CITY OF VANCOUVER

CITY CLERK'S DEPARTMENT
Access to Information

File No. 04-1000-20-2016-330

September 28, 2016

s.22(1)

Dear s.22(1)

Re: **Request for Access to Records under the Freedom of Information and Protection of Privacy Act (the "Act")**

I am responding to your request of September 8, 2016 for:

A copy of the soil sampling report for 3010 Southeast Kent Avenue.

All responsive records are attached.

Under section 52 of the Act you may ask the Information & Privacy Commissioner to review any matter related to the City's response to your request. The Act allows you 30 business days from the date you receive this notice to request a review by writing to: Office of the Information & Privacy Commissioner, info@oipc.bc.ca or by phoning 250-387-5629.

If you request a review, please provide the Commissioner's office with: 1) the request number assigned to your request (#04-1000-20-2016-330); 2) a copy of this letter; 3) a copy of your original request for information sent to the City of Vancouver; and 4) detailed reasons or grounds on which you are seeking the review.

Please do not hesitate to contact the Freedom of Information Office at foi@vancouver.ca if you have any questions.

Yours truly,

Barbara J. Van Fraassen, BA
Director, Access to Information
City Clerk's Department, City of Vancouver

Encl.
:kt

TETRA TECH EBA

OQM | Organizational Quality Management Program

January 8, 2016

ISSUED FOR REVIEW
FILE: 704-ENV.VENV03059-01
Via Email: Amber.Bongiovanni@vancouver.ca

City of Vancouver
320 – 507 W Broadway
Vancouver, BC V5Z 0B4

Attention: Ms. Amber Bongiovanni, B.Sc., GradTech, EP
Project Manager

Subject: Preliminary Desktop Geotechnical Report for 3010 E Kent Ave South
Vancouver, B.C.

This 'Issued for Review' document is provided solely for the purpose of client review and presents our interim findings and recommendations to date. Our usable findings and recommendations are provided only through an 'Issued for Use' document, which will be issued subsequent to this review. Final design should not be undertaken based on the interim recommendations made herein. Once our report is issued for use, the 'Issued for Review' document should be either returned to Tetra Tech EBA or destroyed.

1.0 INTRODUCTION AND PROJECT DESCRIPTION

Tetra Tech EBA Inc. (Tetra Tech EBA) has been retained by the City of Vancouver (CoV) to provide a preliminary desktop geotechnical report for the potential development of 3010 E Kent Ave South in Vancouver BC. The purpose of this report is to summarize our review of available existing soil and groundwater information in the vicinity of the site and to provide preliminary, overview comments on the feasibility of developing the site from a geotechnical perspective.

The proposed project site is bordered by E Kent Ave South to the north, an existing three-storey residential complex to the east, the Fraser River to the south, and a vacant lot to the west.

We understand that the CoV is considering developing the project site by constructing a single-storey, wood-framed, at-grade daycare building. According to the CoV, we understand that the building will have approximate dimensions of 30 m by 30 m. We expect that the finished floor slab elevation of the proposed building will be at or near existing site grades; however, the CoV should review the flood plain elevation and confirm if the site and/or building grades need to be raised to achieve the minimum flood construction level for development. Hydrotechnical considerations in the development of the site, including flooding and scour protection are outside the scope of this report.

We expect that the proposed development will be designed in accordance with the requirements of Part 4 of the 2014 Vancouver Building Bylaw (VBBL).

2.0 REFERENCE DOCUMENTS

The following documentation was reviewed in the preparation of this report:

- Geological Survey of Canada. 1980. Surficial Geology, Vancouver, British Columbia. Map 1486A, 1:50,000 Scale.

Tetra Tech EBA Inc.
Suite 1000 – 10th Floor, 885 Dunsmuir Street
Vancouver, BC V6C 1N5 CANADA
Tel 604.685.0275 Fax 604.684.6241

- Geotechnical Investigation Report: Proposed Affordable Housing Site 4/5, 2801 East Kent Avenue North, Vancouver, B.C., prepared by GeoPacific Consultants Ltd., dated September 19, 2014.
- Geotechnical Investigation Report: Proposed Affordable Housing Site 6, 2910 East Kent Avenue South, Vancouver, B.C., prepared by GeoPacific Consultants Ltd., dated September 25, 2014.
- Historic aerial photographs of the site (period 1938 to 2004), obtained from the UBC Department of Geography Air Photo Library.

3.0 ANTICIPATED SUBSURFACE CONDITIONS

3.1 Soil Stratigraphy

Based on our review of Geological Survey of Canada Map 1486A, available geotechnical reports, and our previous project experience in the area the soil conditions at the project site are anticipated to consist of Fraser River Sediments comprised of silt clay loam overlying interbedded fine to medium sand and minor silt beds. These soils are underlain by dense glacial sediments (Vashon Drift), comprised of lodgement and minor flow till with lenses and interbeds of substratified glaciofluvial sand to gravel.

The existing geotechnical reports indicate that the adjacent vacant property to the west is mantled by up to 2.3 m of fill material, underlain by topsoil and organic silt in some locations. These materials are underlain by approximately 2 m to 4 m of firm to stiff silt and then up to 7 m of loose to compact sand with interbeds of clayey silt to silty sand. Dense glacial till was encountered at the adjacent vacant property at depths ranging from 6.4 m at the northwest portion of the site to 12.8 m at the southeast portion of the site.

3.2 Groundwater

Groundwater was encountered on the adjacent vacant property to the west at a depth of approximately 2 m below the current site grades. Groundwater levels are anticipated to vary seasonally and are likely influenced by the Fraser River.

4.0 SITE DEVELOPMENT HISTORY

Based on our review of the historic aerial photographs, the site was occupied by several industrial developments between the 1940s and the 1980s.

In addition to the previous development, portions of the Fraser River shoreline have been infilled and the shoreline modified. The oldest aerial photographs from 1938 show that the southern portion of the property contained a small island within the Fraser River, separated from the shore by an approximately 20 m wide back channel. The back channel was largely infilled by the 1950s, followed by further infilling and extending of the shoreline towards the south during the 1960s. The shoreline was further modified and reshaped during the 1990s as part of the development of Riverfront Park. Based on the above, we expect that the southern 30 m to 60 m of the site is largely comprised of fill material.

5.0 KEY GEOTECHNICAL CONSIDERATIONS

Based on our understanding of the subsurface conditions and the development history of the site, the following key geotechnical issues should be addressed as part of the proposed building development of the site:

- **Variable Fill:** The site is likely underlain by fills of variable thickness and composition that may include abandoned building foundations, timber pilings, pavement, construction debris, etc. These fill materials are unlikely to be suitable to support the proposed building and may need to be removed. Large obstructions such as concrete rubble, logs and boulders, if present in the fill, could impede the construction of deep foundations or ground improvement works.

- **Settlement:** Review of the available documentation indicates that the site may be underlain by settlement sensitive fine-grained silt, sandy silt, and/or organic silt. The additional loads resulting from raising site grades and construction of the proposed building development are expected to result in post-construction settlement of these fine-grained soils. The magnitude of the post-construction settlement will depend on the thickness and compressibility of the soil, the location and loads imparted from previous developments, and the magnitude of the additional loading applied.

  In the event that the anticipated post-construction settlement is significant, ground improvement in the form of preloading may be required to reduce the total and differential post-construction settlements. Although previous developments on the site included several buildings and stockpiles which would have provided some preloading effect, the previous developments ranged in size, load, and duration. As such, the preload effect of the previous developments is not consistent across the site, which could result in differential settlement across the proposed building unless additional preloading is undertaken.

- **Liquefaction**: The subsurface soils may contain layers of loose to compact silty sand and sand, which are expected to be susceptible to liquefaction under the influence of the 2014 VBBL design earthquake. In addition, the firm to stiff silt layers may also be susceptible to strain softening under the influence of the design earthquake. Liquefaction and strain softening will result in strength reduction of these soils. The foundation of the proposed building will have to be designed such that punching failure of the foundation will not occur as a result of the reduced soil strength.

  Liquefaction of the silty sand and sand layers are expected to result in vertical and horizontal ground displacements which will affect the proposed building. The magnitude of the movements at the proposed building will depend on the thickness of the liquefiable layers and the location of the building on the property. Generally speaking, the magnitude of these movements is expected to increase to the south (i.e. towards the Fraser River shoreline). In the event that the anticipated liquefaction induced ground movements are significant, ground improvement in the form of soil densification with stone columns, vibro-replacement/vibro-floatation, or rapid-impact-compaction may be required. The extent of the ground improvement, if necessary, will depend on the thickness of the liquefiable layers present. Alternatively, the proposed building foundation may be structurally designed to accommodate the movements and allow for egress as required by the 2014 VBBL.

- **Shallow Groundwater:** Difficulties during construction could arise due to the shallow depth to groundwater, which could include significant water inflow and/or sloughing into utility trench and drainage excavations below the water table.

6.0 DISCUSSION AND RECOMMENDATIONS

As outlined above, several geotechnical considerations need to be evaluated for the proposed development. From a geotechnical perspective, the proposed building development is considered feasible, provided that the geotechnical considerations are incorporated into the design and construction of the building.

6.1 Building Location

At this preliminary stage, we expect that the most appropriate location for the proposed building from a geotechnical perspective will be along the northernmost perimeter of the site, where the dense glacial soils are likely closest to the ground surface. Site preparation will likely require the removal of fill material and replacement with compacted structural fill (free-draining sand or sand and gravel). Preloading of the building area to reduce post-construction settlements may also be required. We further expect that the proposed building could likely be founded on a shallow modified raft slab to tolerate post-liquefaction ground movements.

6.2 Geotechnical Site Exploration

A geotechnical site exploration comprised of auger-drilled test holes and seismic cone penetration tests should be undertaken to verify the subsurface conditions at the site and to provide sufficient information for design of the building foundations. In addition, a series of excavator-dug test pits and/or shallower machine-augered test holes should be completed to evaluate the thickness and quality of the fill material across the site. We note that due to the potential for obstructions, excavator-dug test pits may be the most practical initial exploration method.

7.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of the City of Vancouver and their appointed agents. Tetra Tech EBA Inc. (Tetra Tech EBA) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than the City of Vancouver, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Tetra Tech EBA's General Conditions are provided in Appendix A of this report.

8.0 CLOSURE

We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech EBA Inc.

ISSUED FOR REVIEW

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ISSUED FOR REVIEW

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CTD/JP/db

APPENDIX A
TETRA TECH EBA'S GENERAL CONDITIONS

GENERAL CONDITIONS

GEOTECHNICAL REPORT

This report incorporates and is subject to these "General Conditions".

1.0 USE OF REPORT AND OWNERSHIP

This geotechnical report pertains to a specific site, a specific development and a specific scope of work. It is not applicable to any other sites nor should it be relied upon for types of development other than that to which it refers. Any variation from the site or development would necessitate a supplementary geotechnical assessment.

This report and the recommendations contained in it are intended for the sole use of Tetra Tech EBA's Client. Tetra Tech EBA does not accept any responsibility for the accuracy of any of the data, the analyses or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than Tetra Tech EBA's Client unless otherwise authorized in writing by Tetra Tech EBA. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of Tetra Tech EBA. Additional copies of the report, if required, may be obtained upon request.

2.0 ALTERNATE REPORT FORMAT

Where Tetra Tech EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed Tetra Tech EBA's instruments of professional service), only the signed and/or sealed versions shall be considered final and legally binding. The original signed and/or sealed version archived by Tetra Tech EBA shall be deemed to be the original for the Project.

Both electronic file and hard copy versions of Tetra Tech EBA's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except Tetra Tech EBA. Tetra Tech EBA's instruments of professional service will be used only and exactly as submitted by Tetra Tech EBA.

Electronic files submitted by Tetra Tech EBA have been prepared and submitted using specific software and hardware systems. Tetra Tech EBA makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

3.0 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, Tetra Tech EBA has not been retained to investigate, address or consider and has not investigated, addressed or considered any environmental or regulatory issues associated with development on the subject site.

4.0 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

Classification and identification of soils and rocks are based upon commonly accepted systems and methods employed in professional geotechnical practice. This report contains descriptions of the systems and methods used. Where deviations from the system or method prevail, they are specifically mentioned.

Classification and identification of geological units are judgmental in nature as to both type and condition. Tetra Tech EBA does not warrant conditions represented herein as exact, but infers accuracy only to the extent that is common in practice.

Where subsurface conditions encountered during development are different from those described in this report, qualified geotechnical personnel should revisit the site and review recommendations in light of the actual conditions encountered.

5.0 LOGS OF TESTHOLES

The testhole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance which requires precise definition of soil or rock zone transition elevations may require further investigation and review.

6.0 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of test holes and/or soil/rock exposures. Stratigraphy is known only at the locations of the test hole or exposure. Actual geology and stratigraphy between test holes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historic environment. Tetra Tech EBA does not represent the conditions illustrated as exact but recognizes that variations will exist. Where knowledge of more precise locations of geological units is necessary, additional investigation and review may be necessary.

7.0 PROTECTION OF EXPOSED GROUND

Excavation and construction operations expose geological materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations must be protected from the elements, particularly moisture, desiccation, frost action and construction traffic.

8.0 SUPPORT OF ADJACENT GROUND AND STRUCTURES

Unless otherwise specifically advised, support of ground and structures adjacent to the anticipated construction and preservation of adjacent ground and structures from the adverse impact of construction activity is required.

9.0 INFLUENCE OF CONSTRUCTION ACTIVITY

There is a direct correlation between construction activity and structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques are known.

10.0 OBSERVATIONS DURING CONSTRUCTION

Because of the nature of geological deposits, the judgmental nature of geotechnical engineering, as well as the potential of adverse circumstances arising from construction activity, observations during site preparation, excavation and construction should be carried out by a geotechnical engineer. These observations may then serve as the basis for confirmation and/or alteration of geotechnical recommendations or design guidelines presented herein.

11.0 DRAINAGE SYSTEMS

Where temporary or permanent drainage systems are installed within or around a structure, the systems which will be installed must protect the structure from loss of ground due to internal erosion and must be designed so as to assure continued performance of the drains. Specific design detail of such systems should be developed or reviewed by the geotechnical engineer. Unless otherwise specified, it is a condition of this report that effective temporary and permanent drainage systems are required and that they must be considered in relation to project purpose and function.

12.0 BEARING CAPACITY

Design bearing capacities, loads and allowable stresses quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition assumed. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions assumed in this report in fact exist at the site.

13.0 SAMPLES

Tetra Tech EBA will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the Client's expense upon written request, otherwise samples will be discarded.

14.0 INFORMATION PROVIDED TO TETRA TECH EBA BY OTHERS

During the performance of the work and the preparation of the report, Tetra Tech EBA may rely on information provided by persons other than the Client. While Tetra Tech EBA endeavours to verify the accuracy of such information when instructed to do so by the Client, Tetra Tech EBA accepts no responsibility for the accuracy or the reliability of such information which may affect the report.

TETRA TECH EBA

OQM | Organizational Quality Management Program

Phase I Environmental Site Assessment
3101 – East Kent Avenue South
Vancouver, British Columbia

PRESENTED TO
City of Vancouver

JANUARY 7, 2016
ISSUED FOR USE
FILE: ENV.VENV03059-01

CONSULTING ENGINEERS & SCIENTISTS · www.eba.ca

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EXECUTIVE SUMMARY

Tetra Tech EBA Inc. (Tetra Tech EBA) was retained by Ms. Amber Bongiovanni, of the City of Vancouver, to conduct a Phase I Environmental Site Assessment (Phase I ESA) of a parkland property located at 3010 – East Kent Avenue South, in Vancouver, BC (herein referred to as "Property"). This Phase I ESA is being sought by the client for purposes related to future re-development of the Property.

Based on the information reviewed by Tetra Tech EBA, the Property was used for various industrial purposes, including lumber storage and a paint factory, from the 1950s through the 1990s. The parkland use of the Property commenced in the late 1990s. The southern portion of the Property, formerly part of the Fraser River, was infilled in the early 1950s prior to occupation of the Property by the paint factory and lumber yard.

During the preparation of this Phase I ESA, Tetra Tech EBA considered the information reviewed to assess the present conditions and historical site activities at the Property and at adjacent sites in the context of evaluating potential environmental concerns.

Based on the findings described in this ESA, three Areas of Potential Environmental Concern (APECs) were identified on the Property. These APECs are outlined in the following table.

Table A: Property – Areas of Potential Environmental Concern

APEC Number	Description	Rationale	PCOCs
1	Former Paint Factory located on the Property from approximately 1971 to 1986.	According to city directories and the BC Site Registry (Site ID 108), a paint factory was located on the Property from approximately 1971 to 1986, and evidence from the aerial photographs may indicate that the factory was present prior to 1971. Aerial photographs also showed several items, including several drums, demolition debris, and some unidentifiable material to be present on the Property after the removal of the factory.	BTEX, VPHs, VOCs, LEPH, HEPH, metals
2	Fill from unknown source on the Property.	The south portion of the Property consists of fill that was put into the Fraser River to close the channel between the historic Rowling Island and the north shore of the Fraser River. The fill first appeared in the 1954 aerial photograph. The fill was obtained from an unknown source, however, it was common for imported fill in that time to consist of refuse, debris and industrial waste, which can present an environmental risk to a Property.	LEPH/HEPH, PAH, metals
3	Fill from historic stream potentially on the Property.	A review of the Department of Fisheries and Ocean Canada's Lost Streams Map identified one historic stream as potentially passing through the Property. It was common for imported fill to consist of refuse, debris and industrial waste, which can present an environmental risk to a Property with any historic streams.	LEPH/HEPH/PAH, metals,

Notes: BTEX = Benzene, Toluene, Ethylbenzene, Xylene. LEPH/HEPH = Light/Heavy Extractable Petroleum Hydrocarbons. PAH = Polycyclic Aromatic Hydrocarbons. VPH = Volatile Petroleum Hydrocarbons, VOCs = Volatile Organic Compounds Potential Contaminants of Concern (PCOCs)

In addition, two APECs were identified off the Property. These are outlined in the following table.

Table B: Surrounding Area – Areas of Potential Environmental Concern

APEC Number	Description	Rationale	PCOCs
4	Various industrial facilities, including construction facilities, a sawmill, concrete plant, and trucking companies located at 2922 – East Kent Avenue South.	The review of city directories, aerial photographs and a previous report (Section 2.7) revealed the following historical land uses at 2922 East Kent Avenue South (approximately 85 m west of the Property): ▪ Lumber mill facilities (approximately 1938 to 1949) ▪ Concrete plant facilities (approximately 1956 to 1972) ▪ Trucking companies (approximately 1972 to 1983 and 1989 to 1992) ▪ Various construction companies, marine contractors and automobile repair facilities (approximately 1983 to 1991) ▪ An UST and several ASTs were identified on the site during previous investigations. An environmental investigation and remediation was carried out on this site in 2009 (Section 2.7). The investigation found no groundwater contamination, but identified antimony, arsenic, molybdenum, copper, and zinc in exceedance of CSR RL standards in soil along the north edge of the site covering approximately 90 m^2 from surface to 0.6 m depth. The identified contamination was remediated. Because the boundaries of this historic site have changed since the historical occupancy, contamination was found on the site, and because of the nature of the businesses formerly occupying the site, it is Tetra Tech EBA's professional opinion that there may have been impacts to neighbouring sites, including the Property, that were not detected during the investigation detailed above.	LEPH, HEPH, PAH, VOCs, metals
5	Ocean Concrete Plant and Asphalt Plant located adjacent to the east Property boundary at 8605 – East Kent Avenue South.	An asphalt manufacturing plant and Ocean's Concrete plant were listed in the city directories at 8605 – Kerr Street from 1971 to 1981, although a review of the aerial photographs suggests that at least one of these facilities may have existed until circa 1986. Though these facilities were located cross-gradient to the Property, it is Tetra Tech EBA's professional opinion that the above historical activities on the site had potential to environmentally impact the Property because of their close proximity to the Property.	LEPH/HEPH/PAH, metals

Notes: BTEX = Benzene, Toluene, Ethylbenzene, Xylene. LEPH/HEPH = Light/Heavy Extractable Petroleum Hydrocarbons. PAH = Polycyclic Aromatic Hydrocarbons. VPH = Volatile Petroleum Hydrocarbons, VOCs = Volatile Organic Compounds

Based on the results of the Phase I ESA, Tetra Tech EBA recommends that a subsurface investigation in the form of a Phase II ESA, including drilling or testpitting, should be carried out on the Property to investigate potential impacts from APECs 1 through 4 in soil, groundwater, and soil vapour.

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APPENDICES

LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of the City of Vancouver and their agents. Tetra Tech EBA Inc. (Tetra Tech EBA) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than the City of Vancouver, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in Tetra Tech EBA's Services Agreement. Tetra Tech EBA's General Conditions are provided in Appendix A of this report.

1.0 INTRODUCTION

1.1 General

Tetra Tech EBA Inc. (Tetra Tech EBA) was retained by Amber Bongiovanni of the City of Vancouver to conduct a Phase I Environmental Site Assessment (Phase I ESA) at 3010 – East Kent Avenue South, Vancouver, BC (herein referred to as the "Property"). This Phase I ESA is being conducted for purposes relating to the future development of the site.

The objective of the Phase I ESA is to assess the potential presence of contaminants, hazardous materials, or waste materials of a deleterious nature on the subject Property. The present and past activities at the Property and at the surrounding sites were reviewed to establish the potential for significant adverse impacts (if any) on the environmental status of the Property. This review was limited to the activities presented in the following sections of the report. Much of this review involved the interpretation of acquired historic documents and discussions with individuals with purported knowledge of the subject. Such sources of information are not exhaustive or reliable to a level of certainty.

Moreover, while Tetra Tech EBA is skilled at preparing the technical aspects of Phase I ESAs, we do not consider ourselves to be expert in assessing the reliability of witnesses or the accuracy, availability, completeness or reliability of historic documents and information.

In our report, we refer to potential sources of contamination as 'issues'. Any issues that have a moderate or high potential to result in soil and/or groundwater concentrations exceeding the applicable provincial standards are termed Areas of Potential Environmental Concern (APECs). The regulated chemicals associated with contamination sources in each APEC are termed Potential Contaminants of Concern (PCOCs). If any APECs are identified in the Phase I ESA, a sampling investigation will be recommended to confirm the presence or absence of the PCOCs.

Tetra Tech EBA received written authorization from the City of Vancouver to proceed with the Phase I ESA on December 15, 2015.

1.2 Scope of Work

Scope of work for the Phase I ESA included the following:

- Visually observing the Property and the surrounding areas to identify evidence and sources of possible contamination or environmental impairment, and to assess the presence and specific locations of any critical environmental features.
- Reviewing the following historical records: aerial photographs, city directories, fire insurance maps, and building plans to assess historical occupancy and activities on the Property and surrounding sites.
- Collecting information pertaining to environmental concerns about the Property from the City of Vancouver and British Columbia Ministry of Environment (MoE).
- Reviewing available published geological and hydrogeological information.
- Interviewing the individuals who are purportedly familiar with the Property to obtain background information on past and current operations and operating practices.

- Providing a report that summarizes our opinion respecting the likelihood of contamination at the Property based on our review of the information detailed within this report.

The scope of work for the Phase I ESA specifically excluded the sampling of soil and groundwater for environmental purposes. The protocol followed to complete the Phase I ESA generally conformed to the requirements of the Contaminated Sites Regulation (CSR) of British Columbia and current best practice guidelines. In addition, this report generally conforms to the Canadian Standards Association (CSA) Standard Z768-01 for conducting a Phase I ESA.

2.0 SITE DESCRIPTION

2.1 Location and Current Legal Description

The Property is located in the City of Vancouver, BC and consists of one legal lot. A site location plan is shown on Figure 1. The Property and Surrounding Use Plan is included as Figure 2. All APECS identified are shown as Figure 3.

The legal description for the Property is:

- Lot 7 District Lots 330, 2100 and 6320 Group 1 New Westminster District Plan LMP31809

The current land title and legal lot plan are provided in Appendix B.

The Parcel Identifier (PID), civic address, zoning, official community plan, and coordinates of the Property are presented in the following table:

Table 2.1: Parcel ID, Civic Address, and Municipal Information

Parcel ID	Civic Address	Municipal Zoning	CD Guidelines	Latitude	Longitude
023-668-296	3101 – East Kent Avenue South	CD-1 (247)	CD-1 (247) By-law No. 6533	49º 12' 21.6" N	123º 02' 40.3" W

Notes: CD-1 (247) indicates the Property is zoned as Comprehensive Development for medium density residential development with some commercial use.

A Property Location Plan is presented as Figure 1.

2.2 Potable Water Supply

Potable drinking water is supplied to the residents of this area of Vancouver from reservoirs operated by Metro Vancouver located approximately 25 km north of the Property, through a piped water distribution system.

2.3 Current Property Facilities

Tetra Tech EBA's representative, Mr. Brian Beulah, visited the Property on December 17, 2015. Selected photographs taken during the Property inspection are presented in Appendix C.

The site inspection involved a visual inspection of the surface of the Property, including stains or suspect materials on-site, a limited visual review of accessible areas inside the on-site buildings and outside areas, and an assessment of the current conditions of vegetated areas on the Property. A walkover was conducted on neighbouring properties via publicly accessible areas to assess if there were any environmental concerns with the potential to adversely impact the soil and groundwater quality beneath the Property.

The area of the Property was approximately 4,000 m^2. There were no buildings on the Property and the entire Property was covered with grass. Sparse trees grew on the east and north Property boundaries. The Property appeared to be used as parkland.

Above-Ground Storage Tanks (ASTs) or Underground Storage Tanks (USTs)

Tetra Tech EBA observed the Property for indications of ASTs and/or USTs, which included suspect vent or filler pipes, fuel lines, stained areas, and field evidence of stressed vegetation. No ASTs or USTs were identified on the Property.

Fill Material

Based on the local and regional topography, the presence of rip-rap on the shoreline south of the Property, as well as evidence from Fire Insurance Maps and aerial photographs (Section 4.1), the southern portion of the Property appears to have been constructed on fill. Infilling of the Fraser River to close the channel between the historic Rowling Island and the north shore of the Fraser River, including the site, was done in the early 1950s, circa 1954. The origin of fill is unknown; however, it was common for imported fill in that time to consist of refuse, debris and industrial waste.

Property Drainage

As the Property was unpaved and vegetated, water on the Property likely drained naturally into the underlying soils. Any runoff would likely flow onto the adjacent Property to the south and then into the Fraser River. The Property visit took place during a heavy rainfall, and extensive pooling and ponding of water was observed across the Property.

2.4 Special Attention Items

Prior to the discovery of their potentially hazardous effects on human health and/or the environment, Special Attention Items were historically used in certain building materials. These Special Attention Items consist of, but may not limited to include polychlorinated biphenyls, asbestos-containing building materials, lead, urea formaldehyde foam insulation, ozone-depleting substances, mould, and/or mercury.

The presence of these Special Attention Items was not investigated as there were no buildings on the Property at the time of the site visit.

2.5 Surrounding Sites

During the site inspection, publicly accessible or visible portions of adjacent sites were viewed by Tetra Tech EBA to identify potential environmental concerns (if any) capable of impacting the environmental status of the Property.

Table 2.2: Current Surrounding Sites

Direction	Address	Current Tenants & Environmental Observations
West	2998 – East Kent Avenue South	The site adjacent to the west of the Property was occupied by Riverfront Park. The entire site was covered by grass and trees. A walking path crossed the southern portion of the site.
	2922 – East Kent Avenue South	The site, located approximately 90 m west of the Property, was vacant and surrounded by temporary fencing. Approximately 20% of the site was covered in broken, weathered pavement, and the remainder was bare ground with some sparse vegetation. Four groundwater monitoring wells were observed on the site: one each on the north, east, and south borders, and one near the center of the Property.
North	CP Rail Right-of-Way (ROW)	The CP Rail ROW extended east to west along the north side of East Kent Avenue South, and passed within 20 m of the northern Property boundary.
	3000 to 3099 – East Kent Avenue North	These sites were all occupied by multi-family residential buildings, with the exception of 3099 – East Kent Avenue North, which was vacant with grass and large trees. No items of environmental significance were observed on these sites.
East	8515 – Aquatania Place	This site was occupied by a large, multi-storey residential apartment building surrounded by landscaped areas and a small parking area.
	8683 – Kerr Street	A building housing a community center and restaurant occupied the south portion of the site. A landscaped parking area occupied the north portion.
South	Riverfront Park	The land to the south of the Property was occupied by landscaped parkland. Approximately 95% of the area was occupied by grasses with sporadic trees, and the remaining 5% was occupied by walking paths. Beyond the parkland, the Fraser River extended east to west and passed within approximately 50 m of the south Property boundary. The shoreline was mainly composed of rip-rap with a small marshy area.

A review of the current surrounding land use at adjacent sites identified the presence of one item of potential environmental significance – the presence of four groundwater monitoring wells at 2922 – East Kent Avenue South. The current activities on the remaining surrounding sites were considered to pose a low environmental risk to the Property and therefore do not warrant further discussion. The historic activities on this/these sites are discussed in Section 6.0.

2.6 Interviews

An interview was conducted with Ms. Amber Bongiovanni of the City of Vancouver via email. Ms. Bongiovanni provided three previous environmental reports for sites near the Property. Information obtained from Ms. Bongiovanni has been included in the appropriate sections of this report.

2.7 Previous Environmental Investigations

Tetra Tech EBA inquired with the City of Vancouver as to whether they were aware of any previous environmental reports for the Property. The City of Vancouver was not aware of any previous environmental reports for the Property, however, they did provide three reports relating to neighbouring sites. The following table lists previous environmental reports for surrounding sites that were provided to Tetra Tech EBA from the City of Vancouver:

Table 2.3: Previous Environmental Reports (Surrounding Sites)

Report / Document Number	Title	Date	Approximate Distance and Direction from the Property
1	*Stage 1 and 2 PSI, DSI and Confirmation of Remediation: 2910 - East Kent Avenue South Vancouver, British Columbia.* Prepared by Pottinger Gaherty Environmental Consultants Ltd. for the City of Vancouver.	May 2007	85 m west (inferred cross-gradient)
2	*Phase I Environmental Site Assessment: 2780 and 2800 - Southeast Marine Drive, Vancouver, BC.* Prepared by Hemmera Envirochem Inc. for the City of Vancouver.	May 2015	210 m west (inferred cross-gradient)
3	*Phase I Environmental Site Assessment: 3098 - Southeast Marine Drive and 3099 – East Kent Avenue North.* Prepared by Hemmera Envirochem Inc. for the City of Vancouver.	March 2015	100 m northeast (inferred cross-gradient)

Tetra Tech EBA reviewed the reports for information relevant to this Phase I ESA. The reports were reviewed to identify potential sources of contamination that could result in soil, groundwater, sediment, and/or soil vapour contamination at the Property. The purpose of the review was for information purposes only and not to comment or confirm the adequacy of the report and/or whether it conformed to current provincial standards. A discussion of the each report is presented below. In addition, information from the reports has been integrated into the appropriate sections of this report as necessary.

1. Stage 1 and 2 PSI, DSI, and Confirmation of Remediation: 2910 – East Kent Avenue South

In May 2007, Pottinger Gaherty Environmental Consultants Ltd. (PGL) conducted a Stage 1 Preliminary Site Investigation (PSI), a Detailed Site Investigation (DSI), and remediation on the site currently addressed as 2922 – East Kent Avenue South, approximately 85 m east of the Property. At the time of the report, the site was addressed as 2910 East Kent Avenue South. The detailed report for BC Site Registry site number 108 suggested that this site may have been part of a larger area addressed as 2950 – Southeast Marine Drive for approximately 20 to 25 years, however, the PGL report suggests that 2950 – Southeast Marine Drive may have been adjacent to the site. Tetra Tech EBA reviewed the PGL reports and noted the following information that may be relevant to the Property:

Stage 1 PSI

- The site was historically occupied by various industrial occupants including:
  - Lumber mill facilities (approximately 1938 to 1949)
  - Concrete plant facilities (approximately 1956 to 1972)
  - Trucking companies (approximately 1972 to 1983 and 1989 to 1992)
  - Various construction companies, marine contractors and automobile repair facilities (approximately 1983 to 1991)
- An UST and several ASTs were identified on the site during previous investigations. PGL removed the UST and remediated the surrounding soil in 1995.

- The former 2950 – Southeast Marine Drive, adjacent to the east of 2922 – East Kent Avenue South (includes the Property), was occupied by a paint factory operated by Color Your World and Tonecraft Paints from approximately 1971 until 1995.
- Six APECs were identified on the site which were related to the former industrial use of the site, a waste oil UST formerly located on the site, lumber storage, automobile and truck repair, and filling of an arm of the Fraser River that formerly flowed across the site.
- One offsite APEC was identified, this was the paint factory that occupied the sites adjacent to the east (including the Property).

Stage 2 PSI, DSI, and Remediation

- Soil and groundwater testing was carried out at all seven identified APECs. Concentrations of the PCOCs were found to be below the applied standards (Soil: CSR residential land use [RL], Groundwater: flow to surface water used by aquatic life [AW]) at all APECs with the exception of one; soil concentrations of antimony, arsenic, molybdenum, copper, and zinc in exceedance of the RL standards along the north edge of the site.
- A combined DSI and remediation were completed on the site. The confirmatory sampling performed on the remedial excavation indicated that concentrations of the PCOCs were below RL standards. The excavation covered approximately 90 m^2 and was 0.6 m deep.
- The MoE issued a Certificate of Compliance (CoC) for the site based on numerical standards upon completion of the remediation.

2. Phase I ESA: 2780 and 2802 – Southeast Marine Drive

In May 2015, Hemmera Envirochem Inc. (Hemmera), conducted a Phase I ESA on the sites formerly addressed as 2780 and 2800 – Southeast Marine Drive. These were likely part or all of the sites that have the addresses 2770 and 2802 – Southeast Marine Drive. The final report is incomplete as it was discovered that a CoC had been issued for the site.

The report documents historical vehicle maintenance, repair, and storage activities that occurred from the late 1960s to early 1990s at 8495 – Jellicoe Street (approximately 210 m northwest of the Property). These former activities were cross-gradient to the Property and therefore Tetra Tech EBA considers there is a low potential for contaminants to have migrated from the site to the Property.

3. Phase I ESA: 3098 – Southeast Marine Drive and 3099 North Kent Avenue East

In March 2015, Hemmera conducted a Phase I ESA on the sites formerly addressed as 3098 – Southeast Marine Drive and 3099 – East Kent Avenue west. Significant findings included:

- The Kerr Street landfill operated northeast of the site from the mid-1930s to approximately 1966. The landfill was considered a low risk to the site, due to the distance (250 to 450 m) and its cross-gradient location from the site.
- The site itself was undeveloped and vegetated from the 1930s to the time of the report.

3.0 NATURAL SETTING

3.1 Geological Information

The Geological Survey of Canada Map 1486A indicated that the surficial geology in the area of the Property consisted of Quaternary Fraser River Sediments, which are made up of *overbank silty to silt clay loam normally less than 2 m thick*. These sediments may overlie 15 m or more of *deltaic or distributary channel fill, interbedded fine to medium sand and minor silt beds possibly containing organic or fossiliferous material*.

The soils beneath the Property range from medium grained sands, which have typically demonstrate relatively high permeability, to silty clay, which is usually of low permeability. For this reason groundwater velocities in the vicinity of the Property may be variable.

3.2 Topography and Hydrogeology

The topography of the Property is relatively flat, however, the Property slopes very slightly downwards toward the Fraser River, which is located approximately 50 m south of the Property. Topography to the north of the Property slopes steeply downwards and southward towards the Fraser River.

For the purpose of this Phase I ESA, the local groundwater flow is inferred to flow south towards the Fraser River. However, shallow groundwater in the vicinity of the river and the Property may be influenced by fluctuations in river level, as well as river flow rate and direction. In addition, catch basins, drainage systems, underground service trenches, and other subsurface structures in the area may influence the local groundwater flow direction.

3.3 Streams and Adjacent Waterbodies

Activities on a site have the potential to contaminate the sediments of waterbodies that cross through or are adjacent to the Property. Potential contaminants may be transported to the waterbodies by means of overland surface flow and groundwater infiltration. In addition, sites located upstream of the Property have the potential to contaminate the waterbodies passing through or adjacent to the Property, which could potentially result in contamination of the Property's soil, groundwater, and/or sediment.

In this case, the Fraser River flowed to the west and passed within 50 m of the south Property boundary. No surface water bodies were observed on the Property.

3.4 Historic Streams

Before establishment of the Lower Mainland cities, a little more than a century ago, the Lower Mainland was a forested wetland, criss-crossed by streams. Today many of these waterways have been buried under fill as the cities have expanded. It was common for imported fill to consist of refuse, debris and industrial waste, which can present an environmental risk to a Property with any historic streams.

A copy of the Department of Fisheries and Oceans Canada's Lost Streams Map was referenced for historic streams on or in the vicinity of the Property. One historic stream was identified as potentially passing through the Property. The Lost Streams Map is attached in Appendix D.

3.5 Drinking Water Wells

A search of the MoE aquifer and water well database was conducted for registered water wells within a 500 m radius from the center of the Property, which is the search radius specified in MoE Technical Guidance Document 6 *"Water Use Determination"*. The search did not reveal any water wells registered for domestic or drinking water

system supply use. Expanding the search criteria to include wells of unknown use returned five wells, all located to the north-northwest of the Property.

A copy of the water well search results for this area obtained from the British Columbia Water Resources Atlas is included in Appendix E.

4.0 HISTORICAL REVIEW

The following subsections present a summary of the Property's history obtained from a review of historical city directories, aerial photographs, and municipal records.

4.1 Historic Property and Surrounding Area Land Uses

The history of the Property was interpreted based on a review of aerial photographs (from 1938, 1947, 1951, 1954, 1963, 1969, 1974, 1979, 1984, 1992, 1999, and 2004), and city directories (from 1933, 1950, 1956, 1961, 1966, 1971, 1976, 1981, 1986, 1991, and 1997).

A historical title search was not considered to be necessary as Tetra Tech EBA had sufficient information on the Property from city directories, aerial photographs and other previously completed environmental reports in the area.

Table 4.1: Property and Surrounding Land Use Summary

Approximate Year	Land Use / Owner	Source(s)
1938 – 1947	The Property appeared undeveloped and vegetated, and was bordered on the north by the former BC Electric Railway tracks. The south portion of the Property was occupied by a channel of the Fraser River, which separated the historical Rowling Island from the Property. Buildings having apparent industrial use appeared west of the Property and bordered on the present-day Jellicoe street – these may have been the **Northern Crown Sawmill**, which is listed in the 1950 city directory. Land north of East Kent Avenue appeared undeveloped and vegetated, and the Fraserview Golf Course appeared north of Southeast Marine Drive. Buildings and land apparently used as a sawmill and lumber yard appeared east of Kerr Street and south of BC Electric Railway tracks.	Aerial Photographs, City Directories
1947 – 1951	The Property appeared to be used as a **lumber storage yard** for the **Northern Crown Sawmill** located west of the Property. A channel appeared north to south, bisecting the historical Rowling Island. No other significant changes from previous.	Aerial Photographs, City Directories
1951 – 1954	The historical **Kerr Street Landfill** appeared approximately 700 m northeast of the Property (inferred cross-gradient)	Aerial Photographs
1954 – 1963	The **Northern Crown Sawmill** located east of the Property and the lumber storage yard on the Property no longer appeared. A long structure appeared to extend east to west across the north portion of the Property (identity and purpose unknown). The channel of the Fraser River between the historical Rowling Island and the north river bank appeared to be filled in, joining Rowling Island to the north river bank. The buildings and storage yard to the east of Kerr Street are listed at 8450 – Kerr Street in the 1956 directory as a cedar products and shingle manufacturer. A concrete plant is also listed at this location in 1961.	Aerial Photographs, City Directories

Approximate Year	Land Use / Owner	Source(s)
1963 – 1969	The Property and surrounding land to the east and west appears to be occupied by an industrial building and storage yard. Though not listed in city directories until 1971, these buildings may have been part of the former **Tonecraft Paints offices and factory**. The **Kerr Street landfill** appeared to have expanded to 350 m northeast of the Property.	Aerial Photographs, City Directories
1969 – 1974	The 1971 directory contains a listing for the **Tonecraft Paints factory** at 2950 – Southeast Marine Drive, which encompassed the Property and the surrounding sites to the west. The site adjacent to the east Property boundary appeared to be used for aggregate and gravel storage. These may have been part of the Ocean's Cement Plant listed at 8450 – Kerr Street in the 1966 city directory, or they may have been associated with an **Asphalt Plant** listed in the 1971 City directory at 8605 – Kerr Street. **Ocean Cement and Steel** is also listed in the 1971 city directory at 2900 – East Kent Avenue. The **Kerr Street Landfill** appeared to have expanded to approximately 280 m northeast of the Property. An industrial building and junkyard appeared on Jellicoe Street, approximately 150 m northwest of the Property.	Aerial Photographs, City Directories
1974 – 1986	The 1976 city directory lists the **Tonecraft Paints factory** at 2950 – Southeast Marine Drive, and in 1981 this facility is listed as **Color Your World Paint Factory**. East Kent Avenue appears connected between Jellicoe Street and Kerr Street in the 1974 aerial photograph. **Ocean Cement and Steel** is still listed in the 1976 and 1981 city directories at 2900 – Kerr Street and at 8605 – Kerr Street. An asphalt plant is also listed at 8605 – Kerr Street in 1976 and 1981. The site adjacent to the east Property boundary appeared to have manufacturing facilities associated with the gravel and aggregate piles. The **Kerr Street Landfill** appeared to be partially vegetated in the 1974 aerial photograph.	Aerial Photographs, City Directories.
1986 – 1991	Though the **Color Your World Paint Factory** is listed in the 1986 city directory, the Property appears vacant with the buildings removed. Large amounts of industrial waste, including drums, lumber, and shipping containers, appear strewn across the Property and adjacent sites to the west. The previously listed concrete and asphalt facilities are not listed in the 1986 city directory, however, the site of the former concrete plant appeared to have industrial use and was occupied by one building with large numbers of drums stored on the site.	Aerial Photographs, City Directories
1991 – 1997	The Property appeared vacant and surfaced with gravel. The adjacent sites to the east and west appeared to have industrial use, however the specific use could not be determined from the aerial photograph. **Davey Cartage Trucking** is listed in the 1991 city directory at 2910 – East Kent Avenue South. The sites to the north of the Property, across the BC Electric Railway tracks and East Kent Avenue, appeared to have multi-family residential land use.	Aerial Photographs, City Directories

Approximate Year	Land Use / Owner	Source(s)
1997 – 2004	The Property appeared grassed and landscaped and converted to parkland use. The adjacent land to the south Property boundary appeared to have been filled into the river, and walking paths appeared on the newly filled area. The land adjacent to the east and west Property boundaries appeared vacant and cleared. No other significant changes observed.	Aerial Photographs, City Directories
2004	The site adjacent to the east Property boundary appeared to have been developed into multi-family residential use.	Aerial Photographs
2009	No significant changes.	Aerial Photographs

4.1.1 Municipal Records

According to the City of Vancouver VanMap mapping service, the Property is zoned as Comprehensive Development (247) for residential development and light commercial use.

4.1.2 Schedule 2 Activities

Schedule 2 of the CSR lists a number of activities that have a potential to cause contamination. If a zoning, development, removal of soil or a demolition permit is requested from the City of Vancouver, then completion of a form "Site Profile" will be required. When Schedule 2 activities have historically occurred, the requested municipal permit may trigger a review by the MoE. If a review were necessary, then a MoE instrument (e.g. Certificate of Compliance) would be necessary.

The historic review identified one Schedule 2 activity on the Property, this was:

- A8: Paint, lacquer or varnish manufacturing, formulation, recycling, or wholesale bulk storage.

The above activity took place from the historical presence of Tonecraft/Color Your World Paint factory on the Property and adjacent sites from approximately 1971 to 1996 (Section 4.1).

4.2 BC Online Site Registry Search

The MoE maintains a database called the Site Registry that contains environmental information pertaining to contaminated or potentially contaminated sites. The Site Registry documents milestones in the cleanup process of a site. The Site Registry contains information on sites that have been investigated and cleaned up in British Columbia since 1988 (when MoE began recording this activity). All of the information is accessible to the public.

The Site Registry is *not* a registry solely of contaminated sites. Some sites in the registry are contaminated, but most are simply being investigated and require little, if any, cleanup or they have already been cleaned up to government standards.

The database can be searched on the basis of geographic location or PID. The lack of information on a particular site does not indicate an absence of contamination, but only an absence of MoE documentation.

An area search conducted using this online database for a region within a 0.5 km radius of Property resulted in 13 records. Twelve of the records were considered low risk to the Property due to either their distance (>100 m) or their cross-gradient location relative to the Property.

One record included the Property. Tetra Tech EBA obtained a detailed report for this site. The detailed report is summarized below.

Site ID 0000108: Detailed Report

Addresses: 2910, 2998, 3010, 3030, 3098 – East Kent Avenue South

The detailed report contained a site profile completed for the above addresses. The site profile indicated that a paint, lacquer, and/or varnish manufacturing, formulation, wholesale storage, and/or recycling had taken place on the Property. The report also indicated that at least one UST for chemical storage had formerly been present on the Property. The above activities and indications were associated with the paint factory that had formerly occupied the Property (See Section 4.1.1).

Copies of the Site Registry search results are included in Appendix F.

5.0 DISCUSSION

The following two subsections discuss the findings of the historical review for the Property and surrounding sites, respectively. Activities with significant potential sources of contamination are termed as 'issues'. Any issues that present a moderate or high likelihood of causing significant soil and/or groundwater contamination above the applicable provincial standards are termed as APECs. Further investigation of any identified APECs would then be recommended as part of a Stage 2 PSI or DSI. No further investigation is recommended for issues that are considered to present a low likelihood of causing significant contamination above the applicable provincial standards.

5.1 Property

5.1.1 Property – Low Risk Issues

During the Phase I ESA, Tetra EBA identified one low risk environmental issue on the Property. This issue is outlined in the subsequent table along with the associated rationale.

Table 5.1: Property – Low Risk Issues and Rationale

Low Potential Environmental Contaminant Source(s)	Risk Rating	Rationale
Potential former use of the Property as a lumber storage yard (circa 1947 to 1954)	Low	According to the aerial photographs, lumber was stored on the Property from approximately 1947 to 1954. This land use may have been associated with the adjacent Northern Crown Sawmill, located west of the Property. ▪ The Property appeared to have been used for storage activities only; and ▪ None of the records reviewed suggested that lumber treating activities had taken place on the Property.

5.1.2 Property – Areas of Potential Environmental Concern

During the Phase I ESA, Tetra Tech EBA identified three APECs were identified resulting from historical land uses on the Property. The APECs and associated rationales are presented in the following table.

Table 5.2: Property – Areas of Potential Environmental Concern

APEC Number	Description	Rationale	PCOCs
1	Former Paint Factory located on the Property from approximately 1971 to 1986.	According to city directories and the BC Site Registry (Site ID 108), a paint factory was located on the Property from approximately 1971 to 1986, and evidence from the aerial photographs may indicate that the factory was present prior to 1971. Aerial photographs also showed several items, including several drums, demolition debris, and some unidentifiable material to be present on the site after demolition of the factory buildings.	BTEX, VPHs, VOCs, LEPH, HEPH, metals
2	River channel fill from unknown source on the Property.	The south portion of the Property consists of fill that was put into the Fraser River to close the channel between the historic Rowling Island and the north shore of the Fraser River. The fill first appeared in the 1954 aerial photograph. The fill was obtained from an unknown source, however, it was common for imported fill in that time to consist of refuse, debris and industrial waste, which can present an environmental risk to a Property.	LEPH/HEPH/PAH, metals
3	Fill from historic stream potentially on the Property.	A review of the Department of Fisheries and Ocean Canada's Lost Streams Map identified one historic stream as potentially passing through the Property. It was common for imported fill to consist of refuse, debris and industrial waste, which can present an environmental risk to a Property with any historic streams.	LEPH/HEPH/PAH, metals

Notes: BTEX = Benzene, Toluene, Ethy benzene, Xylene. LEPH/HEPH = Light/Heavy Extractable Petroleum Hydrocarbons. PAH = Polycyclic Aromatic Hydrocarbons. VPH = Volatile Petroleum Hydrocarbons, VOCs = Volatile Organic Compounds

The remaining activities not discussed in Sections 5.1.1 or 5.1.2 were considered to present a low likelihood of having caused significant soil and/or groundwater contamination.

5.2 Surrounding Area

5.2.1 Surrounding Area – Low Risk Issues

During the Phase I ESA, Tetra Tech EBA identified one environmental issue with the surrounding sites that was considered to present a low likelihood of impacts to the Property. This issue is outlined in the subsequent table along with the associated rationale.

Table 5.3: Surrounding Area – Low Risk Issues and Rationale

Low Risk Environmental Contaminant Source(s)	Risk Rating	Rationale
Historic Kerr Street Landfill (280 m northeast of the Property).	Low	The Kerr Street Landfill first appeared approximately 700 m northeast of the Property in the 1951 aerial photograph. In the 1969 aerial photograph, the landfill appeared to have expanded to 280 m northwest of the Property. The landfill appeared to have been closed and to be undergoing revegetation in the 1974 aerial photograph. Although landfill leachate has potential to cause environmental impacts, the potential to impact the Property is rated as low for the following rationale:

Low Risk Environmental Contaminant Source(s)	Risk Rating	Rationale
		▪ The size and distance to the Property was significant, formerly occupying a full city block and approximately 280 m to the northeast; and ▪ The landfill was located cross-gradient relative to the Property. Any leachate leaving the landfill site is expected to flow south and would be unlikely to impact the Property.

5.2.2 Surrounding Area – Areas of Potential Environmental Concern

During the Phase I ESA, Tetra Tech EBA identified two issues with the surrounding sites that were considered to be APECs to the Property. These issues are outlined in the following table:

Table 5.4: Surrounding Area – Areas of Potential Environmental Concern

APEC Number	Description	Rationale	PCOCs
4	Various industrial facilities, including construction facilities, a sawmill, concrete plant, and trucking companies located at 2922 – East Kent Avenue South.	The review of city directories, aerial photographs and a previous report (Section 2.7) revealed the following historical land uses at 2922 East Kent Avenue South (approximately 85 m west of the Property): ▪ Lumber mill facilities (approximately 1938 to 1949) ▪ Concrete plant facilities (approximately 1956 to 1972) ▪ Trucking companies (approximately 1972 to 1983 and 1989 to 1992) ▪ Various construction companies, marine contractors and automobile repair facilities (approximately 1983 to 1991) ▪ A UST and several ASTs were identified on the site during previous investigations. An environmental investigation and remediation was carried out on this site in 2009 (Section 2.7). The investigation found no groundwater contamination, but identified antimony, arsenic, molybdenum, copper, and zinc in exceedance of CSR RL standards in soil along the north edge of the site covering approximately 90m^2 from surface to 0.6 m depth. The identified contamination was remediated. Because the boundaries of this historic site have changed since the historical occupancy, contamination was found on the site, and because of the nature of the businesses formerly occupying the site, it is Tetra Tech EBA's professional opinion that there may have been impacts to neighbouring sites, including the Property, that were not detected during the investigation detailed above.	LEPH, HEPH, PAH, VOCs, metals

APEC Number	Description	Rationale	PCOCs
5	Ocean Concrete Plant and Asphalt Plant located adjacent to the east Property boundary at 8605 – East Kent Avenue South.	An asphalt manufacturing plant and Ocean's Concrete plant were listed in the city directories at 8605 – Kerr Street (adjacent to the east Property boundary) from 1971 to 1981 (although a review of the aerial photographs suggests that at least one of these facilities may have existed until circa 1986). Though these facilities were located cross-gradient to the Property, it is Tetra Tech EBA's professional opinion that the above historical activities on the site had potential to environmentally impact the Property because of their close proximity to the Property.	LEPH/HEPH/PAH, metals

Notes: BTEX = Benzene, Toluene, Ethy benzene, Xylene. LEPH/HEPH = Light/Heavy Extractable Petroleum Hydrocarbons. PAH = Polycyclic Aromatic Hydrocarbons. VPH = Volatile Petroleum Hydrocarbons, VOCs = Volatile Organic Compounds

The remaining activities not discussed in Sections 5.2.1 and 5.2.2 were considered to present a low likelihood of having caused significant soil and/or groundwater contamination to the Property.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the information reviewed by Tetra Tech EBA, the parkland use of the Property commenced in the late 1990s, on previously industrial land. During the preparation of this Phase I ESA, Tetra Tech EBA considered the information reviewed to assess the present conditions and historical site activities at the Property and at adjacent sites in the context of evaluating potential environmental concerns.

Based on the findings described in this Phase I ESA, five APECs were identified that require further investigation. Tetra Tech EBA recommends that a subsurface investigation in the form of a Phase II ESA, including drilling or testpitting, should be carried out on the Property to investigate potential impacts from APECs 1 through 5 in soil, groundwater, and soil vapour.

7.0 CLOSURE

Conclusions and recommendations presented herein are based on a visual site inspection, discussion with personnel and historical information that was reviewed at the time of this investigation. This report has been prepared based on the scope of work and for the use of the City of Vancouver, which includes distribution as required for the purposes for which this assessment was commissioned. The assessment has been carried out in accordance with generally accepted engineering practice. No other warranty is made, either express or implied. Professional judgment has been applied in developing the recommendations in this report.

This report was prepared by personnel with professional experience in investigations of this nature and who specifically conducted the investigations at this Property. Reference should be made to the 'Phase I – Environmental Report – General Conditions' attached in Appendix A that forms a part of this report.

We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech EBA Inc.

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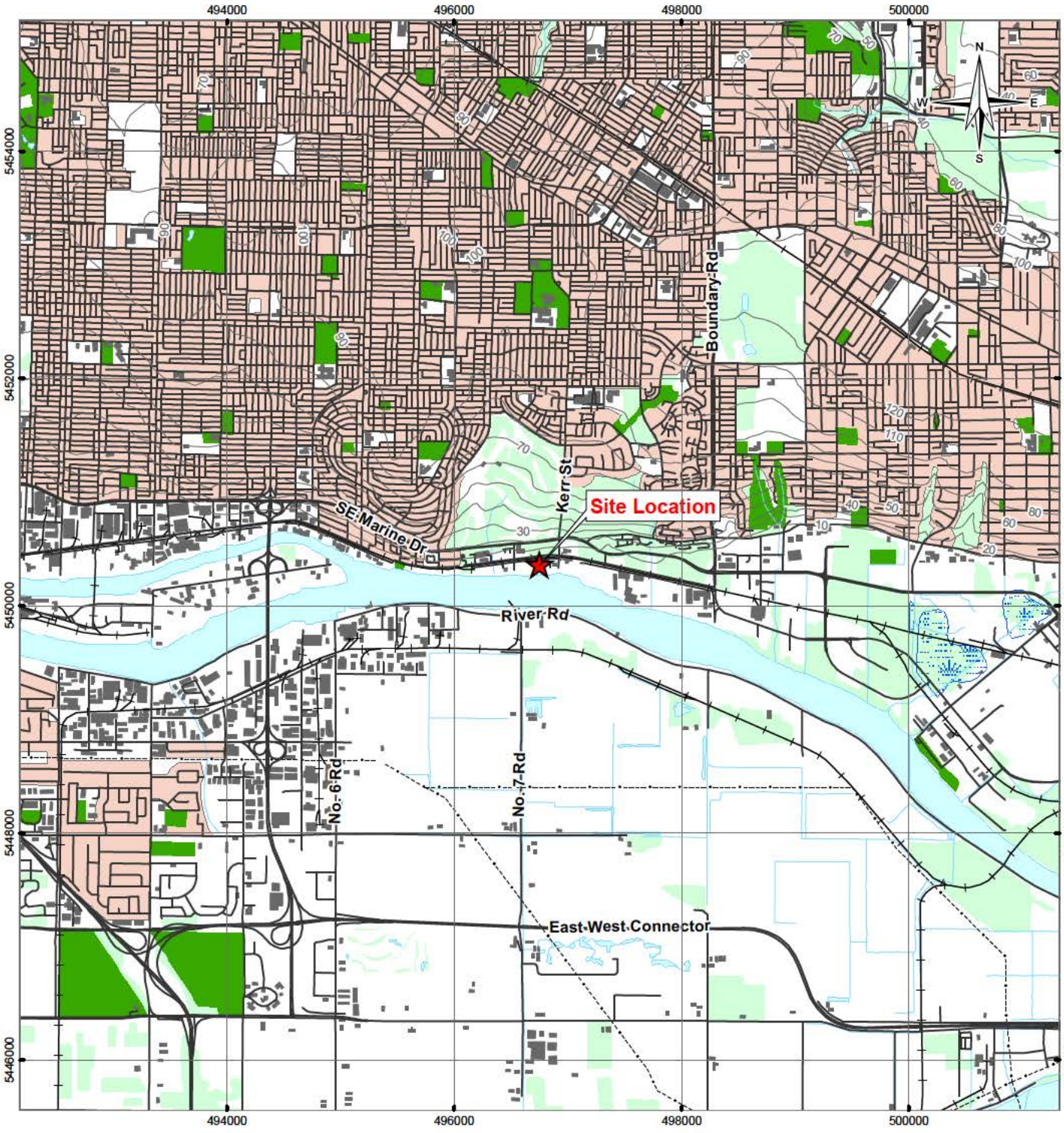
FIGURES



LEGEND

- SiteLocation
- Road
- Railway
- Transmission Line
- Building
- Park
- Builtup Area
- Contour (10 m)
- Watercourse
- Waterbody
- Wetland
- Vegetation

NOTES
Base data source:
CanVec 1:50,000 (Sheets 92G02/03)

STATUS
ISSUED FOR USE

PHASE 1 ESA
3010 EAST KENT AVENUE SOUTH
VANCOUVER, BC

Site Location Plan

PROJECTION	DATUM	CLIENT
UTM Zone 10	NAD83	City of Vancouver

Scale: 1:50,000
1 0.5 0 1
Kilometres

TETRA TECH EBA

FILE NO.
VENV03059-01_Figure01_SiteLocation.mxd

PROJECT NO.	DWN	CKD	APVD	REV
ENV.VENV03059-01	MEZ	SL	BB	0

OFFICE	DATE
EBA-VANC	January 7, 2016

Figure 1

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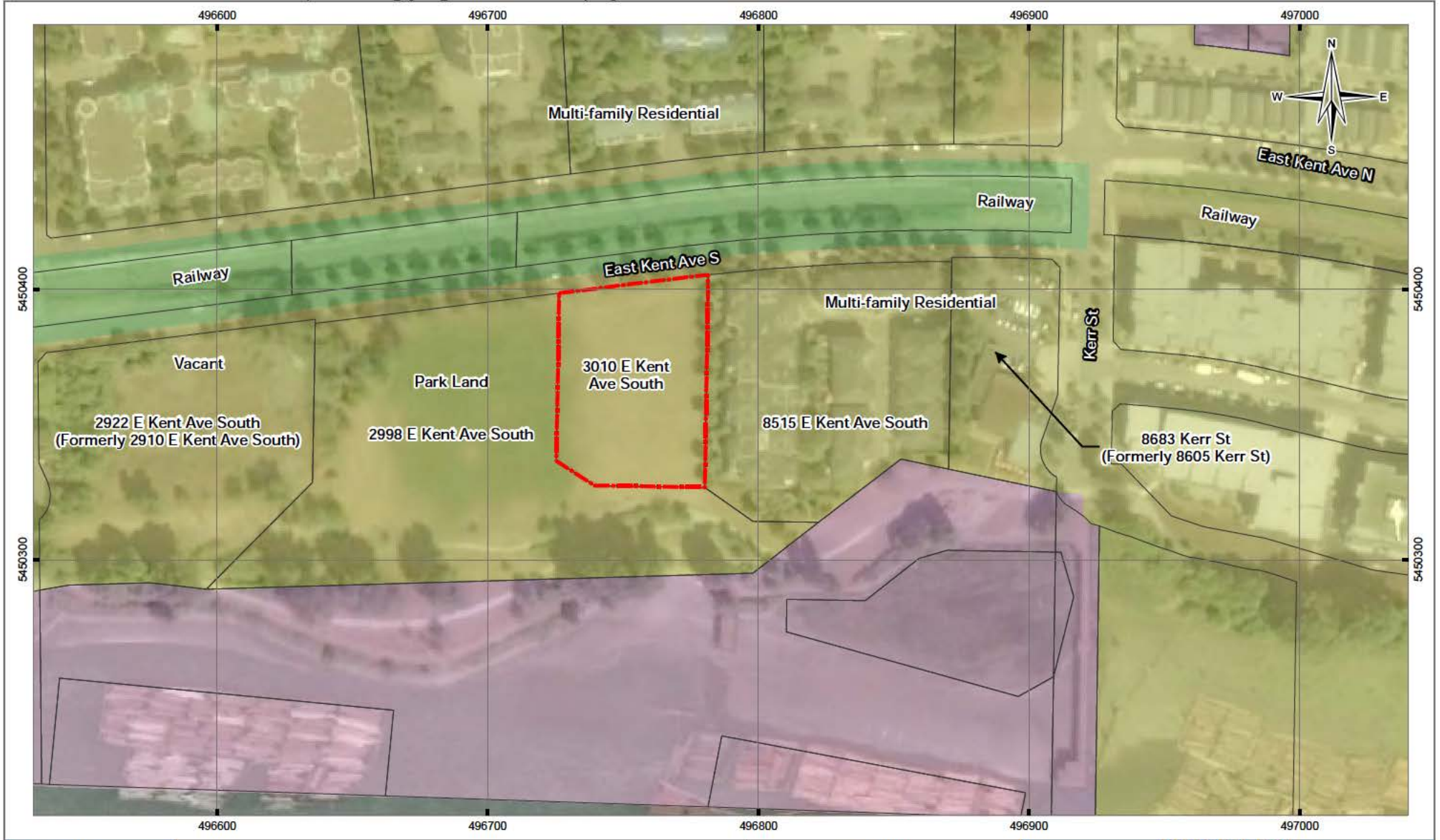

LEGEND

- Subject Property
- Parcel Boundary

Zoning Category

- Comprehensive Development
- Industrial
- One Family Dwelling

NOTES
Base data source:
Imagery from Google; DigitalGlobe (2015)
Property boundaries and zoning information from City of Vancouver open data (2015)

STATUS
ISSUED FOR USE

Scale: 1:2,000
40 20 0 40
Metres

PROJECTION	DATUM
UTM Zone 10	NAD83

FILE NO.
VENV03059-01_Figure02_LUP.mxd

CLIENT
City of Vancouver

TETRA TECH EBA

PHASE 1 ESA
3010 EAST KENT AVENUE SOUTH
VANCOUVER, BC

Property and Surrounding Land Use Plan

PROJECT NO.	DWN	CKD	APVD	REV
ENV.VENV03059-01	MEZ	SL	BB	0

OFFICE	DATE
Tt EBA-VANC	January 7, 2016

Figure 2

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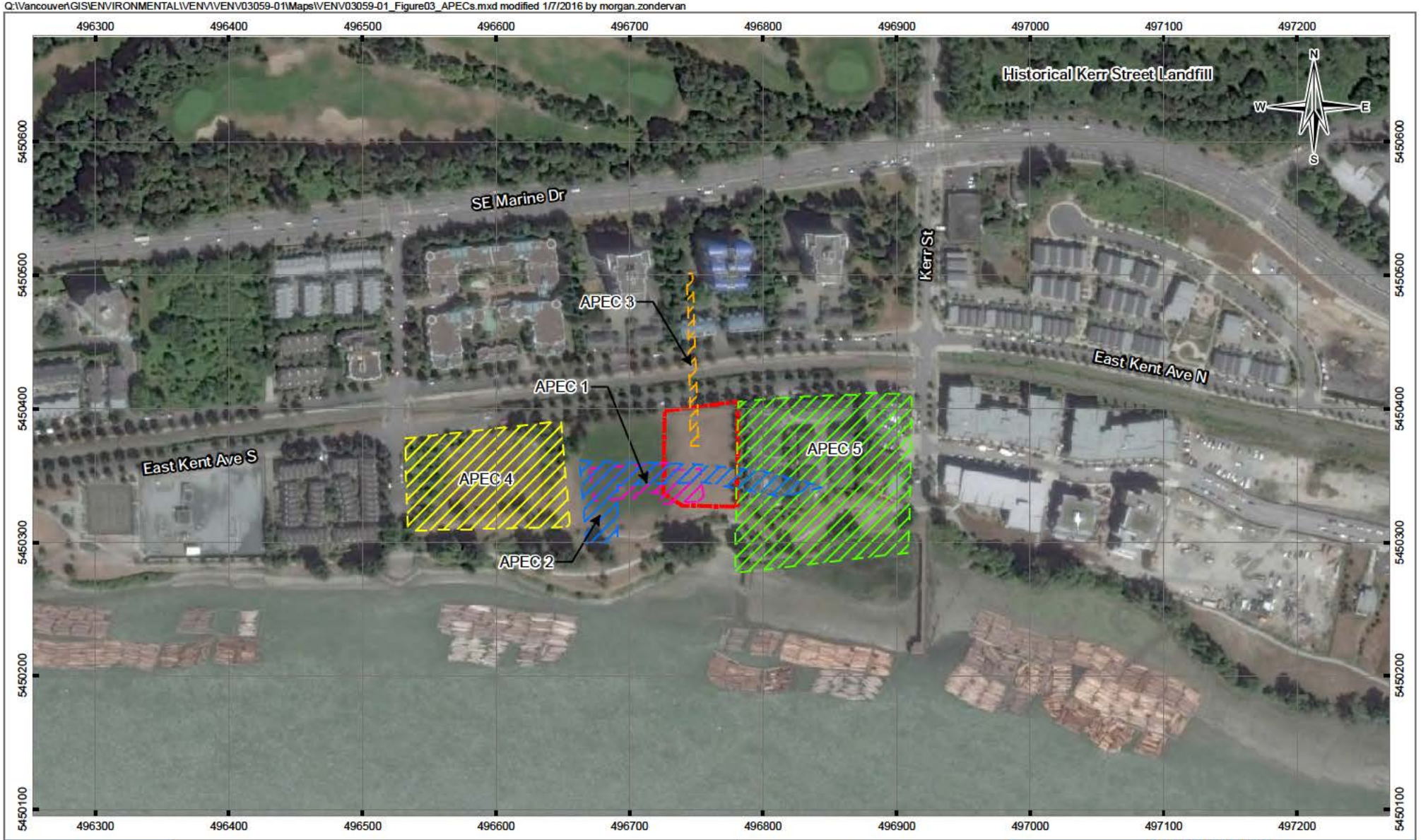


LEGEND

- Subject Property

Area of Potential Environmental Concern (APEC)

- APEC 1 - Historical paint factory
- APEC 2 - Filled channel
- APEC 3 - Potential filled historical stream
- APEC 4 - Historical trucking yard and sawmill
- APEC 5 - Historical sawmill and Ocean concrete plant

NOTES
Base data source:
Imagery from Google; DigitalGlobe (2015)
Property boundary from City of Vancouver open data (2015)
Railway from CanVec 1:50,000

STATUS
ISSUED FOR USE

Scale: 1:4,000
50 25 0 50
Metres

PROJECTION	DATUM
UTM Zone 10	NAD83

FILE NO.
VENV03059-01_Figure03_APECs.mxd

CLIENT
City of Vancouver

TETRA TECH EBA

PHASE 1 ESA
3010 EAST KENT AVENUE SOUTH
VANCOUVER, BC

Areas of Potential Environmental Concern

PROJECT NO.	DWN	CKD	APVD	REV
ENV.VENV03059-01	MEZ	SL	BB	0

OFFICE	DATE
Tt EBA-VANC	January 7, 2016

Figure 3

APPENDIX A
TETRA TECH EBA'S GENERAL CONDITIONS

GENERAL CONDITIONS

ENVIRONMENTAL PHASE I REPORT

This report incorporates and is subject to these "General Conditions".

1.0 USE OF REPORT AND OWNERSHIP

This report pertains to a specific site, a specific development, and a specific scope of work. It is not applicable to any other sites.

This report and the assessments and recommendations contained in it are intended for the sole use of Tetra Tech EBA's Client unless otherwise authorized in writing by Tetra Tech EBA. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of Tetra Tech EBA. Additional copies of the report, if required, may be obtained upon request.

2.0 ALTERNATE REPORT FORMAT

Where Tetra Tech EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed Tetra Tech EBA's instruments of professional service), only the signed and/or sealed versions shall be considered final and legally binding. The original signed and/or sealed version archived by Tetra Tech EBA shall be deemed to be the original for the Project.

Both electronic file and hard copy versions of Tetra Tech EBA's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except Tetra Tech EBA. Tetra Tech EBA's instruments of professional service will be used only and exactly as submitted by Tetra Tech EBA.

Electronic files submitted by Tetra Tech EBA have been prepared and submitted using specific software and hardware systems. Tetra Tech EBA makes no representation about the compat bility of these files with the Client's current or future software and hardware systems.

3.0 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the Client agrees that notification to such bodies or persons as required may be done by Tetra Tech EBA in its reasonably exercised discretion.

4.0 INFORMATION PROVIDED TO TETRA TECH EBA BY OTHERS

During the performance of the work and the preparation of the report, Tetra Tech EBA may rely on information provided by persons other than the Client. While Tetra Tech EBA endeavours to verify the accuracy of such information when instructed to do so by the Client, Tetra Tech EBA accepts no responsibility for the accuracy or the reliability of such information which may affect the report.

APPENDIX B
LAND TITLE AND LEGAL LOT PLAN

TITLE SEARCH PRINT 2015-12-17, 17:57:26

File Reference: ENV.VENV03059 Requestor: Brian Beulah

CURRENT INFORMATION ONLY - NO CANCELLED INFORMATION SHOWN

Title Issued Under SECTION 98 LAND TITLE ACT

Land Title District VANCOUVER
Land Title Office VANCOUVER

Title Number BL43974
From Title Number BL43970

Application Entered 1997-02-11

Application Received 1997-02-05

Registered Owner in Fee Simple
Registered Owner/Mailing Address: CITY OF VANCOUVER
453 WEST 12TH AVENUE
VANCOUVER, BC
V5Y 1V4

Taxation Authority CITY OF VANCOUVER

Description of Land
Parcel Identifier: 023-668-296
Legal Description:
LOT 7 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT
PLAN LMP31809

Legal Notations NONE

Charges, Liens and Interests
Nature: INDEMNITY AGREEMENT
Registration Number: 20105M
Registration Date and Time: 1940-11-21 14:10
Registered Owner: CITY OF VANCOUVER
Remarks: INTER ALIA
PART DERIVED FROM PARCEL A, REFERENCE PLAN 2734;
SEE 56032L

Nature:	COVENANT
Registration Number:	BL43971
Registration Date and Time:	1997-02-05 15:02
Registered Owner:	CITY OF VANCOUVER
Registered Owner:	THE CROWN IN RIGHT OF BRITISH COLUMBIA
Remarks:	INTER ALIA SECTION 215, L.T.A. MODIFIED BY BM318894

Nature:	STATUTORY RIGHT OF WAY
Registration Number:	BL43981
Registration Date and Time:	1997-02-05 15:05
Registered Owner:	BRITISH COLUMBIA HYDRO AND POWER AUTHORITY
Remarks:	PART IN PLAN LMP31811

Duplicate Indefeasible Title NONE OUTSTANDING

Transfers NONE

Pending Applications NONE

PLAN OF SUBDIVISION OF LOT A, DISTRICT LOTS 258, 330, 2100, AND 6320, PLAN LMP _____, GROUP ONE, NEW WESTMINSTER DISTRICT.

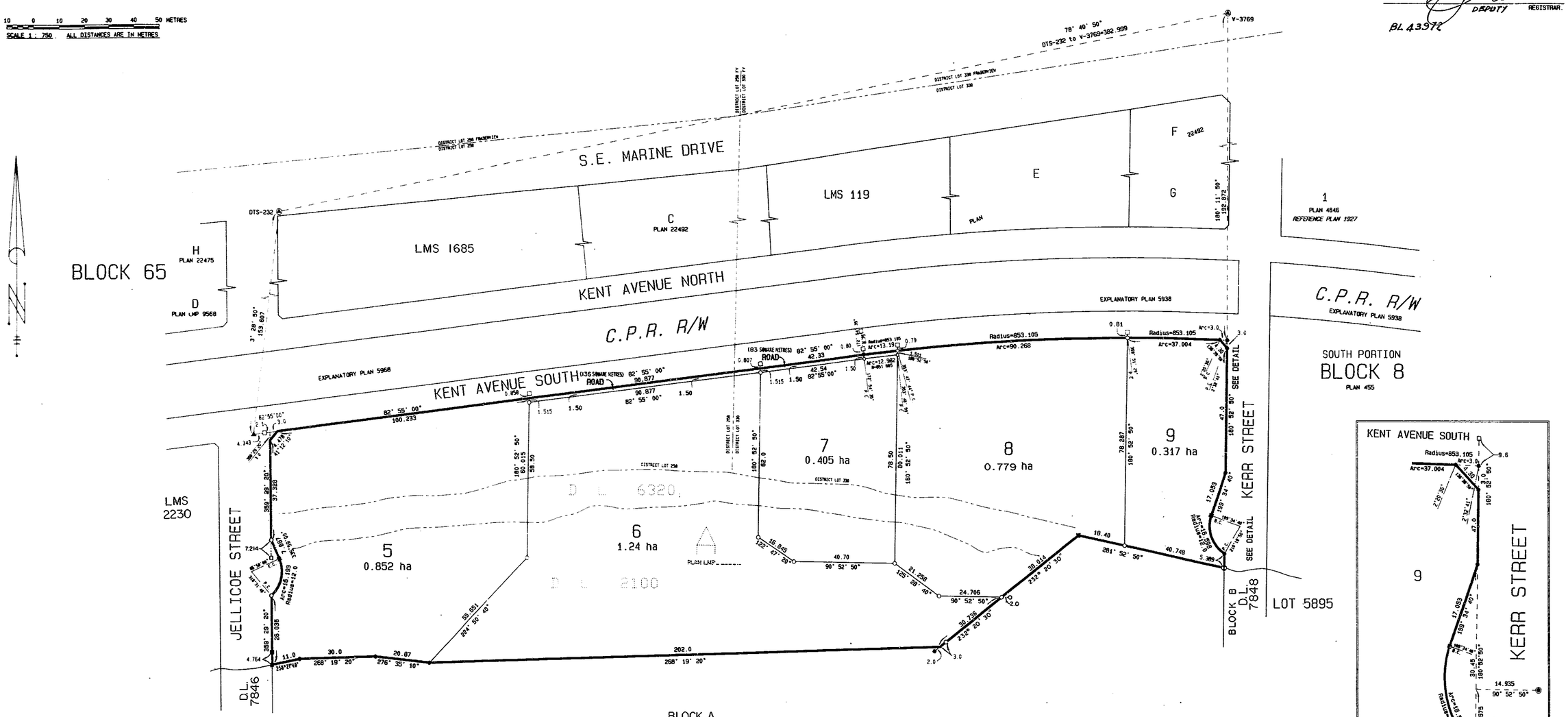
09.200

B.C.G.S. 92G.025

PLAN LMP 31809

DEPOSITED IN THE LAND TITLE OFFICE AT NEW WESTMINSTER, BRITISH COLUMBIA.
THIS 5TH DAY OF FEB. , 1997.
DEPUTY REGISTRAR.
BL 43972

10 0 10 20 30 40 50 METRES
SCALE 1 : 750 ALL DISTANCES ARE IN METRES



KENT AVENUE SOUTH

DETAIL
NOT TO SCALE

BLOCK A
D.L. 7847
(FORMERLY D.L.6876)

NORTH ARM FRASER RIVER

INSPECTED UNDER THE LAND TITLE ACT.
THIS 10TH DAY OF MAY, 1996.
Fred Wong B.C.L.S.

REGISTERED OWNER CITY OF VANCOUVER
per: Frances J. Connell
AUTHORIZED SIGNATORY FRANCES J. CONNELL
WITNESS Graham A.G. Johnson
OCCUPATION OF WITNESS Lawyer
ADDRESS OF WITNESS 453 W12TH AVE VANCOUVER V5Y 1V4

APPROVED UNDER THE LAND TITLE ACT.
THIS 29TH DAY OF JANUARY 1997.
APPROVING OFFICER, CITY OF VANCOUVER.

THIS PLAN NEED NOT COMPLY WITH SECTION 75 (1) (b) OF THE LAND TITLE ACT.
THIS 21ST DAY OF NOV. , 1996.
APPROVING OFFICER OF THE MINISTRY OF TRANSPORTATION AND HIGHWAYS

APPROVED UNDER SECTION 82 OF THE LAND TITLE ACT.
THIS 11 DAY OF SEPT 1995.
MINISTER OF ENVIRONMENT, LANDS AND PARKS OR HIS DULY AUTHORIZED DESIGNATE

THE REGISTERED OWNERS DESIGNATED HEREON HEREBY DECLARE THAT THEY HAVE ENTERED INTO A COVENANT IN FAVOR OF HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF BRITISH COLUMBIA AS REPRESENTED BY THE MINISTER OF ENVIRONMENT, LANDS AND PARKS UNDER SECTION 215 OF THE LAND TITLE ACT.
CITY OF VANCOUVER
per: Frances J. Connell
COVENANTOR FRANCES J. CONNELL, AUTHORIZED SIGNATORY
DATED AT VANCOUVER, B.C.
JANUARY 8, 1997

INTEGRATED SURVEY AREA 31, CITY OF VANCOUVER.
THIS PLAN SHOWS GROUND-LEVEL MEASURED DISTANCES.
PRIOR TO COMPUTATION OF U.T.M. CO-ORDINATES, MULTIPLY BY COMBINED FACTOR OF 0.9995899737.
GRID BEARINGS ARE DERIVED FROM OBSERVATIONS BETWEEN CONTROL MONUMENTS DTS-232 AND V-3769.

- ⊕ INDICATES CONTROL MONUMENT FOUND
- ● INDICATES STANDARD CONCRETE POST FOUND
- ■ INDICATES LEAD PLUG FOUND
- □ INDICATES LEAD PLUG PLACED
- • INDICATES STANDARD IRON POST FOUND
- ○ INDICATES STANDARD IRON POST PLACED
- △ INDICATES TRAVERSE HUB FOUND
- ⊙ INDICATES STANDARD CAPPED POST FOUND
- Mon. INDICATES MONUMENT

THIS PLAN LIES WITHIN THE GREATER VANCOUVER REGIONAL DISTRICT.

I, FRED L. WONG, A BRITISH COLUMBIA LAND SURVEYOR, OF THE CITY OF VANCOUVER IN BRITISH COLUMBIA, CERTIFY THAT I WAS PRESENT AT AND PERSONALLY SUPERINTENDED THE SURVEY REPRESENTED BY THIS PLAN AND THAT THE SURVEY AND PLAN ARE CORRECT. THE SURVEY WAS COMPLETED ON THE 30TH DAY OF SEPTEMBER, 1993.
Fred Wong B. C. L. S.

MH 1-6-16222 LB 604

APPENDIX C
PHOTOGRAPHS

Photos 1 to 5

Photo 1: View of the Property looking east from the west Property boundary.

Photo 2: View of the Property and adjacent site to the east, looking north from the south Property boundary. The site comprising APEC 5 is visible on the right side of the photograph.

Photo 3: View looking southwest of the site located at 2922—East Kent Avenue South. (APEC 3)

Photo 4: View looking east, of the south Property boundary. The Property is visible in the upper left .

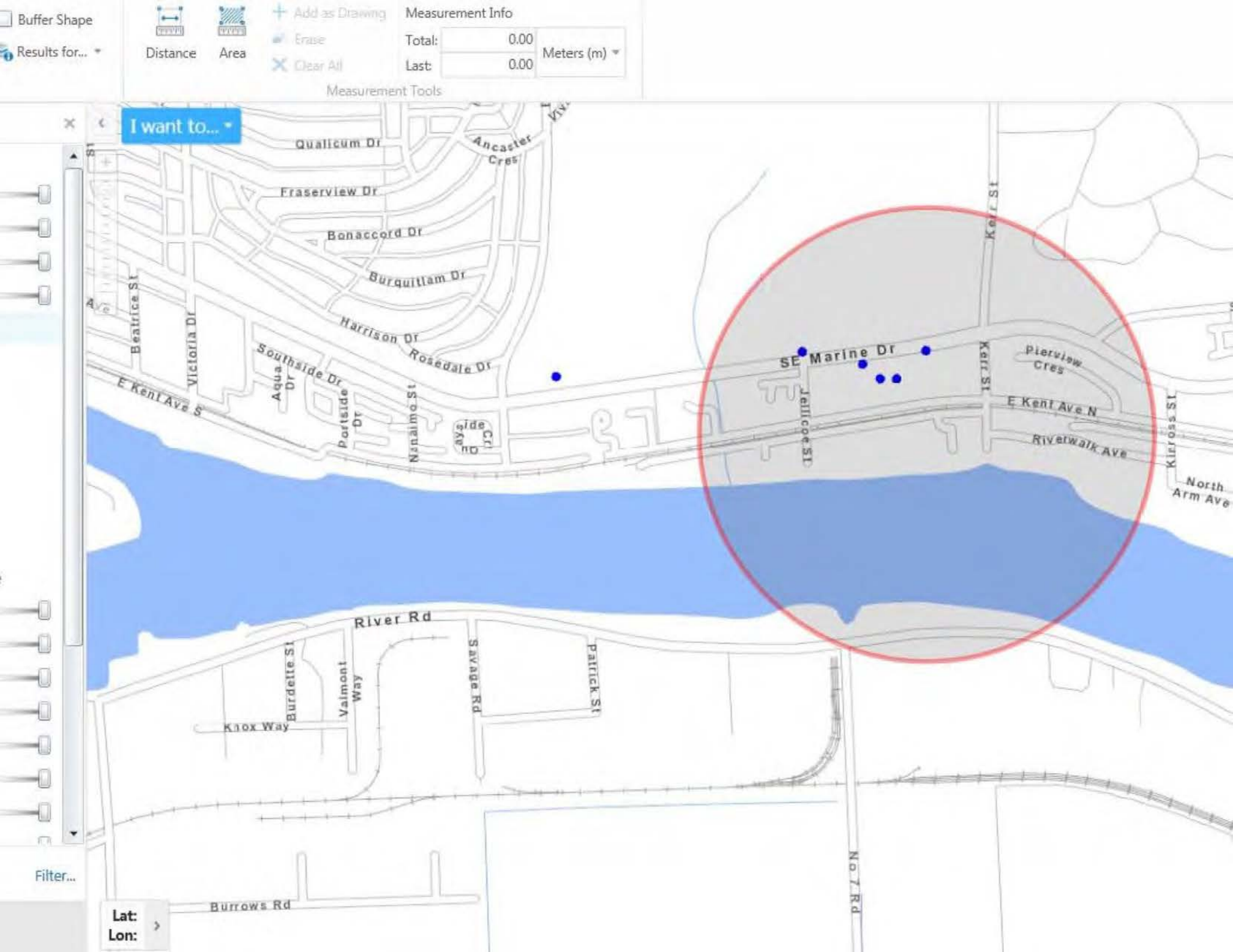
Photo 5: A monitoring well visible south of 2922—East Kent Avenue South (APEC 4).

APPENDIX D
LOST STREAMS MAP


WEST VANCOUVER
NORTH VANCOUVER
PORT MOODY
BURNABY
COQUITLAM
PORT COQUITLAM
MAPLE RIDGE
VANCOUVER
NEW WESTMINSTER
RICHMOND
SURREY
DELTA
LANGLEY
English Bay
Burrard Inlet
Fraser River
Sturgeon Bank
Mud Bay
Lost Streams of the Lower Fraser River
Second Printing (1998)
LEGEND
ACKNOWLEDGEMENTS
Canada

APPENDIX E
WATER RESOURCES ATLAS SEARCH RESULTS


Distance
Area
Add as Drawing
Erase
Clear All
Measurement Info
Total: 0.00
Last: 0.00
Meters (m)
Measurement Tools
I want to...
Newport Ave
Thornhill Dr
Scarboro Ave
Leaside St
Qualicum Dr
Fraserview Dr
Bonaccord Dr
Burquitlam Dr
Harrison Dr
Rosedale Dr
Island Ave
Beatrice St
Victoria Dr
E Kent Ave S
Aqua Dr
Southside Dr
Portside Dr
Nanaimo St
Quayside Ct
Murrfield Dr
Elliott St
Vivian Dr
Ancaster Cres
Munroe Cres
E 62nd Ave
E 63rd Ave
Kerr St
SE Marine Dr
Jellicoe St
Pierview Cres
E Kent Ave N
Riverwalk Ave
Kinross St
North Arm Ave
River Rd
Burdette St
Valmont Way
Knox Way
Savage Rd
Patrick St


Buffer Shape
Results for...
Distance
Area
Add as Drawing
Erase
Clear All
Measurement Info
Total: 0.00
Last: 0.00
Meters (m)
Measurement Tools
I want to...
Qualicum Dr
Ancaster Cres
Fraserview Dr
Bonaccord Dr
Burquitlam Dr
Harrison Dr
Rosedale Dr
Beatrice St
Victoria Dr
Southside Dr
Aqua Dr
Portside Dr
Nanaimo St
E Kent Ave S
SE Marine Dr
Jellicoe St
Kerr St
Pierview Cres
E Kent Ave N
Riverwalk Ave
Kinross St
North Arm Ave
River Rd
Burdette St
Valmont Way
Savage Rd
Patrick St
Knox Way
No 7 Rd
Burrows Rd
Filter...
Lat:
Lon:

APPENDIX F
SITE REGISTRY SEARCH RESULTS

As Of: DEC 13, 2015 BC Online: Site Registry 15/12/17
For: PA37337 EBA ENGINEERING CONSULTANTS LTD. 11:13:12
Folio: ENV.VENV03059 Page 1

13 records selected for 0.5 km from latitude 49 deg, 12 min, 21.5 sec
and Longitude 123 deg, 2 min, 40.3 sec

Site Id	Lastupd	Address / City
0000108	10JUL22	2910, 2998, 3010, 3030, 3098 EAST KENT SOUTH VANCOUVER
0000173	01NOV08	2950 SOUTH EAST MARINE DRIVE VANCOUVER
0000213	02MAY29	8495 JELLICOE STREET VANCOUVER
0000400	06AUG15	2900 BLOCK KENT AVENUE SOUTH VANCOUVER
0001289	01OCT18	2705 EAST KENT AVENUE VANCOUVER
0001290	01OCT18	2720 SE MARINE DRIVE VANCOUVER
0001302	03FEB06	EAST KENT SOUTH ST, JELLICOE ST & LIGHTHOUSE WAY VANCOUVER
0001481	97DEC04	2770 EAST KENT AVENUE SOUTH VANCOUVER
0001519	00APR14	2880 SOUTH EAST MARINE DRIVE VANCOUVER
0004444	13JUL11	2780 SE MARINE DRIVE VANCOUVER
0007908	05MAR23	3450 EAST KENT AVENUE VANCOUVER
0010107	08JAN10	3250 MARINE WAY VANCOUVER
0012493	11APR21	3151 EAST KENT AVE NORTH AND 8450 KERR STREET VANCOUVER

```
 As of: DEC 13, 2015       BC Online: Site Registry                    15-12-17
                       For: PA37337  EBA ENGINEERING CONSULTANTS LTD.   11:14:10
 Folio: ENV.VENV03059                                                   Page   1
                                   Detail Report
SITE LOCATION
       Site ID:        108                             Latitude:  49d 12m 26.4s
 Victoria File: 26250-20/0053                         Longitude: 123d 02m 39.5s
 Regional File: 26250-20/108
        Region: SURREY, LOWER MAINLAND

 Site Address: 2910, 2998, 3010, 3030, 3098 EAST KENT SOUTH
         City: VANCOUVER                        Prov/State: BC
  Postal Code:

 Registered: MAY 30, 1998  Updated: JUL 22, 2010  Detail Removed: JUL 21, 2010

 Notations:  10   Participants:  16    Associated Sites:   1
 Documents:   5 Susp. Land Use:   3 Parcel Descriptions:  85

Location Description: FORMERLY KNOWN AS 2950 SE MARINE DR.  LOCATION DERIVED
 BY BC ENVIRONMENT REFERENCING RECTIFIED NAD 83 ORTHOPHOTOGRAPHY - NOV.29,1996

Record Status: ACTIVE - UNDER ASSESSMENT
 Fee category: LARGE SITE, SIMPLE CONTAMINATION

 = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = =
NOTATIONS

  Notation Type: SITE PROFILE REVIEWED - NO FURTHER INVESTIGATION REQUIRED BY
                 THE MINISTRY
 Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL
      Initiated: JUL 21, 2010                         Approved:

 Ministry Contact: LARSEN, KELLI

 Note: DECISION FOR THE LIMITED PURPOSE OF THE DEMOLITION PERMIT APPLICATION
 APPROVAL (RELEASE UNDER SCENARIO 2)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  Notation Type: SITE PROFILE ORDER ISSUED
 Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL
      Initiated: JUL 21, 2010                         Approved: JUL 21, 2010

 Ministry Contact: LARSEN, KELLI

 Notation Participants                                Notation Roles
 LARSEN, KELLI                                        ISSUED BY

 Required Actions: A SITE PROFILE MUST BE SUBMITTED TO THE DIRECTOR PRIOR TO
 OBTAINING ANY FUTURE APPROVALS FOR SUBDIVISION, ZONING, SOIL REMOVAL,
 DEVELOPMENT, OR DEVELOPMENT VARIANCE.
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  Notation Type: PRELIMINARY SITE INVESTIGATION ORDER ISSUED
 Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL
      Initiated: JUL 21, 2010                         Approved: JUL 21, 2010

 Ministry Contact: LARSEN, KELLI
```

NOTATIONS

Notation Participants	Notation Roles
LARSEN, KELLI	ISSUED BY

Required Actions: PRELIMINARY SITE INVESTIGATION REQUIRED, FOLLOWING BY A DETAILED SITE INVESTIGATION IF CONTAMINATION IS IDENTIFIED.

- -

Notation Type: SITE PROFILE - NO FURTHER INVESTIGATION REQUIRED BY THE MINISTRY
Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS
Initiated: JUL 21, 2010 Approved:

Ministry Contact: LARSEN, KELLI

Note: DECISION FOR THE LIMITED PURPOSE OF THE DEMOLITION PERMIT APPLICATION APPROVAL (RELEASE UNDER SCENARIO 2)

- -

Notation Type: SITE PROFILE RECEIVED
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL
Initiated: JUN 21, 2010 Approved:

Ministry Contact: LARSEN, KELLI

Notation Participants	Notation Roles
CITY OF VANCOUVER	SITE PROFILE SUBMITTED BY
CITY OF VANCOUVER	SITE PROFILE SUBMITTED BY

- -

Notation Type: SITE PROFILE RECEIVED
Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS
Initiated: JUN 21, 2010 Approved:

Ministry Contact: LARSEN, KELLI

Notation Participants	Notation Roles
CITY OF VANCOUVER	SITE PROFILE SUBMITTED BY
CITY OF VANCOUVER	SITE PROFILE SUBMITTED BY

- -

Notation Type: CERTIFICATE OF COMPLIANCE ISSUED USING NUMERICAL STANDARDS
Notation Class: ENVIRONMENTAL MANAGEMENT ACT: GENERAL
Initiated: JUL 24, 2007 Approved: JUL 24, 2007

Ministry Contact: LOCKHART, DAVE

Notation Participants	Notation Roles
CITY OF VANCOUVER	RECEIVED BY
WALTON, DOUG G	ISSUED BY

GAHERTY, WILLIAM APPROVED PROFESSIONAL

NOTATIONS

Note: ISSUED ON THE RECOMMENDATION OF AN APPROVED PROFESSIONAL (WILLIAM D. GAHERTY) UNDER PROTOCOL 6 OF THE CONTAMINATED SITES REGULATION THIS NOTICE WAS GIVEN FOR PID: 023-668-270 ONLY AND DOES NOT COVER THE OTHER PARCELS LISTED

- -

Notation Type: LETTER OF COMFORT ISSUED
Notation Class: ADMINISTRATIVE
Initiated: MAY 31, 1990 Approved:

Ministry Contact: WIENS, JOHN H (MELP)

Notation Participants	Notation Roles
CITY OF VANCOUVER, PERMITS & LIC. DEPT. (VANCOUVER)	RECEIVED BY
WIENS, JOHN H (MELP)	ISSUED BY

- -

Notation Type: SITE INVESTIGATION REPORT SUBMITTED
Notation Class: ADMINISTRATIVE
Initiated: MAR 26, 1990 Approved:

Ministry Contact: WIENS, JOHN H (MELP)

Notation Participants	Notation Roles
NORECOL, DAMES & MOORE INC (VANCOUVER)	SUBMITTED BY

- -

Notation Type: SITE INVESTIGATION REPORT SUBMITTED
Notation Class: ADMINISTRATIVE
Initiated: AUG 09, 1989 Approved: AUG 09, 1989

Ministry Contact: WIENS, JOHN H (MELP)

Notation Participants	Notation Roles
NORECOL, DAMES & MOORE INC (VANCOUVER)	SUBMITTED BY
MOODIE CONSULTANTS LTD. (VANCOUVER, B.C.)	REQUESTED BY

= =

SITE PARTICIPANTS

Participant: ATWATER, JIM
Role(s): ENVIRONMENTAL CONSULTANT/CONTRACTOR
Start Date: MAR 26, 1990 End Date:

- -

Participant: CANTEST LIMITED (VANCOUVER)
Role(s): ANALYTICAL LAB
Start Date: AUG 02, 1989 End Date:

- -

Participant: CITY OF VANCOUVER

Role(s): PROPERTY OWNER
SITE PROFILE COMPLETOR
SITE PROFILE CONTACT
Start Date: JUN 21, 2010 End Date:

SITE PARTICIPANTS

- -

Participant: CITY OF VANCOUVER
Role(s): PROPERTY OWNER
Start Date: JUL 24, 2007 End Date:

- -

Participant: CITY OF VANCOUVER, PERMITS & LIC. DEPT. (VANCOUVER)
Role(s): MUNICIPAL/REGIONAL CONTACT
PROPERTY OWNER
Start Date: JUL 31, 1989 End Date:

- -

Participant: ENVIRONMENT CANADA, CONSERVATION PROTECTION (NORTH VANCOUVER)
Role(s): ENVIRONMENT CANADA CONTACT
Start Date: MAR 26, 1990 End Date:

- -

Participant: GAHERTY, WILLIAM
Role(s): ENVIRONMENTAL CONSULTANT/CONTRACTOR
Start Date: MAY 17, 2007 End Date:

- -

Participant: JUNGEN, JOHN R
Role(s): MAIN MINISTRY CONTACT
Start Date: APR 03, 1990 End Date: APR 12, 2001

- -

Participant: LARSEN, KELLI
Role(s): MAIN MINISTRY CONTACT
Start Date: JUN 21, 2010 End Date:

- -

Participant: LOCKHART, DAVE
Role(s): ALTERNATE MINISTRY CONTACT
Start Date: JUL 24, 2007 End Date:

- -

Participant: MOODIE CONSULTANTS LTD. (VANCOUVER, B.C.)
Role(s): DEVELOPER/ASSOCIATED COMPANY
Start Date: JUL 31, 1989 End Date:

- -

Participant: NORECOL, DAMES & MOORE INC (VANCOUVER)
Role(s): ENVIRONMENTAL CONSULTANT/CONTRACTOR
Start Date: JUL 31, 1989 End Date:

- -

Participant: POTTINGER GAHERTY ENVIRONMENTAL CONSULTANTS LTD
Role(s): ENVIRONMENTAL CONSULTANT/CONTRACTOR
Start Date: MAY 14, 2007 End Date:

- -

Participant: WALTON, DOUG G
Role(s): ALTERNATE MINISTRY CONTACT

```
   Start Date: JUL 24, 2007                        End Date:
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  Participant: WARD, JOHN E H
   Start Date: JUL 06, 1994                        End Date:
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  Participant: WIENS, JOHN H (MELP)
      Role(s): ALTERNATE MINISTRY CONTACT
```


SITE PARTICIPANTS

```
   Start Date: AUG 09, 1989                        End Date: JUL 05, 1994
= = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = =
```

DOCUMENTS

```
Title: Recommendation under Protocol 6 for Contaminated Sites for a
       Certificate of Compliance
             Authored: MAY 17, 2007             Submitted: MAY 17, 2007
Participants                                      Role
GAHERTY, WILLIAM                                  AUTHOR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
Title:  PSI, DSI AND CONFIRMATION OF REMEDIATION, 2910 EAST KENT AVENUE
       SOUTH, VANCOUVER, BC
             Authored: MAY 14, 2007             Submitted: MAY 14, 2007
Participants                                      Role
POTTINGER GAHERTY ENVIRONMENTAL CONSULTANTS LTD     AUTHOR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
Title: RESULTS OF SITE ASSESSMENT - FRASER LANDS KERR COMMERCIAL #1, KERR
       COMMERCIAL #2 AND TOWN HOUSE #1
             Authored: MAR 26, 1990             Submitted: MAR 26, 1990
Participants                                      Role
NORECOL, DAMES & MOORE INC (VANCOUVER)            AUTHOR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
Title: RESULTS OF SITE ASSESSMENT - FRASER LANDS PARK AND CHURCH SITES
             Authored: MAR 26, 1990             Submitted: MAR 26, 1990
Participants                                      Role
NORECOL, DAMES & MOORE INC (VANCOUVER)            AUTHOR
WIENS, JOHN H (MELP)                              REVIEWER
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
Title: RESULTS OF SITE ASSESSMENT - FRASER LANDS KERR COMMERCIAL #1, KERR
       COMMERCIAL #2 AND TOWN HOUSE #1
             Authored: MAR 26, 1990             Submitted: MAR 26, 1990
Participants                                      Role
WIENS, JOHN H (MELP)                              REVIEWER
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
Title: SITE ASSESSMENT - FRASER LANDS PACKAGE 1 (RISK ASSESSMENT)
             Authored: AUG 09, 1989             Submitted: AUG 15, 1989
Participants                                      Role
NORECOL, DAMES & MOORE INC (VANCOUVER)            AUTHOR
MOODIE CONSULTANTS LTD. (VANCOUVER, B.C.)         COMMISSIONER
WIENS, JOHN H (MELP)                              REVIEWER
= = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = =
```

```
ASSOCIATED SITES

     Site id:        400                                Date: MAR 13, 1998
       Notes: COMMON PID
 = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = =
SUSPECTED LAND USE

 Description: LANDFILL - GENERAL USE
       Notes: POSSIBLE CONTAMINATION SOURCE KERR STREET LANDFILL
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```



```
SUSPECTED LAND USE

 Description: PAINT/LACQUER/VARNISH MANU/FORMULAT/RECYCLE/WHLSLE BULK STOR
       Notes: POSSIBLE CONTAMINATION SOURCE COLOUR YOUR WORLD
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Description: SEPTIC TANK PUMPAGE STORAGE OR DISPOSAL
       Notes:
 = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = =
PARCEL DESCRIPTIONS

  Date Added: MAR 16, 1997                       Crown Land PIN#:
    LTO PID#: 023668229                         Crown Land File#:
   Land Desc: LOT A  DISTRICT LOTS 258, 330, 2100 AND 6320  GROUP 1 NEW
              WESTMINSTER DISTRICT  PLAN LMP31808
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  Date Added: APR 10, 1997                       Crown Land PIN#:
    LTO PID#: 023668270                         Crown Land File#:
   Land Desc: LOT 5  DISTRICT LOTS 258, 2100 AND 6320  GROUP 1  NEW
              WESTMINSTER DISTRICT   PLAN LMP31809
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  Date Added: APR 10, 1997                       Crown Land PIN#:
    LTO PID#: 023668288                         Crown Land File#:
   Land Desc: LOT 6  DISTRICT LOTS 258, 330, 2100 AND 6320  GROUP 1NEW
              WESTMINSTER DISTRICT  PLAN LMP31809
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  Date Added: APR 10, 1997                       Crown Land PIN#:
    LTO PID#: 023668296                         Crown Land File#:
   Land Desc: LOT 7  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
              WESTMINSTER DISTRICT PLAN LMP31809
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  Date Added: APR 10, 1997                       Crown Land PIN#:
    LTO PID#: 023668300                         Crown Land File#:
   Land Desc: LOT 8  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
              WESTMINSTER DISTRICT PLAN LMP31809
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  Date Added: APR 10, 1997                       Crown Land PIN#:
    LTO PID#: 023668318                         Crown Land File#:
   Land Desc: LOT 9  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
              WESTMINSTER DISTRICT PLAN LMP31809
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```

```
 Date Added: MAR 05, 1998                   Crown Land PIN#:
    LTO PID#: 024046728                    Crown Land File#:
  Land Desc: LOT 1  DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER
             DISTRICT PLAN LMP36920
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                   Crown Land PIN#:
    LTO PID#: 024347574                    Crown Land File#:
  Land Desc: STRATA LOT 1  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                   Crown Land PIN#:
```


PARCEL DESCRIPTIONS

```
    LTO PID#: 024347582                    Crown Land File#:
  Land Desc: STRATA LOT 2  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                   Crown Land PIN#:
    LTO PID#: 024347591                    Crown Land File#:
  Land Desc: STRATA LOT 3  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                   Crown Land PIN#:
    LTO PID#: 024347604                    Crown Land File#:
  Land Desc: STRATA LOT 4  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                   Crown Land PIN#:
    LTO PID#: 024347612                    Crown Land File#:
  Land Desc: STRATA LOT 5  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                   Crown Land PIN#:
    LTO PID#: 024347621                    Crown Land File#:
  Land Desc: STRATA LOT 6  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                   Crown Land PIN#:
```

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    LTO PID#: 024347639                     Crown Land File#:
   Land Desc: STRATA LOT 7  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
              WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
              WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
              UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  Date Added: DEC 19, 1998                   Crown Land PIN#:
    LTO PID#: 024347647                     Crown Land File#:
   Land Desc: STRATA LOT 8  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
              WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
              WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
              UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  Date Added: DEC 19, 1998                   Crown Land PIN#:
    LTO PID#: 024347655                     Crown Land File#:
   Land Desc: STRATA LOT 9  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
```



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              WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
              WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
              UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  Date Added: DEC 19, 1998                   Crown Land PIN#:
    LTO PID#: 024347663                     Crown Land File#:
   Land Desc: STRATA LOT 10  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
              WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
              WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
              UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  Date Added: DEC 19, 1998                   Crown Land PIN#:
    LTO PID#: 024347671                     Crown Land File#:
   Land Desc: STRATA LOT 11  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
              WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
              WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
              UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  Date Added: DEC 19, 1998                   Crown Land PIN#:
    LTO PID#: 024347680                     Crown Land File#:
   Land Desc: STRATA LOT 12  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
              WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
              WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
              UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  Date Added: DEC 19, 1998                   Crown Land PIN#:
    LTO PID#: 024347698                     Crown Land File#:
   Land Desc: STRATA LOT 13  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
              WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
              WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
              UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
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 Date Added: DEC 19, 1998                   Crown Land PIN#:
   LTO PID#: 024347701                     Crown Land File#:
  Land Desc: STRATA LOT 14  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                   Crown Land PIN#:
   LTO PID#: 024347710                     Crown Land File#:
  Land Desc: STRATA LOT 15  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                   Crown Land PIN#:
   LTO PID#: 024347728                     Crown Land File#:
  Land Desc: STRATA LOT 16  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
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PARCEL DESCRIPTIONS

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             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                   Crown Land PIN#:
   LTO PID#: 024347736                     Crown Land File#:
  Land Desc: STRATA LOT 17  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                   Crown Land PIN#:
   LTO PID#: 024347744                     Crown Land File#:
  Land Desc: STRATA LOT 18  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                   Crown Land PIN#:
   LTO PID#: 024347752                     Crown Land File#:
  Land Desc: STRATA LOT 19  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                   Crown Land PIN#:
   LTO PID#: 024347761                     Crown Land File#:
  Land Desc: STRATA LOT 20  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
```

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024347779 Crown Land File#:
Land Desc: STRATA LOT 21 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024347787 Crown Land File#:
Land Desc: STRATA LOT 22 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024347795 Crown Land File#:
Land Desc: STRATA LOT 23 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

PARCEL DESCRIPTIONS

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024347809 Crown Land File#:
Land Desc: STRATA LOT 24 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024347817 Crown Land File#:
Land Desc: STRATA LOT 25 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024347825 Crown Land File#:
Land Desc: STRATA LOT 26 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024347841 Crown Land File#:
Land Desc: STRATA LOT 27 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE

UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

- -

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024347850 Crown Land File#:
Land Desc: STRATA LOT 28 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

- -

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024347868 Crown Land File#:
Land Desc: STRATA LOT 29 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

- -

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024347876 Crown Land File#:
Land Desc: STRATA LOT 30 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

- -

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024347884 Crown Land File#:

PARCEL DESCRIPTIONS

Land Desc: STRATA LOT 31 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

- -

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024347892 Crown Land File#:
Land Desc: STRATA LOT 32 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

- -

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024347906 Crown Land File#:
Land Desc: STRATA LOT 33 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

- -

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024347914 Crown Land File#:
Land Desc: STRATA LOT 34 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER

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            WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
            UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                  Crown Land PIN#:
   LTO PID#: 024347922                    Crown Land File#:
  Land Desc: STRATA LOT 35  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
            WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
            WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
            UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                  Crown Land PIN#:
   LTO PID#: 024347931                    Crown Land File#:
  Land Desc: STRATA LOT 36  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
            WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
            WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
            UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                  Crown Land PIN#:
   LTO PID#: 024347949                    Crown Land File#:
  Land Desc: STRATA LOT 37  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
            WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
            WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
            UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                  Crown Land PIN#:
   LTO PID#: 024347957                    Crown Land File#:
  Land Desc: STRATA LOT 38  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
            WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
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            WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
            UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                  Crown Land PIN#:
   LTO PID#: 024347965                    Crown Land File#:
  Land Desc: STRATA LOT 39  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
            WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
            WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
            UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                  Crown Land PIN#:
   LTO PID#: 024347973                    Crown Land File#:
  Land Desc: STRATA LOT 40  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
            WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
            WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
            UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                  Crown Land PIN#:
   LTO PID#: 024347981                    Crown Land File#:
  Land Desc: STRATA LOT 41  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
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WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER
WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

- -

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024347990 Crown Land File#:
Land Desc: STRATA LOT 42 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW
WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER
WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

- -

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024348007 Crown Land File#:
Land Desc: STRATA LOT 43 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW
WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER
WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

- -

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024348015 Crown Land File#:
Land Desc: STRATA LOT 44 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW
WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER
WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

- -

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024348023 Crown Land File#:
Land Desc: STRATA LOT 45 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW
WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER
WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

PARCEL DESCRIPTIONS

- -

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024348031 Crown Land File#:
Land Desc: STRATA LOT 46 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW
WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER
WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

- -

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024348040 Crown Land File#:
Land Desc: STRATA LOT 47 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW
WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER
WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

- -

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024348058 Crown Land File#:

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  Land Desc: STRATA LOT 48  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                   Crown Land PIN#:
   LTO PID#: 024348066                     Crown Land File#:
  Land Desc: STRATA LOT 49  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                   Crown Land PIN#:
   LTO PID#: 024348074                     Crown Land File#:
  Land Desc: STRATA LOT 50  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                   Crown Land PIN#:
   LTO PID#: 024348082                     Crown Land File#:
  Land Desc: STRATA LOT 51  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                   Crown Land PIN#:
   LTO PID#: 024348091                     Crown Land File#:
  Land Desc: STRATA LOT 52  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                   Crown Land PIN#:
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PARCEL DESCRIPTIONS

   LTO PID#: 024348104                     Crown Land File#:
  Land Desc: STRATA LOT 53  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                   Crown Land PIN#:
   LTO PID#: 024348112                     Crown Land File#:
  Land Desc: STRATA LOT 54  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
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 Date Added: DEC 19, 1998                   Crown Land PIN#:
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    LTO PID#: 024348121                      Crown Land File#:
   Land Desc: STRATA LOT 55  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
              WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
              WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
              UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  Date Added: DEC 19, 1998                    Crown Land PIN#:
    LTO PID#: 024348139                      Crown Land File#:
   Land Desc: STRATA LOT 56  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
              WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
              WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
              UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  Date Added: DEC 19, 1998                    Crown Land PIN#:
    LTO PID#: 024348147                      Crown Land File#:
   Land Desc: STRATA LOT 57  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
              WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
              WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
              UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  Date Added: DEC 19, 1998                    Crown Land PIN#:
    LTO PID#: 024348155                      Crown Land File#:
   Land Desc: STRATA LOT 58  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
              WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
              WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
              UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  Date Added: DEC 19, 1998                    Crown Land PIN#:
    LTO PID#: 024348163                      Crown Land File#:
   Land Desc: STRATA LOT 59  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
              WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
              WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
              UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  Date Added: DEC 19, 1998                    Crown Land PIN#:
    LTO PID#: 024348171                      Crown Land File#:
   Land Desc: STRATA LOT 60  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
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PARCEL DESCRIPTIONS

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              WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
              WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
              UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  Date Added: DEC 19, 1998                    Crown Land PIN#:
    LTO PID#: 024348180                      Crown Land File#:
   Land Desc: STRATA LOT 61  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
              WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
              WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
              UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
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 Date Added: DEC 19, 1998                     Crown Land PIN#:
   LTO PID#: 024348198                       Crown Land File#:
  Land Desc: STRATA LOT 62  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                     Crown Land PIN#:
   LTO PID#: 024348201                       Crown Land File#:
  Land Desc: STRATA LOT 63  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                     Crown Land PIN#:
   LTO PID#: 024348210                       Crown Land File#:
  Land Desc: STRATA LOT 64  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                     Crown Land PIN#:
   LTO PID#: 024348228                       Crown Land File#:
  Land Desc: STRATA LOT 65  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                     Crown Land PIN#:
   LTO PID#: 024348236                       Crown Land File#:
  Land Desc: STRATA LOT 66  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 Date Added: DEC 19, 1998                     Crown Land PIN#:
   LTO PID#: 024348244                       Crown Land File#:
  Land Desc: STRATA LOT 67  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
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             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
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 Date Added: DEC 19, 1998                     Crown Land PIN#:
   LTO PID#: 024348252                       Crown Land File#:
  Land Desc: STRATA LOT 68  DISTRICT LOTS 330, 2100 AND 6320  GROUP 1  NEW
             WESTMINSTER DISTRICT  LEASEHOLD STRATA PLAN LMS3758 TOGETHER
             WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
             UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
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Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024348261 Crown Land File#:
Land Desc: STRATA LOT 69 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024348279 Crown Land File#:
Land Desc: STRATA LOT 70 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024348287 Crown Land File#:
Land Desc: STRATA LOT 71 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024348295 Crown Land File#:
Land Desc: STRATA LOT 72 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024348309 Crown Land File#:
Land Desc: STRATA LOT 73 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024348317 Crown Land File#:
Land Desc: STRATA LOT 74 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

PARCEL DESCRIPTIONS

Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024348325 Crown Land File#:
Land Desc: STRATA LOT 75 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE

UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

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Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024348333 Crown Land File#:
Land Desc: STRATA LOT 76 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

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Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024348341 Crown Land File#:
Land Desc: STRATA LOT 77 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

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Date Added: DEC 19, 1998 Crown Land PIN#:
LTO PID#: 024348350 Crown Land File#:
Land Desc: STRATA LOT 78 DISTRICT LOTS 330, 2100 AND 6320 GROUP 1 NEW WESTMINSTER DISTRICT LEASEHOLD STRATA PLAN LMS3758 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

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CURRENT SITE PROFILE INFORMATION (Sec. III to X)
Site Profile Completion Date: JUN 07, 2010

Local Authority Received: JUN 11, 2010

Ministry Regional Manager Received: JUN 21, 2010 Decision: JUL 21, 2010
Decision: INVESTIGATION NOT REQUIRED

Site Registrar Received: Entry Date:

III COMMERCIAL AND INDUSTRIAL PURPOSES OR ACTIVITIES ON SITE
Schedule 2

Reference	Description
A8	PAINT/LACQUER/VARNISH MANU/FORMULAT/RECYCLE/WHLSLE BULK STOR

AREAS OF POTENTIAL CONCERN

Petroleum, solvent or other polluting substance spills to the environment greater than 100 litres?..NO
Residue left after removal of piled materials such as chemicals, coal, ore, smelter slag, air quality control system baghouse dust?............NO
Discarded barrels, drums or tanks?..NO
Contamination resulting from migration of substances from other properties?..NO

FILL MATERIALS

Fill dirt, soil, gravel, sand or like materials from a contaminated site or from a source used for any of the activiities listed under Schedule

2?.....NO
Discarded or waste granular materials such as sand blasting grit, asphalt paving or roofing material, spent foundry casting sands, mine ore, waste rock or float?.....NO
Dredged sediments, or sediments and debris materials originating from locations adjacent to foreshore industrial activities, or municipal sanitary or stormwater discharges?.....NO

WASTE DISPOSAL (QUESTIONS AS OF JANUARY 1 2009)
Materials such as household garbage, mixed municipal refuse, or demolition debris?.....NO
Waste or byproducts such as tank bottoms, residues, sludge, or flocculation precipitates from industrial processes or wastewater treatment?.....NO
Waste products from smelting or mining activities, such as smelter slag, mine tailings, or cull materials from coal processing?.....NO
Waste products from natural gas and oil well drilling activities, such as drilling fluids and muds?.....NO
Waste products from photographic developing or finishing laboratories; asphalt tar manufacturing; boilers, incinerators or other thermal facilities (eg. ash); appliance, small equipment or engine repair or salvage; dry cleaning operations (eg. solvents); for from the cleaning or repair of parts of boats, ships, barges, automobiles or trucks, including sandblasting grit or paint scrapings?.....NO

TANKS OR CONTAINERS USED OR STORED, OTHER THAN TANKS USED FOR RESIDENTIAL HEATING FUEL
Underground fuel or chemical storage tanks other than storage tanks for compressed gases?.....YES
Above ground fuel or chemical storage tanks other than storage tanks for compressed gases?.....NO

HAZARDOUS WASTES OR HAZARDOUS SUBSTANCES
PCB-containing electrical transformers or capacitors either at grade, attached above ground to poles, located within buildings, or stored?....NO
Waste asbestos or asbestos containing materials such as pipe wrapping, blown-in insulation or panelling buried?.....NO
Paints, solvents, mineral spirits or waste pest control products or pest control product containers stored in volumes greater than 205 litres?...NO

LEGAL OR REGULATORY ACTIONS OR CONSTRAINTS
Government orders or other notifications pertaining to environmental conditions or quality of soil, water, groundwater or other environmental media?.....NO
Liens to recover costs, restrictive covenants on land use, or other charges or encumbrances, stemming from contaminants or wastes remaining onsite or from other environmental conditions?.....NO
Government notifications relating to past or recurring environmental violations at the site or any facility located on the site?.....NO

X ADDITIONAL COMMENTS AND EXPLANATIONS

End of Detail Report

TETRA TECH EBA

OQM | Organizational Quality Management Program

Phase II Environmental Site Assessment
3010 East Kent Avenue South
Vancouver, British Columbia

PRESENTED TO
City of Vancouver

MARCH 2016
ISSUED FOR USE
FILE: 704-ENV.VENV03059-01

CONSULTING ENGINEERS & SCIENTISTS · www.eba.ca

Tetra Tech EBA Inc.
Suite 1000 – 10th Floor, 885 Dunsmuir Street
Vancouver, BC V6C 1N5 CANADA
Tel 604.685.0275 Fax 604.684.6241

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EXECUTIVE SUMMARY

Tetra Tech EBA Inc. (Tetra Tech EBA) was retained by Ms. Amber Bongiovanni, of the City of Vancouver, to conduct a Phase II Environmental Site Assessment (ESA) on a City owned property located at 3010 East Kent Avenue South, in Vancouver, BC (herein referred to as "Property"). This Phase II ESA is being sought by the client for purposes related to potential future redevelopment of the Property.

The Phase II ESA follows a Phase I ESA that was completed on the property in January 2016 by Tetra Tech EBA. During the Phase I ESA, three Areas of Potential Environmental Concern (APECs) were identified at the Property and two APECs were discovered in the surrounding area. The objective of the Phase II ESA was to determine whether Potential Contaminants of Concern (PCOCs) associated with APECs, 1 to 5, as listed below, were present in soil or groundwater at concentrations exceeding the Drinking Water (DW), aquatic water for fresh water & marine standards (AWfw and AWmw), and potential future residential land (RL) standards as detailed in the BC Contaminated Sites Regulation.

Table E1: Areas of Potential Environmental Concern

APEC Number	Description	Potential Contaminants Of Concern (PCOC)
1	Former Paint Factory located on the Property from approximately 1971 to 1986.	BTEX, VPHs, VOCs, LEPH, HEPH, metals
2	Fill from unknown source on the Property.	LEPH/HEPH, PAH, metals
3	Fill from historic stream potentially on the Property.	LEPH/HEPH/PAH, metals,
4	Various industrial facilities, including construction facilities, a sawmill, concrete plant, and trucking companies located at 2922 – East Kent Avenue South.	LEPH, HEPH, PAH, VOCs, metals
5	Ocean Concrete Plant and Asphalt Plant located adjacent to the east Property boundary at 8605 – East Kent Avenue South.	LEPH/HEPH/PAH, metals

Notes: BTEX = Benzene, Toluene, Ethylbenzene, Xylene.
PAH = Polycyclic Aromatic Hydrocarbons.
VOCs = Volatile Organic Compounds
LEPH/HEPH = Light/Heavy Extractable Petroleum Hydrocarbons.
VPH = Volatile Petroleum Hydrocarbons,
PCOC = Potential Contaminants of Concern

During the Phase II ESA, A total of four boreholes, each completed as groundwater monitoring wells, and four testpits for environmental purposes were advanced across the Property on February 11 and 12, 2016. Soil and groundwater samples were collected from the borings, testpits, and groundwater monitoring wells and submitted for analyses of the PCOCs. The investigation was done in conjunction with a geotechnical investigation which advanced additional test pits on the Property. The overall results of the Phase II ESA are summarized in the following table.

Table E2: Phase II Environmental Site Assessment Findings

	Identified COCs Exceeding CSR standards	
	Soil	**Groundwater**
APEC 1 Former Paint Factory located on the Property from approximately 1971 to 1986.	▪ Chromium exceeds the CSR RL standard at BH16-01 (1.2 m) ▪ HEPH exceeds the CSR RL standard at BH16-02 (5.2 m) ▪ Antimony, arsenic, copper, molybdenum, and zinc exceed the CSR RL standards at TP16-13 (2.0 m) Metal and HEPH exceedances at TP16-13 are suspected to be associated with APEC 2	▪ Benzo(a)pyrene exceeds at CSR DW standard at MW16-02 ▪ Benzo(a)pyrene, pyrene, and arsenic exceed CSR AW and DW standards at MW16-01 Benzo(a)pyrene, pyrene, and arsenic exceedances are most likely from the fill material used during the infilling of the former river channel (APEC 2)
APEC 2 River channel fill from unknown source on the Property.	▪ HEPH exceeds the CSR RL standard at BH16-02 (5.2 m) ▪ Antimony, arsenic, copper, molybdenum, and zinc exceed the CSR RL standards at TP16-13 (2.0 m) ▪ Antimony, arsenic, copper, molybdenum, and zinc exceed the CSR RL standard at BH16-03. (1.1 m)	▪ Benzo(a)pyrene, pyrene, and antimony exceed at MW16-03
APEC 3 Fill from historic stream potentially on the Property.	▪ Soil samples assessed meet the CSR RL standards at TP16-05 (0.9 m) and BH16-04 (1.2 m) ▪ There is no suggested evidence that there are environmental impacts	▪ Groundwater samples obtained were below laboratory detection limit and/or well below CSR AW and DW standards
APEC 4 Various industrial facilities, including construction facilities, a sawmill, concrete plant, and trucking companies located to the west	▪ Soil samples assessed meet the CSR RL a standards at TP16-06 (1.2 m) ▪ Chromium exceeds the CSR RL standard at BH16-01 (1.2 m) The chromium exceedance is believed to be associated with APEC 1	▪ Benzo(a)pyrene, pyrene, and arsenic exceed CSR AW and DW standards at MW16-01 Benzo(a)pyrene, pyrene, and arsenic exceedances are most likely from the fill material used during the infilling of the former river channel (APEC 2)
APEC 5 Ocean Concrete Plant and Asphalt Plant located adjacent to the east	▪ Arsenic exceeds the CSR RL standard at TP16-07 (0.5 m) ▪ Antimony, arsenic, copper, molybdenum, and zinc exceeded CSR RL standards at BH16-03 (1.1 m) All Metal exceedances at BH/MW16-03 are suspected to be associated with APEC 2 as they are the same parameter grouping as was identified in testpit TP16-13 and taken from similar fill material	▪ Benzo(a)pyrene, pyrene, and antimony exceed at MW16-03 Benzo(a)pyrene, pyrene, and antimony exceedances are most likely from the fill material used during the infilling of the former river channel (APEC 2) – see comment to left under soil.

Notes: APEC – Area of Potential Environmental Concern
CSR – Contaminated Sites Regulation
AWfw – Freshwater Aquatic Life Standard
RL – Residential Land Use Standard
AWmw – Marine Water Aquatic Life Standard
DW – Drinking Water Standard

There were no concentrations of volatile constituents that were elevated so no soil vapour modelling was conducted.

Conclusion and Recommendations

Constituents with concentrations exceeding the applicable CSR Standards are present on the Property. Three APECs (1, 2, and 5) are carried forward as Areas of Environmental Concern and further investigation is recommended to delineate the lateral and vertical extent of the constituents that exceed the applicable standards.

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LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of the City of Vancouver and their agents. Tetra Tech EBA Inc. (Tetra Tech EBA) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than the City of Vancouver, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in Tetra Tech EBA's Services Agreement. Tetra Tech EBA's General Conditions are provided in Appendix A of this report.

1.0 INTRODUCTION

Tetra Tech EBA Inc. (Tetra Tech EBA) was retained by Ms. Amber Bongiovanni of the City of Vancouver (herein referred to as "the Client") to conduct a Phase II Environmental Site Assessment (ESA) at 3010 East Kent Avenue South, Vancouver, BC (herein referred to as the "Property"). This Phase II ESA is being conducted for purposes relating to the potential future redevelopment of the Property.

The Phase II ESA follows a Phase I ESA that was completed on the property in January 2016 by Tetra Tech EBA. During the Phase I ESA, three Areas of Potential Environmental Concern (APECs) were identified at the Property and two APECs were discovered in the surrounding area. Based on the Phase I ESA recommendations, a Phase II ESA was initiated. A summary of activities from the previous investigation is provided in Section 3.0 of this report.

The objective of the Phase II ESA was to assess soil and groundwater quality at the site for the presence/absence of the PCOCs associated with APECs 1 to 5. Although previously recommended, soil vapour was not assessed as part of this Phase II ESA.

Ms. Amber Bongiovanni of the City of Vancouver provided Tetra Tech EBA with written authorization to proceed with the Phase II ESA in February 2016.

1.1 Scope of Work

The scope of work for the Phase II ESA was developed in consultation with the Client and included the following main tasks:

- Reviewing reports from previous environmental investigations that were completed on the Property and surrounding area;
- Preparing a sampling location plan to identify potential impacted areas based on the APECs;
- Completing a project-specific sampling and analytical plan, and Quality Assurance / Quality Control (QA/QC) project plan, prior to the field investigation;
- Completing a site-specific health and safety plan to be implemented throughout the entire field investigation;
- Retaining Western Utility Locates of Vancouver, BC to locate any underground utilities on the Property, especially within the areas of the proposed test locations;
- To build a Phase II ESA work plan around a coinciding Preliminary Geotechnical Assessment
- Retaining Backhoes Unlimited Ltd. (Backhoes Unlimited) of Langley, BC to dig four environmental test pits and five geotechnical test pits;
- Retaining Omega Drilling Ltd. (Omega) of Pitt Meadows, BC to drill four boreholes using a track-mounted drill rig and install a monitoring well in each;
- Collecting soil samples from each test pit/borehole and submitting select samples AGAT Laboratories (AGAT) of Burnaby, BC for laboratory analysis of Potential Contaminants of Concern (PCOCs) associated with the APECs;
- Measuring groundwater levels, developing, and purging of the four monitoring wells;
- Collecting groundwater samples from each monitoring well and submitting the samples to AGAT for laboratory analysis of the PCOCs;
- Comparing the soil and groundwater analytical results to the applicable standards, as established by the Contaminated Sites Regulation (CSR) of the Environmental Management Act of British Columbia; and

- Preparing this report summarizing Tetra Tech EBA's findings, conclusions, and recommendations.

2.0 SITE DESCRIPTION

2.1 Location and Current Legal Description

The Property is located in the City of Vancouver, BC and consists of one legal lot. A site location plan is shown on Figure 1. The Property, APECs, and sampling locations are shown in Figure 2.

The legal description for the Property is:

- Lot 7 District Lots 330, 2100 and 6320 Group 1 New Westminster District Plan LMP31809

The Parcel Identifier (PID), civic address, zoning, official community plan, and coordinates of the Property are presented in the following table:

Table 2-1: Parcel ID, Civic Address, and Municipal Information

Parcel ID	Civic Address	Municipal Zoning	CD Guidelines	Latitude	Longitude
023-668-296	3010 – East Kent Avenue South	CD-1 (247)	CD-1 (247) By-law No. 6533	49º 12' 21.6" N	123º 02' 40.3" W

Notes: CD-1 (247) indicates the Property is zoned as Comprehensive Development for medium density residential development with some commercial use.

2.2 Current Property Facilities

At the time of the Phase II ESA, which took place in February 2016, the Property was used as a recreational field for local residents. There were no buildings on the Property and the entire Property was covered with grass.

2.3 Natural Setting

2.3.1 Geological Information

The Geological Survey of Canada Map 1486A indicated that the surficial geology in the area of the Property consisted of Quaternary Fraser River Sediments, which are made up of overbank silty to silt clay loam normally less than 2 m thick. These sediments may overlie 15 m or more of deltaic or distributary channel fill, interbedded fine to medium sand and minor silt beds possibly containing organic or fossiliferous material.

2.3.2 Topography and Hydrogeology

The topography of the Property is relatively flat, however, the Property slopes very slightly southwards toward the Fraser River, which is located approximately 50 m south of the Property. Topography to the north of the Property slopes steeply southward towards the Fraser River.

The local groundwater flow is inferred to flow south towards the Fraser River. However, shallow groundwater in the vicinity of the river and the Property may be influenced by fluctuations in river level, as well as river flow rate and direction.

2.3.3 Streams and Waterbodies

Activities on a site have the potential to contaminate the sediments of waterbodies that cross through or are adjacent to the Property. Potential contaminants may be transported to the waterbodies by means of overland surface flow and groundwater infiltration. In addition, sites located upstream of the Property have the potential to contaminate the waterbodies passing through or adjacent to the Property, which could potentially result in contamination of the Property's soil, groundwater, and/or sediment.

In this case, the Fraser River flowed to the west and passed within 50 m of the south Property boundary. No surface water bodies were observed on the Property.

2.4 Historic Streams

Before establishment of the Lower Mainland cities, a little more than a century ago, the Lower Mainland was a forested wetland, criss-crossed by streams. Today many of these waterways have been buried under fill as the cities have expanded. It was common for imported fill to consist of refuse, debris and industrial waste, which can present an environmental risk to a Property with any historic streams.

A copy of the Department of Fisheries and Oceans Canada's Lost Streams Map was referenced for historic streams on or in the vicinity of the Property. One historic stream was identified as potentially passing through the Property.

3.0 PREVIOUS ENVIRONMENTAL INVESTIGATIONS

In January 2016, Tetra Tech EBA completed a Phase I ESA for the Property. Based on the findings described in the Phase I ESA, three APECs were identified on the Property. The APECs and their associated PCOCs, are summarized in the following table.

Table 3-0: Property – Areas of Potential Environmental Concern

APEC Number	Description	Rationale	PCOCs
1	Former Paint Factory located on the Property from approximately 1971 to 1986.	A paint factory was located on the Property from approximately 1971 to 1986, and evidence from the aerial photographs may indicate that the factory was present prior to 1971. Aerial photographs also showed several items, including several drums, demolition debris, and some unidentifiable material to be present on the Property after the removal of the factory.	BTEX, VPHs, VOCs, LEPH, HEPH, metals
2	Fill from unknown source on the Property.	The south portion of the Property consists of fill that was put into the Fraser River to close the channel between the historic Rowling Island and the north shore of the Fraser River. The fill first appeared in the 1954 aerial photograph. The fill was obtained from an unknown source, however, it was common for imported fill in that time to consist of refuse, debris and industrial waste, which can present an environmental risk to a Property.	LEPH/HEPH, PAH, metals
3	Fill from historic stream potentially on the Property.	A review of the Department of Fisheries and Ocean Canada's Lost Streams Map identified one historic stream as potentially passing through the Property. It was common for imported fill to consist of refuse, debris and industrial waste, which can present an environmental risk to a Property with any historic streams.	LEPH/HEPH/PAH, metals,

Notes: BTEX = Benzene, Toluene, Ethylbenzene, Xylene. LEPH/HEPH = Light/Heavy Extractable Petroleum Hydrocarbons. PAH = Polycyclic Aromatic Hydrocarbons. VPH = Volatile Petroleum Hydrocarbons, VOCs = Volatile Organic Compounds Potential Contaminants of Concern (PCOCs)

In addition, two APECs were identified on neighbouring properties. These are outlined in the following table.

Table 3-1: Surrounding Area – Areas of Potential Environmental Concern

APEC Number	Description	Rationale	PCOCs
4	Various industrial facilities, including construction facilities, a sawmill, concrete plant, and trucking companies located at 2922 – East Kent Avenue South.	Historical land uses at 2922 East Kent Avenue South (approximately 85 m west of the Property): Lumber mill facilities (approximately 1938 to 1949) Concrete plant facilities (approximately 1956 to 1972) Trucking companies (approximately 1972 to 1983 and 1989 to 1992) Various construction companies, marine contractors and automobile repair facilities (approximately 1983 to 1991) An UST and several ASTs were identified on the site	LEPH, HEPH, PAH, VOCs, metals
5	Ocean Concrete Plant and Asphalt Plant located adjacent to the east Property boundary at 8605 – East Kent Avenue South.	An asphalt manufacturing plant and Ocean's Concrete plant were listed in the city directories at 8605 – Kerr Street from 1971 to 1981, although a review of the aerial photographs suggests that at least one of these facilities may have existed until circa 1986. Though these facilities were located cross-gradient to the Property, it is Tetra Tech EBA's professional opinion that the above historical activities on the site had potential to environmentally impact the Property because of their close proximity to the Property.	LEPH/HEPH/PAH, metals

Notes: BTEX = Benzene, Toluene, Ethylbenzene, Xylene. LEPH/HEPH = Light/Heavy Extractable Petroleum Hydrocarbons. PAH = Polycyclic Aromatic Hydrocarbons. VPH = Volatile Petroleum Hydrocarbons, VOCs = Volatile Organic Compounds

Based on the results of the Phase I ESA, Tetra Tech EBA recommended that a subsurface investigation in the form of a Phase II ESA, be carried out on the Property to investigate potential impacts to soil, groundwater, and soil vapour.

4.0 SOIL AND GROUNDWATER ASSESSMENT STANDARDS

Soil and groundwater are regulated within British Columbia's *Environmental Management Act* (EMA). Analytical results were compared to the numerical standards stipulated in the CSR (BC Reg. 375/96 including amendments up to BC Reg. 4/2014, January 31, 2014).

4.1 Soil Assessment Standards

To assess soil contamination, the British Columbia Ministry of Environment (MOE) has developed numerical standards for chemical parameters. These standards are based on land use and are provided in the CSR. Schedules 4, 5, and 10 provide generic and matrix numerical standards for the assessment and remediation of soil. Generic standards depend solely on land use, while matrix standards are based on land use and a number of site-specific factors, such as the use of groundwater in the area, if any.

The current zoning at the Property is CD-1 (247) which allows for residential development with some commercial use. Therefore, the residential (RL) land use standard was considered applicable to the Property. The potential future use of the Property as a daycare would mean that the RL standard is applicable.

For the matrix-based standards listed in the CSR Schedule 5, Tetra Tech EBA applied the following site-specific factors:

- Intake of contaminated soil;
- Toxicity to soil invertebrate and plants;
- Groundwater used for drinking water; and
- Groundwater flow to surface water used by freshwater and marine aquatic life.

The rationale for determining groundwater use applicable to the Property is discussed below.

4.2 Groundwater Assessment Standards

The MOE *Technical Guidance on Contaminated Sites No. 6, Water Use Determination* (July 2005, updated July 2010, effective February 1, 2011) (TG6) requires that drinking water (DW) standards apply when groundwater wells are 100 m up-gradient and 500 m down-gradient of a site. DW standards may also apply for the protection of future drinking water use based on the hydraulic conductivity of the underlying aquifer and the natural quality of the water in the aquifer. A hydrogeological study to assess these factors is not within the scope of this investigation; therefore, DW standards are conservatively applicable to the Property at this time.

In accordance with TG6, the CSR standards for the protection of freshwater and marine aquatic life (AW) standards apply to a site of an aquatic habitat is within 500 m from the site. The Fraser River is located approximately 50 m south of the Property; as well, due to the Strait of Juan de Fuca being located only 12 km west, the Fraser River at is most likely brackish at this point and therefore CSR AW freshwater and marine standards are applicable to the Property.

Based on zoning information for land near the Property using the City of Vancouver internet web mapping system, no land is zoned for agricultural use within a 500 m radius of the Property. Therefore, CSR standards protective of irrigation water (IW) and livestock water (LW) quality are not considered applicable to the Property.

Schedules 6 and 10 of the CSR provide the numerical standards for the assessment and remediation of groundwater.

5.0 INVESTIGATION METHODOLOGY

The following subsections discuss the methodology of the Phase II ESA.

5.1 Phase II ESA Test Location Rationale

The test locations and analytical testing for the Phase II ESA were selected based on the APECs identified during the previous Phase I ESA. These test locations are discussed in detail in the following table and are shown on Figure 3.

Table 5-1: Phase II ESA Sampling Locations

APECs		Testpit/Borehole/Monitoring Well Locations and Rationale
1	Former Paint Factory located on the Property from approximately 1971 to 1986.	▪ Testpits TP16-13 and boreholes BH16-01 and BH16-02– TP16-13 was placed in the south central portion of the Property to allow for the assessment of APEC 1 and APEC 2. BH16-01 was placed in the southwest corner of the property near the centre of APEC 1, while BH16-02 was advanced approximately 20 m northeast of BH16-01. BH16-02 was place on the eastern edge of APEC 1 and in a location to investigate APEC 2 as well. ▪ Monitoring Wells MW16-01 and MW16-02 – MW16-01 and MW16-02 were installed in their respective boreholes.
2	Fill from unknown source on the Property.	▪ Testpit TP16-13 and boreholes BH16-02 to BH16-03 – Testpit TP16-13 was placed in the south portion of the property over top the former north shore of the Fraser River. The boreholes BH16-02 to BH16-03 were advanced in an evenly spaced grid on the south portion of property where the channel was historically filled. ▪ Monitoring Wells MW16-02 and MW16-03 – MW16-02 and MW16-03 were installed in their respective boreholes along south portions of the property.
3	Fill from historic stream potentially on the Property.	▪ Testpit TP16-05 and borehole BH16-04– Testpit TP16-05 was placed in the north central part of the property where the former historical stream was located. BH16-04 was advanced in the former stream channel approximately 14 m south of TP16-05 in the former stream channel. ▪ Monitoring Well MW16-04 – Placed centrally on the property near the southern extent of the former stream in order to catch any contaminants that had migrated south along the former stream.
4	Various industrial facilities, including construction facilities, a sawmill, concrete plant, and trucking companies located at 2922 East Kent Avenue South.	▪ Testpit TP16-06 – Placed in the northwest corner of the Property to assess PCOCs in soil that may have arisen from historic operations off-site. ▪ Monitoring well MW16-01– MW16-01 was advanced in the southwest portion of the Property. Based on the assumption that the groundwater flow may be variable in the area, possibly influenced by topography and tidal fluctuations, PCOCs from the former industrial property could possibly migrate diagonally to the southeast impacting the south portion of the Property.
5	Ocean Concrete Plant and Asphalt Plant located adjacent to the east Property boundary at 8605 East Kent Avenue South.	▪ Testpit TP16-07 – The testpit is located near the east boundary of the Property to investigate PCOCs from this APEC 5. ▪ Monitoring Well MW16-03 – Placed on the east boundary of Property approximately 10 m west from this APEC.

The Phase II ESA sampling locations at APECs 1 to 5 are shown on Figure 2.

5.2 Health and Safety

Tetra Tech EBA prepared a site-specific health and safety plan that was implemented during all the field events on the Property. In addition, Tetra Tech EBA field staff and contractors orientated through safe work operations prior to commencement of each field event and participated in a tailboard safety meeting at the beginning of each work day.

5.3 Utility Locates

Prior to testpitting and drilling, Tetra Tech EBA contacted BC One Call and other utility companies to obtain utility information pertinent to the Property. Tetra Tech EBA hired Western Locates, a private utility locating company out of Coquitlam, BC, to locate utilities in the planned investigation locations using instruments sensitive to induced signals.

5.4 Test Pitting and Borehole Completion

Following the completion of underground utility locates by Western Utility Locates on February 10, 2016, eight test pits (TP16-05 to TP16-13) were excavated by Backhoes Unlimited on February 11, 2016 (see Figure 3 for sampling locations). Four of these test pits (TP16-05, TP16-06, TP16-07, and TP16-13) were assessed for PCOCs as part of the environmental assessment, while the rest (TP16-08 to TP16-12) were excavated as part of a preliminary geotechnical assignment on the Property. During excavation of the environmental test pits, samples were collected from the excavators bucket at near surface layers and at change in stratigraphy:

- Test pit TP16-05 was excavated in the north central portion of the property until refusal occurred at a depth of 1.2 metres below ground surface (mbgs). After using the excavator's bucket to scrape the base of the excavation a layer of concrete was discovered. In order to investigate the extent of concrete, a 10 m trench was dug to the south, however, the concrete was present all through the trench at a depth of 1.2 mbgs. We have marked the approximate location of where the concrete layer was noted and may be present (see Figure 2).
- Test pit TP16-06 was excavated in the northwest corner of the property approximately 20 m west of TP16-05. Similar to TP15-05, concrete was discovered approximately at 1.5 mbgs. No further excavation was conducted at the location.
- Test pit TP16-07 was excavated in the northeast corner approximately 20 m east of TP16-05 to a depth of 2.0 mbgs. No concrete was discovered.
- Test pit TP16-13 was excavated approximately 40 m south of TP16-05 to a depth of 2.6 mbgs. No concrete was observed during the excavation, however an asphalt layer approximately 0.2 m thick was discovered at 1.8 mbgs.

Following sampling, testpits were backfilled using the material excavated which was semi-compacted using the backhoe bucket.

On February 12, 2016, four boreholes (BH16-01, BH16-02, BH16-03, and BH16-04) were advanced using hollow-stem and solid-stem auger on a track-mounted drill rig operated by Omega Drilling:

- Boreholes BH16-01, BH16-02, and BH16-03 were advanced in the south portion of the property. Each borehole was completed using solid-stem auger, with the exception of hollow-stem auger at BH16-03, until a switch to solid-stem occurred at 2.5 m due to lack of soil recovery with the split spoon. Solid-stem auger was used to complete BH16-03 until refusal occurred at 3.05 mbgs. Similarly, the central borehole BH16-02, had to be moved roughly 1.0 m south of its original planned location as a result of refusal at 1.5 mbgs due to possible asphalt or concrete presence at this depth.
- Borehole BH16-04 was advanced using solid-stem auger in the central portion of the property approximately 32 m north of BH16-02. The borehole reached a maximum depth of 4.3 mbgs.

During drilling, soil samples were logged and collected from the auger flight manually. Samples were collected from depths at which contamination was suspected based on field observations. Each borehole was completed into a monitoring well. Drill cuttings were placed in two steel drums.

Borehole logs are included in Appendix B.

5.5 Field Screening

Tetra Tech EBA measured volatile head space vapours using a Mini Rae portable gas detector for detection of VOCs. The instrument was calibrated at the start of each field investigation. Bagged samples were allowed to warm over a period of time to stimulate volatilization of substances contained in the samples.

The results of the field screening are recorded on the borehole logs in Appendix B.

5.6 Soil Sampling

Tetra Tech EBA's field representative wore new nitrile sampling gloves prior to collecting each soil sample to prevent cross-contamination at each sampling location. In addition, the auger flights were pressure washed before drilling and between each borehole location. Water for pressure washing was supplied by Omega Drilling and came from their office location in Pitt Meadows, BC. At least one sample from each borehole was selected for laboratory analysis – refer to borehole logs in Appendix B.

Soil samples collected during drilling were placed into laboratory-supplied, clean, pre-labeled jars equipped with Teflon-lined lids. The samples were subsequently placed in a cooler with ice and transported under chain of custody procedures to AGAT for analysis.

5.7 Groundwater Monitoring Well Installation

Groundwater monitoring wells were installed in all borehole locations (MW16-01, MW16-02, MW16-03, and MW16-04). Well completion details for each monitoring well are shown on the logs in Appendix B and a general description of the installation methodology is provided below.

Monitoring wells were constructed of 50 mm nominal flush threaded schedule 40 polyvinyl chloride (PVC) and comprised of a 1.2 m to 2.0 m length of machine slotted PVC screen (0.25 mm in width). Solid PVC pipe was used for the remainder of the well. The borehole annulus was backfilled with silica sand to an elevation of approximately 0.3 m above the slotted interval. Bentonite was placed above the sand-pack to ground surface in the borehole to provide a hydraulic seal. At ground level the PVC pipe was set in a protective stick up steel casing that was cemented into place. Each stick up casing was secured with a lock.

The monitoring completion details are shown on the boreholes logs that are provided in Appendix B and Table 1a and their locations are shown in Figures 2.

5.8 Monitoring Well Development, Purging and Sampling

The monitoring wells were developed on February 16, 2016 to remove residual drilling water and/or fine material from the installation. Development was conducted using 5/8" high density polyurethane waterra tubing with a surge block. Field measurements of pH, temperature, electrical conductivity, and total dissolved solids were monitored during development until three subsequent readings were within 10% of each other.

Prior to sampling on February 18 and 19, 2016, each well was purged using a peristaltic pump using a low volume flow of 200mL/min, or less, until field parameters readings were within 10% of each other. Following purging, groundwater samples were collected directly from the peristaltic pump into clean, labeled, new laboratory-supplied containers for LEPH, HEPH, PAHs, VOCs, and dissolved metals, Samples for dissolved metals were field-filtered and preserved with nitric acid. The groundwater samples were then placed in ice-chilled coolers for temporary storage and transported to AGAT using chain-of-custody procedures.

Standard Tetra Tech EBA procedures were followed during the sampling process, including wearing clean nitrile gloves, using dedicated equipment, and using low-flow sampling techniques, in order to generate representative groundwater samples and minimize fines in the samples.

5.9 Quality Assurance / Quality Control Program

5.9.1 Tetra Tech EBA

During the Phase II ESA, Tetra Tech EBA implemented a QA/QC Program to assess the integrity of the sampling and analytical testing methods. The QA/QC program adhered to the Tetra Tech EBA in-house Quality Management System (QMS), which was designed to generate representative samples, mitigate potential cross contamination between sampling locations and samples, and reduce the potential for systematic bias.

The QA/QC protocol included:

- Recorded subsurface conditions and monitoring and sampling of environmental media;
- Recording the results of field activities in the field concurrently with the activities;
- Use of clean, new sampling gloves at each sampling location;
- Pressure washing of all drill auger flights and sampling tools between drilling locations;
- Placing samples into new and labelled laboratory-supplied containers;
- Transporting samples to the analytical laboratory in chilled coolers using chain-of-custody procedures;
- When appropriate, forming duplicate samples using industry accepted splitting methods;
- Using Canadian Association for Laboratory Accreditation (CALA)-affiliated laboratories that are qualified to analyze the samples using MOE-approved procedures;
- Submitting duplicate samples to the laboratory as “blind” samples, meaning that they are not identified as duplicate samples;
- Decontaminating sampling equipment between sample locations;
- Reviewing the results of QA/QC analyses, assessing the significance of the analytical results and identifying this information in this report;
- A review of this report by a qualified senior Tetra Tech EBA professional to ensure that the report meets Tetra Tech EBA technical and reporting requirements; and
- Importing analytical data into tables using ESdat software to minimize transcription errors.

Part of the QA/QC program involved calculating the relative percent difference (RPD) between sample concentrations of paired blind duplicates. Results were calculated as follows:

- RPD (%) = 2 x 100 x |X – Y| / (X + Y), where:
  - X = the measured concentration in the original sample; and
  - Y = the measured concentration in the duplicate sample.

The RPDs should only be calculated and assessed when both the sample and the duplicate is greater than five times the method detection limit (MDL), referred to as the Practical Quantification Limit (PQL).

When evaluating the RPDs for the duplicate samples, a different screening threshold is generally used for different parameters, as follows:

- Soil:
  - Low variability metals were compared to a 45% threshold, and a 60% threshold for high variability metals. High variability metals include Silver (Ag), Aluminum (Al), Barium (Ba), Mercury (Hg), Potassium (K), Molybdenum (Mo), Sodium (Na), Lead (Pb), Tin (Sn), Strontium (Sr), and Titanium (Ti).
- Groundwater:
  - VOCs were compared to a 45% screening threshold.

The threshold values were recommended in the MOE Q&A and BC Laboratory Sampling Manual. If the RPD exceeded the recommended value, an explanation for the variation is provided in the report.

The RPD calculations are discussed in Section 6.5.

5.9.2 AGAT Laboratories

Soil and groundwater samples were submitted to AGAT, a CALA-accredited laboratory. Laboratory testing was conducted using methods outlined in the British Columbia Environmental Laboratory Manual. Laboratory QA/QC reports are attached to the laboratory reports presented in Appendix C. Samples included in the QA/QC reports consist of laboratory batches and will include random samples from the lab report and potentially other projects to complete a batch.

AGAT measures the temperature of samples received by the laboratory, and has established an internal guideline of 10°C as the maximum temperature for samples upon receipt. AGAT will note any sample deficiencies, such as unacceptable headspace, broken jars or bottles, etc. Additionally, AGAT uses various methods for checking the quality of sample analytical results. These methods are discussed in the attached Laboratory Certificates.

6.0 FINDINGS

6.1 Surficial Geology

The soil encountered on the Property was generally fill material consisting of medium to coarse grained sand and gravel. At test pits TP16-05 and TP16-06, a concrete slab was discovered approximately 1.5 mbgs at each location. The excavation was unable to continue due to the excavator being unable to penetrate through the concrete. Similarly, a layer of asphalt approximately 0.2 m thick was discovered at TP16-13 approximately 1.8 mbgs, however

the excavator was able to break through the layer and continue digging. Refusal while drilling also occurred at BH16-03 and BH16-02, although no asphalt was visible, it is believed the refusal was the result of asphalt.

In addition to this Phase II, Tetra Tech performed a geotechnical assessment on the Property which included further test pitting (Tetra Tech 2016). Based on the results of the geotechnical testpits, an approximate extent of the concrete and asphalt can be seen in Figure 2. The geotechnical report concludes that the soil conditions encountered during the February 11 and 12, 2016 investigation are generally consistent with the anticipated surficial geology. The geotechnical description of the soils encountered during the investigation, which was completed concurrently with this investigation, are summarized as follows

- **FILL:** Variable fill was encountered within all of the test pits and test holes. The fill generally consists of a 0.1 m thick layer of topsoil underlain by loose to compact sand, silt, gravel, cobbles, asphalt, concrete, organics, and wood waste. Due to the presence of the concrete and asphalt, six of the eight test pits achieved refusal and were unable to advance through the fill. In addition, the other two test pits were also not able to advance through the fill due to encountering the groundwater, which resulted in caving in of the test pit side walls. The fill thickness was measured to be 1.9 m and 6.1 m within BH16-02 and BH16-04, respectively. At BH16-02, the wood waste was measured to be approximately 2 m thick.

- **SILT:** The fill material is underlain by low to medium-plastic, firm to stiff silt. At BH16-02, the silt contains several sand lenses. At BH16-04, the upper 300 mm of silt contains a trace of organics/wood. The natural water content of the silt at BH16-04 is 85.3% in the upper 300 mm that contains the organics/wood and 42.5% in the lower portion of the deposit.

In the south portion of the Property at locations BH16-02, BH16-03, and TP16-13, wood debris and soil with a creosote (wood preservative) like odour was discovered to be at various locations from the surface to 6.1 mbgs at BH16-02.Therefore since the wood material was discovered mixed with the APEC 2 fill material, it is possible that the fill used originated from a former sawmill operations to the east. Soils encountered during drilling are shown in detail on the attached borehole logs in Appendix B.

6.2 Groundwater Elevations and Flow Direction

Groundwater elevations were surveyed using a manhole cover located on the sidewalk to the northeast of the property. The manhole was set as an arbitrary datum at an elevation of 100 m. Groundwater elevations measured on February 18, 2016 were 99.77 m at MW16-01, 99.67 m at MW16-02, 99.02 m at MW16-03. And 99.76 m at MW16-04. Table 1b summarizes the groundwater depths and elevations.

To determine the groundwater flow regime at the Property, the groundwater elevations measured on February 18, 2016 from monitoring wells MW16-01 to MW16-04 were interpolated and used to create a groundwater contour map, shown on Figure 5. The groundwater contour map also reflects the elevations measured on that day.

The groundwater elevations measured on February 18, 2016 indicate an average horizontal hydraulic gradient of 0.10 (m/m) to the southeast. As a result of the Fraser River being approximately 50 m south, we inferred groundwater direction to be to the south. The unexpected groundwater flow to the southeast is possibly attributed to the townhouses adjacent to the east acting as a sink. As well, higher conductivity soils may be located in the southeast corner of the property. Further studying of the groundwater direction would be required to determine the actual direction.

6.3 Soil Results

Five soil samples collected from boreholes BH16-01 to BH16-04 and four soil samples collected from test pits TP16-05 to TP16-07 and TP16-13 were submitted to AGAT for analysis of hydrocarbons, PAHs, and metals. Five samples from boreholes BH16-01 and BH16-02, and test pits TP16-07 and TP16-13, were analyzed for VOCs.

Analytical soil results found all VOC and PAH parameters to be below laboratory detection limit and/or well below relevant CSR RL standards. As well, nearly all hydrocarbon parameters analyzed were below detection limit or relevant CSR standards, with the exception of HEPH in borehole BH16-02 which was found to exceed the CSR standard of 1000 µg/g at a concentration of 1440 µg/g.

Inorganic metal parameters found to be exceeding CSR RL standards were; arsenic at BH16-03, TP16-07, and TP16-13; chromium at BH16-01; and antimony, copper, molybdenum, and zinc at BH16-03 and TP16-13. The following table summarizes the soil analytical exceedances and compares the results to the CSR standards.

Table 6-3: Soil Analytical Exceedances (µg/g)

Parameters	CSR-RL Standard	BH16-01 (1.2 mbgs)	BH16-02 (5.2 mbgs)	BH16-03 (1.1 mbgs)	TP16-07 (0.5 mbgs)	TP16-13 (2.0 mbgs)
HEPH	1000	<CSR	**1440**	<CSR	<CSR	<CSR
Antimony	20	<CSR	<CSR	**144**	<CSR	**60.6**
Arsenic	15	<CSR	<CSR	**326**	**27.5**	**133**
Chromium	60	**121** (total Chromium)	<CSR	<CSR	<CSR	<CSR
Copper	150	<CSR	<CSR	**182**	<CSR	**250**
Molybdenum	10	<CSR	<CSR	**26.2**	<CSR	**25.9**
Zinc	150	<CSR	<CSR	**538**	<CSR	**764**

Notes: All values in µg/g <CSR – Values less than the CSR standard.

Soil analytical summary tables are found in Tables 2a-c and detailed in laboratory reports in Appendix C, as well soil exceedances are shown on Figure 3a. Section 7 of this report discusses the analytical testing and findings in soil and groundwater relative to their APECs.

6.4 Groundwater Results

Laboratory analysis of groundwater found benzo(a)pyrene to be exceeding the CSR AW standard of 0.1 µg/L and the CSR DW standard of 0.01 µg/L at wells MW16-01 an MW16-03 with concentrations of 0.35 µg/L and 0.18 µg/L, respectively. As well benzo(a)pyrene was slightly exceeding the CSR DW standard in a duplicate sample (MW16-05) from well MW16-02 at a concentration of 0.02 µg/L. Pyrene was also found to exceed the CSR AW standard of 0.2 µg/L in wells MW16-01 and MW16-02 with concentrations of 0.67 µg/L and 0.38 µg/L, respectively. All other hydrocarbon, PAHs, and VOC parameters analyzed were below detection limit and/or below relevant CSR standards.

Inorganic metal parameters found to be exceeding the CSR DW standard were antimony in well MW16-03 and arsenic in well MW16-01. Manganese was also found to exceed the CSR DW standard, however the standard was deemed inapplicable to the Property based on Stage 8 amendments to the CSR which came into effect on January 24, 2013.

Table 6-4: Groundwater Analytical Exceedances (µg/L)

Parameter	CSR –AW	CSR-DW	MW16-01	MW16-02 (DUP: MW16-05)	MW16-03	MW16-04
Benzo(a)pyrene	0.1	0.01	**0.34**	**0.02 (DUP)**	**0.18**	<CSR
Pyrene	0.2	NS	**0.67**	<CSR	**0.38**	<CSR
Antimony	200	6	<CSR	<CSR	**23.4**	<CSR
Arsenic	50	10	**20.4**	<CSR	<CSR	<CSR

Notes: All values in µg/L <CSR – Values less than the CSR standard. NS – No Standard DUP - duplicate

Groundwater analytical summary tables are found in Tables 3a-c and the detailed laboratory reports in Appendix C, as well groundwater exceedances are shown on Figure 3b.

6.5 Soil Vapour

The installation of vapour probes for vapour analysis was not conducted during this Phase II ESA. An examination of volatile compounds, analyzed for soil and groundwater samples, was conducted to determine if any CSR Schedule 7 parameters were detected above the reported laboratory detection limit (RDL).

The following Schedule 7 parameters were found above the RDL:

- Toluene was found to be above its soil detection limit of 0.05 µg/g at BH16-01 with a concentration of 0.12 µg/g; however was not detected above RDL in groundwater samples.
- Naphthalene was discovered to be above its soil detection limit of 0.02 µg/g at locations BH16-01, BH16-04, TP16-07, and TP16-13 with concentrations of 0.57 µg/g, 0.01 µg/g, 0.03 µg/g, 0.01 µg/g, and 0.15 µg/g, respectively. In groundwater, naphthalene was found to be above its detection limit of 0.05 µg/L at a concentration of 1.25 µg/L at MW16-01 and 0.11 µg/L at MW16-03.

Toluene was not considered elevated as it did not reach 50% of the CSR standard. Similarly naphthalene was also not considered elevated as it was not above 50% the respective CSR standards.

Since the BC MOE approved soil vapour model is very conservative and with the current RDLs, naphthalene always will be found to exceed Schedule 7 standards even if the analytical result is below the RDL. So modelling of this parameter was not conducted.

If soil vapour are to be characterized further, then actual soil vapour samples should be collected.

6.6 Quality Assurance and Quality Control Results

During the Phase II ESA, Tetra Tech EBA implemented a QA/QC Program to assess the integrity of the sampling methodology and laboratory analytical testing. Duplicate samples were taken from each media tested and for approximately every ten samples that were collected during the field investigation on the Property. The QA/QC results of the duplicate samples collected during the Phase II ESA are tabulated in Table 4 and Table 5. The QA/QC results were as follows:

Table 6-6: Quality Assurance and Quality Control Results

Sample ID	Duplicate ID	Date	Sample Type	Parameters Analyzed in Duplicate	Lowest Relative Percent Difference (RPD)	Highest Relative Percent Difference (RPD)
16BH04	00BH04	February 12, 2016	Soil	pH, LEPH/HEPH, PAHs, metals, BTEXS VOC	0 (antimony, beryllium, pH)	26 (nickel)
MW16-02	MW16-05	February 19, 2016	Groundwater	pH, LEPH/HEPH, PAHs, metals, BTEXS, VOC	0 (boron, arsenic)	9.5 (aluminum)

The RPDs were only calculated and assessed when both the sample and the duplicate concentrations were greater than five times the method detection limits identified by the lab. As indicated in Table 6.5 above, no RPDs exceeded the recommended screening threshold.

7.0 DISCUSSION

The primary objective of the Phase II ESA was to investigate potential soil and groundwater impacts from the APECs identified in the previous Phase I ESA. The following sections discuss the analytical testing and findings in soil and groundwater relative to their APECs.

7.1 APEC 1: Former Paint Factory located on the Property from approximately 1971 to 1986

7.1.1 Soil

Boreholes BH16-01 – south west corner of the Property, BH16-02- south mid portion of Property, and testpit TP16-13 – beside borehole BH 16-02 were advanced in the former general area of the paint factory in the southwest portion of the property. Generally the exceedances identified in soil were inorganic metal parameters. The soil contamination identified is as follows:

- BH16-01(1.2 mbgs): chromium
- BH 16-02 (5.2 mbgs): HEPH
- TP16-13 (2.0 mbgs): antimony, arsenic, copper, molybdenum, and zinc.

As the soil at TP16-13 contained wood debris and asphalt thus the inorganic metal exceedances found at TP16-13 are believed to be the result of contaminated fill material used during the infilling of the former river channel.

Further investigation at BH16-01 would be required to determine if the chromium exceedance at BH16-01 was a result of activities in the former paint factory i.e. paint production and handling.

7.1.2 Groundwater

Groundwater samples were collected from MW16-01 and MW16-02. The following exceedances were identified:

- MW16-01:
  - Benzo(a)pyrene greater than the CSR AW and DW standard

- Pyrene greater than the CSR AW standards
- Arsenic greater than the CSR AW and DW standards

- MW16-02:
  - Benzo(a)pyrene greater than the CSR DW standard

The hydrocarbon exceedances of benzo(a)pyrene and pyrene and the metal exceedance of arsenic are most likely associated with the fill material used to infill the river channel. Additionally, benzo(a)pyrene and pyrene are known to bind to fine soil particles such as silt. Therefore, since monitoring well MW16-01 was screened within a silt fluvial layer and monitoring well MW16-02 was screened in a layer with trace silt, there is potential that silt in the collected samples may have caused elevated benzo(a)pyrene and pyrene concentrations. A resampling event is required in order to verify this assumption.

7.2 APEC 2: Fill from unknown source on the Property

7.2.1 Soil

Boreholes BH16-02 and testpit TP16-13 were advanced in the middle of APEC 2 in the mid-south part of the Property and BH16-03 was advanced near the eastern portion of the Property again in the south, all to investigate the type of fill that may have be placed to infill the former river channel. The following parameters were found to exceed the applicable standards:

- BH 16-02 (5.2 mbgs): HEPH
- TP16-13 (2.0 mbgs): antimony, arsenic, copper, molybdenum, and zinc
- BH 16-03 (1.1 mbgs): antimony, arsenic, copper, molybdenum, and zinc

The metal exceedances are believed to be a result of the fill material used during the infilling of the former river channel. As a result of wood material having been observed mixed in with the fill, it is possible that the fill material used during the infilling of the river channel originated from a former sawmill operation to the east.

7.2.2 Groundwater

Monitoring wells MW16-02 and MW16-03 were constructed in the appropriate boreholes along the area of the former river channel. The following groundwater parameters were found to exceed the applicable standards:

- MW16-02:
  - Benzo(a)pyrene greater than the CSR DW standard
- MW 16-03:
  - Benzo(a)pyrene greater than the CSR AW and DW standard
  - Pyrene greater than the CSR AW standards
  - Antimony greater than the DW standards

MW16-02 and MW16-03 were both installed in sand layers where silt was identified. As previously mentioned, a resampling event would be required in order to determine if the exceedances are from soil particulate matter in the samples.

7.3 APEC 3: Fill from historic stream potentially crossing the Property

7.3.1 Soil

Samples were analyzed from borehole BH16-04 at 1.2 mbgs and testpit TP16-05 at 0.9 mbgs which are located in the middle of the Property (east/west) and closer to the northern property line, along the suspected location of the former historic stream location.

Laboratory results from both locations found no exceedances of LEPH, HEPH, PAHs, or metals. Parameters were generally being below laboratory detection limit and/or below the relevant CSR RL standards.

During the investigation, concrete was encountered at 1.5 mbgs at TP16-05 didn't allow for a visual investigation of deeper fill material, however a depth of 4.57 mbgs was reached at BH16-04. Although there was a slight hydrocarbon like odour was noted at 1.2 mbgs, all PCOC concentrations were below relevant CSR standards and no other field visual or olfactory evidence of potential soil contamination was observed.

The fill material used in the historical stream is believed to be from a different source than the fill material located in the former river channel based on observation that no wood material or creosote odours were observed.

7.3.2 Groundwater

Monitoring well MW16-04 was installed to investigate the fill material used to infill the former river channel. Analytical results for the monitoring well indicated all hydrocarbons, PAHs, and VOCs were below laboratory detection limit. All metal parameters were below the relevant CSR AW and DW standards.

7.4 APEC 4: Various industrial facilities, including construction facilities, a sawmill, concrete plant, and trucking companies located at 2922 – East Kent Avenue

7.4.1 Soil

Testpit TP16-06 (northwest corner of Property) and borehole BH16-01 (southwest corner of Property) were used to determine if soil near groundwater level had been contaminated by former usage of the Property by off-Site historical operations.

Due to refusal at TP16-06 at 1.5 mbgs from the presence of concrete, the excavation was unable assess any fill below that level and did not encounter groundwater level. However, due to the APECs relatively cross-gradient location to the west, contamination that may possibly migrate through groundwater stemming from the neighbouring historical operation would most likely migrate diagonally to the southeast and therefore impact the southwestern portion of the property at BH16-01. The groundwater survey conducted on the Property indicated the groundwater flow is potentially to the southeast. Since the groundwater direction at the Property may be affected by local influences (i.e. townhouses to the east or higher conductivity soil in the southeast), further assessment is required to accurately determine the direction.

The only soil constituent found to exceed the applicable standards was chromium in TP16-01 at the southwest corner of the property at 1.2 mbgs. The exceedance is believed to be from the former paint factory operations; however further investigation is required.

7.4.2 Groundwater

Groundwater samples were collected from MW16-1. The following parameters exceeded the applicable standards:

- MW16-01:
  - Benzo(a)pyrene greater than the CSR AW and DW standard
  - Pyrene greater than the CSR AW standards
  - Arsenic greater than the CSR AW and DW standards

All other PCOCs were either below laboratory detection limit or well below relevant CSR standards. Given that groundwater flow direction in the area is potentially flowing southeast, any PCOCs migrating to the site from APEC 4 would be found at their highest concentrations at MW16-01 and MW16-02, and at their lowest concentrations at MW16-03; however since MW16-02 has fewer exceedances and lower PCOC concentrations than MW16-03, the contaminants are therefore most likely not from the neighbouring APEC 4.t. As well, benzo(a)pyrene and pyrene concentrations are possibly elevated as a result of soil particulate matter entering the groundwater samples due to silt particles; however, further investigation would be required to determine these assumptions.

7.5 APEC 5: Ocean Concrete Plant and Asphalt Plant located adjacent to the east Property boundary at 8605 – East Kent Avenue South

7.5.1 Soil

Borehole BH16-03 and testpit TP16-07 were advanced on the eastern boundary of the Property approximately 10 m west of the historical asphalt factory and concrete plant site. The following parameters were found to have concentrations exceeding the applicable standards:

- BH16-03 (1.1 mbgs): antimony, arsenic, copper, molybdenum, and zinc
- TP16-07 (0.5 mbgs): arsenic

The arsenic exceedance at TP16-07 is potentially the result of the neighbouring asphalt and concrete factory operations at APEC 5; however, the contaminants identified at BH16-03 are more likely to be associated with fill material used during the infilling of the former river channel property. Further investigation would be required to support this assumption.

7.5.2 Groundwater

Monitoring well MW16-03 in the southeast portion of the Property was installed in BH16-03 approximately 10 m west of the historical asphalt factory and concrete plant site to the east.

The following groundwater parameters were found to exceed the applicable standards:

- MW 16-03:
  - Benzo(a)pyrene greater than the CSR AW and DW standard
  - Pyrene greater than the CSR AW standards
  - Antimony greater than the DW standards

All other PCOCs were either below laboratory detection limit or well below the relevant CSR standards. Although groundwater direction is possibly to the southeast, the proximity of APEC 5 to the Property means groundwater would still be at risk from potential contaminants. Further investigation would be required to determine the source of these contaminants. As previously stated, the elevated benzo(a)pyrene and pyrene concentrations are potentially the result of soil particulates being present in the groundwater samples. A resampling event is needed in order to verify this assumption.

7.6 Quality Assurance / Quality Control

During the Phase II ESA, the accuracy of laboratory analyses is assessed by calculating the RPD values for duplicate pairs when the result of each analysis was greater than a multiple of five of the MDL. Elevated analytical variability is common when analyte concentrations are within a factor of five of the MDL. The screening thresholds were applied as stated in Section 6.5.

All the calculated RPD values were less than the RPD discussion trigger. Therefore Tetra Tech EBA considers the results of the laboratory analyses acceptable for the present application and no re-testing or further review of the analytical data is warranted.

In addition, AGAT conducts an internal QA/QC on the laboratory analysis for all the samples and those batches were within acceptable limits. Thus, the analytical results were considered representative of the soil and groundwater samples obtained from the Property.

8.0 CONCLUSIONS AND RECOMMENDATIONS

The overall results of the Phase II ESA are summarized in the Table 8.0 below.

Table 8-0: Phase II ESA Findings

	Identified COCs Exceeding CSR standards	
	Soil	**Groundwater**
APEC 1 Former Paint Factory located on the Property from approximately 1971 to 1986.	▪ Chromium exceeds the CSR RL standard at BH16-01 (1.2 m) ▪ HEPH exceeds the CSR RL standard at BH16-02 (5.2 m) ▪ Antimony, arsenic, copper, molybdenum, and zinc exceed the CSR RL standards at TP16-13 (2.0 m) Metal and HEPH exceedances at TP16-13 are suspected to be associated with APEC 2	▪ Benzo(a)pyrene exceeds at CSR DW standard at MW16-02 ▪ Benzo(a)pyrene, pyrene, and arsenic exceed CSR AW and DW standards at MW16-01 Benzo(a)pyrene, pyrene, and arsenic exceedances are most likely from the fill material used during the infilling of the former river channel (APEC 2)
APEC 2 River channel fill from unknown source on the Property.	▪ HEPH exceeds the CSR RL standard at BH16-02 (5.2 m) ▪ Antimony, arsenic, copper, molybdenum, and zinc exceed the CSR RL standards at TP16-13 (2.0 m) ▪ Antimony, arsenic, copper, molybdenum, and zinc exceed the CSR RL standard at BH16-03. (1.1 m)	▪ Benzo(a)pyrene, pyrene, and antimony exceed at MW16-03
APEC 3 Fill from historic stream potentially on the Property.	▪ Soil samples assessed meet the CSR RL standards at TP16-05 (0.9 m) and BH16-04 (1.2 m) ▪ There is no suggested evidence that there are environmental impacts	▪ Groundwater samples obtained were below laboratory detection limit and/or well below CSR AW and DW standards

Table 8-0: Phase II ESA Findings

	Identified COCs Exceeding CSR standards	
	Soil	**Groundwater**
APEC 4 Various industrial facilities, including construction facilities, a sawmill, concrete plant, and trucking companies located to the west	▪ Soil samples assessed meet the CSR RL a standards at TP16-06 (1.2 m) ▪ Chromium exceeds the CSR RL standard at BH16-01 (1.2 m) The chromium exceedance is believed to be associated with APEC 1	▪ Benzo(a)pyrene, pyrene, and arsenic exceed CSR AW and DW standards at MW16-01 Benzo(a)pyrene, pyrene, and arsenic exceedances are most likely from the fill material used during the infilling of the former river channel (APEC 2)
APEC 5 Ocean Concrete Plant and Asphalt Plant located adjacent to the east	▪ Arsenic exceeds the CSR RL standard at TP16-07 (0.5 m) ▪ Antimony, arsenic, copper, molybdenum, and zinc exceeded CSR RL standards at BH16-03 (1.1 m) All Metal exceedances at BH/MW16-03 are suspected to be associated with APEC 2 as they are the same parameter grouping as was identified in testpit TP16-13 and taken from similar fill material	▪ Benzo(a)pyrene, pyrene, and antimony exceed at MW16-03 Benzo(a)pyrene, pyrene, and antimony exceedances are most likely from the fill material used during the infilling of the former river channel (APEC 2) – see comment to left under soil.

Notes: APEC – Area of Potential Environmental Concern
CSR – Contaminated Sites Regulation
AW – Freshwater Aquatic Life Standard
RL – Residential Land Use Standard
DW – Drinking Water Standard

8.1 Recommendations

Constituents with concentrations exceeding the applicable CSR Standards are present on the Property. Three APECs (1, 2, and 5) are carried forward as Areas of Environmental Concern and further investigation is recommended to delineate the lateral and vertical extent of the constituents that exceed the applicable standards.

9.0 CLOSURE

This report has been prepared based on the scope of work and for the use of the City of Vancouver, which includes distribution as required for the purposes for which this assessment was commissioned. The assessment has been carried out in accordance with generally accepted engineering practice. No other warranty is made, either express or implied. Professional judgment has been applied in developing the recommendations in this report.

This report was prepared by personnel with professional experience in investigations of this nature and who specifically conducted the investigations at this Site. Reference should be made to the 'Geoenvironmental Report – General Conditions' attached in Appendix A that forms a part of this report.

We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
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REFERENCES

BC Ministry of Environment (2009) *Technical Guidance on Contaminated Sites No. 1, Site Characterization and Confirmation Testing.*

BC Ministry of Environment (2011) *Technical Guidance on Contaminated Sites No. 6, Water Use Determination.*

BC Environmental Management Act (2014) *Contaminated Sites Regulation, BC Reg. 375/96 including amendments up to BC Reg, 4/2014, January 31, 2014.*

Tetra Tech EBA (2016a) *Phase I ESA 3010 East Kent Avenue, Vancouver, BC,* prepared for City of Vancouver, File No. ENV03059-01

Tetra Tech EBA (2016b) *Preliminary Geotechnical Report for 3010 East Kent Avenue South, Vancouver, BC,* Prepared for the City of Vancouver. File No. ENV03059-01

TABLES

Table 1a: Summary of Monitoring Well Completion Details

Borehole	UTM Coordinates		Ground Elevation (m-aad)	Well Installation Date	General Location	Drilling Contractor	Drill Designation	Inspection Personnel	Drilling Method	Drilled Length (m)	Borehole Diameter (m)	PVC Specifications	PVC Slot Size (inches)	Stick up (m-ags)	Slotted PVC Interval (m-bgs)		Sandpack Interval (m-bgs)		Bentonite Interval (m-BGS)		Depth to Groundwater (m-bgs)	Screened Lithology
	Easting	Northing													(top)	(bottom)	(Top)	(bottom)	(top)	(bottom)	18-Feb-16	
BH/MW16-01	496730	5450337	101.84	12-Feb-16	South west corner of the Property	Omega Drilling	M5T MARL TECH Track Rig	DT/CF	Solid Stem	3.96	0.152	Nominal 2" Schedule 40	0.01	0.79	1.52	3.05	1 22	3 05	0.15	1.22	2 07	Sand (FILL), Silt, some Sand (FLUVIAL)
BH/MW16-02	496749	5450348	101.46	12-Feb-16	South central portion of the Property		M5T MARL TECH Track Rig	DT/CF	Solid Stem	7.62	0.152	Nominal 2" Schedule 40	0.01	0.78	1.37	2.90	1 07	2 90	0.15	1.07	1.79	Sand, gravelly, trace silt, trace organics (FILL)
BH/MW16-03	496774	5450344	100.91	12-Feb-16	South east corner of the Property		M5T MARL TECH Track Rig	DT/CF	Hollow/Solid Stem	4.27	0 216 / 0.152	Nominal 2" Schedule 40	0.01	0.84	1.52	3.05	1 22	3 05	0.15	1.22	1 82	Sand, Silty, some Gravel, some woody debris (FILL)
BH/MW16-04	496749	5450376	101.62	12-Feb-16	Centrally located on the Property.		M5T MARL TECH Track Rig	DT	Solid Stem	4.57	0.152	Nominal 2" Schedule 40	0.01	0.79	1.37	2.90	1 07	2 90	0.15	1.07	1 86	Sand and Gravel (F LL) and Sand and Wood material (FILL)

Notes:
UTM Coordinates are NAD83, Zone 10
m - metres
m-aad - metres above arbitrary datum (manhole cover on the sidewalk northeast of the property was used as arbitrary datum at an elevation of 100 m)
m-ags - metres above ground surface
m-bgs - metres below ground surface

Table 1b: Groundwater Monitoring Data

Monitoring Well	Ground Surface Elevation (m-aad)	Top of Casing (m-aad)	Stick up Height (m-ags)	Monitoring Well Total Depth (mBTOC)	Groundwater Levels (mBTOC)	Groundwater Levels (m-bgs)	Groundwater Elevation (m-aad)
	18-Feb-16				18-Feb-16		
MW16-01	101.84	102.66	0.79	3.05	2.86	2.07	99.77
MW16-02	101.46	102.23	0.78	2.90	2.57	1.79	99.67
MW16-03	100.91	101.75	0.84	3.05	2.66	1.82	99.02
MW16-04	101.62	102.41	0.79	2.90	2.65	1.86	99.76

Notes:

m - metres
m-aad - metres above arbitrary datum
m-ags - metres above ground surface
mBTOC - metres below top of casing.
m-bgs - metres below ground surface
Monitoring wells were surveyed on February 18, 2016. A manhole cover on the sidewalk to the northeast of the property was used as an arbitrary datum at an elevation of 100 m.

Table 2a: Soil Analytical Results - Hydrocarbons

Parameter	Unit	CSR - PL	CSR - RL	16BH01	16BH02	16BH03	16BH04	00BH04	16NTP05	16NTP06	16ETP07	16TP13
				1.2 m (4')	5.2 m (17')	1.1 m (3.5')	1.2 m (4')	1.2 m (4')	0.9 m (3')	1.2 m (4')	0.5 m (1.6')	2.0 m (6.6')
				12-Feb-2016	12-Feb-2016	12-Feb-2016	12-Feb-2016	12-Feb-2016	11-Feb-2016	11-Feb-2016	11-Feb-2016	11-Feb-2016
Hydrocarbons												
EPH_{10-19}	µg/g	-	-	25	70	50	<20	<20	<20	21	<20	39
EPH_{19-32}	µg/g	-	-	309	1440	200	56	149	24	67	40	390
LEPH	µg/g	1000	1000	24	70	50	<20	<20	<20	21	<20	39
HEPH	µg/g	1000	1000	308	**1440**	200	56	148	24	67	39	390
Polycyclic Aromatic Hydrocarbons (PAHs)												
1-Methylnaphthalene	µg/g	-	-	0 06	<0 03	<0 01	<0.01	0.01	<0 01	<0.01	0.01	0.02
2-methylnaphthalene	µg/g	-	-	0.10	<0 03	0 01	<0.01	0.01	<0 01	<0.01	0.01	0.04
Acenaphthene	µg/g	-	-	0.08	<0 03	<0 01	<0.01	0.01	<0 01	<0.01	<0.01	0.04
Acenaphthylene	µg/g	-	-	0.02	<0 03	0 02	0 03	0.20	<0 01	<0.01	0.01	0.02
Anthracene	µg/g	-	-	0.11	<0 06	<0 02	<0.02	0.11	<0 02	<0.02	<0.02	0.07
Benz(a)anthracene	µg/g	1	1	0.06	<0 06	0 03	0 03	0.23	<0 02	<0.02	0.02	0.07
Benzo(a)pyrene	ug/g	1 [#1]	1 [#1]	0.07	<0.2	<0.05	<0 05	0 23	<0.05	<0 05	<0 05	0.10
Benzo(b)fluoranthene	µg/g	1	1	0.06	<0 06	0 02	0 03	0.22	<0 02	<0.02	0.03	0.09
Benzo(b+j)fluoranthene	µg/g	-	-	0 09	<0 03	<0 03	0 03	0.33	<0 03	<0.03	0.05	0.13
Benzo(g,h,i)perylene	µg/g	-	-	0 05	<0.2	<0 05	<0.05	0.29	<0 05	<0.05	<0.05	0.09
Benzo(j)fluoranthene	µg/g	-	-	0 03	<0 06	<0 02	<0.02	0.11	<0 02	<0.02	0.02	0.04
Benzo(k)fluoranthene	µg/g	1	1	0 03	<0 06	<0 02	<0.02	0.10	<0 02	<0.02	0.02	0.04
Chrysene	µg/g	-	-	0.10	<0.2	<0 05	<0.05	0.25	<0 05	<0.05	<0.05	0.10
Dibenz(a,h)anthracene	µg/g	1	1	<0.02	<0 06	<0 02	<0.02	0.05	<0 02	<0.02	<0.02	<0 02
Fluoranthene	µg/g	-	-	0.35	<0.2	<0 05	0 06	0.47	<0 05	<0.05	0.07	0.30
Fluorene	µg/g	-	-	0.08	<0 06	<0 02	<0.02	0.03	<0 02	<0.02	<0.02	0.07
Indeno(1,2,3-c,d)pyrene	µg/g	1	1	0.04	<0 06	<0 02	0 02	0.17	<0 02	<0.02	0.03	0.04
Naphthalene	µg/g	5	5	0.57	<0 03	<0 01	0 01	0.03	<0 01	<0.01	0.01	0.15
Phenanthrene	µg/g	5	5	0.37	0.07	0 02	0 04	0.14	<0 02	0 02	0.03	0.26
Pyrene	µg/g	10	10	0.3	0.07	0 03	0 06	0.35	<0 02	<0.02	0.10	0.27
Laboratory Work Order Number				16V068853	16V068853	16V068853	16V068853	16V068853	16V068853	16V068853	16V068853	16V068853
Laboratory Identification Number				7389744	7389753	7389734	7389757	7389756	7389718	7389721	7389722	7389728

NOTES

#1	CSR Schedule 5 substance.
-	Not analyzed or no CSR standard exists.
<	Concentration is less than the laboratory detection limit indicated.
EPHs	Extractable Petroleum Hydrocarbons.
LEPHs/HEPHs	Light and Heavy EPHs.
CSR	BC Contaminated Sites Regulation (BC Reg. 375/96, includes amendments up to B.C. Reg. 4/2014 - January 31, 2014 - Schedules 4 and 5).
PL	Park Land Standards
RL	Residential Land Standards
Site specific factors include:	- Intake of contaminated soil. - Toxicity to soil invertebrates and plants. - Groundwater used for drinking water. - Groundwater flow to surface water used by freshwater and marine aquatic life. -Groundwater used for irrigation. Most stringent applicable site specific factor is shown.
Bold	Bold and shaded indicates an exceedance of the CSR Standard

Table 2b: Soil Analytical Results - Metals

Parameter	Unit	CSR - PL	CSR - RL	16BH01	16BH02	16BH03	16BH04	00BH04	16NTP05	16NTP06	16ETP07	16TP13
				1.2 m (4')	5.2 m (17')	1.1 m (3.5')	1.2 m (4')	1.2 m (4')	0.9 m (3')	1.2 m (4')	0.5 m (1.6')	2.0 m (6.6')
				12-Feb-2016	12-Feb-2016	12-Feb-2016	12-Feb-2016	12-Feb-2016	11-Feb-2016	11-Feb-2016	11-Feb-2016	11-Feb-2016
Physical Parameters												
pH	pH Units	-	-	6.8	6 0	8.4	9.6	9 6	7.2	6.3	7 8	8 2
Metals												
Antimony	µg/g	20	20	2.0	0.4	**144**	1.4	1.4	1 0	0 8	12.4	**60.6**
Arsenic	µg/g	15 [#1]	15 [#1]	7 6	1.9	**326**	4 9	5.1	4 2	5 3	**27.5**	**133**
Barium	µg/g	400 [#1]	400 [#1]	93.9	35 6	89 6	75.4	84.7	70 2	115	108	144
Beryllium	µg/g	4	4	0.3	<0.1	0.2	0.2	0 2	0.2	0.3	0 3	0 2
Cadmium	µg/g	1 5-3 [#1,2]	1 5-3 [#1,2]	0.18	0.11	0.40	0.11	0.13	0 23	0.10	0 33	0.72
Chromium	µg/g	60 [#1]	60 [#1]	**121**	7	26	21	22	24	24	22	32
Cobalt	µg/g	50	50	10 5	1 6	19.1	6.7	7 3	7.7	10.4	9 6	19.2
Copper	µg/g	150 [#1,2]	150 [#1,2]	27.9	9.7	**182**	29.0	33.7	23.2	41.3	42 2	**250**
Lead	µg/g	250-400 [#1,2]	250-400 [#1,2]	10.0	5.2	175	17.6	16.6	31 6	11.3	33.0	111
Mercury	µg/g	15 [#1]	15 [#1]	0.05	0 02	0.01	0.02	0 03	0 04	0.03	0 04	0.11
Molybdenum	µg/g	10	10	1.0	1 5	**26.2**	1.1	1.0	0 9	0 8	3.3	**25.9**
Nickel	µg/g	100	100	37 6	8 6	13.3	13 2	17.2	23.3	21 5	18.6	17.2
Selenium	µg/g	3	3	0.2	0 2	0.2	0.1	<0.1	0.2	<0.1	0 2	0 2
Silver	µg/g	20	20	<0 5	<0.5	<0.5	<0 5	<0.5	<0.5	<0 5	<0 5	<0.5
Thallium	µg/g	-	-	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1
Tin	µg/g	50	50	0.9	0 8	17.5	0.9	1.1	2.7	0.6	2.4	9 2
Uranium	µg/g	16 [#2]	16 [#2]	0 6	0.4	0.7	0.4	0.5	0.3	0 5	0.5	1.0
Vanadium	µg/g	200	200	51	9	47	49	51	48	62	55	45
Zinc	µg/g	150-450 [#1,2]	150-450 [#1,2]	63	36	**538**	54	69	78	115	124	**764**
Laboratory Work Order Number				16V068853	16V068853	16V068853	16V068853	16V068853	16V068853	16V068853	16V068853	16V068853
Laboratory Identification Number				7389744	7389753	7389734	7389757	7389756	7389718	7389721	7389722	7389728

NOTES

#1	CSR Schedule 5 substance.
#2	Standard pH Dependent. Values shown based on site pH range of 6 0 to 9.6
#3	CSR Schedule 10 Substance.
-	Not analyzed or no CSR standard exists.
<	Concentration is less than the laboratory detection limit indicated.
CSR	BC Contaminated Sites Regulation (BC Reg. 375/96, includes amendments up to B.C. Reg. 4/2014 - January 31, 2014 - Schedules 4, 5 and 10).
PL	Park Land Standards
RL	Residential Land Standards
Site specific soil factors include:	- Intake of contaminated soil. - Toxicity to soil invertebrates and plants. - Groundwater used for drinking water. - Groundwater flow to surface water used by freshwater and marine aquatic life. -Groundwater used for irrigation. Most stringent applicable site specific factor is shown.
Bold	Bold and shaded indicates an exceedance of the CSR Standard

Table 2c: Soil Analytical Results - Volatile Organic Compounds

Parameter	Unit	CSR - PL	CSR - RL	16BH01	16BH02	00BH02	16ETP07	16TP13
				1.2 m (4')	1.2 m (4')	1.2 m (4')	0.5 m (1.6')	2.0 m (6.6')
				12-Feb-2016	12-Feb-2016	12-Feb-2016	11-Feb-2016	11-Feb-2016
BTEXS & MTBE								
Benzene	µg/g	0.04 #1	0.04 #1	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g	1.5 #1	1.5 #1	0.12	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g	1 #1	1 #1	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene (m)	µg/g	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene (o)	µg/g	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
Xylenes Total	µg/g	5 #1	5 #1	<0.2	<0.2	<0.2	<0.2	<0.2
Styrene	µg/g	5	5	<0.05	<0.05	<0.05	<0.05	<0.05
MTBE	µg/g	320 #2	320 #2	<0.1	<0.1	<0.1	<0.1	<0.1
Volatile Organic Compounds (VOCs)								
1,1,1,2-tetrachloroethane	µg/g	32 #2	32 #2	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1-trichloroethane	µg/g	5	5	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2,2-tetrachloroethane	µg/g	4.1 #2	4.1 #2	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2-trichloroethane	µg/g	5	5	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-dichloroethane	µg/g	5	5	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-dichloroethene	µg/g	5	5	<0.05	<0.05	<0.05	<0.05	<0.05
1,2,4-trichlorobenzene	µg/g	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-d bromoethane	µg/g	0.32 #2	0.32 #2	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-dichlorobenzene	µg/g	1	1	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-dichloroethane	µg/g	5	5	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-dichloropropane	µg/g	5	5	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-dichlorobenzene	µg/g	1	1	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-dichlorobenzene	µg/g	1	1	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone	µg/g	22,000 #2	22,000 #2	<0.5	<0.5	<0.5	<0.5	<0.5
4-Methyl-2-pentanone	µg/g	5300 #2	5300 #2	<0.5	<0.5	<0.5	<0.5	<0.5
Acetone	µg/g	14,000 #2	14,000 #2	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	µg/g	8.2 #2	8.2 #2	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	µg/g	620 #2	620 #2	<0.05	<0.05	<0.05	<0.05	<0.05
Bromomethane	µg/g	3.9 #2	3.9 #2	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon tetrachloride	µg/g	5	5	<0.02	<0.02	<0.02	<0.02	<0.02
Chlorobenzene	µg/g	1	1	<0.05	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	µg/g	11 #2	11 #2	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroethane	µg/g	30 #2	30 #2	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroform	µg/g	5	5	<0.05	<0.05	<0.05	<0.05	<0.05
Chloromethane	µg/g	47 #2	47 #2	<0.05	<0.05	<0.05	<0.05	<0.05
cis-1,2-dichloroethene	µg/g	0.1 #2	0.1 #2	<0.05	<0.05	<0.05	<0.05	<0.05
cis-1,3-dichloropropene	µg/g	5	5	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloromethane	µg/g	5	5	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethene	µg/g	0.015 #1	0.015 #1	<0.01	<0.01	<0.01	<0.01	<0.01
Tetrachloroethene	µg/g	5 #1	5 #1	<0.05	<0.05	<0.05	<0.05	<0.05
trans-1,2-dichloroethene	µg/g	0.1 #2	0.1 #2	<0.05	<0.05	<0.05	<0.05	<0.05
trans-1,3-dichloropropene	µg/g	5	5	<0.05	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	µg/g	390 #2	390 #2	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl chloride	µg/g	0.79 #2	0.79 #2	<0.05	<0.05	<0.05	<0.05	<0.05
Laboratory Work Order Number				16V068853	16V068853	16V068853	16V068853	16V068853
Laboratory Identification Number				7389744	7389749	7389750	7389724	7389728

Notes:

#1	CSR Schedule 5 substance.
#2	CSR Schedule 10 Substance.
-	Not analyzed or no CSR standard exists.
<	Concentration is less than the laboratory detection limit indicated.
CSR	BC Contaminated Sites Regulation (BC Reg. 375/96, includes amendments up to B.C. Reg. 4/2014 - January 31, 2014 - Schedules 4, 5 and 10).
PL	Park Land Standards
RL	Residential Land Standards
Site specific soil factors include:	- Intake of contaminated soil. - Toxicity to soil invertebrates and plants. - Groundwater used for drinking water. - Groundwater flow to surface water used by freshwater and marine aquatic life. -Groundwater used for irrigation. Most stringent applicable site specific factor is shown.
Bold	Bold and shaded indicates an exceedance of the CSR Standard

Table 3a: Groundwater Analytical Results - Hydrocarbons

Parameter	Unit	CSR - AW	CSR - DW	MW16-01	MW16-02	MW16-05 (Duplicate)	MW16-03	MW16-04
				19-Feb-2016	18-Feb-2016	18-Feb-2016	18-Feb-2016	18-Feb-2016
Hydrocarbons								
EPH_{10-19}	µg/L	5000	5000	140	<100	<100	<100	<100
EPH_{19-32}	µg/L	-	-	1260	<100	<100	240	<100
LEPH	µg/L	500	-	140	<100	<100	<100	<100
HEPH	µg/L	-	-	1260	<100	<100	240	<100
Polycyclic Aromatic Hydrocarbons (PAHs)								
Acenaphthene	µg/L	60	-	0.15	<0.05	<0.05	0.06	<0.05
Acenaphthylene	µg/L	-	-	0.06	<0.05	<0.05	<0.05	<0.05
Acridine	µg/L	0.5	-	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	µg/L	1	-	0.18	<0.05	<0.05	0.08	<0.05
Benz(a)anthracene	µg/L	1	-	0.30	<0.05	<0.05	0.15	<0.05
Benzo(a)pyrene	µg/L	0.1	0.01	**0.34**	0.01	**0.02**	**0.18**	0.01
Benzo(b)fluoran hene	µg/L	-	-	0.30	<0.05	<0.05	0.15	<0.05
Benzo(b+j)fluoranthene	µg/L	-	-	0.50	<0.1	<0.1	0.20	<0.1
Benzo(g,h,i)perylene	µg/L	-	-	0.24	<0.05	<0.05	0.12	<0.05
Benzo(j)fluoranthene	ug/L	-	-	0.17	<0.05	<0.05	0.09	<0.05
Benzo(k)fluoranthene	µg/L	-	-	0.15	<0.05	<0.05	0.08	<0.05
Chrysene	µg/L	1	-	0.39	<0.05	<0.05	0.20	<0.05
Dibenz(a,h)anthracene	µg/L	-	-	0.06	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/L	2	-	0.67	<0.05	<0.05	0.39	<0.05
Fluorene	µg/L	120	-	0.09	<0.05	<0.05	0.06	<0.05
Indeno(1,2,3-c,d)pyrene	µg/L	-	-	0.18	<0.05	<0.05	0.10	<0.05
Naphthalene	µg/L	10	-	1.25	<0.05	<0.05	0.11	<0.05
Phenanthrene	µg/L	3	-	0.42	<0.05	<0.05	0.30	<0.05
Pyrene	µg/L	0.2	-	0.67	<0.02	0.03	0.38	<0.02
Quinoline	µg/L	34	-	<0.1	<0.1	<0.1	<0.1	<0.1
Laboratory Work Order Number				16V070252	16V070252	16V070252	16V070252	16V070252
Laboratory Identification Number				7397648	7397646	7397647	7397645	7397640

NOTES:

EPHw	Extractable Petroleum Hydrocarbons in Water
LEPH/HEPH	Light/Heavy Extractable Petroleum Hydrocarbons
-	Not analyzed or no CSR standard exists.
<	Concentra ion is less than the laboratory detection limit indicated.
CSR	BC Contaminated Sites Regulation (BC Reg. 375/96, includes amendments up to B.C. Reg. 4/2014 - January 31, 2014 - Schedule 6).
AW	Freshwater and Marine Aqua ic Life Standards
DW	Drinking Water Standards
Shading	Shading indicates an exceedence of the applicable CSR AW standards.
Bold	Bold indicates an exceedance of the applicable CSR DW standards.

Table 3b: Groundwater Analytical Results - Metals

Parameter	Unit	CSR - AW	CSR - DW	MW16-01	MW16-02	MW16-05 (Duplicate)	MW16-03	MW16-04
				19-Feb-2016	18-Feb-2016	18-Feb-2016	18-Feb-2016	18-Feb-2016
Physical Parameters								
pH	pH Units	-	-	7.71	7 69	7 68	7.50	7.76
Hardness as $CaCO_3$	µg/L	-	-	583,000	126,000	128,000	286,000	167,000
Dissolved Metals								
Aluminum	µg/L	-	9500	9	11	10	8	6
Antimony	µg/L	200	6	0 9	4.7	4.8	**23.4**	1.1
Arsenic	µg/L	50	10	**20.4**	0.5	0.5	2.8	0 8
Barium	µg/L	5000	1000	227	28.2	29.0	102	35.4
Beryllium	µg/L	53	-	0.01	<0.01	<0.01	<0.01	<0 01
Boron	µg/L	50,000	5000	76	21	21	55	32
Cadmium	µg/L	0 5-1.3 [#1]	5	0.06	0 01	<0.01	0.02	0.02
Calcium	µg/L	-	-	151,000	43,300	44,000	98,500	57,100
Chromium	µg/L	10 [#2]	50	<0.5	<0.5	<0.5	<0 5	<0.5
Cobalt	µg/L	40	-	14.0	0 20	0.19	2.00	0.10
Copper	µg/L	20 [#1]	1000	0 9	8.0	8.6	1.7	5 8
Iron	µg/L	-	- [#4]	3420	13	12	174	<10
Lead	µg/L	20 [#1]	10	0.11	<0.05	<0.05	<0.05	<0 05
Lithium	µg/L	-	730	5 5	<0.5	<0.5	<0 5	<0.5
Magnesium	µg/L	-	100,000	50,100	4440	4490	9670	6050
Manganese	µg/L	-	- [#4]	1290	19	20	1430	9
Molybdenum	µg/L	10,000	250	2.95	4 60	4.42	22.1	1.92
Nickel	µg/L	83	-	19.6	0.8	0.8	1.6	0 6
Potassium	µg/L	-	-	10,100	6960	7110	7130	6030
Selenium	µg/L	10	10	1 9	<0.5	<0.5	0.7	<0.5
Silver	µg/L	15 [#1]	-	<0 02	<0.02	<0.02	<0.02	<0 02
Sodium	µg/L	-	200,000	87,300	1860	1870	15,600	4290
Thallium	µg/L	3	-	0.02	<0.01	<0.01	0.01	<0 01
Titanium	µg/L	1000	-	4 3	1.1	1.0	1.8	1 0
Uranium	µg/L	1000	20	2.62	0 31	0 32	1.77	0.28
Vanadium	µg/L	-	-	1 0	2.1	2.3	1.3	1 5
Zinc	µg/L	100 [#1]	-	12	<2	<2	4	<2
Laboratory Work Order Number				16V070252	16V070252	16V070252	16V070252	16V070252
Laboratory Identification Number				7397648	7397646	7397647	7397645	7397640

NOTES

#1	Standard varies with hardness. Values shown based on site hardness range of 126 mg/L to 583 mg/L
#2	Standard is for Chromium VI.
#3	CSR Schedule 10 Substance.
#4	Stage 8 Amendment of the CSR applies.
-	Not analyzed or no CSR standard exists.
<	Concentration is less than the laboratory detection limit indicated.
CSR	BC Contaminated Sites Regulation (BC Reg. 375/96, includes amendments up to B.C. Reg. 4/2014 - January 31, 2014 - Schedules 6 and 10).
AW	Freshwater and marine Aquatic Life Standards, most stringent standard shown.
DW	Drinking Water Standards
Shading	Shading indicates an exceedence of the applicable CSR AW standards.
Bold	Bold indicates an exceedance of the applicable CSR DW standards.

Table 3c: Groundwater Analytical Results - Volatile Organic Compounds

Parameter	Unit	CSR - AW	CSR - DW	MW16-01	MW16-02	MW16-05 (Duplicate)	MW16-03	MW16-04
				19-Feb-2016	18-Feb-2016	18-Feb-2016	18-Feb-2016	18-Feb-2016
BTEXS & MTBE								
Benzene	µg/L	1000	5	<0.5	<0.5	<0.5	-	-
Toluene	µg/L	390	24	<0.5	<0.5	<0.5	-	-
Ethylbenzene	µg/L	2000	2.4	<0.5	<0.5	<0.5	-	-
Xylene (m)	µg/L	-	-	<0.5	<0.5	<0.5	-	-
Xylene (o)	µg/L	-	-	<0.5	<0.5	<0.5	-	-
Xylenes Total	µg/L	-	300	<1	<1	<1	-	-
Styrene	µg/L	720	-	<0.5	<0.5	<0.5	-	-
MTBE	µg/L	4400	15	<1	<1	<1	-	-
Volatile Organic Compounds (VOCs)								
1,1,1,2-tetrachloroethane	µg/L	-	26 [#1]	<1	<1	<1	-	-
1,1,1-trichloroethane	µg/L	-	10,000 [#1]	<1	<1	<1	-	-
1,1,2,2-tetrachloroethane	µg/L	-	3.4 [#1]	<1	<1	<1	-	-
1,1,2-trichloroethane	µg/L	-	12 [#1]	<1	<1	<1	-	-
1,1-dichloroethane	µg/L	-	3700 [#1]	<1	<1	<1	-	-
1,1-dichloroethene	µg/L	-	14	<1	<1	<1	-	-
1,2,4-trichlorobenzene	µg/L	54	-	<1	<1	<1	-	-
1,2-d bromoethane	µg/L	-	0.34 [#1]	<0.3	<0.3	<0.3	-	-
1,2-dichlorobenzene	µg/L	7	3	<0.5	<0.5	<0.5	-	-
1,2-dichloroethane	µg/L	1000	5	<1	<1	<1	-	-
1,2-dichloropropane	µg/L	-	9.9 [#1]	<1	<1	<1	-	-
1,3-dichlorobenzene	µg/L	1500	-	<0.5	<0.5	<0.5	-	-
1,4-dichlorobenzene	µg/L	260	1	<0.5	<0.5	<0.5	-	-
Methyl Ethyl Ketone	µg/L	-	22,000 [#1]	<10	<10	<10	-	-
4-Methyl-2-pentanone	µg/L	-	2900 [#1]	<10	<10	<10	-	-
Acetone	µg/L	-	33,000 [#1]	<10	<10	<10	-	-
Bromodichloromethane	µg/L	-	16	<1	<1	<1	-	-
Bromoform	µg/L	-	100	<1	<1	<1	-	-
Bromomethane	µg/L	-	51 [#1]	<1	<1	<1	-	-
Carbon tetrachloride	µg/L	130	5	<0.5	<0.5	<0.5	-	-
Chlorobenzene	µg/L	13	30	<1	<1	<1	-	-
Dibromochloromethane	µg/L	-	100	<1	<1	<1	-	-
Chloroethane	µg/L	-	46 [#1]	<1	<1	<1	-	-
Chloroform	µg/L	20	100	<1	<1	<1	-	-
Chloromethane	µg/L	-	950 [#1]	<1	<1	<1	-	-
cis-1,2-dichloroethene	µg/L	-	370 [#1]	<1	<1	<1	-	-
cis-1,3-dichloropropene	µg/L	-	6.7 [#1,2]	<1	<1	<1	-	-
Dichloromethane	µg/L	980	50	<1	<1	<1	-	-
Trichloroethene	µg/L	200	5	<1	<1	<1	-	-
Tetrachloroethene	µg/L	1100	30	<1	<1	<1	-	-
Trihalomethanes	µg/L	-	-	<2	<2	<2	-	-
trans-1,2-dichloroethene	µg/L	-	730 [#1]	<1	<1	<1	-	-
trans-1,3-dichloropropene	µg/L	-	6.7 [#1,2]	<1	<1	<1	-	-
Trichlorofluoromethane	µg/L	-	11,000 [#1]	<1	<1	<1	-	-
Vinyl chloride	µg/L	-	2	<1	<1	<1	-	-
Laboratory Work Order Number				16V070252	16V070252	16V070252	16V070252	16V070252
Laboratory Identification Number				7397648	7397646	7397647	7397645	7397640

NOTES:

#1	CSR Schedule 10 Substance.
#2	Standard is for 1,3-dichloropropene
-	Not analyzed or no CSR standard exists.
<	Concentration is less than the laboratory detection limit indicated.
CSR	BC Contaminated Sites Regulation (BC Reg. 375/96, includes amendments up to B.C. Reg. 4/2014 - January 31, 2014 - Schedules 6 and 10).
AW	Freshwater and Marine Aquatic Life Water Use, most stringent standard shown
DW	Drinking Water Use
Shading	Shading indicates an exceedence of the applicable CSR AW standards.
Bold	Bold indicates an exceedance of the applicable CSR DW standards.

Table 4: Soil Quality Assurance/Quality Control Analytical Results

Parameter	Unit	RDL	16BH02	00BH02	RPD (%)	16BH04	00BH04	RPD (%)
			1.2 m (4')	1.2 m (4')		1.2 m (4')	1.2 m (4')	
			12-Feb-2016			12-Feb-2016		
Hydrocarbons								
EPH_{10-19}	µg/g	20	-	-	-	<20	<20	-
EPH_{19-32}	µg/g	20	-	-	-	56	149	-
LEPH	µg/g	20	-	-	-	<20	<20	-
HEPH	µg/g	20	-	-	-	56	148	-
Polycyclic Aromatic Hydrocarbons (PAHs)								
1-Methylnaphthalene	µg/g	0.01	-	-	-	<0.01	0.01	-
2-methylnaphthalene	µg/g	0.01	-	-	-	<0.01	0.01	-
Acenaphthene	µg/g	0.01	-	-	-	<0.01	0.01	-
Acenaphthylene	µg/g	0.01	-	-	-	0.03	0.20	-
Anthracene	µg/g	0.02	-	-	-	<0.02	0.11	-
Benz(a)anthracene	µg/g	0.02	-	-	-	0.03	0.23	-
Benzo(a)pyrene	ug/g	0.05	-	-	-	<0.05	0.23	-
Benzo(b)fluoranthene	µg/g	0.02	-	-	-	0.03	0.22	-
Benzo(b+j)fluoranthene	µg/g	0.03	-	-	-	0.03	0.33	-
Benzo(g,h,i)perylene	µg/g	0.05	-	-	-	<0.05	0.29	-
Benzo(j)fluoranthene	µg/g	0.02	-	-	-	<0.02	0.11	-
Benzo(k)fluoranthene	µg/g	0.02	-	-	-	<0.02	0.10	-
Chrysene	µg/g	0.05	-	-	-	<0.05	0.25	-
Dibenz(a,h)anthracene	µg/g	0.02	-	-	-	<0.02	0.05	-
Fluoranthene	µg/g	0.05	-	-	-	0.06	0.47	-
Fluorene	µg/g	0.02	-	-	-	<0.02	0.03	-
Indeno(1,2,3-c,d)pyrene	µg/g	0.02	-	-	-	0.02	0.17	-
Naphthalene	µg/g	0.01	-	-	-	0.01	0.03	-
Phenanthrene	µg/g	0.02	-	-	-	0.04	0.14	-
Pyrene	µg/g	0.02	-	-	-	0.06	0.35	-
Physical Parameters								
pH	pH Units	0.1	-	-	-	9.6	9.6	0
Metals								
Antimony	µg/g	0.1	-	-	-	1.4	1.4	0
Arsenic	µg/g	0.1	-	-	-	4.9	5.1	4
Barium	µg/g	0.5	-	-	-	75.4	84.7	12
Beryllium	µg/g	0.1	-	-	-	0.2	0.2	-
Cadmium	µg/g	0.01	-	-	-	0.11	0.13	17
Chromium	µg/g	1	-	-	-	21	22	5
Cobalt	µg/g	0.1	-	-	-	6.7	7.3	9
Copper	µg/g	0.2	-	-	-	29.0	33.7	15
Lead	µg/g	0.1	-	-	-	17.6	16.6	6
Mercury	µg/g	0.01	-	-	-	0.02	0.03	-
Molybdenum	µg/g	0.2	-	-	-	1.1	1.0	10
Nickel	µg/g	0.5	-	-	-	13.2	17.2	26
Selenium	µg/g	0.1	-	-	-	0.1	<0.1	-
Silver	µg/g	0.5	-	-	-	<0.5	<0.5	-
Thallium	µg/g	0.1	-	-	-	<0.1	<0.1	-
Tin	µg/g	0.2	-	-	-	0.9	1.1	-
Uranium	µg/g	0.2	-	-	-	0.4	0.5	-
Vanadium	µg/g	1	-	-	-	49	51	4
Zinc	µg/g	1	-	-	-	54	69	24

Table 4: Soil Quality Assurance/Quality Control Analytical Results

Parameter	Unit	RDL	16BH02	00BH02	RPD (%)	16BH04	00BH04	RPD (%)
			1.2 m (4')	1.2 m (4')		1.2 m (4')	1.2 m (4')	
			12-Feb-2016			12-Feb-2016		
BTEXS & MTBE								
Benzene	µg/g	0.02	<0.02	<0.02	-	-	-	-
Toluene	µg/g	0.05	<0.05	<0.05	-	-	-	-
Ethylbenzene	µg/g	0.05	<0.05	<0.05	-	-	-	-
Xylene (m)	µg/g	0.05	<0.05	<0.05	-	-	-	-
Xylene (o)	µg/g	0.05	<0.05	<0.05	-	-	-	-
Xylenes Total	µg/g	0.2	<0.2	<0.2	-	-	-	-
Styrene	µg/g	0.05	<0.05	<0.05	-	-	-	-
MTBE	µg/g	0.1	<0.1	<0.1	-	-	-	-
Volatile Organic Compounds (VOCs)								
1,1,1,2-tetrachloroethane	µg/g	0.05	<0.05	<0.05	-	-	-	-
1,1,1-trichloroethane	µg/g	0.05	<0.05	<0.05	-	-	-	-
1,1,2,2-tetrachloroethane	µg/g	0.05	<0.05	<0.05	-	-	-	-
1,1,2-trichloroethane	µg/g	0.05	<0.05	<0.05	-	-	-	-
1,1-dichloroethane	µg/g	0.05	<0.05	<0.05	-	-	-	-
1,1-dichloroethene	µg/g	0.05	<0.05	<0.05	-	-	-	-
1,2,4-trichlorobenzene	µg/g	0.05	<0.05	<0.05	-	-	-	-
1,2-d bromoethane	µg/g	0.05	<0.05	<0.05	-	-	-	-
1,2-dichlorobenzene	µg/g	0.05	<0.05	<0.05	-	-	-	-
1,2-dichloroethane	µg/g	0.05	<0.05	<0.05	-	-	-	-
1,2-dichloropropane	µg/g	0.05	<0.05	<0.05	-	-	-	-
1,3-dichlorobenzene	µg/g	0.05	<0.05	<0.05	-	-	-	-
1,4-dichlorobenzene	µg/g	0.05	<0.05	<0.05	-	-	-	-
Methyl Ethyl Ketone	µg/g	0.5	<0.5	<0.5	-	-	-	-
4-Methyl-2-pentanone	µg/g	0.5	<0.5	<0.5	-	-	-	-
Acetone	µg/g	0.5	<0.5	<0.5	-	-	-	-
Bromodichloromethane	µg/g	0.05	<0.05	<0.05	-	-	-	-
Bromoform	µg/g	0.05	<0.05	<0.05	-	-	-	-
Bromomethane	µg/g	0.05	<0.05	<0.05	-	-	-	-
Carbon tetrachloride	µg/g	0.02	<0.02	<0.02	-	-	-	-
Chlorobenzene	µg/g	0.05	<0.05	<0.05	-	-	-	-
Dibromochloromethane	µg/g	0.05	<0.05	<0.05	-	-	-	-
Chloroethane	µg/g	0.05	<0.05	<0.05	-	-	-	-
Chloroform	µg/g	0.05	<0.05	<0.05	-	-	-	-
Chloromethane	µg/g	0.05	<0.05	<0.05	-	-	-	-
cis-1,2-dichloroethene	µg/g	0.05	<0.05	<0.05	-	-	-	-
cis-1,3-dichloropropene	µg/g	0.05	<0.05	<0.05	-	-	-	-
Dichloromethane	µg/g	0.05	<0.05	<0.05	-	-	-	-
Trichloroethene	µg/g	0.01	<0.01	<0.01	-	-	-	-
Tetrachloroethene	µg/g	0.05	<0.05	<0.05	-	-	-	-
trans-1,2-dichloroethene	µg/g	0.05	<0.05	<0.05	-	-	-	-
trans-1,3-dichloropropene	µg/g	0.05	<0.05	<0.05	-	-	-	-
Trichlorofluoromethane	µg/g	0.05	<0.05	<0.05	-	-	-	-
Vinyl chloride	µg/g	0.05	<0.05	<0.05	-	-	-	-
Laboratory Work Order Number			16V068853	16V068853		16V068853	16V068853	
Laboratory Identification Number			7389749	7389750		7389757	7389756	

NOTES:

- Not analyzed or RPD not calculated.
< Concentration is less than the laboratory detection limit indicated.
RDL Laboratory Reportable Detection Limit
RPD RPD is Relative Percentage Difference calculated as RPD=[C2-C1]/[(C1+C2)/2] where C1,C2 = concentrations of parameters in 1st and 2nd sample respecti
RPDs have only been considered where a concentration is greater than 5 times the RDL

BOLD High RPDs are in bold (acceptable RPD is 45% for metals in soil [60% for high variability metals] 75% for PAHs in soil, and 60% for EPH and other organics in soil as recommended by BC Ministry of Environment Q&A, and BC Environmental Laboratory Manual).
High variability metals include: Ag, Al, Ba, Hg, K, Mo, Na, Pb, Sn, Sr, and Ti

Table 5: Groundwater Quality Assurance/Quality Control Analytical Results

Parameter	Unit	RDL	MW16-02	MW16-05	RPD (%)
			18-Feb-2016		
Hydrocarbons					
EPH_{10-19}	µg/L	100	<100	<100	-
EPH_{19-32}	µg/L	100	<100	<100	-
LEPH	µg/L	100	<100	<100	-
HEPH	µg/L	100	<100	<100	-
Polycyclic Aromatic Hydrocarbons (PAHs)					
Acenaphthene	µg/L	0.05	<0.05	<0.05	-
Acenaphthylene	µg/L	0.05	<0.05	<0.05	-
Acridine	µg/L	0.05	<0.05	<0.05	-
Anthracene	µg/L	0.05	<0.05	<0.05	-
Benz(a)anthracene	µg/L	0.05	<0.05	<0.05	-
Benzo(a)pyrene	µg/L	0.01	0.01	0.02	-
Benzo(b)fluoranthene	µg/L	0.05	<0.05	<0.05	-
Benzo(b+j)fluoranthene	µg/L	0.1	<0.1	<0.1	-
Benzo(g,h,i)perylene	µg/L	0.05	<0.05	<0.05	-
Benzo(j)fluoranthene	ug/L	0.05	<0.05	<0.05	-
Benzo(k)fluoranthene	µg/L	0.05	<0.05	<0.05	-
Chrysene	µg/L	0.05	<0.05	<0.05	-
Dibenz(a,h)anthracene	µg/L	0.05	<0.05	<0.05	-
Fluoranthene	µg/L	0.05	<0.05	<0.05	-
Fluorene	µg/L	0.05	<0.05	<0.05	-
Indeno(1,2,3-c,d)pyrene	µg/L	0.05	<0.05	<0.05	-
Naphthalene	µg/L	0.05	<0.05	<0.05	-
Phenanthrene	µg/L	0.05	<0.05	<0.05	-
Pyrene	µg/L	0.02	<0.02	0.03	-
Quinoline	µg/L	0.1	<0.1	<0.1	-
Physical Parameters					
pH	pH Units	0.01	7.69	7.68	0.1
Hardness as $CaCO_3$	µg/L	100	126,000	128,000	1.6
Dissolved Metals					
Aluminum	µg/L	2	11	10	9.5
Antimony	µg/L	0.2	4.7	4.8	2.1
Arsenic	µg/L	0.1	0.5	0.5	0.0
Barium	µg/L	0.2	28.2	29.0	2.8
Beryllium	µg/L	0.01	<0.01	<0.01	-
Boron	µg/L	2	21	21	0.0
Cadmium	µg/L	0.01	0.01	<0.01	-
Calcium	µg/L	50	43,300	44,000	1.6
Chromium	µg/L	0.5	<0.5	<0.5	-
Cobalt	µg/L	0.05	0.20	0.19	-
Copper	µg/L	0.2	8.0	8.6	7.2
Iron	µg/L	10	13	12	-
Lead	µg/L	0.05	<0.05	<0.05	-
Lithium	µg/L	0.5	<0.5	<0.5	-
Magnesium	µg/L	50	4440	4490	1.1
Manganese	µg/L	1	19	20	5.1
Molybdenum	µg/L	0.05	4.60	4.42	4.0
Nickel	µg/L	0.2	0.8	0.8	-
Potassium	µg/L	50	6960	7110	2.1
Selenium	µg/L	0.5	<0.5	<0.5	-
Silver	µg/L	0.02	<0.02	<0.02	-
Sodium	µg/L	50	1860	1870	0.5
Thallium	µg/L	0.01	<0.01	<0.01	-
Titanium	µg/L	0.5	1.1	1.0	-
Uranium	µg/L	0.01	0.31	0.32	3.2
Vanadium	µg/L	0.5	2.1	2.3	-
Zinc	µg/L	2	<2	<2	-
BTEXS & MTBE					
Benzene	µg/L	0.5	<0.5	<0.5	-
Toluene	µg/L	0.5	<0.5	<0.5	-
Ethylbenzene	µg/L	0.5	<0.5	<0.5	-
Xylene (m)	µg/L	0.5	<0.5	<0.5	-
Xylene (o)	µg/L	0.5	<0.5	<0.5	-
Xylenes Total	µg/L	1	<1	<1	-
Styrene	µg/L	0.5	<0.5	<0.5	-
MTBE	µg/L	1	<1	<1	-

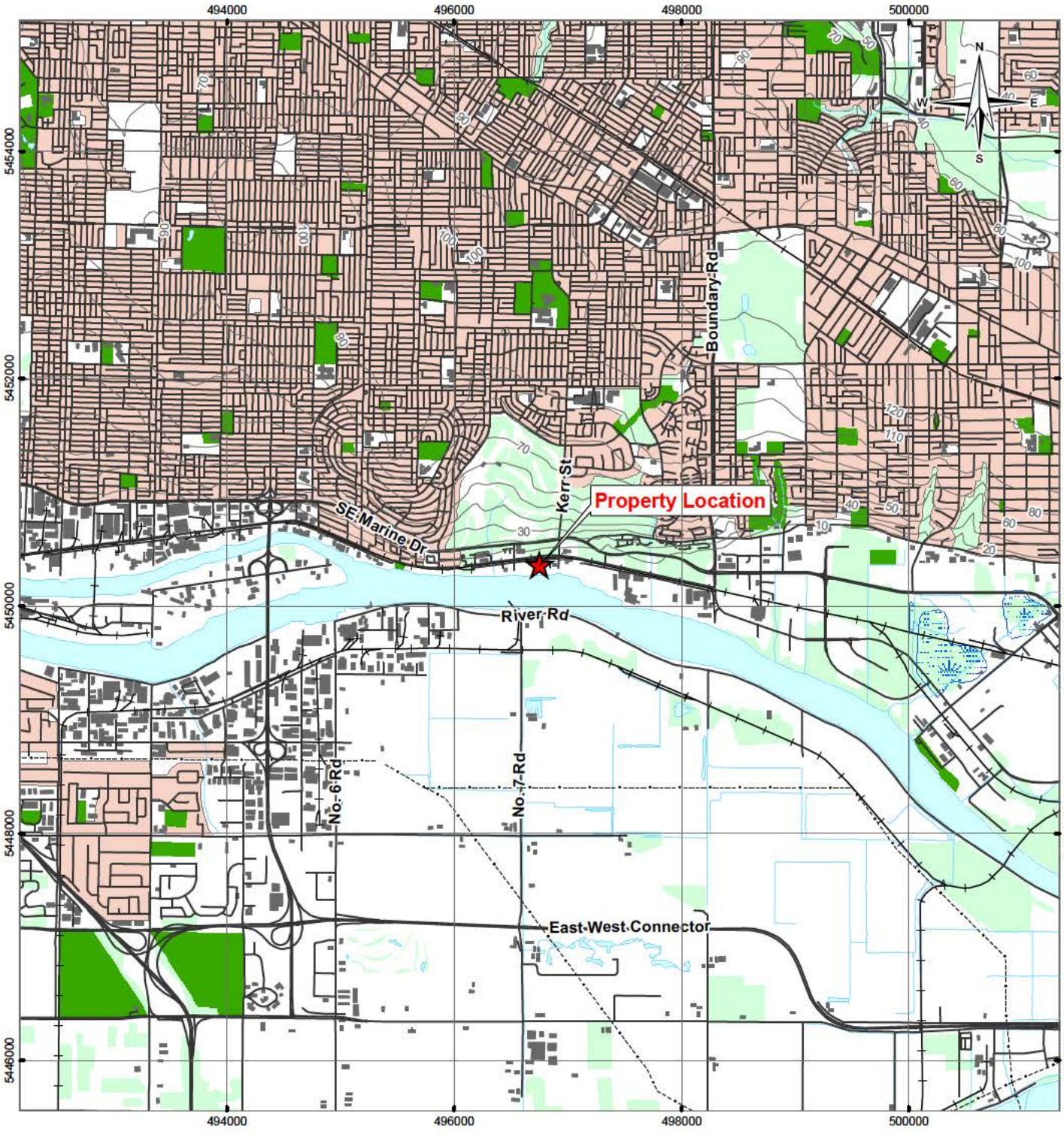
Table 5: Groundwater Quality Assurance/Quality Control Analytical Results

Parameter	Unit	RDL	MW16-02	MW16-05	RPD (%)
			18-Feb-2016		
Volatile Organic Compounds (VOCs)					
1,1,1,2-tetrachloroethane	µg/L	1	<1	<1	-
1,1,1-trichloroethane	µg/L	1	<1	<1	-
1,1,2,2-tetrachloroethane	µg/L	1	<1	<1	-
1,1,2-trichloroethane	µg/L	1	<1	<1	-
1,1-dichloroethane	µg/L	1	<1	<1	-
1,1-dichloroethene	µg/L	1	<1	<1	-
1,2,4-trichlorobenzene	µg/L	1	<1	<1	-
1,2-dibromoethane	µg/L	0.3	<0.3	<0.3	-
1,2-dichlorobenzene	µg/L	0.5	<0.5	<0.5	-
1,2-dichloroethane	µg/L	1	<1	<1	-
1,2-dichloropropane	µg/L	1	<1	<1	-
1,3-dichlorobenzene	µg/L	0.5	<0.5	<0.5	-
1,4-dichlorobenzene	µg/L	0.5	<0.5	<0.5	-
Methyl Ethyl Ketone	µg/L	10	<10	<10	-
4-Methyl-2-pentanone	µg/L	10	<10	<10	-
Acetone	µg/L	10	<10	<10	-
Bromodichloromethane	µg/L	1	<1	<1	-
Bromoform	µg/L	1	<1	<1	-
Bromomethane	µg/L	1	<1	<1	-
Carbon tetrachloride	µg/L	0.5	<0.5	<0.5	-
Chlorobenzene	µg/L	1	<1	<1	-
Dibromochloromethane	µg/L	1	<1	<1	-
Chloroethane	µg/L	1	<1	<1	-
Chloroform	µg/L	1	<1	<1	-
Chloromethane	µg/L	1	<1	<1	-
cis-1,2-dichloroethene	µg/L	1	<1	<1	-
cis-1,3-dichloropropene	µg/L	1	<1	<1	-
Dichloromethane	µg/L	1	<1	<1	-
Trichloroethene	µg/L	1	<1	<1	-
Tetrachloroethene	µg/L	1	<1	<1	-
Trihalomethanes	µg/L	2	<2	<2	-
trans-1,2-dichloroethene	µg/L	1	<1	<1	-
trans-1,3-dichloropropene	µg/L	1	<1	<1	-
Trichlorofluoromethane	µg/L	1	<1	<1	-
Vinyl chloride	µg/L	1	<1	<1	-
Laboratory Work Order Number			16V070252	16V070252	
Laboratory Identification Number			7397646	7397647	

NOTES:

-	Not analyzed or RPD not calculated.
<	Concentration is less than the laboratory detection limit indicated.
RDL	Laboratory Reportable Detection Limit
RPD	RPD is Relative Percentage Difference calculated as RPD=[C2-C1]/[(C1+C2)/2] where C1,C2 = concentrations of parameters in 1st and 2nd sample respectively.
	RPDs have only been considered where a concentration is greater than 5 times the RDL
BOLD	High RPDs are in bold (groundwater metals were compared against a 30% screening threshold and groundwater VOCs and other organics were compared to a 45% screening threshold. as recommended by BC Ministry of Environment Q&A, and BC Environmental Laboratory Manual).

FIGURES



LEGEND

- Property Location
- Road
- Railway
- Transmission Line
- Building
- Park
- Builtup Area
- Contour (10 m)
- Watercourse
- Waterbody
- Wetland
- Vegetation

NOTES
Base data source:
CanVec 1:50,000 (Sheets 92G02/03)

STATUS
ISSUED FOR USE

PHASE 2 ESA
3010 EAST KENT AVENUE SOUTH
VANCOUVER, BC

Property Location Plan

PROJECTION	DATUM	CLIENT
UTM Zone 10	NAD83	City of Vancouver

Scale: 1:50,000
1 0.5 0 1
Kilometres

TETRA TECH EBA

FILE NO.
VENV03059-01_Figure01_SiteLocation.mxd

PROJECT NO.	DWN	CKD	APVD	REV
ENV.VENV03059-01	MEZ	SL	DT	0

OFFICE	DATE
EBA-VANC	March 3, 2016

Figure 1

Q:\Vancouver\GIS\ENVIRONMENTAL\VENV\VENV03059-01\Maps\Phase2\VENV03059-01_Figure01_SiteLocation.mxd modified 3/3/2016 by morgan.zondervan

East Kent Ave North

East Kent Ave South

Kerr St

APEC 1

APEC 2

APEC 3

APEC 4

APEC 5

10 m Trench Excavated at TP16-05

TP16-06

TP16-05

TP16-07

BH/MW16-04

TP16-13

BH/MW16-02

BH/MW16-03

BH/MW16-01

N

W

E

S

496620 496640 496660 496680 496700 496720 496740 496760 496780 496800 496820 496840 496860 496880 496900 496920

5450420 5450400 5450380 5450360 5450340 5450320 5450300

LEGEND

- Subject Property
- Borehole/Monitoring Well
- Testpit
- Trench
- Approximate Extent of Asphalt
- Approximate Extent of Concrete
- ? Unknown Subsurface Stratigraphy

Area of Potential Environmental Concern (APEC)

- APEC 1 - Historical paint factory
- APEC 2 - Filled channel
- APEC 3 - Potential filled historical stream
- APEC 4 - Historical trucking yard and sawmill
- APEC 5 - Historical sawmill and Ocean Concrete plant

NOTES
1. Base data source: Imagery from Google; DigitalGlobe (2014). Property boundary from City of Vancouver Open Data (2015).
2. Sampling locations surveyed using aribtrary datum and metre wheel.

STATUS
ISSUED FOR USE

PHASE 2 ESA
3010 EAST KENT AVENUE SOUTH VANCOUVER, BC

Sampling Locations and Areas of Potential Environmental Concern

PROJECTION	DATUM	CLIENT
UTM Zone 10	NAD83	City of Vancouver

Scale: 1:800
10 5 0 10
Metres

TETRA TECH EBA

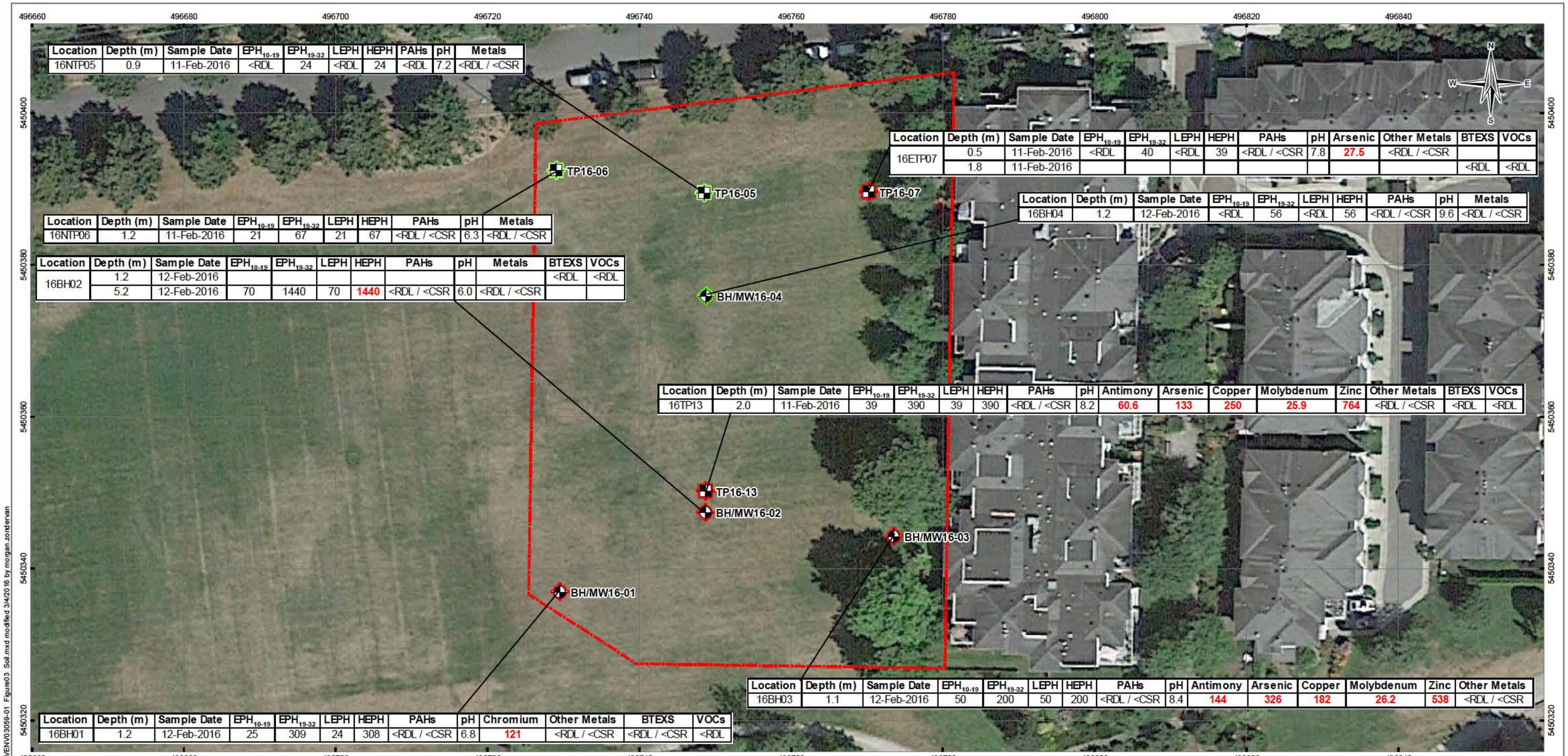
FILE NO.: VENV03059-01_Figure02_Sampling.mxd

PROJECT NO.	DWN	CKD	APVD	REV
ENV.VENV03059-01	MEZ	SL	DT	0

OFFICE	DATE
Tt EBA-VANC	March 4, 2016

Figure 2

Q:\Vancouver\GIS\ENVIRONMENTAL\VENV\VENV03059-01\Maps\Phase2\VENV03059-01_Figure02_Sampling.mxd modified 3/4/2016 by morgan.zondervan



Location	Depth (m)	Sample Date	EPH$_{10-19}$	EPH$_{19-32}$	LEPH	HEPH	PAHs	pH	Metals
16NTP05	0.9	11-Feb-2016	<RDL	24	<RDL	24	<RDL	7.2	<RDL / <CSR

Location	Depth (m)	Sample Date	EPH$_{10-19}$	EPH$_{19-32}$	LEPH	HEPH	PAHs	pH	Arsenic	Other Metals	BTEXS	VOCs
16ETP07	0.5	11-Feb-2016	<RDL	40	<RDL	39	<RDL / <CSR	7.8	27.5	<RDL / <CSR		
	1.8	11-Feb-2016									<RDL	<RDL

Location	Depth (m)	Sample Date	EPH$_{10-19}$	EPH$_{19-32}$	LEPH	HEPH	PAHs	pH	Metals
16NTP06	1.2	11-Feb-2016	21	67	21	67	<RDL / <CSR	6.3	<RDL / <CSR

Location	Depth (m)	Sample Date	EPH$_{10-19}$	EPH$_{19-32}$	LEPH	HEPH	PAHs	pH	Metals	BTEXS	VOCs
16BH02	1.2	12-Feb-2016								<RDL	<RDL
	5.2	12-Feb-2016	70	1440	70	1440	<RDL / <CSR	6.0	<RDL / <CSR		

Location	Depth (m)	Sample Date	EPH$_{10-19}$	EPH$_{19-32}$	LEPH	HEPH	PAHs	pH	Metals
16BH04	1.2	12-Feb-2016	<RDL	56	<RDL	56	<RDL / <CSR	9.6	<RDL / <CSR

Location	Depth (m)	Sample Date	EPH$_{10-19}$	EPH$_{19-32}$	LEPH	HEPH	PAHs	pH	Antimony	Arsenic	Copper	Molybdenum	Zinc	Other Metals	BTEXS	VOCs
16TP13	2.0	11-Feb-2016	39	390	39	390	<RDL / <CSR	8.2	60.6	133	250	25.9	764	<RDL / <CSR	<RDL	<RDL

Location	Depth (m)	Sample Date	EPH$_{10-19}$	EPH$_{19-32}$	LEPH	HEPH	PAHs	pH	Antimony	Arsenic	Copper	Molybdenum	Zinc	Other Metals
16BH03	1.1	12-Feb-2016	50	200	50	200	<RDL / <CSR	8.4	144	326	182	26.2	538	<RDL / <CSR

Location	Depth (m)	Sample Date	EPH$_{10-19}$	EPH$_{19-32}$	LEPH	HEPH	PAHs	pH	Chromium	Other Metals	BTEXS	VOCs
16BH01	1.2	12-Feb-2016	25	309	24	308	<RDL / <CSR	6.8	121	<RDL / <CSR	<RDL / <CSR	<RDL

LEGEND

- Subject Property
- Testpit
- Borehole/Monitoring Well

Green — Concentrations of analyzed parameters in groundwater met the applicable BC CSR standards.

Red — Concentrations of analyzed parameters in groundwater exceeded the applicable BC CSR standards.

Notes:

- All results are in µg/L unless otherwise noted
- <RDL - Less than reportable detection limit
- <CSR - Less than applicable CSR standard
- **Red text** - Indicates exceedance of applicable CSR stanard

NOTES
1. Base data source: Imagery from Google; DigitalGlobe (2014). Property boundary from City of Vancouver Open Data (2015).
2. Sampling locations surveyed using an aribitrary datum and metre wheel.

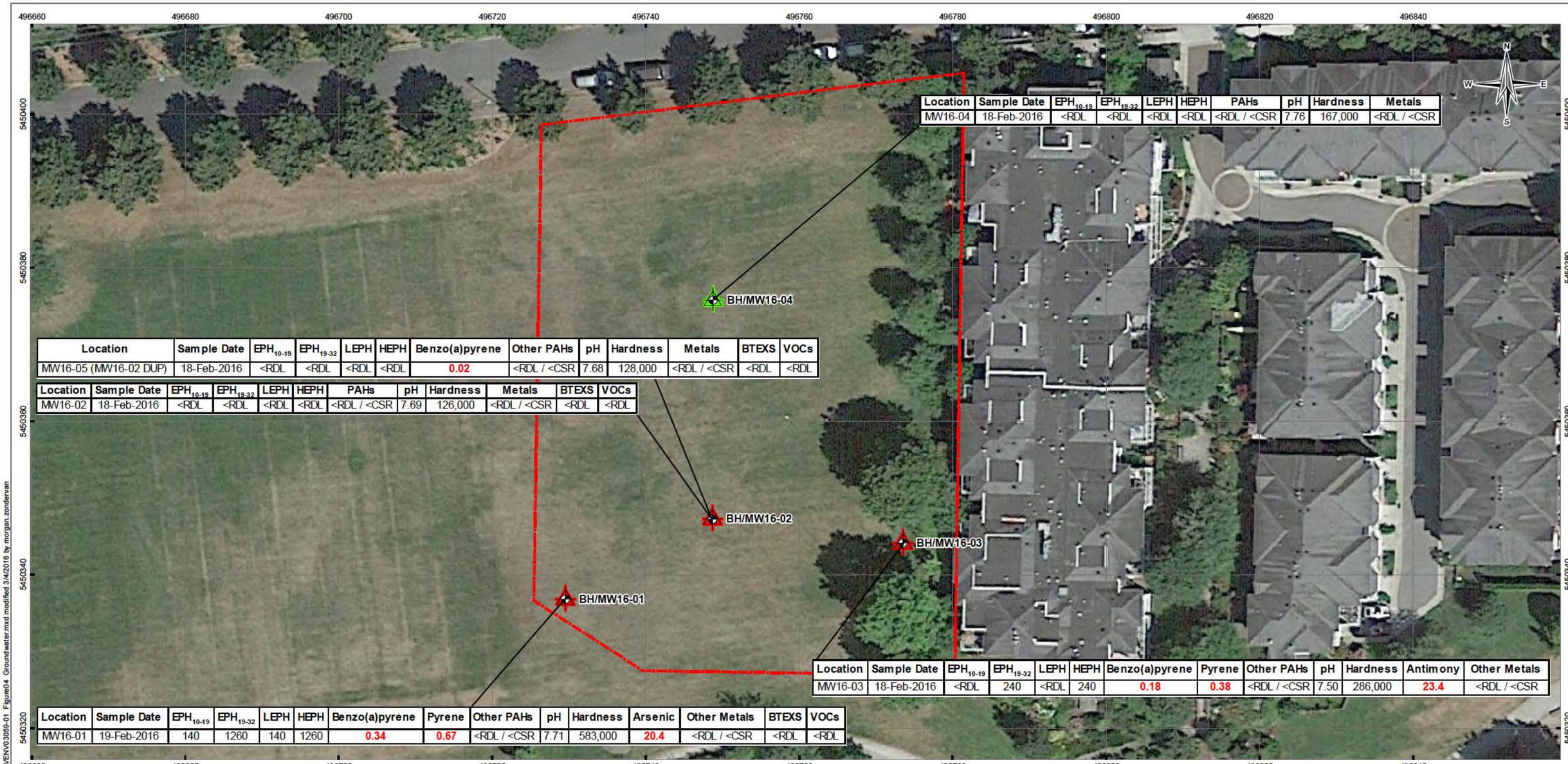
STATUS
ISSUED FOR USE

PHASE 2 ESA
3010 EAST KENT AVENUE SOUTH
VANCOUVER, BC

Soil Analytical Results

PROJECTION: UTM Zone 10	DATUM: NAD83	CLIENT: City of Vancouver
Scale: 1:500 (10 5 0 10 Metres)		TETRA TECH EBA
FILE NO.: VENV03059-01_Figure03_Soil.mxd		
PROJECT NO.: ENV.VENV03059-01	DWN: MEZ; CKD: SL; APVD: DT; REV: 0	Figure 3
OFFICE: Tt EBA-VANC	DATE: March 4, 2016	

Q:\Vancouver\GIS\ENVIRONMENTAL\VENV\VENV03059-01\Maps\Phase2\VENV03059-01_Figure03_Soil.mxd modified 3/4/2016 by morgan.zondervan



Location	Sample Date	EPH$_{10-19}$	EPH$_{19-32}$	LEPH	HEPH	PAHs	pH	Hardness	Metals	BTEXS	VOCs
MW16-04	18-Feb-2016	<RDL	<RDL	<RDL	<RDL	<RDL / <CSR	7.76	167,000	<RDL / <CSR		

Location	Sample Date	EPH$_{10-19}$	EPH$_{19-32}$	LEPH	HEPH	Benzo(a)pyrene	Other PAHs	pH	Hardness	Metals	BTEXS	VOCs
MW16-05 (MW16-02 DUP)	18-Feb-2016	<RDL	<RDL	<RDL	<RDL	0.02	<RDL / <CSR	7.68	128,000	<RDL / <CSR	<RDL	<RDL

Location	Sample Date	EPH$_{10-19}$	EPH$_{19-32}$	LEPH	HEPH	PAHs	pH	Hardness	Metals	BTEXS	VOCs
MW16-02	18-Feb-2016	<RDL	<RDL	<RDL	<RDL	<RDL / <CSR	7.69	126,000	<RDL / <CSR	<RDL	<RDL

Location	Sample Date	EPH$_{10-19}$	EPH$_{19-32}$	LEPH	HEPH	Benzo(a)pyrene	Pyrene	Other PAHs	pH	Hardness	Arsenic	Other Metals	BTEXS	VOCs
MW16-01	19-Feb-2016	140	1260	140	1260	0.34	0.67	<RDL / <CSR	7.71	583,000	20.4	<RDL / <CSR	<RDL	<RDL

Location	Sample Date	EPH$_{10-19}$	EPH$_{19-32}$	LEPH	HEPH	Benzo(a)pyrene	Pyrene	Other PAHs	pH	Hardness	Antimony	Other Metals
MW16-03	18-Feb-2016	<RDL	240	<RDL	240	0.18	0.38	<RDL / <CSR	7.50	286,000	23.4	<RDL / <CSR

LEGEND

- Subject Property
- Borehole/Monitoring Well
- Green: Concentrations of analyzed parameters in groundwater met the applicable BC CSR standards.
- Red: Concentrations of analyzed parameters in groundwater exceeded the applicable BC CSR standards.

Notes:

- All results are in µg/L unless otherwise noted
- <RDL - Less than reportable detection limit
- <CSR - Less than applicable CSR standard
- **Red text** - Indicates exceedance of applicable CSR stanard

NOTES
1. Base data source: Imagery from Google; DigitalGlobe (2014). Property boundary from City of Vancouver Open Data (2015).
2. Sampling locations surveyed using an arbitrary datum and metre wheel.

STATUS
ISSUED FOR USE

PHASE 2 ESA
3010 EAST KENT AVENUE SOUTH
VANCOUVER, BC

Groundwater Analytical Results

PROJECTION: UTM Zone 10	DATUM: NAD83	CLIENT: City of Vancouver
Scale: 1:500 (10 5 0 10 Metres)		TETRA TECH EBA
FILE NO.: VENV03059-01_Figure04_Groundwater.mxd		
PROJECT NO.: ENV.VENV03059-01	DWN: MEZ; CKD: SL; APVD: DT; REV: 0	Figure 4
OFFICE: Tt EBA-VANC	DATE: March 4, 2016	

Q:\Vancouver\GIS\ENVIRONMENTAL\VENV\VENV03059-01\Maps\Phase2\VENV03059-01_Figure04_Groundwater.mxd modified 3/4/2016 by morgan.zondervan

LEGEND

- Subject Property
- Borehole/Monitoring Well
- Groundwater Contour (0.1 m)
- (xx.xx) Groundwater Elevation on February 18, 2016

NOTES
1. Base data source: Imagery from Google; DigitalGlobe (2014). Property boundary from City of Vancouver Open Data (2015).
2. Sampling locations surveyed using an arbitrary datum and metre wheel.
3. Groundwater elevations are relative to an arbitrary datum of 100 m.

STATUS
ISSUED FOR USE

PHASE 2 ESA
3010 EAST KENT AVENUE SOUTH VANCOUVER, BC

Groundwater Elevation Contours - February 18, 2016

PROJECTION	DATUM	CLIENT
UTM Zone 10	NAD83	City of Vancouver

Scale: 1:500
10 5 0 10
Metres

TETRA TECH EBA

FILE NO.
VENV03059-01_Figure05_GWContours.mxd

PROJECT NO.	DWN	CKD	APVD	REV
ENV.VENV03059-01	MEZ	SL	DT	0

OFFICE	DATE
Tt EBA-VANC	March 4, 2016

Figure 5

Q:\Vancouver\GIS\ENV\IRONMENTAL\VENV\VENV03059-01\Maps\Phase2\VENV03059-01_Figure05_GWContours.mxd modified 3/4/2016 by morgan.zondervan

APPENDIX A
TETRA TECH EBA'S GENERAL CONDITIONS

GENERAL CONDITIONS

GEOENVIRONMENTAL REPORT

This report incorporates and is subject to these "General Conditions".

1.0 USE OF REPORT AND OWNERSHIP

This report pertains to a specific site, a specific development, and a specific scope of work. It is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site or proposed development would necessitate a supplementary investigation and assessment.

This report and the assessments and recommendations contained in it are intended for the sole use of Tetra Tech EBA's client. Tetra Tech EBA does not accept any responsbility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than Tetra Tech EBA's Client unless otherwise authorized in writing by Tetra Tech EBA. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of Tetra Tech EBA. Additional copies of the report, if required, may be obtained upon request.

2.0 ALTERNATE REPORT FORMAT

Where Tetra Tech EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed Tetra Tech EBA's instruments of professional service), only the signed and/or sealed versions shall be considered final and legally binding. The original signed and/or sealed version archived by Tetra Tech EBA shall be deemed to be the original for the Project.

Both electronic file and hard copy versions of Tetra Tech EBA's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except Tetra Tech EBA. The Client warrants that Tetra Tech EBA's instruments of professional service will be used only and exactly as submitted by Tetra Tech EBA.

Electronic files submitted by Tetra Tech EBA have been prepared and submitted using specific software and hardware systems. Tetra Tech EBA makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

3.0 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by Tetra Tech EBA in its reasonably exercised discretion.

4.0 INFORMATION PROVIDED TO TETRA TECH EBA BY OTHERS

During the performance of the work and the preparation of the report, Tetra Tech EBA may rely on information provided by persons other than the Client. While Tetra Tech EBA endeavours to verify the accuracy of such information when instructed to do so by the Client, Tetra Tech EBA accepts no responsbility for the accuracy or the reliability of such information which may affect the report.

APPENDIX B
BOREHOLE LOGS

Testpit No: **16TP05**

CITY OF VANCOUVER

Project Phase Environmental Site Assessment	Project No ENV VENV03059-01
Location 3010 East Kent Avenue South	
Vancouver British Columbia	

Depth (m)	Method	Soil Description	Sample Type	Sample Number	Vapour readings (ppmv) 1 2 3 4	Notes and Comments	Depth (ft)
0							0
	Excavation	SAND (F LL) some gravel trace silt trace organics (roots) trace cobbles no visible structure poorly graded sand and gravel moist dark brown medium angular sand medium to coarse subangular to subrounded gravel cobbles to 150 mm diameter natural organic odour throughout		509		Sample 5 0.9 analyzed for LEPH/HEPH, PAH and metals	
1				512			1 2 3 4
		END OF TESTPIT (1.20 metres) Note Stopped due to refusal on concrete Excavated a trench 10 m south of starting point Continued to hit refusal on concrete 1.2 metres below ground					
2							5 6 7 8 9
3							

TETRA TECH EBA

Contractor Backhoes Unlimited	Completion Depth 1.2 m
Drilling Rig Type Backhoe	Start Date 2016 February 11
Logged By DT	Completion Date 2016 February 11
Reviewed By CF	Page 1 of 1

Testpit No: **16TP06**

CITY OF VANCOUVER

Project Phase Environmental Site Assessment	Project No ENV VENV03059-01
Location 3010 East Kent Avenue South	
Vancouver British Columbia	

Depth (m)	Method	Soil Description	Sample Type	Sample Number	Vapour readings (ppmv) 1 2 3 4	Notes and Comments	Depth (ft)
0							0
1	Excavation	SAND (F LL) gravelly race silt race organics race boulder no visible structure poorly graded sand and gravel moist brown no visible foreign material medium to coarse sand and gravel boulders to 600 mm diameter no discernible odour		610			1 2 3
		SAND AND GRAVEL (F LL) poorly graded moist brown no visible foreign material no visible structure medium to coarse sand fine to coarse gravel no discernible odour		612		Sample 6 1.2 analyzed for LEPH/HEPH, PAH and metals	4
2		END OF TESTPIT (1.50 metres) Note Stopped due to refusal on concrete					5 6 7 8 9
3							

TETRA TECH EBA

Contractor Backhoes Unlimited	Completion Depth 1.5 m
Drilling Rig Type Backhoe	Start Date 2016 February 11
Logged By DT	Completion Date 2016 February 11
Reviewed By CF	Page 1 of 1

Testpit No: **16TP07**

CITY OF VANCOUVER

Project Phase Environmental Site Assessment	Project No ENV VENV03059-01
Location 3010 East Kent Avenue South	
Vancouver British Columbia	

Depth (m)	Method	Soil Description	Sample Type	Sample Number	Vapour readings (ppmv) 1 2 3 4	Notes and Comments	Depth (ft)
0							0
	Excavation	SAND (F LL) silty trace gravel trace organic woody material (roots) trace cobble no visible structure brown medium to coarse poorly graded gravel medium subangular to subrounded sand natural organic odour throughout		7 0 5		Sample 7 0.5 analyzed for LEPH/HEPH, PAH and metals	1
1		from 0 95 to 1 40 m some gravel cobbles to 400 mm diameter					2
							3
		SILT (F LL) sandy trace organics trace cobble moist brown no visible foreign material fine subrounded grey sand subangular cobbles no discernible odour		7 1 4			4
							5
		GRAVEL (F LL) sandy race silt trace cobble no visible structure well graded gravel wet grey no visible foreign material fine to coarse angular to subangular gravel subangular sand cobbles to 100 mm diameter no discernible odour		7 1 8		Sample 7 1.8 analyzed for VOC	6
2		END OF TESTP T (2 00 me res)					7
							8
							9
3							

TETRA TECH EBA

Contractor Backhoes Unlimited	Completion Depth 2 m
Drilling Rig Type Backhoe	Start Date 2016 February 11
Logged By DT	Completion Date 2016 February 11
Reviewed By CF	Page 1 of 1

Testpit No: **16TP13**

Project Phase Environmental Site Assessment	Project No ENV VENV03059-01
Location 3010 East Kent Avenue South	
Vancouver British Columbia	

Depth (m)	Method	Soil Description	Sample Type	Sample Number	Vapour readings (ppmv) 1 2 3 4	Notes and Comments	Depth (ft)
0							0
	Excavation	SAND AND GRAVEL (F LL) no visible structure well graded gravel moist light grey no visible foreign material coarse to medium sand ine to coarse subangular to rounded gravel to 80 mm diameter no discernible odour					
1							1
							2
							3
							4
							5
		ASPHALT					6
2		SAND (F LL) gravelly race silt race organics no visible structure well graded sand and gravel brown some dark s aining no visible foreign material fien to coarse sand ine to coarse subangular to rounded gravel hydrocarbon odour noted from 2 00 to 2 40 metres		13 2 ■		Samp e 13 2 ana yzed for LEPH/HEPH, PAH, VOCs and meta s	7
							8
		END OF TESTP T (2 60 me res)					9
3							

Contractor Backhoes Unlimited	Completion Depth 2 6 m
Drilling Rig Type Backhoe	Start Date 2016 February 11
Logged By DT	Completion Date 2016 February 11
Reviewed By CF	Page 1 of 1

Borehole No: **BH/MW16-01**

CITY OF VANCOUVER

Project Phase Environmental Site Assessment	Project No ENV VENV03059-01
Location 3010 East Kent Avenue South	
Vancouver British Columbia	

Depth (m)	Method	Soil Description	Sample Type	Sample Number	Vapour readings (ppmv) 1 2 3 4	Notes and Comments	Depth (ft)
0							0
	Solid stem auger	SAND (FILL) gravelly no visible structure poorly graded sand moist grey no visible foreign material medium sand well graded coarse subangular to rounded gravel		1 1		Pipe stickup = 0.79 metres above ground surface	
1		hydrocarbon odour noted at 0 60 metres		1 4		Sample 1 4 analyzed for LEPH/HEPH, PAH, VOC and metals	
		from 1 50 to 1 80 m trace silt trace woody debris homogeneous wet black to blue creosote from wood		1 5			
2		SILT (FLUVIAL) some sand poorly graded homogeneous moist to wet grey blue no visible foreign material no discernible odour					
		9 30 on Feb18/16					9 30 on Feb18/16
3				1 12			
4		END OF BOREHOLE (3 96 metres) slough from 3 05 to 3 96 metres below ground surface water 2 07 metres below ground surface at 9 30 on February 18 2016 Monitoring well installed from 1 22 to 3 05 metres below ground surface					
5							
6							
7							
8							
9							
10							

TETRA TECH EBA

Contractor Omega Drilling	Completion Depth 3 96 m
Drilling Rig Type M5T MARL TECH Track Rig	Start Date 2016 February 12
Logged By DT	Completion Date 2016 February 12
Reviewed By CF	Page 1 of 1

Borehole No: **BH/MW16-02**

CITY OF VANCOUVER

Project Phase Environmental Site Assessment	Project No ENV VENV03059-01
Location 3010 East Kent Avenue South	
Vancouver British Columbia	

Depth (m)	Method	Soil Description	Sample Type	Sample Number	Vapour readings (ppmv) 1 2 3 4	Notes and Comments	Depth (ft)
0							0
	Solid stem auger	SAND AND GRAVEL (FILL) well graded sand and gravel moist light grey no visible foreign material fine to coarse subangular to rounded gravel to 80 mm diameter medium to coarse sand creosote odour to 1.50 metres		21		Pipe stickup = 0.78 metres above ground surface	
1				24		Sample 2.4 analyzed for VOC	
2		from 1.50 to 4.00 m trace silt trace organics organic odour no discernible creosote odour throughout		28		Driller reports refusal 1.5 metres below ground surface, moved 1.5 m south.	
3							
4				213			
		UNNATURAL WOODY MATERIAL AND SAWDUST (FILL) brown creosote odour throughout					
5				217		Sample 2.17 analyzed for LEPH/HEPH, PAH and metals	
6		at 5.8 m strong creosote odour					
		SILT (FLUVIAL) trace sand homogeneous wet blue grey no visible foreign material fine sand no discernible odour					
		at 6.55 m 75 mm thick sand lens homogeneous poorly graded wet blue grey fine sand no discernible odour					
7		at 7.01 m 75 mm thick sand lens homogeneous poorly graded wet blue grey fine sand no discernible odour		223			
		at 7.31 m 75 mm thick sand lens homogeneous poorly graded wet blue grey fine sand no discernible odour					
		END OF BOREHOLE (7.62 metres)					
8		slough from 2.90 to 7.62 metres below ground surface					
		water 1.79 metres below ground surface at 13:40 on February 18 2016					
		Monitoring well installed from 1.07 to 2.90 metres below ground surface					
9							
10							

13:40 on Feb18/16

TETRA TECH EBA

Contractor Omega Drilling	Completion Depth 7.62 m
Drilling Rig Type M5T MARL TECH Track Rig	Start Date 2016 February 12
Logged By DT	Completion Date 2016 February 12
Reviewed By CF	Page 1 of 1

Borehole No: **BH/MW16-03**

CITY OF VANCOUVER

Project Phase Environmental Site Assessment	Project No ENV VENV03059-01
Location 3010 East Kent Avenue South	
Vancouver British Columbia	

Depth (m)	Method	Soil Description	Sample Type	Sample Number	Vapour readings (ppmv) 1 2 3 4	Notes and Comments	Depth (ft)
0							0
	Hollow stem auger	ORGANICS sand trace silt roots homogeneous poorly graded moist to wet black fine to medium sand natural organic odour		3 1		Piezometer stickup = 0.84 metres above ground surface	
				3 2			
1		SAND (FILL) gravelly trace organics brick piece no visible structure well graded gravel brown fine to coarse sand and gravel subrounded to angular gravel to 80 mm diameter		3 3 5		Sample 3 3.5 analyzed for LEPH/HEPH, PAH and metals	
				3 4 5			
		from 1 37 to 1 43 m dark staining hydrocarbon odour					
		from 1 43 to 1 52 m woody debris no visible gravel black coarse sand					
2		SAND (FILL) silty some gravel no visible structure moist brown no visible foreign material fine to medium sand fien to coarse angular to subangular gravel to 50 mm diameter no discernible odour		3 7			
				3 7 5			
		from 2 29 to 4 27 m woody debris appearing in layer creosote odour refusal at 2 5 m (possible concrete or asphalt)		3 8			
		from 2 60 to 3 05 m grey blue fine sand				Refusal at 2.5 m. Switched to solid stem auger and continued drilling.	
3	Solid stem auger			3 9 5			
		from 3 05 to 4 27 m moist to wet subrounded to rounded gravel		3 10			
4							14
		END OF BOREHOLE (4 27 metres)					
		slough from 3 05 to 4 27 metres below ground surface					
		water 1 82 metres below ground surface at 12 45 on February 16 2016					
		Monitoring well installed from 1 22 to 3 05 metres below ground surface					
		Note Stopped due to auger refusal at 4 27 metres below ground surface					
5							16
6							20
7							23
8							26
9							29
10							32

12 45 on Feb16/16

TETRA TECH EBA

Contractor Omega Drilling	Completion Depth 4 27 m
Drilling Rig Type M5T MARL TECH Track Rig	Start Date 2016 February 12
Logged By DT	Completion Date 2016 February 12
Reviewed By CF	Page 1 of 1

Borehole No: **BH/MW16-04**

CITY OF VANCOUVER

Project Phase Environmental Site Assessment	Project No ENV VENV03059-01
Location 3010 East Kent Avenue South	
Vancouver British Columbia	

Depth (m)	Method	Soil Description	Sample Type	Sample Number	Vapour readings (ppmv) 1 2 3 4	Notes and Comments	Depth (ft)
0							0
	Solid stem auger	SAND (F LL) some gravel poorly graded sand no visible s ructure very wet grey no visible foreign material fine to medium sand well graded fine to medium subangular to rounded gravel no discernible odour		4 1		P pe st ckup = 0.79 metres above ground surface	
1		SAND AND GRAVEL (F LL) no visible structure well graded moist grey blue no visible foreign materials possible luvial deposits mixed with fill material poorly graded medium sand well graded fine to coarse angular to rounded gravel slight hydrocarbon odour throughout		4 4		Samp e 4 4 ana yzed for LEPH/HEPH, PAH and meta s	
2		SAND (F LL) and woody material race gravel no visible structure poorly graded wet grey possible fluvial deposi s mixed with fill material fine to medium sand well graded fine to course subrounded to rounded gravel to 50 mm diameter natural organic odour		4 8			
3		S LT (FLUV AL) some sand trace clay trace organic woody material homogeneous moist to wet grey poorly graded fine sand no discernible odour		4 13			
4							
5		END OF BOREHOLE (4 57 me res) slough from 2 90 to 4 57 metres below ground surface water 1 86 metres below ground surface at 11 25 on February 18 2016 Monitoring well installed from 1 07 to 2 90 metres below ground surface					
6							
7							
8							
9							
10							

11 25 on Feb18/16

TETRA TECH EBA

Contractor Omega Drilling	Completion Depth 4 57 m
Drilling Rig Type M5T MARL TECH Track Rig	Start Date 2016 February 12
Logged By DT	Completion Date 2016 February 12
Reviewed By CF	Page 1 of 1

APPENDIX C
AGAT LABORATORY CERTIFICATES

AGAT Laboratories

Unit 120, 8600 Glenlyon Parkway
Burnaby, British Columbia
CANADA V5J 0B6
TEL (778)452-4000
FAX (778)452-4074
http://www.agatlabs.com

CLIENT NAME: TETRA TECH EBA INC
1066 WEST HASTINGS ST. 9TH FLOOR
VANCOUVER, BC V6E3X2
(604) 685-0017

ATTENTION TO: JELENA SLADOJEVIC

PROJECT: ENV.VENV03059

AGAT WORK ORDER: 16V068853

SOIL ANALYSIS REVIEWED BY: Andrew Garrard, B.Sc., General Manager

TRACE ORGANICS REVIEWED BY: Andrew Garrard, B.Sc., General Manager

DATE REPORTED: Feb 19, 2016

PAGES (INCLUDING COVER): 26

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (778) 452-4000

*NOTES
VERSION 1: Sample receipt temperature 3°C.

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

AGAT Laboratories

Unit 120, 8600 Glenlyon Parkway
Burnaby, British Columbia
CANADA V5J 0B6
TEL (778)452-4000
FAX (778)452-4074
http://www agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 16V068853

PROJECT: ENV.VENV03059

CLIENT NAME: TETRA TECH EBA INC

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

British Columbia Metals Schedule 4 and 5

DATE RECEIVED: 2016-02-13

DATE REPORTED: 2016-02-19

SAMPLE DESCRIPTION:				16NTP05-0.9	16NTP06-1.2	16ETP07-0.5	16TP13-2	16BH03-3.5	16BH01-4	16BH02-17	00BH04-4
SAMPLE TYPE:				Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
DATE SAMPLED:				2/11/2016	2/11/2016	2/11/2016	2/11/2016	2/12/2016	2/12/2016	2/12/2016	2/12/2016
Parameter	Unit	G / S	RDL	7389718	7389721	7389722	7389728	7389734	7389744	7389753	7389756
Antimony	µg/g		0.1	1.0	0.8	12.4	60.6	144	2.0	0.4	1.4
Arsenic	µg/g		0.1	4.2	5.3	27.5	133	326	7.6	1.9	5.1
Barium	µg/g		0.5	70.2	115	108	144	89.6	93.9	35.6	84.7
Beryllium	µg/g		0.1	0.2	0.3	0.3	0.2	0.2	0.3	<0.1	0.2
Cadmium	µg/g		0.01	0.23	0.10	0.33	0.72	0.40	0.18	0.11	0.13
Chromium	µg/g		1	24	24	22	32	26	121	7	22
Cobalt	µg/g		0.1	7.7	10.4	9.6	19.2	19.1	10.5	1.6	7.3
Copper	µg/g		0.2	23.2	41.3	42.2	250	182	27.9	9.7	33.7
Lead	µg/g		0.1	31.6	11.3	33.0	111	175	10.0	5.2	16.6
Mercury	µg/g		0.01	0.04	0.03	0.04	0.11	0.01	0.05	0.02	0.03
Molybdenum	µg/g		0.2	0.9	0.8	3.3	25.9	26.2	1.0	1.5	1.0
Nickel	µg/g		0.5	23.3	21.5	18.6	17.2	13.3	37.6	8.6	17.2
Selenium	µg/g		0.1	0.2	<0.1	0.2	0.2	0.2	0.2	0.2	<0.1
Silver	µg/g		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Thallium	µg/g		0.1	<0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.1
Uranium	µg/g		0.2	0.3	0.5	0.5	1.0	0.7	0.6	0.4	0.5
Tin	µg/g		0.2	2.7	0.6	2.4	9.2	17.5	0.9	0.8	1.1
Vanadium	µg/g		1	48	62	55	45	47	51	9	51
Zinc	µg/g		1	78	115	124	764	538	63	36	69
pH 1:2	pH units		0.1	7.2	6.3	7.8	8.2	8.4	6.8	6.0	9.6

Certified By:

AGAT Laboratories

Unit 120, 8600 Glenlyon Parkway
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FAX (778)452-4074
http://www agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 16V068853

PROJECT: ENV.VENV03059

CLIENT NAME: TETRA TECH EBA INC

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

British Columbia Metals Schedule 4 and 5

DATE RECEIVED: 2016-02-13

DATE REPORTED: 2016-02-19

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: 16BH04-4 SAMPLE TYPE: Soil DATE SAMPLED: 2/12/2016 7389757
Antimony	µg/g		0.1	1.4
Arsenic	µg/g		0.1	4.9
Barium	µg/g		0.5	75.4
Beryllium	µg/g		0.1	0.2
Cadmium	µg/g		0.01	0.11
Chromium	µg/g		1	21
Cobalt	µg/g		0.1	6.7
Copper	µg/g		0.2	29.0
Lead	µg/g		0.1	17.6
Mercury	µg/g		0.01	0.02
Molybdenum	µg/g		0.2	1.1
Nickel	µg/g		0.5	13.2
Selenium	µg/g		0.1	0.1
Silver	µg/g		0.5	<0.5
Thallium	µg/g		0.1	<0.1
Uranium	µg/g		0.2	0.4
Tin	µg/g		0.2	0.9
Vanadium	µg/g		1	49
Zinc	µg/g		1	54
pH 1:2	pH units		0.1	9.6

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

7389718-7389744 Results are based on the dry weight of the sample

7389753 Results are based on the dry weight of the sample
Due to sample matrix, pH (1:2) was analyzed at a 1:20 soil to water ratio.

7389756-7389757 Results are based on the dry weight of the sample

Certified By:

AGAT Laboratories

Unit 120, 8600 Glenlyon Parkway
Burnaby, British Columbia
CANADA V5J 0B6
TEL (778)452-4000
FAX (778)452-4074
http://www agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 16V068853

PROJECT: ENV.VENV03059

CLIENT NAME: TETRA TECH EBA INC

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

LEPH/HEPH Soil

DATE RECEIVED: 2016-02-13

DATE REPORTED: 2016-02-19

SAMPLE DESCRIPTION:				16NTP05-0.9	16NTP06-1.2	16ETP07-0.5	16TP13-2	16BH03-3.5	16BH01-4		16BH02-17
SAMPLE TYPE:				Soil	Soil	Soil	Soil	Soil	Soil		Soil
DATE SAMPLED:				2/11/2016	2/11/2016	2/11/2016	2/11/2016	2/12/2016	2/12/2016		2/12/2016
Parameter	Unit	G / S	RDL	7389718	7389721	7389722	7389728	7389734	7389744	RDL	7389753
Naphthalene	µg/g		0.01	<0.01	<0.01	0.01	0.15	<0.01	0.57	0.03	<0.03
2-Methylnaphthalene	µg/g		0.01	<0.01	<0.01	0.01	0.04	0.01	0.10	0.03	<0.03
1-Methylnaphthalene	µg/g		0.01	<0.01	<0.01	0.01	0.02	<0.01	0.06	0.03	<0.03
Acenaphthylene	µg/g		0.01	<0.01	<0.01	0.01	0.02	0.02	0.02	0.03	<0.03
Acenaphthene	µg/g		0.01	<0.01	<0.01	<0.01	0.04	<0.01	0.08	0.03	<0.03
Fluorene	µg/g		0.02	<0.02	<0.02	<0.02	0.07	<0.02	0.08	0.06	<0.06
Phenanthrene	µg/g		0.02	<0.02	0.02	0.03	0.26	0.02	0.37	0.06	0.07
Anthracene	µg/g		0.02	<0.02	<0.02	<0.02	0.07	<0.02	0.11	0.06	<0.06
Fluoranthene	µg/g		0.05	<0.05	<0.05	0.07	0.30	<0.05	0.35	0.2	<0.2
Pyrene	µg/g		0.02	<0.02	<0.02	0.10	0.27	0.03	0.30	0.06	0.07
Benzo(a)anthracene	µg/g		0.02	<0.02	<0.02	0.02	0.07	0.03	0.06	0.06	<0.06
Chrysene	µg/g		0.05	<0.05	<0.05	<0.05	0.10	<0.05	0.10	0.2	<0.2
Benzo(b)fluoranthene	µg/g		0.02	<0.02	<0.02	0.03	0.09	0.02	0.06	0.06	<0.06
Benzo(j)fluoranthene	µg/g		0.02	<0.02	<0.02	0.02	0.04	<0.02	0.03	0.06	<0.06
Benzo(k)fluoranthene	µg/g		0.02	<0.02	<0.02	0.02	0.04	<0.02	0.03	0.06	<0.06
Benzo(a)pyrene	µg/g		0.05	<0.05	<0.05	<0.05	0.10	<0.05	0.07	0.2	<0.2
Indeno(1,2,3-c,d)pyrene	µg/g		0.02	<0.02	<0.02	0.03	0.04	<0.02	0.04	0.06	<0.06
Dibenzo(a,h)anthracene	µg/g		0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	<0.06
Benzo(g,h,i)perylene	µg/g		0.05	<0.05	<0.05	<0.05	0.09	<0.05	0.05	0.2	<0.2
EPH C10-C19	µg/g		20	<20	21	<20	39	50	25	60	70
EPH C19-C32	µg/g		20	24	67	40	390	200	309	60	1440
LEPH C10-C19	µg/g		20	<20	21	<20	39	50	24	60	70
HEPH C19-C32	µg/g		20	24	67	39	390	200	308	60	1440
Benzo(b+j)fluoranthene	µg/g		0.03	<0.03	<0.03	0.05	0.13	<0.03	0.09	0.03	<0.03
Surrogate	Unit	Acceptable Limits									
Naphthalene - d8	%	50-130		74	94	75	65	74	75		88
2-Fluorobiphenyl	%	50-130		77	103	88	81	108	103		118
P-Terphenyl - d14	%	60-130		78	61	119	79	90	94		98

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Certificate of Analysis

AGAT WORK ORDER: 16V068853

PROJECT: ENV.VENV03059

CLIENT NAME: TETRA TECH EBA INC

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

LEPH/HEPH Soil

DATE RECEIVED: 2016-02-13

DATE REPORTED: 2016-02-19

		SAMPLE DESCRIPTION:		00BH04-4	16BH04-4
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2/12/2016	2/12/2016
Parameter	Unit	G / S	RDL	7389756	7389757
Naphthalene	µg/g		0.01	0.03	0.01
2-Methylnaphthalene	µg/g		0.01	0.01	<0.01
1-Methylnaphthalene	µg/g		0.01	0.01	<0.01
Acenaphthylene	µg/g		0.01	0.20	0.03
Acenaphthene	µg/g		0.01	0.01	<0.01
Fluorene	µg/g		0.02	0.03	<0.02
Phenanthrene	µg/g		0.02	0.14	0.04
Anthracene	µg/g		0.02	0.11	<0.02
Fluoranthene	µg/g		0.05	0.47	0.06
Pyrene	µg/g		0.02	0.35	0.06
Benzo(a)anthracene	µg/g		0.02	0.23	0.03
Chrysene	µg/g		0.05	0.25	<0.05
Benzo(b)fluoranthene	µg/g		0.02	0.22	0.03
Benzo(j)fluoranthene	µg/g		0.02	0.11	<0.02
Benzo(k)fluoranthene	µg/g		0.02	0.10	<0.02
Benzo(a)pyrene	µg/g		0.05	0.23	<0.05
Indeno(1,2,3-c,d)pyrene	µg/g		0.02	0.17	0.02
Dibenzo(a,h)anthracene	µg/g		0.02	0.05	<0.02
Benzo(g,h,i)perylene	µg/g		0.05	0.29	<0.05
EPH C10-C19	µg/g		20	<20	<20
EPH C19-C32	µg/g		20	149	56
LEPH C10-C19	µg/g		20	<20	<20
HEPH C19-C32	µg/g		20	148	56
Benzo(b+j)fluoranthene	µg/g		0.03	0.33	0.03
Surrogate	Unit	Acceptable Limits			
Naphthalene - d8	%	50-130		77	74
2-Fluorobiphenyl	%	50-130		120	87
P-Terphenyl - d14	%	60-130		90	87

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Certificate of Analysis

AGAT WORK ORDER: 16V068853

PROJECT: ENV.VENV03059

CLIENT NAME: TETRA TECH EBA INC

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

LEPH/HEPH Soil

DATE RECEIVED: 2016-02-13

DATE REPORTED: 2016-02-19

Comments:	RDL - Reported Detection Limit; G / S - Guideline / Standard
7389718-7389744	Results are based on dry weight of sample. LEPH & HEPH results have been corrected for PAH contributions.
7389753	Results are based on dry weight of sample. LEPH & HEPH results have been corrected for PAH contributions. EPH & PAH detection limits increased due to high sample moisture content.
7389756-7389757	Results are based on dry weight of sample. LEPH & HEPH results have been corrected for PAH contributions.

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AGAT WORK ORDER: 16V068853

PROJECT: ENV.VENV03059

CLIENT NAME: TETRA TECH EBA INC

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

Volatile Organic Compounds in Soil

DATE RECEIVED: 2016-02-13

DATE REPORTED: 2016-02-19

		SAMPLE DESCRIPTION:		16ETP07-1.8	16TP13-2	16BH01-4	16BH02-4	00BH02-4
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2/11/2016	2/11/2016	2/12/2016	2/12/2016	2/12/2016
Parameter	Unit	G / S	RDL	7389724	7389728	7389744	7389749	7389750
Chloromethane	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromomethane	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroethane	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acetone	µg/g		0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloromethane	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl tert-butyl ether (MTBE)	µg/g		0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-Butanone (MEK)	µg/g		0.5	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,2-Dichloroethene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
cis-1,2-Dichloroethene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroform	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichloroethane	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	µg/g		0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Benzene	µg/g		0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1,2-Dichloropropane	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethene	µg/g		0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bromodichloromethane	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
trans-1,3-Dichloropropene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4-Methyl-2-pentanone (MIBK)	µg/g		0.5	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toluene	µg/g		0.05	<0.05	<0.05	0.12	<0.05	<0.05
Dibromochloromethane	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylene Dibromide	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05

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Certificate of Analysis

AGAT WORK ORDER: 16V068853

PROJECT: ENV.VENV03059

CLIENT NAME: TETRA TECH EBA INC

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

Volatile Organic Compounds in Soil

DATE RECEIVED: 2016-02-13

DATE REPORTED: 2016-02-19

		SAMPLE DESCRIPTION:		16ETP07-1.8	16TP13-2	16BH01-4	16BH02-4	00BH02-4
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2/11/2016	2/11/2016	2/12/2016	2/12/2016	2/12/2016
Parameter	Unit	G / S	RDL	7389724	7389728	7389744	7389749	7389750
Chlorobenzene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
m&p-Xylene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Styrene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2,4-Trichlorobenzene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Xylenes	µg/g		0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Surrogate	Unit	Acceptable Limits						
Bromofluorobenzene	%	60-140		82	78	84	94	90
Dibromofluoromethane	%	60-140		102	98	104	106	93
Toluene - d8	%	60-140		92	89	92	95	84

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

7389724-7389750 Results are based on dry weight of sample.

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Quality Assurance

CLIENT NAME: TETRA TECH EBA INC

AGAT WORK ORDER: 16V068853

PROJECT: ENV.VENV03059

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

Soil Analysis

RPT Date: Feb 19, 2016			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
British Columbia Metals Schedule 4 and 5															
Antimony	7394433		0.3	0.3	NA	< 0.1	108%	70%	130%	105%	90%	110%			
Arsenic	7394433		3.0	2.9	5.5%	< 0.1	104%	70%	130%	104%	90%	110%			
Barium	7394433		68.6	65.8	4.2%	< 0.5	91%	70%	130%	105%	90%	110%			
Beryllium	7394433		0.2	0.2	NA	< 0.1	113%	70%	130%	109%	90%	110%			
Cadmium	7394433		0.12	0.11	3.8%	< 0.01	78%	70%	130%	102%	90%	110%			
Chromium	7394433		19	20	6.1%	< 1	112%	70%	130%	108%	90%	110%			
Cobalt	7394433		6.4	6.9	6.5%	< 0.1	109%	70%	130%	108%	90%	110%			
Copper	7394433		17.5	17.8	1.8%	< 0.2	104%	70%	130%	110%	90%	110%			
Lead	7394433		12.4	12.5	0.7%	< 0.1	103%	70%	130%	108%	90%	110%			
Mercury	7394433		0.03	0.03	NA	< 0.01	97%	70%	130%	96%	90%	110%			
Molybdenum	7394433		0.4	0.4	NA	< 0.2	113%	70%	130%	104%	90%	110%			
Nickel	7394433		14.5	15.1	4.5%	< 0.5	115%	70%	130%	109%	90%	110%			
Selenium	7394433		0.2	0.2	NA	< 0.1				103%	90%	110%			
Silver	7394433		<0.5	<0.5	NA	< 0.5				96%	90%	110%			
Thallium	7394433		<0.1	<0.1	NA	< 0.1	102%	70%	130%	104%	90%	110%			
Uranium	7394433		0.4	0.4	NA	< 0.2	117%	70%	130%	101%	90%	110%			
Tin	7394433		0.5	0.5	NA	< 0.2	118%	70%	130%	100%	90%	110%			
Vanadium	7394433		47	50	4.7%	< 1	112%	70%	130%	103%	90%	110%			
Zinc	7394433		39	39	0.5%	< 1	106%	70%	130%	98%	90%	110%			
pH 1:2	7394433		6.7	6.7	0.1%	< 0.1	100%	90%	110%	100%	95%	105%			

Comments: RPDs are calculated using raw analytical data and not the rounded duplicate values reported.

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Quality Assurance

CLIENT NAME: TETRA TECH EBA INC

AGAT WORK ORDER: 16V068853

PROJECT: ENV.VENV03059

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date: Feb 19, 2016			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
LEPH/HEPH Soil															
Naphthalene	65324	7391938	<0.01	<0.01	NA	< 0.01	103%	80%	120%				92%	50%	130%
2-Methylnaphthalene	65324	7391938	<0.01	<0.01	NA	< 0.01	103%	80%	120%				86%	50%	130%
1-Methylnaphthalene	65324	7391938	<0.01	<0.01	NA	< 0.01	103%	80%	120%				88%	50%	130%
Acenaphthylene	65324	7391938	<0.01	<0.01	NA	< 0.01	100%	80%	120%				84%	50%	130%
Acenaphthene	65324	7391938	<0.01	<0.01	NA	< 0.01	101%	80%	120%				91%	50%	130%
Fluorene	65324	7391938	<0.02	<0.02	NA	< 0.02	100%	80%	120%				88%	50%	130%
Phenanthrene	65324	7391938	<0.02	<0.02	NA	< 0.02	102%	80%	120%				85%	60%	130%
Anthracene	65324	7391938	<0.02	<0.02	NA	< 0.02	101%	80%	120%				84%	60%	130%
Fluoranthene	65324	7391938	<0.05	<0.05	NA	< 0.05	100%	80%	120%				85%	60%	130%
Pyrene	65324	7391938	<0.02	<0.02	NA	< 0.02	100%	80%	120%				87%	60%	130%
Benzo(a)anthracene	65324	7391938	<0.02	<0.02	NA	< 0.02	101%	80%	120%				81%	60%	130%
Chrysene	65324	7391938	<0.05	<0.05	NA	< 0.05	100%	80%	120%				83%	60%	130%
Benzo(b)fluoranthene	65324	7391938	<0.02	<0.02	NA	< 0.02	101%	80%	120%				91%	60%	130%
Benzo(j)fluoranthene	65324	7391938	<0.02	<0.02	NA	< 0.02	101%	80%	120%				93%	60%	130%
Benzo(k)fluoranthene	65324	7391938	<0.02	<0.02	NA	< 0.02	99%	80%	120%				84%	60%	130%
Benzo(a)pyrene	65324	7391938	<0.05	<0.05	NA	< 0.05	100%	80%	120%				85%	60%	130%
Indeno(1,2,3-c,d)pyrene	65324	7391938	<0.02	<0.02	NA	< 0.02	102%	80%	120%				86%	60%	130%
Dibenzo(a,h)anthracene	65324	7391938	<0.02	<0.02	NA	< 0.02	102%	80%	130%				81%	60%	130%
Benzo(g,h,i)perylene	65324	7391938	<0.05	<0.05	NA	< 0.05	102%	80%	120%				90%	60%	130%
Naphthalene - d8	65324	7391938	79	82	3.7%		100%	80%	120%				81%	50%	130%
2-Fluorobiphenyl	65324	7391938	91	67	30.4%		100%	80%	120%				85%	50%	130%
P-Terphenyl - d14	65324	7391938	90	121	29.4%		101%	80%	120%				85%	60%	130%
EPH C10-C19	65324	7391938	<20	<20	NA	< 20	103%	70%	130%				100%	65%	120%
EPH C19-C32	65324	7391938	<20	<20	NA	< 20	116%	70%	130%				95%	80%	120%
Volatile Organic Compounds in Soil															
Chloromethane	65324	7391941	<0.05	<0.05	NA	< 0.05	101%	80%	120%				88%	60%	140%
Vinyl Chloride	65324	7391941	<0.05	<0.05	NA	< 0.05	101%	80%	120%				77%	60%	140%
Bromomethane	65324	7391941	<0.05	<0.05	NA	< 0.05	100%	80%	120%				92%	60%	140%
Chloroethane	65324	7391941	<0.05	<0.05	NA	< 0.05	100%	80%	120%				83%	60%	140%
Trichlorofluoromethane	65324	7391941	<0.05	<0.05	NA	< 0.05	99%	80%	120%				84%	70%	130%
Acetone	65324	7391941	<0.5	<0.5	NA	< 0.5	99%	80%	120%				76%	70%	130%
1,1-Dichloroethene	65324	7391941	<0.05	<0.05	NA	< 0.05	99%	80%	120%				103%	70%	130%
Dichloromethane	65324	7391941	<0.05	<0.05	NA	< 0.05	100%	80%	120%				88%	70%	130%
Methyl tert-butyl ether (MTBE)	65324	7391941	<0.1	<0.1	NA	< 0.1	99%	80%	120%				85%	70%	130%
2-Butanone (MEK)	65324	7391941	<0.5	<0.5	NA	< 0.5	99%	80%	120%				77%	70%	130%
trans-1,2-Dichloroethene	65324	7391941	<0.05	<0.05	NA	< 0.05	100%	80%	120%				94%	70%	130%
1,1-Dichloroethane	65324	7391941	<0.05	<0.05	NA	< 0.05	99%	80%	120%				91%	70%	130%

Comments: RPDs are calculated using raw analytical data and not the rounded duplicate values reported.

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Quality Assurance

CLIENT NAME: TETRA TECH EBA INC

AGAT WORK ORDER: 16V068853

PROJECT: ENV.VENV03059

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Feb 19, 2016

PARAMETER	Batch	Sample Id	DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
cis-1,2-Dichloroethene	65324	7391941	<0.05	<0.05	NA	< 0.05	100%	80%	120%				88%	70%	130%
Chloroform	65324	7391941	<0.05	<0.05	NA	< 0.05	99%	80%	120%				92%	70%	130%
1,2-Dichloroethane	65324	7391941	<0.05	<0.05	NA	< 0.05	99%	80%	120%				88%	70%	130%
1,1,1-Trichloroethane	65324	7391941	<0.05	<0.05	NA	< 0.05	99%	80%	120%				97%	70%	130%
Carbon Tetrachloride	65324	7391941	<0.02	<0.02	NA	< 0.02	99%	80%	120%				99%	70%	130%
Benzene	65324	7391941	<0.02	<0.02	NA	< 0.02	99%	80%	120%				92%	70%	130%
1,2-Dichloropropane	65324	7391941	<0.05	<0.05	NA	< 0.05	100%	80%	120%				88%	70%	130%
Trichloroethene	65324	7391941	<0.01	<0.01	NA	< 0.01	99%	80%	120%				95%	70%	130%
Bromodichloromethane	65324	7391941	<0.05	<0.05	NA	< 0.05	100%	80%	120%				89%	70%	130%
trans-1,3-Dichloropropene	65324	7391941	<0.05	<0.05	NA	< 0.05	100%	80%	120%				87%	60%	140%
4-Methyl-2-pentanone (MIBK)	65324	7391941	<0.5	<0.5	NA	< 0.5	101%	80%	120%				73%	70%	130%
cis-1,3-Dichloropropene	65324	7391941	<0.05	<0.05	NA	< 0.05	100%	80%	120%				85%	60%	140%
1,1,2-Trichloroethane	65324	7391941	<0.05	<0.05	NA	< 0.05	100%	80%	120%				85%	70%	130%
Toluene	65324	7391941	<0.05	<0.05	NA	< 0.05	100%	80%	120%				92%	70%	130%
Dibromochloromethane	65324	7391941	<0.05	<0.05	NA	< 0.05	100%	80%	120%				86%	70%	130%
Ethylene Dibromide	65324	7391941	<0.05	<0.05	NA	< 0.05	100%	80%	120%				84%	70%	130%
Tetrachloroethene	65324	7391941	<0.05	<0.05	NA	< 0.05	98%	80%	120%				116%	70%	130%
1,1,1,2-Tetrachloroethane	65324	7391941	<0.05	<0.05	NA	< 0.05	99%	80%	120%				101%	70%	130%
Chlorobenzene	65324	7391941	<0.05	<0.05	NA	< 0.05	99%	80%	120%				102%	70%	130%
Ethylbenzene	65324	7391941	<0.05	<0.05	NA	< 0.05	100%	80%	120%				103%	70%	130%
m&p-Xylene	65324	7391941	<0.05	<0.05	NA	< 0.05	100%	80%	120%				104%	70%	130%
Bromoform	65324	7391941	<0.05	<0.05	NA	< 0.05	100%	80%	120%				91%	70%	130%
Styrene	65324	7391941	<0.05	<0.05	NA	< 0.05	101%	80%	120%				94%	70%	130%
1,1,2,2-Tetrachloroethane	65324	7391941	<0.05	<0.05	NA	< 0.05	100%	80%	120%				89%	70%	130%
o-Xylene	65324	7391941	<0.05	<0.05	NA	< 0.05	100%	80%	120%				103%	70%	130%
1,3-Dichlorobenzene	65324	7391941	<0.05	<0.05	NA	< 0.05	99%	80%	120%				105%	70%	130%
1,4-Dichlorobenzene	65324	7391941	<0.05	<0.05	NA	< 0.05	99%	80%	120%				105%	70%	130%
1,2-Dichlorobenzene	65324	7391941	<0.05	<0.05	NA	< 0.05	100%	80%	120%				101%	70%	130%
1,2,4-Trichlorobenzene	65324	7391941	<0.05	<0.05	NA	< 0.05	100%	80%	120%				101%	70%	130%
Bromofluorobenzene	65324	7391941	75	81	7.7%		107%	60%	140%				99%	60%	140%
Dibromofluoromethane	65324	7391941	96	104	8.0%		98%	60%	140%				86%	60%	140%
Toluene - d8	65324	7391941	82	89	8.2%		99%	60%	140%				84%	60%	140%

Comments: RPDs are calculated using raw analytical data and not the rounded duplicate values reported.

Certified By:

Unit 120, 8600 Glenlyon Parkway
Burnaby, British Columbia
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Method Summary

CLIENT NAME: TETRA TECH EBA INC

AGAT WORK ORDER: 16V068853

PROJECT: ENV.VENV03059

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-181-6102, LAB-181-4008	BC MOE Lab Manual C (SALM) and EPA 6020A	ICP-MS
Arsenic	MET-181-6102, LAB-181-4008	BC MOE Lab Manual C (SALM) and EPA 6020A	ICP-MS
Barium	MET-181-6102, LAB-181-4008	BC MOE Lab Manual C (SALM) and EPA 6020A	ICP-MS
Beryllium	MET-181-6102, LAB-181-4008	BC MOE Lab Manual C (SALM) and EPA 6020A	ICP-MS
Cadmium	MET-181-6102, LAB-181-4008	BC MOE Lab Manual C (SALM) and EPA 6020A	ICP-MS
Chromium	MET-181-6102, LAB-181-4008	BC MOE Lab Manual C (SALM) and EPA 6020A	ICP-MS
Cobalt	MET-181-6102, LAB-181-4008	BC MOE Lab Manual C (SALM) and EPA 6020A	ICP-MS
Copper	MET-181-6102, LAB-181-4008	BC MOE Lab Manual C (SALM) and EPA 6020A	ICP-MS
Lead	MET-181-6102, LAB-181-4008	BC MOE Lab Manual C (SALM) and EPA 6020A	ICP-MS
Mercury	MET-181-6102, LAB-181-4008	BC MOE Lab Manual C (SALM) and EPA 6020A	ICP-MS
Molybdenum	MET-181-6102, LAB-181-4008	BC MOE Lab Manual C (SALM) and EPA 6020A	ICP-MS
Nickel	MET-181-6102, LAB-181-4008	BC MOE Lab Manual C (SALM) and EPA 6020A	ICP-MS
Selenium	MET-181-6102, LAB-181-4008	BC MOE Lab Manual C (SALM) and EPA 6020A	ICP-MS
Silver	MET-181-6102, LAB-181-4008	BC MOE Lab Manual C (SALM) and EPA 6020A	ICP-MS
Thallium	MET-181-6102, LAB-181-4008	BC MOE Lab Manual C (SALM) and EPA 6020A	ICP-MS
Uranium	MET-181-6102, LAB-181-4008	BC MOE Lab Manual C (SALM) and EPA 6020A	ICP-MS
Tin	MET-181-6102, LAB-181-4008	BC MOE Lab Manual C (SALM) and EPA 6020A	ICP-MS
Vanadium	MET-181-6102, LAB-181-4008	BC MOE Lab Manual C (SALM) and EPA 6020A	ICP-MS
Zinc	MET-181-6102, LAB-181-4008	BC MOE Lab Manual C (SALM) and EPA 6020A	ICP-MS
pH 1:2	INOR-181-6031	BC MOE Lab Manual B (pH, Electrometric, Soil)	PH METER

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Method Summary

CLIENT NAME: TETRA TECH EBA INC

AGAT WORK ORDER: 16V068853

PROJECT: ENV.VENV03059

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-180-5102	Modified from BC MOE Lab Manual Section D (PAH)	GC/MS
2-Methylnaphthalene	ORG-180-5102	Modified from BC MOE Lab Manual Section D (PAH)	GC/MS
1-Methylnaphthalene	ORG-180-5102	Modified from BC MOE Lab Manual Section D (PAH)	GC/MS
Acenaphthylene	ORG-180-5102	Modified from BC MOE Lab Manual Section D (PAH)	GC/MS
Acenaphthene	ORG-180-5102	Modified from BC MOE Lab Manual Section D (PAH)	GC/MS
Fluorene	ORG-180-5102	Modified from BC MOE Lab Manual Section D (PAH)	GC/MS
Phenanthrene	ORG-180-5102	Modified from BC MOE Lab Manual Section D (PAH)	GC/MS
Anthracene	ORG-180-5102	Modified from BC MOE Lab Manual Section D (PAH)	GC/MS
Fluoranthene	ORG-180-5102	Modified from BC MOE Lab Manual Section D (PAH)	GC/MS
Pyrene	ORG-180-5102	Modified from BC MOE Lab Manual Section D (PAH)	GC/MS
Benzo(a)anthracene	ORG-180-5102	Modified from BC MOE Lab Manual Section D (PAH)	GC/MS
Chrysene	ORG-180-5102	Modified from BC MOE Lab Manual Section D (PAH)	GC/MS
Benzo(b)fluoranthene	ORG-180-5102	Modified from BC MOE Lab Manual Section D (PAH)	GC/MS
Benzo(j)fluoranthene	ORG-180-5102	Modified from BC MOE Lab Manual Section D (PAH)	GC/MS
Benzo(k)fluoranthene	ORG-180-5102	Modified from BC MOE Lab Manual Section D (PAH)	GC/MS
Benzo(a)pyrene	ORG-180-5102	Modified from BC MOE Lab Manual Section D (PAH)	GC/MS
Indeno(1,2,3-c,d)pyrene	ORG-180-5102	Modified from BC MOE Lab Manual Section D (PAH)	GC/MS
Dibenzo(a,h)anthracene	ORG-180-5102	Modified from BC MOE Lab Manual Section D (PAH)	GC/MS
Benzo(g,h,i)perylene	ORG-180-5102	Modified from BC MOE Lab Manual Section D (PAH)	GC/MS
Naphthalene - d8	ORG-180-5102	Modified from BC MOE Lab Manual Section D (PAH)	GC/MS
2-Fluorobiphenyl	ORG-180-5102	modified from BC MOE Lab Manual Section D (PAH)	GC/MS
P-Terphenyl - d14	ORG-180-5102	modified from BC MOE Lab Manual Section D (PAH)	GC/MS
EPH C10-C19	ORG-180-5101	Modified from BCMOE Lab Manual Section D (EPH)	GC/FID
EPH C19-C32	ORG-180-5101	Modified from BCMOE Lab Manual Section D (EPH)	GC/FID
LEPH C10-C19	ORG-180-5101	Modified from BCMOE Lab Manual Section D (EPH)	GC/FID
HEPH C19-C32	ORG-180-5101	Modified from BCMOE Lab Manual Section D (EPH)	GC/FID
Chloromethane	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS

AGAT Laboratories

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Method Summary

CLIENT NAME: TETRA TECH EBA INC

AGAT WORK ORDER: 16V068853

PROJECT: ENV.VENV03059

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Vinyl Chloride	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Bromomethane	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Chloroethane	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Trichlorofluoromethane	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Acetone	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
1,1-Dichloroethene	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Dichloromethane	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Methyl tert-butyl ether (MTBE)	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
2-Butanone (MEK)	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
trans-1,2-Dichloroethene	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
1,1-Dichloroethane	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
cis-1,2-Dichloroethene	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Chloroform	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
1,2-Dichloroethane	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
1,1,1-Trichloroethane	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Carbon Tetrachloride	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Benzene	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
1,2-Dichloropropane	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Trichloroethene	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Bromodichloromethane	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
trans-1,3-Dichloropropene	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
4-Methyl-2-pentanone (MIBK)	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
cis-1,3-Dichloropropene	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
1,1,2-Trichloroethane	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Toluene	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Dibromochloromethane	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Ethylene Dibromide	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Tetrachloroethene	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS

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Method Summary

CLIENT NAME: TETRA TECH EBA INC

AGAT WORK ORDER: 16V068853

PROJECT: ENV.VENV03059

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
1,1,1,2-Tetrachloroethane	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Chlorobenzene	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Ethylbenzene	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
m&p-Xylene	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Bromoform	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Styrene	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
1,1,2,2-Tetrachloroethane	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
o-Xylene	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
1,3-Dichlorobenzene	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
1,4-Dichlorobenzene	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
1,2-Dichlorobenzene	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
1,2,4-Trichlorobenzene	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Bromofluorobenzene	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Dibromofluoromethane	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Toluene - d8	ORG-180-5103	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS

AGAT Laboratories

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Chain of Custody Record

Laboratory Use Only
Arrival Temperature: 3°C
AGAT Job Number: 16V068853
Notes:

Report Information
Company: Tetra Tech EBA Inc.
Contact: Jelena Sladojevic
Address: 1000 - 11th Fl 4445 Lougheed Hwy
Burnaby BC
Phone: 778 945 5847 Fax:
AGAT Quote #:
Client Project #: ENV.VEN03059

Report Information
1. Name: Lori Larsen Dean Taylor
Email: Lori.larsen@tetratech.com Dean.Taylor@...
2. Name: Jelena Sladojevic
Email: Jelena.Sladojevic@tetratech.com

Report Format
- ☐ Single Sample per page
- ☐ Multiple Samples per page
- ☐ Excel Format Included

Turnaround Time Required (TAT)
Regular TAT ☐ 5 to 7 working days
Rush TAT ☐ Day 2 - 100% ☐ Day 3 - 50% ☐ Day 4 - 25%
Date Required:
PLEASE CONTACT LABORATORY IF RUSH REQUIRED SAMPLE SUBMISSION CUT OFF FOR EFFECTIVE DATE BY 3 PM

Invoice To Same as above Yes ☒ / No ☐
Company:
Contact:
Address:
Phone: Fax:
PO/AFE#:

Requirements (Please Check)
- ☒ BC CSR Soil
  - ☐ AL
  - ☐ IL
  - ☐ PL
  - ☐ CL
  - ☐ RL
- ☐ BC CSR - Water
  - ☐ DW
  - ☐ AW
  - ☐ IW
  - ☐ LW

Schedule 11 (Please Specify)
CCME (Please Specify)
Other (Please Specify)

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	SAMPLE MATRIX	DATE/TIME SAMPLED	COMMENTS - SITE SAMPLE INFO. SAMPLE CONTAINMENT	L/HEPH	Metals	VOC	NUMBER OF CONTAINERS	PRESERVED (Y/N)	HAZARDOUS (Y/N)	Hold for: ☐60 DAYS
7389718	16NTP05-0.9	Soil	2/11/16		X	X					
19	16NTP05+1.2										
20	16NTP06+0	Soil+Vox									
21	16NTP06+1.2				X	X					
22	16ETP07+0.5				X	X					
23	16ETP07+1.4										
24	16ETP07+1.8	Soil+Vox					X				
25	00ETP07+1.8	Soil+Vox									
26	16ETP13+2.6										
27	00ETP12+2.6										
28	MW1602-2 *See note	Soil+Vox		Change name to "16TP13-2"	X	X	X				

Samples Relinquished By (Print Name and Sign): (Change to 16TP XX - 13)	Date/Time	Samples Received By (Print Name and Sign):	Date/Time		Page ____ of ____
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time		
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time		N°: 017589

Document #: DW 186-1500-303

AGAT Laboratories

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Burnaby, BC
V5J 0B6
P: 778.452.4000 - F: 778.452.4074

Laboratory Use Only
Arrival Temperature: 3°C
AGAT Job Number: 16V068853
Notes:

Chain of Custody Record

Report Information
Company:
Contact:
Address:
Phone: Fax:
AGAT Quote #:
Client Project #:

Report Information
1. Name:
Email:
2. Name:
Email:

Report Format
☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included

Turnaround Time Required (TAT)
Regular TAT ☐ 5 to 7 working days
Rush TAT ☐ Day 2 - 100% ☐ Day 3 - 50% ☐ Day 4 - 25%
Date Required:
PLEASE CONTACT LABORATORY IF RUSH REQUIRED SAMPLE SUBMISSION CUT OFF FOR EFFECTIVE DATE BY 3 PM

Invoice To Same as above Yes ☐ / No ☐
Company:
Contact:
Address:
Phone: Fax:
PO/AFE#:

Requirements *(Please Check)*
☒ BC CSR Soil ☐ BC CSR - Water
☐ AL ☐ DW
☐ IL ☐ AW
☐ PL ☐ IW
☐ CL ☐ LW
☐ RL

Schedule 11 *(Please Specify)*
CCME *(Please Specify)*
Other *(Please Specify)*

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	SAMPLE MATRIX	DATE/TIME SAMPLED	COMMENTS - SITE SAMPLE INFO. SAMPLE CONTAINMENT	L/HEPH	Metals	VOC	NUMBER OF CONTAINERS	PRESERVED (Y/N)	HAZARDOUS (Y/N)	Hold for 360 DAYS
30	16RH02-23		2/10/16								
32	16RH03-1										
33	16RH03-2										
34	16RH03-3.5				XX						
35	16RH03-4.5										
36	16RH03-7										
37	16RH03-7.5										
38	00RH03-8	Soil									
39	16RH03-8	Soil									
40	16RH03-9.5	Soil									
41	16RH03-10	Soil									

00RH04-7
16RH04-7.5
16RH04-8
00RH04-9.5
16RH04-10

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time

Page ___ of ___
N°: 017591

Document #: DIV 186-1500.003

AGAT Laboratories

120 - 8600 Glenlyon Parkway
Burnaby, BC
V5J 0B6
P: 778.452.4000 - F: 778.452.4074

Laboratory Use Only
Arrival Temperature: 3°C
AGAT Job Number: 16V068853
Notes:

Chain of Custody Record

Report Information
Company:
Contact:
Address:
Phone: Fax:
AGAT Quote #:
Client Project #:

Report Information
1. Name:
Email:
2. Name:
Email:

Report Format
☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included

Turnaround Time Required (TAT)
Regular TAT ☐ 5 to 7 working days
Rush TAT ☐ Day 2 - 100% ☐ Day 3 - 50% ☐ Day 4 - 25%
Date Required:
PLEASE CONTACT LABORATORY IF RUSH REQUIRED SAMPLE SUBMISSION CUT OFF FOR EFFECTIVE DATE BY 3 PM

Invoice To Same as above Yes ☐ / No ☐
Company:
Contact:
Address:
Phone: Fax:
PO/AFE#:

Requirements *(Please Check)*
☒ BC CSR Soil ☐ BC CSR - Water
☐ AL ☐ DW
☐ IL ☐ AW
☐ PL ☐ IW
☐ CL ☐ LW
☐ RL

Schedule 11 *(Please Specify)*
CCME *(Please Specify)*
Other *(Please Specify)*

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	SAMPLE MATRIX	DATE/TIME SAMPLED	COMMENTS - SITE SAMPLE INFO. SAMPLE CONTAINMENT	L/HEPH	Metals	VOC	NUMBER OF CONTAINERS	PRESERVED (Y/N)	HAZARDOUS (Y/N)	Hold for: ☐ 60 DAYS
43	16RH01-1		2/12/16								
44	16RH01-4	Soil+VOC			X	X	X				
45	DUPH01-4	Soil+VOC									
46	16RH01-5	Soil+VOC									
47	16RH01-12										
48	16RH02-1										
49	16RH02-4	Soil+VOC					X				
50	DUPH02-4	Soil+VOC					X				
51	16RH02-8										
52	16RH02-13	Soil+VOC									
53	16RH02-17	Soil+VOC			X	X					

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time

Page ____ of ____
N°: 017590

AGAT Laboratories

12 - 4600 Seymour Parkway
Burnaby, BC
V5J 0B6
P: 778.452.4000 · F: 778.452.4074

Chain of Custody Record

Report Information

Company:
Contact:
Address:
Phone: Fax:
AGAT Quote #:
Client Project #:

Report Information

1. Name:
Email:
2. Name:
Email:

Report Format

☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included

Laboratory Use Only

Arrival Temperature: 3 °C
AGAT Job Number: 16/068853
Notes:

Turnaround Time Required (TAT)

Regular TAT ☐ 5 to 7 working days
Rush TAT ☐ Day 2 - 100%
☐ Day 3 - 50%
☐ Day 4 - 25%
Date Required:
PLEASE CONTACT LABORATORY IF RUSH REQUIRED SAMPLE SUBMISSION CUT OFF FOR EFFECTIVE DATE BY 3 PM

Invoice To Same as above Yes ☒ / No ☐

Company:
Contact:
Address:
Phone: Fax:
PO/AFE#:

Requirements (Please Check)

☒ BC CSR Soil ☐ BC CSR - Water
☐ AL ☐ DW
☐ IL ☐ AW
☐ PL ☐ IW
☐ CL ☐ LW
☐ RL

Schedule 1 (Please Specify)
CCME (Please Specify)
Other (Please Specify)

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	SAMPLE MATRIX	DATE/TIME SAMPLED	COMMENTS / SITE SAMPLE INFO. SAMPLE CONTAINMENT	L/HEPH. Metals VOC	NUMBER OF CONTAINERS	PRESERVED (Y/N)	HAZARDOUS (Y/N)	Hold for 30 DAYS
55	16BH04-1	Soil/Wat	2/12/16		X				X
56	00BH04-4	Soil/Wat			X				X
57	16BH04-4								
58	16BH04-8								
59	00BH04-13								
60	16BH04-13								

Relinquished By (Print Name and Sign): Date/Time: Received By (Print Name and Sign): Date/Time:
Relinquished By (Print Name and Sign): Date/Time: Received By (Print Name and Sign): Date/Time:
Relinquished By (Print Name and Sign): Date/Time: Received By (Print Name and Sign): Date/Time:

Page ____ of ____

N° 017589

AGAT Laboratories

120 - 8600 Glenlyon Parkway
Burnaby, BC
V5J 0B6
P: 778.452.4000 · F: 778.452.4074

Chain of Custody Record

Laboratory Use Only
Arrival Temperature: 3°C
AGAT Job Number:
Notes: FEB 13 @ 7:58

Report Information
Company: Tetra Tech EBA Inc
Contact: Jelena Sladojevic
Address: 1000 - 10th FL 885 Dunsmuir St, Vancouver
Phone: 1778 9455843 Fax:
AGAT Quote #:
Client Project #: ENV.VENV03059

Report Information
1. Name: Lori Larsen Deco Taylor
Email: Lori.Larsen@tetratech.com deco.taylor...
2. Name: Jelena Sladojevic
Email: Jelena.Sladojevic@tetratech.com

Report Format
☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included

Turnaround Time Required (TAT)
Regular TAT ☐ 5 to 7 working days
Rush TAT ☐ Day 2 - 100%
☐ Day 3 - 50%
☐ Day 4 - 25%
Date Required:
PLEASE CONTACT LABORATORY IF RUSH REQUIRED SAMPLE SUBMISSION CUT OFF FOR EFFECTIVE DATE BY 3 PM

Invoice To Same as above Yes ☒ / No ☐
Company:
Contact:
Address:
Phone: Fax:
PO/AFE#:

Requirements *(Please Check)*
☒ BC CSR Soil
☐ AL ☐ IL ☐ PL ☐ CL ☐ RL
☐ BC CSR - Water
☐ DW ☐ AW ☐ IW ☐ LW
Schedule 11 *(Please Specify)*
CCME *(Please Specify)*
Other *(Please Specify)*

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	SAMPLE MATRIX	DATE/TIME SAMPLED	COMMENTS - SITE SAMPLE INFO. SAMPLE CONTAINMENT	NUMBER OF CONTAINERS	PRESERVED (Y/N)	HAZARDOUS (Y/N)	Hold for: ☒ 60 DAYS
	16NTP05-0.9	Soil	2/11/16					
	16NTP05-1.2							
	16NTP06-1.0	~~Soil+Vac~~						
	16NTP06-1.2	Soil+Vac						
	16ETP07-0.5							
	16ETP07-1.4							
	16ETP07-1.8	Soil+Va						
	00ETP07-1.8	Soil+Vac						
	16ETP12-2.6							
	00ETP12-2.6							
	MW1602-2	Soil+Vac						

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
		S. Hooper	
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time

Page _____ of _____
N°: 017589

Document #: DIV Lab-1600-003
Date Revised: July 16, 2015

AGAT Laboratories
120 - 8600 Glenlyon Parkway
Burnaby, BC
V5J 0B6
P: 778.452.4000 - F: 778.452.4074

Chain of Custody Record

Laboratory Use Only
Arrival Temperature: 3 °C
AGAT Job Number:
Notes: FEB 19 @ 7:58

Report Information
Company:
Contact:
Address:
Phone: Fax:
AGAT Quote #:
Client Project #:

Report Information
1. Name:
Email:
2. Name:
Email:

Report Format
☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included

Turnaround Time Required (TAT)
Regular TAT ☐ 5 to 7 working days
Rush TAT ☐ Day 2 - 100% ☐ Day 3 - 50% ☐ Day 4 - 25%
Date Required:
PLEASE CONTACT LABORATORY IF RUSH REQUIRED SAMPLE SUBMISSION CUT OFF FOR EFFECTIVE DATE BY 3 PM

Invoice To Same as above Yes ☐ / No ☐
Company:
Contact:
Address:
Phone: Fax:
PO/AFE#:

Requirements *(Please Check)*
☒ BC CSR Soil
☐ AL ☐ IL ☐ PL ☐ CL ☐ RL
☐ BC CSR - Water
☐ DW ☐ AW ☐ IW ☐ LW
Schedule 11 *(Please Specify)*
CCME *(Please Specify)*
Other *(Please Specify)*

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	SAMPLE MATRIX	DATE/TIME SAMPLED	COMMENTS - SITE SAMPLE INFO. SAMPLE CONTAINMENT	NUMBER OF CONTAINERS	PRESERVED (Y/N)	HAZARDOUS (Y/N)	Hold for: ☒ 60 DAYS
	16BH01-1		2/12/16					
	16BH01-4	Soil+Vac						
	00BH01-4	Soil+Vac						
	16BH01-5	Soil+Vac						
	16BH01-12							
	16BH02-1							
	16BH02-4	Soil+Vac						
	00BH02-4	Soil+Vac						
	16PH02-8							
	16BH02-13	Soil+Vac						
	16BH02-17	Soil+Vac						

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
		S. Nagel	
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time

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N°: 017590

Document #: DW-186-1500-003
Date Revised: July 18, 2015

AGAT Laboratories
120 - 8600 Glenlyon Parkway
Burnaby, BC
V5J 0B6
P: 778.452.4000 · F: 778.452.4074

Chain of Custody Record

Laboratory Use Only
Arrival Temperature: 3 °C
AGAT Job Number:
Notes: FEB 19 PM 7:59

Report Information
Company:
Contact:
Address:
Phone: Fax:
AGAT Quote #:
Client Project #:

Report Information
1. Name:
Email:
2. Name:
Email:

Report Format
☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included

Turnaround Time Required (TAT)
Regular TAT ☐ 5 to 7 working days
Rush TAT ☐ Day 2 - 100%
☐ Day 3 - 50%
☐ Day 4 - 25%
Date Required:
PLEASE CONTACT LABORATORY IF RUSH REQUIRED SAMPLE SUBMISSION CUT OFF FOR EFFECTIVE DATE BY 3 PM

Invoice To Same as above Yes ☐ / No ☐
Company:
Contact:
Address:
Phone: Fax:
PO/AFE#:

Requirements *(Please Check)*
☐ BC CSR Soil
☐ AL ☐ IL ☐ PL ☐ CL ☐ RL
☐ BC CSR - Water
☐ DW ☐ AW ☐ IW ☐ LW
Schedule 11 *(Please Specify)*
CCME *(Please Specify)*
Other *(Please Specify)*

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	SAMPLE MATRIX	DATE/TIME SAMPLED	COMMENTS - SITE SAMPLE INFO. SAMPLE CONTAINMENT	NUMBER OF CONTAINERS	PRESERVED (Y/N)	HAZARDOUS (Y/N)	Hold for: ☒60 DAYS
	16BH02-23		2/12/16					
	16BH03-1							
	16BH03-2							
	16BH03-3.5							
	16BH03-4.5							
	16BH03-7							
	16BH03-7.5							
	00BH03-8	Soil+VOC						
	16BH03-8	Soil+VOC						
	16BH03-9.5							
	16BH03-10	Soil+VOC						

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time

Page _____ of _____
N°: 017591

Document #: DIV 180-1500.003
Date Revised: July 16, 2015

AGAT Laboratories
120 - 8600 Glenlyon Parkway
Burnaby, BC
V5J 0B6
P: 778.452.4000 · F: 778.452.4074

Chain of Custody Record

Laboratory Use Only
Arrival Temperature: _____
AGAT Job Number: _____
Notes:

Report Information
Company: _____
Contact: _____
Address: _____
Phone: _____ Fax: _____
AGAT Quote #: _____
Client Project #: _____

Report Information
1. Name: _____
Email: _____
2. Name: _____
Email: _____

Report Format
☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included

Turnaround Time Required (TAT)
Regular TAT ☐ 5 to 7 working days
Rush TAT ☐ Day 2 - 100%
☐ Day 3 - 50%
☐ Day 4 - 25%
Date Required: _____
PLEASE CONTACT LABORATORY IF RUSH REQUIRED SAMPLE SUBMISSION CUT OFF FOR EFFECTIVE DATE BY 3 PM

Invoice To Same as above Yes ☐ / No ☐
Company: _____
Contact: _____
Address: _____
Phone: _____ Fax: _____
PO/AFE#: _____

Requirements *(Please Check)*
☐ BC CSR Soil
☐ AL ☐ IL ☐ PL ☐ CL ☐ RL
☐ BC CSR - Water
☐ DW ☐ AW ☐ IW ☐ LW
Schedule 11 *(Please Specify)* _____
CCME *(Please Specify)* _____
Other *(Please Specify)* _____

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	SAMPLE MATRIX	DATE/TIME SAMPLED	COMMENTS - SITE SAMPLE INFO. SAMPLE CONTAINMENT	NUMBER OF CONTAINERS	PRESERVED (Y/N)	HAZARDOUS (Y/N)	Hold for: ☒ 60 DAYS
	16BH04-11	Soil-Voc	2/12/16					X
	00BH04-4	Soil-Voc						
	16BH04-4							
	16BH04-8							
	00BH04-13							
	16BH04-13							
	16ETP07-1.8	Soil-Vc						
	00ETP07-1.8	Soil-Vc						
	16ETP12-2.6							
	00ETP12-2.6							
	MW16-02-2	Soil-Voc						

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time

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Document #: DW-186-1300-003
Date Revised: July 16, 2015

AGAT Laboratories

120 - 8600 Glenlyon Parkway
Burnaby, BC
V5J 0B6
P: 778.452.4000 · F: 778.452.4074

Chain of Custody Record

Laboratory Use Only

Arrival Temperature: _____

AGAT Job Number: _____

Notes: FEB 13 AM 7:59

Report Information

Company: _____

Contact: _____

Address: _____

_____

Phone: _____ Fax: _____

AGAT Quote #: _____

Client Project #: _____

Report Information

1. Name: _____
   Email: _____
2. Name: _____
   Email: _____

Report Format

☐ Single Sample per page

☐ Multiple Samples per page

☐ Excel Format Included

Turnaround Time Required (TAT)

Regular TAT ☐ 5 to 7 working days

Rush TAT ☐ Day 2 - 100%
☐ Day 3 - 50%
☐ Day 4 - 25%

Date Required: _____

PLEASE CONTACT LABORATORY IF RUSH REQUIRED SAMPLE SUBMISSION CUT OFF FOR EFFECTIVE DATE BY 3 PM

Invoice To

Same as above Yes ☐ / No ☐

Company: _____

Contact: _____

Address: _____

_____

Phone: _____ Fax: _____

PO/AFE#: _____

Requirements *(Please Check)*

☐ BC CSR Soil
- ☐ AL
- ☐ IL
- ☐ PL
- ☐ CL
- ☐ RL

☐ BC CSR - Water
- ☐ DW
- ☐ AW
- ☐ IW
- ☐ LW

Schedule 11 *(Please Specify)* _____

CCME *(Please Specify)* _____

Other *(Please Specify)* _____

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	SAMPLE MATRIX	DATE/TIME SAMPLED	COMMENTS - SITE SAMPLE INFO. SAMPLE CONTAINMENT	NUMBER OF CONTAINERS	PRESERVED (Y/N)	HAZARDOUS (Y/N)	Hold for: ☐ 60 DAYS
	16PH03-33		2/12/16					
	16PH03-1							
	16PH03-2							
	16PH03-3.5							
	16PH03-4.5							
	16PH03-7							
	16PH03-7.5							
	00PH03-8	Soil/Vol						
	16PH03-8	Soil/Vol						
	16PH03-9.5							
	16PH03-10	Soil/Vol						

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time

Page _____ of _____

N°: 017591

Document #: DIV-186-1500-003

Date Revised: July 16, 2013

AGAT Laboratories
120 - 8600 Glenlyon Parkway
Burnaby, BC
V5J 0B6
P: 778.452.4000 - F: 778.452.4074

Chain of Custody Record

Laboratory Use Only
Arrival Temperature: _____
AGAT Job Number: _____
Notes: FEB 13 AM 7:58

Report Information
Company: _____
Contact: _____
Address: _____
Phone: _____ Fax: _____
AGAT Quote #: _____
Client Project #: _____

Report Information
1. Name: _____
Email: _____
2. Name: _____
Email: _____

Report Format
☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included

Turnaround Time Required (TAT)
Regular TAT ☐ 5 to 7 working days
Rush TAT ☐ Day 2 - 100%
☐ Day 3 - 50%
☐ Day 4 - 25%
Date Required: _____
PLEASE CONTACT LABORATORY IF RUSH REQUIRED SAMPLE SUBMISSION CUT OFF FOR EFFECTIVE DATE BY 3 PM

Invoice To Same as above Yes ☐ / No ☐
Company: _____
Contact: _____
Address: _____
Phone: _____ Fax: _____
PO/AFE#: _____

Requirements *(Please Check)*
☐ **BC CSR Soil**
☐ AL
☐ IL
☐ PL
☐ CL
☐ RL
☐ **BC CSR - Water**
☐ DW
☐ AW
☐ IW
☐ LW
Schedule 11 *(Please Specify)* _____
CCME *(Please Specify)* _____
Other *(Please Specify)* _____

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	SAMPLE MATRIX	DATE/TIME SAMPLED	COMMENTS - SITE SAMPLE INFO. SAMPLE CONTAINMENT	NUMBER OF CONTAINERS	PRESERVED (Y/N)	HAZARDOUS (Y/N)	Hold for: ☐ 60 DAYS
	16EH01-1		2/12/16					
	16EH01-4	Solvec						
	DUPH01-4	Solvec						
	16EH01-5	solvec						
	16EH01-12							
	16IH02-1							
	16EH02-4	Solvec						
	DUPH02-4	Solvec						
	16EH02-8							
	16EH02-13	solvec						
	16EH02-17	solvec						

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time

Page _____ of _____
N°: 017590

AGAT Laboratories

SAMPLE INTEGRITY RECEIPT FORM - BURNABY

Work Order # 16V068853

RECEIVING BASICS:
Received From: After hours Waybill #: _____

SAMPLE QUANTITIES:
Coolers: 1 Containers: 55

TIME SENSITIVE ISSUES:
Earliest Date Sampled: 11 Feb 2016 ALREADY EXCEEDED? Yes (No)

NON-CONFORMANCES:
3 temperatures of samples* and average of each cooler: (record differing temperatures on the CoC next to sample ID's) *use jars when available

(1) 3+3+3=3 °C (2) ___+___+___=___°C (3) ___+___+___=___°C (4) ___+___+___=___°C

Was ice or ice pack present: (Yes) No

Integrity Issues:

Account Project Manager: _____ have they been notified of the above issues: Yes No

Whom spoken to: _____ Date and Time: _____

ADDITIONAL NOTES:
"MW1602-2" changed to "16TP13-2"

AGAT Laboratories

Unit 120, 8600 Glenlyon Parkway
Burnaby, British Columbia
CANADA V5J 0B6
TEL (778)452-4000
FAX (778)452-4074
http://www.agatlabs.com

CLIENT NAME: TETRA TECH EBA INC
1066 WEST HASTINGS ST. 9TH FLOOR
VANCOUVER, BC V6E3X2
(604) 685-0017

ATTENTION TO: JELENA SLADOJEVIC

PROJECT: ENV.VENV03083

AGAT WORK ORDER: 16V070252

TRACE ORGANICS REVIEWED BY: Andrew Garrard, B.Sc., General Manager

WATER ANALYSIS REVIEWED BY: Andrew Garrard, B.Sc., General Manager

DATE REPORTED: Feb 25, 2016

PAGES (INCLUDING COVER): 17

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (778) 452-4000

*NOTES
VERSION 1: Sample receipt temperature 4°C.

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

AGAT Laboratories

Unit 120, 8600 Glenlyon Parkway
Burnaby, British Columbia
CANADA V5J 0B6
TEL (778)452-4000
FAX (778)452-4074
http://www agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 16V070252

PROJECT: ENV.VENV03083

CLIENT NAME: TETRA TECH EBA INC

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

LEPH/HEPH Water

DATE RECEIVED: 2016-02-19

DATE REPORTED: 2016-02-25

		SAMPLE DESCRIPTION:		MW16-04	MW16-03	MW16-02	MW16-05	MW16-01
		SAMPLE TYPE:		Water	Water	Water	Water	Water
		DATE SAMPLED:		2/18/2016	2/18/2016	2/18/2016	2/18/2016	2/19/2016
Parameter	Unit	G / S	RDL	7397640	7397645	7397646	7397647	7397648
Naphthalene	µg/L		0.05	<0.05	0.11	<0.05	<0.05	1.25
Quinoline	µg/L		0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L		0.05	<0.05	<0.05	<0.05	<0.05	0.06
Acenaphthene	µg/L		0.05	<0.05	0.06	<0.05	<0.05	0.15
Fluorene	µg/L		0.05	<0.05	0.06	<0.05	<0.05	0.09
Phenanthrene	µg/L		0.05	<0.05	0.30	<0.05	<0.05	0.42
Anthracene (Water)	µg/L		0.05	<0.05	0.08	<0.05	<0.05	0.18
Acridine	µg/L		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/L		0.05	<0.05	0.39	<0.05	<0.05	0.67
Pyrene	µg/L		0.02	<0.02	0.38	<0.02	0.03	0.67
Benzo(a)anthracene	µg/L		0.05	<0.05	0.15	<0.05	<0.05	0.30
Chrysene	µg/L		0.05	<0.05	0.20	<0.05	<0.05	0.39
Benzo(b)fluoranthene	µg/L		0.05	<0.05	0.15	<0.05	<0.05	0.30
Benzo(j)fluoranthene	µg/L		0.05	<0.05	0.09	<0.05	<0.05	0.17
Benzo(k)fluoranthene	µg/L		0.05	<0.05	0.08	<0.05	<0.05	0.15
Benzo(a)pyrene	µg/L		0.01	0.01	0.18	0.01	0.02	0.34
Indeno(1,2,3-c,d)pyrene	µg/L		0.05	<0.05	0.10	<0.05	<0.05	0.18
Dibenzo(a,h)anthracene	µg/L		0.05	<0.05	<0.05	<0.05	<0.05	0.06
Benzo(g,h,i)perylene	µg/L		0.05	<0.05	0.12	<0.05	<0.05	0.24
EPH C10-C19	µg/L		100	<100	<100	<100	<100	140
EPH C19-C32	µg/L		100	<100	240	<100	<100	1260
LEPH C10-C19	µg/L		100	<100	<100	<100	<100	140
HEPH C19-C32	µg/L		100	<100	240	<100	<100	1260
Benzo(b+j)fluoranthene	µg/L		0.1	<0.1	0.2	<0.1	<0.1	0.5
Surrogate	Unit	Acceptable Limits						
Naphthalene - d8	%	50-130		86	78	84	81	81
2-Fluorobiphenyl	%	50-130		85	79	83	80	83
P-Terphenyl - d14	%	60-130		88	94	93	91	92

Certified By:

AGAT Laboratories

Unit 120, 8600 Glenlyon Parkway
Burnaby, British Columbia
CANADA V5J 0B6
TEL (778)452-4000
FAX (778)452-4074
http://www agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 16V070252

PROJECT: ENV.VENV03083

CLIENT NAME: TETRA TECH EBA INC

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

LEPH/HEPH Water

DATE RECEIVED: 2016-02-19

DATE REPORTED: 2016-02-25

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

7397640-7397648 LEPH & HEPH results have been corrected for PAH contributions.

Certified By:

AGAT Laboratories

Unit 120, 8600 Glenlyon Parkway
Burnaby, British Columbia
CANADA V5J 0B6
TEL (778)452-4000
FAX (778)452-4074
http://www agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 16V070252

PROJECT: ENV.VENV03083

CLIENT NAME: TETRA TECH EBA INC

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

Volatile Organic Compounds in Water

DATE RECEIVED: 2016-02-19

DATE REPORTED: 2016-02-25

		SAMPLE DESCRIPTION:		MW16-02	MW16-05	MW16-01
		SAMPLE TYPE:		Water	Water	Water
		DATE SAMPLED:		2/18/2016	2/18/2016	2/19/2016
Parameter	Unit	G / S	RDL	7397646	7397647	7397648
Chloromethane	µg/L		1	<1	<1	<1
Vinyl Chloride	µg/L		1	<1	<1	<1
Bromomethane	µg/L		1	<1	<1	<1
Chloroethane	µg/L		1	<1	<1	<1
Trichlorofluoromethane	µg/L		1	<1	<1	<1
Acetone	µg/L		10	<10	<10	<10
1,1-Dichloroethene	µg/L		1	<1	<1	<1
Dichloromethane	µg/L		1	<1	<1	<1
Methyl tert-butyl ether (MTBE)	µg/L		1	<1	<1	<1
2-Butanone (MEK)	µg/L		10	<10	<10	<10
trans-1,2-Dichloroethylene	µg/L		1	<1	<1	<1
1,1-Dichloroethane	µg/L		1	<1	<1	<1
cis-1,2-Dichloroethylene	µg/L		1	<1	<1	<1
Chloroform	µg/L		1	<1	<1	<1
1,2-Dichloroethane	µg/L		1	<1	<1	<1
1,1,1-Trichloroethane	µg/L		1	<1	<1	<1
Carbon Tetrachloride	µg/L		0.5	<0.5	<0.5	<0.5
Benzene	µg/L		0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	µg/L		1	<1	<1	<1
Trichloroethene	µg/L		1	<1	<1	<1
Bromodichloromethane	µg/L		1	<1	<1	<1
trans-1,3-Dichloropropene	µg/L		1	<1	<1	<1
4-Methyl-2-pentanone (MIBK)	µg/L		10	<10	<10	<10
cis-1,3-Dichloropropene	µg/L		1	<1	<1	<1
1,1,2-Trichloroethane	µg/L		1	<1	<1	<1
Toluene	µg/L		0.5	<0.5	<0.5	<0.5
Dibromochloromethane	µg/L		1	<1	<1	<1
Ethylene Dibromide	µg/L		0.3	<0.3	<0.3	<0.3
Tetrachloroethene	µg/L		1	<1	<1	<1
1,1,1,2-Tetrachloroethane	µg/L		1	<1	<1	<1

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AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 16V070252

PROJECT: ENV.VENV03083

CLIENT NAME: TETRA TECH EBA INC

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

Volatile Organic Compounds in Water

DATE RECEIVED: 2016-02-19

DATE REPORTED: 2016-02-25

		SAMPLE DESCRIPTION:		MW16-02	MW16-05	MW16-01
		SAMPLE TYPE:		Water	Water	Water
		DATE SAMPLED:		2/18/2016	2/18/2016	2/19/2016
Parameter	Unit	G / S	RDL	7397646	7397647	7397648
Chlorobenzene	µg/L		1	<1	<1	<1
Ethylbenzene	µg/L		0.5	<0.5	<0.5	<0.5
m&p-Xylene	µg/L		0.5	<0.5	<0.5	<0.5
Bromoform	µg/L		1	<1	<1	<1
Styrene	µg/L		0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	µg/L		1	<1	<1	<1
o-Xylene	µg/L		0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	µg/L		0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	µg/L		0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	µg/L		0.5	<0.5	<0.5	<0.5
1,2,4-Trichlorobenzene	µg/L		1	<1	<1	<1
Total Trihalomethanes	µg/L		2	<2	<2	<2
Total Xylenes	µg/L		1	<1	<1	<1
Surrogate	Unit	Acceptable Limits				
Bromofluorobenzene	%	70-130		84	78	85
Dibromofluoromethane	%	70-130		94	104	105
Toluene - d8	%	70-130		105	100	108

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 16V070252

PROJECT: ENV.VENV03083

CLIENT NAME: TETRA TECH EBA INC

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

British Columbia CSR- Schedule 6 Dissolved Metals

DATE RECEIVED: 2016-02-19

DATE REPORTED: 2016-02-25

SAMPLE DESCRIPTION:				MW16-04	MW16-03	MW16-02	MW16-05	MW16-01
SAMPLE TYPE:				Water	Water	Water	Water	Water
DATE SAMPLED:				2/18/2016	2/18/2016	2/18/2016	2/18/2016	2/19/2016
Parameter	Unit	G / S	RDL	7397640	7397645	7397646	7397647	7397648
Aluminum Dissolved	µg/L		2	6	8	11	10	9
Antimony Dissolved	µg/L		0.2	1.1	23.4	4.7	4.8	0.9
Arsenic Dissolved	µg/L		0.1	0.8	2.8	0.5	0.5	20.4
Barium Dissolved	µg/L		0.2	35.4	102	28.2	29.0	227
Beryllium Dissolved	µg/L		0.01	<0.01	<0.01	<0.01	<0.01	0.01
Boron Dissolved	µg/L		2	32	55	21	21	76
Cadmium Dissolved	µg/L		0.01	0.02	0.02	0.01	<0.01	0.06
Calcium Dissolved	µg/L		50	57100	98500	43300	44000	151000
Chromium Dissolved	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt Dissolved	µg/L		0.05	0.10	2.00	0.20	0.19	14.0
Copper Dissolved	µg/L		0.2	5.8	1.7	8.0	8.6	0.9
Iron Dissolved	µg/L		10	<10	174	13	12	3420
Lead Dissolved	µg/L		0.05	<0.05	<0.05	<0.05	<0.05	0.11
Lithium Dissolved	µg/L		0.5	<0.5	<0.5	<0.5	<0.5	5.5
Magnesium Dissolved	µg/L		50	6050	9670	4440	4490	50100
Manganese Dissolved	µg/L		1	9	1430	19	20	1290
Molybdenum Dissolved	µg/L		0.05	1.92	22.1	4.60	4.42	2.95
Nickel Dissolved	µg/L		0.2	0.6	1.6	0.8	0.8	19.6
Potassium Dissolved	µg/L		50	6030	7130	6960	7110	10100
Selenium Dissolved	µg/L		0.5	<0.5	0.7	<0.5	<0.5	1.9
Silver Dissolved	µg/L		0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Sodium Dissolved	µg/L		50	4290	15600	1860	1870	87300
Thallium Dissolved	µg/L		0.01	<0.01	0.01	<0.01	<0.01	0.02
Titanium Dissolved	µg/L		0.5	1.0	1.8	1.1	1.0	4.3
Uranium Dissolved	µg/L		0.01	0.28	1.77	0.31	0.32	2.62
Vanadium Dissolved	µg/L		0.5	1.5	1.3	2.1	2.3	1.0
Zinc Dissolved	µg/L		2	<2	4	<2	<2	12
Hardness (calc)	ug CaCO3/L		100	167000	286000	126000	128000	583000

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 16V070252

PROJECT: ENV.VENV03083

CLIENT NAME: TETRA TECH EBA INC

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

pH in Water

DATE RECEIVED: 2016-02-19

DATE REPORTED: 2016-02-25

		SAMPLE DESCRIPTION:		MW16-04	MW16-03	MW16-02	MW16-05	MW16-01
		SAMPLE TYPE:		Water	Water	Water	Water	Water
		DATE SAMPLED:		2/18/2016	2/18/2016	2/18/2016	2/18/2016	2/19/2016
Parameter	Unit	G / S	RDL	7397640	7397645	7397646	7397647	7397648
pH	pH units		0.01	7.76	7.50	7.69	7.68	7.71

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

7397640-7397648 Literature holding time exceeded for pH analysis.

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Quality Assurance

CLIENT NAME: TETRA TECH EBA INC
AGAT WORK ORDER: 16V070252
PROJECT: ENV.VENV03083
ATTENTION TO: JELENA SLADOJEVIC
SAMPLING SITE:
SAMPLED BY:

Trace Organics Analysis

RPT Date: Feb 25, 2016

PARAMETER	Batch	Sample Id	DUPLICATE Dup #1	DUPLICATE Dup #2	DUPLICATE RPD	Method Blank	REFERENCE MATERIAL Measured Value	REFERENCE MATERIAL Acceptable Limits Lower	REFERENCE MATERIAL Acceptable Limits Upper	METHOD BLANK SPIKE Recovery	METHOD BLANK SPIKE Acceptable Limits Lower	METHOD BLANK SPIKE Acceptable Limits Upper	MATRIX SPIKE Recovery	MATRIX SPIKE Acceptable Limits Lower	MATRIX SPIKE Acceptable Limits Upper
Volatile Organic Compounds in Water															
Chloromethane	65342	7397803	<1	<1	NA	< 1	100%	80%	120%				107%	70%	130%
Vinyl Chloride	65342	7397803	<1	<1	NA	< 1	100%	80%	120%				102%	70%	130%
Bromomethane	65342	7397803	<1	<1	NA	< 1	100%	80%	120%				109%	70%	130%
Chloroethane	65342	7397803	<1	<1	NA	< 1	100%	80%	120%				112%	70%	130%
Trichlorofluoromethane	65342	7397803	<1	<1	NA	< 1	100%	80%	120%				91%	70%	130%
Acetone	65342	7397803	<10	<10	NA	< 10	102%	80%	120%						
1,1-Dichloroethene	65342	7397803	<1	<1	NA	< 1	101%	80%	120%				91%	70%	130%
Dichloromethane	65342	7397803	<1	<1	NA	< 1	102%	80%	120%				89%	70%	130%
Methyl tert-butyl ether (MTBE)	65342	7397803	<1	<1	NA	< 1	102%	80%	120%				90%	70%	130%
2-Butanone (MEK)	65342	7397803	<10	<10	NA	< 10	100%	80%	120%						
trans-1,2-Dichloroethylene	65342	7397803	<1	<1	NA	< 1	101%	80%	120%				94%	70%	130%
1,1-Dichloroethane	65342	7397803	<1	<1	NA	< 1	102%	80%	120%				98%	70%	130%
cis-1,2-Dichloroethylene	65342	7397803	<1	<1	NA	< 1	102%	80%	120%				93%	70%	130%
Chloroform	65342	7397803	<1	<1	NA	< 1	101%	80%	120%				92%	70%	130%
1,2-Dichloroethane	65342	7397803	<1	<1	NA	< 1	101%	80%	120%				91%	70%	130%
1,1,1-Trichloroethane	65342	7397803	<1	<1	NA	< 1	102%	80%	120%				90%	70%	130%
Carbon Tetrachloride	65342	7397803	<0.5	<0.5	NA	< 0.5	102%	80%	120%				90%	70%	130%
Benzene	65342	7397803	<0.5	<0.5	NA	< 0.5	102%	80%	120%				96%	70%	130%
1,2-Dichloropropane	65342	7397803	<1	<1	NA	< 1	102%	80%	120%				97%	70%	130%
Trichloroethene	65342	7397803	<1	<1	NA	< 1	102%	80%	120%				95%	70%	130%
Bromodichloromethane	65342	7397803	<1	<1	NA	< 1	101%	80%	120%				92%	70%	130%
trans-1,3-Dichloropropene	65342	7397803	<1	<1	NA	< 1	102%	80%	120%				94%	70%	130%
4-Methyl-2-pentanone (MIBK)	65342	7397803	<10	<10	NA	< 10	102%	80%	120%						
cis-1,3-Dichloropropene	65342	7397803	<1	<1	NA	< 1	102%	80%	120%				87%	70%	130%
1,1,2-Trichloroethane	65342	7397803	<1	<1	NA	< 1	101%	80%	120%				91%	70%	130%
Toluene	65342	7397803	<0.5	<0.5	NA	< 0.5	102%	80%	120%				95%	70%	130%
Dibromochloromethane	65342	7397803	<1	<1	NA	< 1	101%	80%	120%				91%	70%	130%
Ethylene Dibromide	65342	7397803	<0.3	<0.3	NA	< 0.3	102%	80%	120%				90%	70%	130%
Tetrachloroethene	65342	7397803	<1	<1	NA	< 1	106%	80%	120%				87%	70%	130%
1,1,1,2-Tetrachloroethane	65342	7397803	<1	<1	NA	< 1	101%	80%	120%				96%	70%	130%
Chlorobenzene	65342	7397803	<1	<1	NA	< 1	101%	80%	120%				95%	70%	130%
Ethylbenzene	65342	7397803	<0.5	<0.5	NA	< 0.5	102%	80%	120%				96%	70%	130%
m&p-Xylene	65342	7397803	<0.5	<0.5	NA	< 0.5	102%	80%	120%				97%	70%	130%
Bromoform	65342	7397803	<1	<1	NA	< 1	101%	80%	120%				95%	70%	130%
Styrene	65342	7397803	<0.5	<0.5	NA	< 0.5	103%	80%	120%				100%	70%	130%
1,1,2,2-Tetrachloroethane	65342	7397803	<1	<1	NA	< 1	101%	80%	120%				93%	70%	130%
o-Xylene	65342	7397803	<0.5	<0.5	NA	< 0.5	102%	80%	120%				97%	70%	130%
1,3-Dichlorobenzene	65342	7397803	<0.5	<0.5	NA	< 0.5	101%	80%	120%				100%	70%	130%
1,4-Dichlorobenzene	65342	7397803	<0.5	<0.5	NA	< 0.5	101%	80%	120%				98%	70%	130%

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Quality Assurance

CLIENT NAME: TETRA TECH EBA INC

AGAT WORK ORDER: 16V070252

PROJECT: ENV.VENV03083

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Feb 25, 2016			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
1,2-Dichlorobenzene	65342	7397803	<0.5	<0.5	NA	< 0.5	101%	80%	120%				100%	70%	130%
1,2,4-Trichlorobenzene	65342	7397803	<1	<1	NA	< 1	101%	80%	120%				95%	70%	130%
Comments: RPDs are calculated using raw analytical data and not the rounded duplicate values reported.															
LEPH/HEPH Water															
Naphthalene	65341	W-MS1	0.46	0.48	4.3%	< 0.05	101%	80%	120%				93%	50%	130%
Quinoline	65341	W-MS1	0.5	0.4	NA	< 0.1	100%	80%	120%				99%	50%	130%
Acenaphthylene	65341	W-MS1	0.48	0.50	4.1%	< 0.05	101%	80%	120%				98%	50%	130%
Acenaphthene	65341	W-MS1	0.52	0.50	3.9%	< 0.05	101%	80%	120%				104%	50%	130%
Fluorene	65341	W-MS1	0.51	0.57	11.1%	< 0.05	102%	80%	120%				104%	50%	130%
Phenanthrene	65341	W-MS1	0.49	0.51	4.0%	< 0.05	99%	80%	120%				99%	60%	130%
Anthracene (Water)	65341	W-MS1	0.50	0.51	2.0%	< 0.05	101%	80%	120%				100%	60%	130%
Acridine	65341	W-MS1	0.50	0.51	2.0%	< 0.05	101%	80%	120%				101%	50%	130%
Fluoranthene	65341	W-MS1	0.50	0.51	2.0%	< 0.05	101%	80%	120%				102%	60%	130%
Pyrene	65341	W-MS1	0.49	0.50	2.0%	< 0.02	101%	80%	120%				99%	60%	130%
Benzo(a)anthracene	65341	W-MS1	0.50	0.50	0.0%	< 0.05	101%	80%	120%				102%	60%	130%
Chrysene	65341	W-MS1	0.50	0.52	3.9%	< 0.05	101%	80%	120%				102%	60%	130%
Benzo(b)fluoranthene	65341	W-MS1	0.53	0.46	14.1%	< 0.05	103%	80%	120%				106%	60%	130%
Benzo(j)fluoranthene	65341	W-MS1	0.50	0.51	2.0%	< 0.05	100%	80%	120%				101%	60%	130%
Benzo(k)fluoranthene	65341	W-MS1	0.44	0.47	6.6%	< 0.05	98%	80%	120%				88%	60%	130%
Benzo(a)pyrene	65341	W-MS1	0.49	0.48	2.1%	< 0.01	100%	80%	120%				99%	60%	130%
Indeno(1,2,3-c,d)pyrene	65341	W-MS1	0.49	0.48	2.1%	< 0.05	100%	80%	120%				100%	60%	130%
Dibenzo(a,h)anthracene	65341	W-MS1	0.48	0.46	4.3%	< 0.05	101%	80%	120%				98%	60%	130%
Benzo(g,h,i)perylene	65341	W-MS1	0.49	0.48	2.1%	< 0.05	101%	80%	120%				102%	60%	130%
Naphthalene - d8	65341	W-MS1	79	87	9.6%		100%	80%	120%				80%	50%	130%
2-Fluorobiphenyl	65341	W-MS1	79	87	9.6%		101%	80%	120%				80%	50%	130%
P-Terphenyl - d14	65341	W-MS1	89	91	2.2%		100%	80%	120%				89%	60%	130%
EPH C10-C19	65341	W-MS1	8960	8970	0.1%	< 100	107%	70%	130%				100%	70%	130%
EPH C19-C32	65341	W-MS1	11000	11000	0.0%	< 100	115%	70%	130%				101%	70%	130%

Comments: RPDs are calculated using raw analytical data and not the rounded duplicate values reported.

Certified By:

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Quality Assurance

CLIENT NAME: TETRA TECH EBA INC

AGAT WORK ORDER: 16V070252

PROJECT: ENV.VENV03083

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

Water Analysis

RPT Date: Feb 25, 2016			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
British Columbia CSR- Schedule 6 Dissolved Metals															
Aluminum Dissolved	7395609		2	2	NA	< 2	109%	90%	110%	102%	90%	110%			
Antimony Dissolved	7395609		<0.2	<0.2	NA	< 0.2	99%	90%	110%	96%	90%	110%			
Arsenic Dissolved	7395609		<0.1	<0.1	NA	< 0.1	103%	90%	110%	106%	90%	110%			
Barium Dissolved	7395609		4.1	4.2	0.9%	< 0.2	110%	90%	110%	105%	90%	110%			
Beryllium Dissolved	7395609		<0.01	<0.01	NA	< 0.01	106%	90%	110%	102%	90%	110%			
Boron Dissolved	7395609		32	32	0.3%	< 2	107%	90%	110%	102%	90%	110%			
Cadmium Dissolved	7395609		0.03	0.03	NA	< 0.01	107%	90%	110%	98%	90%	110%			
Calcium Dissolved	7395609		26800	26800	0.3%	< 50	104%	90%	110%	102%	90%	110%			
Chromium Dissolved	7395609		<0.5	<0.5	NA	< 0.5	102%	90%	110%	98%	90%	110%			
Cobalt Dissolved	7395609		<0.05	0.06	NA	< 0.05	105%	90%	110%	99%	90%	110%			
Copper Dissolved	7395609		1.5	1.4	5.1%	< 0.2	109%	90%	110%	103%	90%	110%			
Iron Dissolved	7395609		<10	<10	NA	< 10	109%	90%	110%	107%	90%	110%			
Lead Dissolved	7395609		<0.05	<0.05	NA	< 0.05	105%	90%	110%	99%	90%	110%			
Lithium Dissolved	7395609		<0.5	<0.5	NA	< 0.5				97%	90%	110%			
Magnesium Dissolved	7395609		4660	4670	0.2%	< 50	106%	90%	110%	104%	90%	110%			
Manganese Dissolved	7395609		<1	<1	NA	< 1	107%	90%	110%	100%	90%	110%			
Molybdenum Dissolved	7395609		0.49	0.49	0.0%	< 0.05	97%	90%	110%	97%	90%	110%			
Nickel Dissolved	7395609		0.5	0.6	NA	< 0.2	107%	90%	110%	104%	90%	110%			
Potassium Dissolved	7395609		629	634	0.9%	< 50	98%	90%	110%	105%	90%	110%			
Selenium Dissolved	7395609		<0.5	0.6	NA	< 0.5	104%	90%	110%	99%	90%	110%			
Silver Dissolved	7395609		<0.02	<0.02	NA	< 0.02				93%	90%	110%			
Sodium Dissolved	7395609		16000	16000	0.4%	< 50	104%	90%	110%	109%	90%	110%			
Thallium Dissolved	7395609		0.04	0.03	NA	< 0.01	100%	90%	110%	98%	90%	110%			
Titanium Dissolved	7395609		0.8	0.8	NA	< 0.5				98%	90%	110%			
Uranium Dissolved	7395609		0.02	0.02	NA	< 0.01	99%	90%	110%	101%	90%	110%			
Vanadium Dissolved	7395609		1.1	1.0	NA	< 0.5	103%	90%	110%	98%	90%	110%			
Zinc Dissolved	7395609		6	6	NA	< 2	108%	90%	110%	106%	90%	110%			

Comments: RPDs are calculated using raw analytical data and not the rounded duplicate values reported.

pH in Water															
pH	7397795		6.40	6.40	0.0%	< 0.01	100%	95%	105%						

Comments: RPDs are calculated using raw analytical data and not the rounded duplicate values reported.

Certified By:

AGAT Laboratories

Unit 120, 8600 Glenlyon Parkway
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Method Summary

CLIENT NAME: TETRA TECH EBA INC

AGAT WORK ORDER: 16V070252

PROJECT: ENV.VENV03083

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-180-5133	Modified from BC MOE Lab Manual Section D	GC/MS
Quinoline	ORG-180-5133	Modified from BC MOE Lab Manual Section D	GC/MS
Acenaphthylene	ORG-180-5133	Modified from BC MOE Lab Manual Section D	GC/MS
Acenaphthene	ORG-180-5133	Modified from BC MOE Lab Manual Section D	GC/MS
Fluorene	ORG-180-5133	Modified from BC MOE Lab Manual Section D	GC/MS
Phenanthrene	ORG-180-5133	Modified from BC MOE Lab Manual Section D	GC/MS
Anthracene (Water)	ORG-180-5133	Modified from BC MOE Lab Manual Section D	GC/MS
Acridine	ORG-180-5133	Modified from BC MOE Lab Manual Section D	GC/MS
Fluoranthene	ORG-180-5133	Modified from BC MOE Lab Manual Section D	GC/MS
Pyrene	ORG-180-5133	Modified from BC MOE Lab Manual Section D	GC/MS
Benzo(a)anthracene	ORG-180-5133	Modified from BC MOE Lab Manual Section D	GC/MS
Chrysene	ORG-180-5133	Modified from BC MOE Lab Manual Section D	GC/MS
Benzo(b)fluoranthene	ORG-180-5133	Modified from BC MOE Lab Manual Section D	GC/MS
Benzo(j)fluoranthene	ORG-180-5133	Modified from BC MOE Lab Manual Section D (PAH)	GC/MS
Benzo(k)fluoranthene	ORG-180-5133	Modified from BC MOE Lab Manual Section D	GC/MS
Benzo(a)pyrene	ORG-180-5133	Modified from BC MOE Lab Manual Section D	GC/MS
Indeno(1,2,3-c,d)pyrene	ORG-180-5133	Modified from BC MOE Lab Manual Section D	GC/MS
Dibenzo(a,h)anthracene	ORG-180-5133	Modified from BC MOE Lab Manual Section D	GC/MS
Benzo(g,h,i)perylene	ORG-180-5133	Modified from BC MOE Lab Manual Section D	GC/MS
Naphthalene - d8			GC/MS
2-Fluorobiphenyl	ORG-180-5133	modified from BC MOE Lab Manual Section D	GC/MS
P-Terphenyl - d14	ORG-180-5133	modified from BC MOE Lab Manual Section D	GC/MS
EPH C10-C19	ORG-180-5134	Modified from BC MOE Lab Manual Section D (EPH)	GC/FID
EPH C19-C32	ORG-180-5134	Modified from BC MOE Lab Manual Section D (EPH)	GC/FID
LEPH C10-C19	ORG-180-5134	Modified from BC MOE Lab Manual Section D (EPH)	GC/FID
HEPH C19-C32	ORG-180-5134	Modified from BC MOE Lab Manual Section D (EPH)	GC/FID
Chloromethane	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Vinyl Chloride	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS

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Method Summary

CLIENT NAME: TETRA TECH EBA INC

AGAT WORK ORDER: 16V070252

PROJECT: ENV.VENV03083

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Bromomethane	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Chloroethane	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Trichlorofluoromethane	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Acetone	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
1,1-Dichloroethene	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Dichloromethane	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Methyl tert-butyl ether (MTBE)	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
2-Butanone (MEK)	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
trans-1,2-Dichloroethylene	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
1,1-Dichloroethane	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
cis-1,2-Dichloroethylene	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Chloroform	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
1,2-Dichloroethane	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
1,1,1-Trichloroethane	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Carbon Tetrachloride	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Benzene	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
1,2-Dichloropropane	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Trichloroethene	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Bromodichloromethane	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
trans-1,3-Dichloropropene	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
4-Methyl-2-pentanone (MIBK)	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
cis-1,3-Dichloropropene	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
1,1,2-Trichloroethane	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Toluene	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Dibromochloromethane	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Ethylene Dibromide	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Tetrachloroethene	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
1,1,1,2-Tetrachloroethane	ORG-180-5131	Modified from BC MOE Lab Manual Section D	GC/MS

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Method Summary

CLIENT NAME: TETRA TECH EBA INC

AGAT WORK ORDER: 16V070252

PROJECT: ENV.VENV03083

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Chlorobenzene	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Ethylbenzene	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
m&p-Xylene	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Bromoform	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Styrene	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
1,1,2,2-Tetrachloroethane	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
o-Xylene	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
1,3-Dichlorobenzene	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
1,4-Dichlorobenzene	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
1,2-Dichlorobenzene	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
1,2,4-Trichlorobenzene	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Bromofluorobenzene	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Dibromofluoromethane	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS
Toluene - d8	ORG-180-5131	Modified from BC MOE Lab Manual Section D (VOC)	GC/MS

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Method Summary

CLIENT NAME: TETRA TECH EBA INC

AGAT WORK ORDER: 16V070252

PROJECT: ENV.VENV03083

ATTENTION TO: JELENA SLADOJEVIC

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Aluminum Dissolved	MET-181-6102, LAB-181-4015	Modified from SM 3125 B	ICP-MS
Antimony Dissolved	MET-181-6102, LAB-181-4015	Modified from SM 3125 B	ICP-MS
Arsenic Dissolved	MET-181-6102, LAB-181-4015	Modified from SM 3125 B	ICP-MS
Barium Dissolved	MET-181-6102, LAB-181-4015	Modified from SM 3125 B	ICP-MS
Beryllium Dissolved	MET-181-6102, LAB-181-4015	Modified from SM 3125 B	ICP-MS
Boron Dissolved	MET-181-6102, LAB-181-4015	Modified from SM 3125 B	ICP-MS
Cadmium Dissolved	MET-181-6102, LAB-181-4015	Modified from SM 3125 B	ICP-MS
Calcium Dissolved	MET-181-6101, LAB-181-4015	Modified from SM 3120 B	ICP/OES
Chromium Dissolved	MET-181-6102, LAB-181-4015	Modified from SM 3125 B	ICP-MS
Cobalt Dissolved	MET-181-6102, LAB-181-4015	Modified from SM 3125 B	ICP-MS
Copper Dissolved	MET-181-6102, LAB-181-4015	Modified from SM 3125 B	ICP-MS
Iron Dissolved	MET-181-6101, LAB-181-4015	Modified from SM 3120 B	ICP/OES
Lead Dissolved	MET-181-6102, LAB-181-4015	Modified from SM 3125 B	ICP-MS
Lithium Dissolved	MET-181-6102, LAB-181-4015	Modified from SM 3125 B	ICP-MS
Magnesium Dissolved	MET-181-6101, LAB-181-4015	Modified from SM 3120 B	ICP/OES
Manganese Dissolved	MET-181-6101, LAB-181-4015	Modified from SM 3120 B	ICP/OES
Molybdenum Dissolved	MET-181-6102, LAB-181-4015	Modified from SM 3125 B	ICP-MS
Nickel Dissolved	MET-181-6102, LAB-181-4015	Modified from SM 3125 B	ICP-MS
Potassium Dissolved	MET-181-6101, LAB-181-4015	Modified from SM 3120 B	ICP/OES
Selenium Dissolved	MET-181-6102, LAB-181-4015	Modified from SM 3125 B	ICP-MS
Silver Dissolved	MET-181-6102, LAB-181-4015	Modified from SM 3125 B	ICP-MS
Sodium Dissolved	MET-181-6101, LAB-181-4015	Modified from SM 3120 B	ICP/OES
Thallium Dissolved	MET-181-6102, LAB-181-4015	Modified from SM 3125 B	ICP-MS
Titanium Dissolved	MET-181-6102, LAB-181-4015	Modified from SM 3125 B	ICP-MS
Uranium Dissolved	MET-181-6102, LAB-181-4015	Modified from SM 3125 B	ICP-MS
Vanadium Dissolved	MET-181-6102, LAB-181-4015	Modified from SM 3125 B	ICP-MS
Zinc Dissolved	MET-181-6102, LAB-181-4015	Modified from SM 3125 B	ICP-MS
pH	INOR-181-6000	Modified from SM 4500-H+	PH METER

AGAT Laboratories

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Laboratory Use Only
Arrival Temperature: 4°C
AGAT Job Number: 16V070252
Notes: FEB 19 RM10:58

Chain of Custody Record

Report Information
Company: Tetra Tech EBA
Contact: Jelena Sladojevic
Address: 885 Dunsmuir St
Phone: 778.945.5843 Fax:
AGAT Quote #:
Client Project #: ENV.VENV03083

Report Information
1. Name: Drew Taylor
Email: Drew.Taylor@tetratech.com
2. Name: Jelena Sladojevic
Email: Sladojevic.Jelena@tt

Report Format
☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included

Turnaround Time Required (TAT)
Regular TAT ☐ 5 to 7 working days
Rush TAT ☐ Day 2 - 100% ☐ Day 3 - 50% ☐ Day 4 - 25%
Date Required:
PLEASE CONTACT LABORATORY IF RUSH REQUIRED SAMPLE SUBMISSION CUT OFF FOR EFFECTIVE DATE BY 3 PM

Invoice To Same as above Yes ☒ / No ☐
Company:
Contact:
Address:
Phone: Fax:
PO/AFE#:

Requirements *(Please Check)*
☐ BC CSR Soil: ☐ AL ☐ IL ☐ PL ☐ CL ☐ RL
☒ BC CSR - Water: ☐ DW ☐ AW ☐ IW ☐ LW
Schedule 11 *(Please Specify)*
CCME *(Please Specify)*
Other *(Please Specify)*

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	SAMPLE MATRIX	DATE/TIME SAMPLED	COMMENTS - SITE SAMPLE INFO. SAMPLE CONTAINMENT	NUMBER OF CONTAINERS	PRESERVED (Y/N)	HAZARDOUS (Y/N)	Hold for: ☒ 60 DAYS
397640	MW16-04	water	2/18/16	Filtered metals				X
645	MW16-03							X
646	MW16-02							X
647	MW16-05							X
648	MW16-01	water	2/19/16					X

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Drew Taylor	18:40 2/18/16	Matthew Wong	Feb 19/16

Page ____ of ____
N°: 017674

Document #: DM-186-1500.003
Date Revised: July 16, 2015

AGAT Laboratories

16V070252

120 - 8600 Glenlyon Parkway
Burnaby, BC
V5J 0B6
P: 778.452.4000 - F: 778.452.4074

Chain of Custody Record

Report Information

Company: Tetra Tech EBA
Contact: Jelena Sladojevic
Address: 885 Dunsmuir St
Phone: 778.945.5843 Fax:
AGAT Quote #:
Client Project #: ENV.VENV03083

Invoice To Same as above Yes ☒ / No ☐

Company:
Contact:
Address:
Phone: Fax:
PO/AFE#:

Report Information

1. Name: Drew Taylor
   Email: Drew.Taylor@tetratech.com
2. Name: Jelena Sladojevic
   Email: Sladojevic.Jelena@tt.com

Requirements *(Please Check)*

☐ BC CSR Soil
- ☐ AL
- ☐ IL
- ☐ PL
- ☐ CL
- ☐ RL

☒ BC CSR - Water
- ☐ DW
- ☐ AW
- ☐ IW
- ☐ LW

Schedule 11 *(Please Specify)*:
CCME *(Please Specify)*:
Other *(Please Specify)*:

Report Format

☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	SAMPLE MATRIX	DATE/TIME SAMPLED	COMMENTS - SITE SAMPLE INFO. SAMPLE CONTAINMENT	EPH	VOC	Dissolved metals	pH + Hardness
397640	MW16-04	water	2/18/16	Filtered metals	X		X	X
645	MW16-03				X	X	X	X
646	MW16-02				X	X	X	X
647	MW16-05				X	X	X	X
648	MW16-01	water	2/19/16		X	X	X	X

Samples Relinquished By (Print Name and Sign)	Date/Time	Samples Received By (Print Name and Sign)	Date/Time
Drew Taylor	18:40 2/18/16	Matthew Wright	Feb 19/16
Samples Relinquished By (Print Name and Sign)	Date/Time	Samples Received By (Print Name and Sign)	Date/Time
Samples Relinquished By (Print Name and Sign)	Date/Time	Samples Received By (Print Name and Sign)	Date/Time

Document #: DW-150-1500.003

AGAT Laboratories

SAMPLE INTEGRITY RECEIPT FORM - BURNABY

Work Order # 16V070252

RECEIVING BASICS:
Received From: After hours Waybill #: _____

SAMPLE QUANTITIES:
Coolers: 1 Containers: 25

TIME SENSITIVE ISSUES:
Earliest Date Sampled: 18-Feb-16 ALREADY EXCEEDED? Yes (No)

NON-CONFORMANCES:
3 temperatures of samples* and average of each cooler: (record differing temperatures on the CoC next to sample ID's) ***use jars when available**

(1) 5 + 4 + 3 = 4 °C (2) ___ + ___ + ___ = ___ °C (3) ___ + ___ + ___ = ___ °C (4) ___ + ___ + ___ = ___ °C

Was ice or ice pack present: (Yes) No

Integrity Issues:

Account Project Manager: _____ have they been notified of the above issues: Yes No

Whom spoken to: _____ Date and Time: _____

ADDITIONAL NOTES: