report has been prepared for specific application to this site and it is based, in part, upon visual observation of the site, subsurface investigation at discrete locations and depths, and specific analysis of specific chemical parameters and materials during a specific time interval, all as described in this report. Unless otherwise stated, the findings cannot be extended to previous or future site conditions, portions of the site which were unavailable for direct investigation, subsurface locations which were not investigated directly, or chemical parameters, materials or analyses which were not addressed. Amec Foster Wheeler has used its professional judgment in analysing this information and formulating these conclusions.

Amec Foster Wheeler makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and change. Such interpretations and regulatory changes should be reviewed with legal counsel.

This report is also subject to the further Standard Limitations contained in Appendix H.



MOECC Annual Report - 2014 Lansdown Park CPU 0371-8TYQMY March 31, 2015

5.0 CLOSURE

We trust the above information is satisfactory. If you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

Amec Foster Wheeler Environment & Infrastructure, A Division of Amec Foster Wheeler Americas Limited

ORIGINAL SIGNED BY

Jason Taylor, B.Sc.. Environmental Scientist

ORIGINAL SIGNED BY

Kevin D. Hicks, M.Sc., P.Geo., QP_{ESA} Senior Associate Hydrogeologist



6.0 **REFERENCES**

AMEC Environment & Infrastructure (2014d): Methane Monitoring Program, Certificate of Property Use 0371-8TYQMY, Lansdowne Park – Urban Park (Zone C), 945 Bank Street, Ottawa, Ontario; prepared for the City of Ottawa, August 2014.

AMEC Environment & Infrastructure (2014c): Ground Water Monitoring Program, Certificate of Property Use 0371-8TYQMY, Lansdowne Park – Urban Park (Zone C), 945 Bank Street, Ottawa, Ontario; prepared for the City of Ottawa, August 2014.

AMEC Environment & Infrastructure (2014b): Inspection and Maintenance Plan, Certificate of Property Use 0371-8TYQMY, Lansdowne Park – Urban Park (Zone C), 945 Bank Street, Ottawa, Ontario; prepared for the City of Ottawa, June 2014.

AMEC Environment & Infrastructure (2014a): Soil Management Plan, Certificate of Property Use 0371-8TYQMY, Lansdowne Park – Urban Park (Zone C), 945 Bank Street, Ottawa, Ontario; prepared for the City of Ottawa, May 2014.

AMEC Environment & Infrastructure (2013): Health and Safety Plan Addendum, Working with Contaminated Soil, Lansdowne Park, Ottawa, Ontario; prepared for the City of Ottawa, July 2013.

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APPENDIX A

Certificate of Property Use



APPENDIX B

Limitations



LIMITATIONS

- 1. The work performed in the preparation of this report and the conclusions presented are subject to the following:
 - (a) The Standard Terms and Conditions which form a part of our Contract;
 - (b) The Scope of Services;
 - (c) Time and Budgetary limitations as described in our Contract; and,
 - (d) The Limitations stated herein.
- 2. No other warranties or representations, either expressed or implied, are made as to the professional services provided under the terms of our Contract, or the conclusions presented.
- 3. The conclusions presented in this report were based, in part, on visual observations of the site and attendant structures. Our conclusions cannot and are not extended to include those portions of the site or structures, which were not reasonably available, in Amec Foster Wheeler's opinion, for direct observation.
- 4. The environmental conditions at the site were assessed, within the limitations set out above, having due regard for applicable environmental regulations as of the date of the inspection. A review of compliance by past owners or occupants of the site with any applicable local, provincial or federal by-laws, orders-in-council, legislative enactments and regulations was not performed.
- 5. The site history research included obtaining information from third parties and employees or agents of the owner. No attempt has been made to verify the accuracy of any information provided, unless specifically noted in our report.
- 6. Where testing was performed it was carried out in accordance with the terms of our contract providing for testing. Other substances, or different quantities of substances testing for, may be present on site and may be revealed by different or other testing not provided for in our contract.
- 7. Because of the limitations referred to above, different environmental conditions from those stated in our report may exist. Should such different conditions be encountered, Amec Foster Wheeler must be notified in order that it may determine if modifications to the conclusions in the report are necessary.
- 8. The utilization of Amec Foster Wheeler's services during the implementation of any remedial measures will allow Amec Foster Wheeler to observe compliance with the conclusions and recommendations contained in the report. Amec Foster Wheeler's involvement will also allow for changes to be made as necessary to suit field conditions as they are encountered.
- 9. This report is for the sole use of the party to whom it is addressed unless expressly stated otherwise in the report or contract. Any use which any third party makes of the report, in whole or in part, or any reliance thereon or decisions made based on any information or conclusions in the report, is the sole responsibility of such third party. Amec Foster Wheeler accepts no responsibility whatsoever for damages or loss of any nature or kind suffered by any such third party as a result of actions taken or not taken or decisions made in reliance on the report or anything set out therein.
- 10. This report is not to be given over to any third party for any purpose whatsoever without the written permission of Amec Foster Wheeler.