

BC TRANSIT

PHASE I ENVIRONMENTAL SITE ASSESSMENT

2401 BURNSIDE ROAD WEST, VIEW ROYAL, BC

SEPTEMBER 14, 2017

CONFIDENTIAL



WSP CANADA INC.
760 ENTERPRISE CRESCENT
VICTORIA, BC, CANADA V8Z 6R4

WSP.COM





September 14, 2017

Confidential

BC Transit
520 Gorge Road East
Victoria, BC V8W 9T5

Attention: Mr. Tyson Loreth, Project Manager

Dear Sir:

WSP Canada Inc. is pleased to submit a PDF copy of the Phase I Environmental Site Assessment report for the above-referenced property.

We trust that the enclosed report meets your current requirements. If you have any questions regarding this project, the enclosed reports, or our services, please do not hesitate to call the undersigned at (250) 475-1000.

Thank you for utilizing our professional services. We look forward to serving your future environmental and engineering needs.

Sincerely,

Original Signed

Christie Lucas, B.Sc., EP
Project Manager

Encl. Phase I Environmental Site Assessment

WSP ref.: 169-00385-20



SIGNATURES

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Group Manager

No environmental site assessment or investigation can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a site. Performance of a standardized environmental site assessment protocol is intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions in connection with the Site, given reasonable limits of time and cost.

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EXECUTIVE SUMMARY

Mr. Tyson Loreth of BC Transit (the Client), retained WSP Canada Inc. (WSP) to conduct a Phase I Environmental Site Assessment (ESA) for a property located at 2401 Burnside Road West in View Royal, British Columbia (henceforth referred to as “the Site”).

WSP understands that the Phase I ESA is required by the Client for due diligence purposes prior to the potential re-development of the Site. This report has not been completed with the intention to submit to the BC Ministry of Environment (MOE) at this time.

This Phase I ESA report has been prepared in general accordance with the Canadian Mortgage Housing Corporation (CMHC) and Canadian Standards Association (CSA) guidelines and general requirements of the BC *Environmental Management Act* (EMA), Contaminated Sites Regulation (CSR) and associated protocols, procedures and guidelines.

SITE LOCATION

The Site is comprised of one legally titled lot located on the east side of Burnside Road West, between the Trans-Canada Highway and Watkiss Way, in View Royal, BC. The lot is irregular in shape encompassing approximately 3.25 hectares and is bisected by the former Canadian National Railway (CNR) property which is currently owned by the Ministry of Transportation and Infrastructure. The Site is bounded to the north by Watkiss Way followed by residential development and undeveloped land, to the east by residential properties and the Choices Transitional Home, to the south by the Trans-Canada Highway and west by Burnside Road West followed by residential properties, offices and a café and undeveloped land.

AREAS OF POTENTIAL ENVIRONMENTAL CONCERN (APECS)

From the information gathered during this investigation, four (4) on-site APECs and one (1) off-site APEC were identified. Information for the APECs are summarized in the following table.

Summary of Identified APECs and PCOCs

APEC NO.	APEC DESCRIPTION	REGULATED PCOCs IN SOIL AND GROUNDWATER	REGULATED PCOCs IN VAPOUR	RISK RATING*
APEC #1 (on-Site)	Archery range - historical fill placement during construction of the range in 2011.	Metals Screening PCOCs: LEPHs/HEPHs, PAHs and VOCs including BTEX/VPH	VOCv, VPHv, Naphthalene if detectable in soil or groundwater	Moderate
APEC #2 (on-Site)	West end of the Site - area of fill placement and fill material identified during geotechnical investigation.	Metals and PAHs Screening PCOCs: LEPHs/HEPHs and VOCs including BTEX/VPH	VOCv, VPHv, Naphthalene if detectable in soil or groundwater	Moderate



APEC NO.	APEC DESCRIPTION	REGULATED PCOCS IN SOIL AND GROUNDWATER	REGULATED PCOCS IN VAPOUR	RISK RATING*
APEC #3 (on-Site)	CRD Statutory Right-of-Ways (SRWs) at the north end of the Site - potential for use of herbicides to keep the SRWs clear of vegetation.	Herbicides	None	Low to Moderate
APEC #4 (on-Site)	BC Hydro SRW at the centre of the Site - potential for PCBs associated with on-site electrical equipment.	PCBs	None	Low to Moderate
APEC #5 (off-Site)	Former CNR and current Ministry of Transportation property bisecting the Site - potential historical use of herbicides and/or petroleum hydrocarbons to keep the rail line clear. Potential for buried rail materials from the former railway.	Metals, LEPHs/HEPHs, PAHs and herbicides	Naphthalene if detectable in soil or groundwater	Low to Moderate

Notes:

* Relative scale indicating potential for contamination to be present at the Site

High - Evidence of actual significant contamination

Moderate - Inferred potential significant contamination or evidence of minor contamination

Low to Moderate - Inferred potential minor contamination

Low - No inferred contamination

BTEX - Benzene, toluene, ethylbenzene, xylenes in soil groundwater and in vapour

VPH - Volatile petroleum hydrocarbons in soil and groundwater

VPH_v - Volatile petroleum hydrocarbons in vapour

VOC - Volatile organic compounds in soil and groundwater

VOC_v - Volatile organic compounds in vapour

LEPH - Light extractable petroleum hydrocarbons

HEPH - Heavy extractable petroleum hydrocarbons

PAHs - Polycyclic aromatic hydrocarbons

PCBs - Polychlorinated biphenyls

CONCLUSIONS

From information gathered from this assessment, WSP concludes the following:

- A review of historical information indicates that the Site was largely agricultural land as of the mid-1920s with the CNR rail line bisected the north end of the Site at that time. The Site remained relatively unchanged until the mid-1980s when the current high voltage tower was present. By the mid-1990s, the CNR rail line was no longer in use and the Galloping Goose Trail was present in its place. The current archery range has been present at the Site since 2011. Municipal services have never been connected to the Site.
- The surrounding area was a combination of agricultural and undeveloped land with scattered residential development as of the 1920s. Development in the area, which was largely residential, increased with the establishment of major roadways in the area which included the Trans-Canada Highway in the 1950s, and Watkiss Road in the 1990s. By the early 2000s, the Highway had been split and the current off-ramp to Burnside Road West was present and residential development in the surrounding area expanded significantly.
- A small commercial operation, occupants that included a welding shop, bulldozing operation/yard and corrosion control business, was present at the east end of the adjacent property to the east of the Site from the 1960s to the mid-1990s. This property was cleared and by the early 2000s, the current building was constructed which opened as a youth custody centre and is currently the Choices Transitional Home.



- Based on our historical records review, interview information and Site reconnaissance, four (4) on-Site and one (1) off-site areas of potential environmental concern were identified.
- At the time of the Site visit, there were no indications of aboveground or underground storage tanks observed being present at the Site.

RECOMMENDATIONS

Based on the reviewed information and current Site conditions, WSP's recommendations are as follows:

- A sub-surface investigation in the form of a Phase II Environmental Site Assessment is recommended at the Site at this time to assess the identified on and off-Site APECs.
- If any environmentally suspect fill material is encountered onsite during any future redevelopment activities, such fill should be characterized prior to disposal offsite or at a permitted facility.

This executive summary is intended to be read in conjunction with, and is subject to the same limitations as the remainder of the report.



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1 INTRODUCTION

Mr. Tyson Loreth of BC Transit (the Client), retained WSP Canada Inc. (WSP) to conduct a Phase I Environmental Site Assessment (ESA) for a property located at 2401 Burnside Road West in View Royal, British Columbia (henceforth referred to as “the Site”). WSP understands that the Phase I ESA is required by the Client for due diligence purposes prior to the potential re-development of the Site. This report has not been completed with the intention to submit to the BC Ministry of Environment at this time.

This Phase I ESA report has been prepared in general accordance with the Canadian Mortgage Housing Corporation (CMHC) and Canadian Standards Association (CSA) guidelines and general requirements of the BC *Environmental Management Act* (EMA), Contaminated Sites Regulation (CSR) and associated protocols, procedures and guidelines.

2 PHASE I ESA PROCEDURE

2.1 OBJECTIVE

A Phase I ESA consists of evaluating and reporting the existing and historical information collected through a historical records search and review, a Site reconnaissance and interviews with individuals knowledgeable about the Site. A Phase I ESA may assist in reducing uncertainty about the likelihood of potential environmental liability and may provide a basis for further investigation of the Site.

The purpose of the Phase I ESA was to complete a review of the historical and current activities (as per the scope stated in the Section 2.3), conditions of the Site and to provide the client with an evaluation of known and potential areas of environmental concern (APEC) at the Site as well as identify potential contaminants of concern (PCOCs) at any identified APECs.

2.2 LEGAL REQUIREMENTS

To WSP's knowledge, at the time of preparation of this report, there was no outstanding request or order from the BC MOE for the submission of a Site Profile or for investigation or remediation reports regarding the Site. Also, to the best of our knowledge there were no outstanding court orders or administrative requirements from the Town of View Royal with respect to historical or current onsite activities.

2.3 SCOPE OF WORK

WSP's Phase I ESA scope of work included the following:

- Conduct historical records search and review, which included: reviewing fire insurance plans (if available), aerial photographs, criss-cross or city directories, historical and current land titles, municipal records, BC Assessment Authority and BC MOE records with respect to environmental concerns associated with the Site or surrounding properties that could potentially affect the environmental condition of the Site;
- Complete a Site and surrounding area reconnaissance and interviewing persons knowledgeable about past and present activities on the Site and surrounding properties. Items addressed included: chemical storage and handling, underground and aboveground storage tanks (USTs and ASTs), non-hazardous and hazardous wastes, air and water discharges, and dumping/landfilling activities;

- Identify potential source(s) of environmental impacts due to historical and current land uses, activities, events or practices at the Site and surrounding properties; and;
- Prepare a report outlining the findings of the investigation and providing conclusions and recommendations.

Note: A Phase I ESA does not include sampling or analysis of air, soil, groundwater, surface water or sediment/biota or a hazardous building materials survey.

2.4 REGULATORY FRAMEWORK

In British Columbia, a Phase I ESA is conducted to meet the requirements of the currently applicable provincial EMA and the CSR. Detailed background information regarding the EMA and the CSR is included in Appendix F.

2.5 METHODOLOGY

The following table provides a summary of the sources of historical records that were accessed during this investigation.

Table 2-1 Sources of Historical Records

ITEM	SOURCE	YEARS /REMARKS
Historical Land Titles	West Coast Title Search Ltd.	2001 to current
Environmental Site Registry	BC MOE Online Environmental Site Registry	2017
Federal Contaminated Sites	Treasury Board of Canada Secretariat	2017
Water Well & Aquifer Search	BC MOE Online Water Resources Atlas Database	2017
Aerial Photographs	UBC Department of Geography, Geographic Information Centre	1926, 1932, 1949, 1956, 1964, 1969, 1974, 1979, 1986, 1992, 1997 and 2005
	CRD Webmap	Ortho Map - 2015
City Directories	Vancouver Public Library	1954, 1959, 1964, 1969, 1974, 1979, 1984, 1989, 1994 and 1999
Topography, Zoning and Utility Maps and Building Permits/Drawings	Town of View Royal	2017
Surficial Geology	Geological Survey of Canada, Ministry of Energy and Mines Quaternary Geological Map of Greater Victoria (1:25,000).	2000
Interviews	Mr. Al Wills, Site Rep for the Victoria Bowmen Outdoor Range	2017

Ms. Christie Lucas of WSP completed a Site visit on September 6, 2017. Select photographs taken during the Site visit are presented in Appendix B.

3 SITE DESCRIPTION AND SETTING

As required by the BC MOE, the information for the Site is provided in the following table:

Table 3-1 Summary of Site Information

ITEM	INFORMATION
Common Name	Victoria Bowmen Outdoor Range
Municipal Address	2401 Burnside Road West, View Royal, BC
Legal Description	That Part of Section 6, Lake District (Lying Partly in Esquimalt District) Included Within Plan VIP71333, Except That Part in Plan VIP88964
P.I.D.	024-850-225
Latitude/Longitude ¹	48° 27' 48.96" N / 123° 26' 44.94" W

3.1 LOCATION AND DESCRIPTION

The Site is comprised of one legally titled lot located on the east side of Burnside Road West, between the Trans-Canada Highway and Watkiss Way, in View Royal, BC. The lot is irregular in shape encompassing approximately 3.25 hectares and is bisected by the former Canadian National Railway (CNR) property which is currently owned by the Ministry of Transportation and Infrastructure. The Site is bounded to the north by Watkiss Way followed by residential development and undeveloped land, to the east by residential properties and the Choices Transitional Home, to the south by the Trans-Canada Highway and west by Burnside Road West followed by residential properties, offices and a café and undeveloped land.

3.2 TOPOGRAPHY

Based on the surface elevation data obtained from the Capital Regional District (CRD)'s Webmap, the topography at the Site and surrounding area is undulating with an overall slope from the northwest down to the southeast towards Craigflower Creek. (Figure 3, Appendix A). A Topographic Survey is being completed by WSP for the client and will be presented under separate cover. The topographic figure in this report is for general reference purposes only.

The nearest aquatic receptor to the Site is Craigflower Creek which runs through the east end of the Site. No other major aquatic receptors were identified within 500 m of the Site. For the purposes of this Phase I ESA, shallow groundwater is inferred to be generally consistent with the surface topography and flows in an east/southeasterly direction towards Craigflower Creek. Further hydrogeological studies would be required to confirm actual groundwater flow direction.

3.3 GEOLOGY

Surficial geology in the vicinity of the Site, as identified by the Geological Survey of Canada, Ministry of Energy and Mines Quaternary Geological Map of Greater Victoria (Map 2000-2; 1:25,000) is inferred to consist of shallow soils over bedrock and thick grey clay overlying older Pleistocene deposits.

¹ Obtained from Google Earth™

3.4 SURFACE DRAINAGE AND HYDROGEOLOGY

At the time of the Site visit, approximately 5% of the Site was covered by temporary structure footprints. The remaining unpaved areas consist of a gravel surfaced driveway and parking lots, an archery field and native vegetation and trees. Surface runoff from the Site is expected to infiltrate into the soil, pond at the surface in slight depressions, or evaporate.

Shallow local groundwater can be influenced by many factors such as underground utilities, building foundations, topography and fill material/soil type. Based on general Site and surrounding topography, WSP infers that the immediate shallow local groundwater flows towards the east/southeast.

3.5 AQUIFERS

The Site is located on an aquifer, which is considered to have high demand, moderate productivity, and moderate vulnerability². The following table provides details of the aquifer in the area of the Site.

Table 3-2 Aquifer Characterization

NAME	DESCRIPTION/ LOCATION	MATERIALS	LITHOSTRATOGRAPHIC UNIT	CLASSIFICATION	SIZE (KM2)	TYPE OF WATER USE	AQ. NO.
680 IB (14)	Victoria S of Elk Lake, E of Finlayson Arm	Bedrock	Wark-Colquitz Complex; Paleozoic; Crystalline igneous and meta- igneous rocks	IB	209	Multiple	0680

3.6 FLOOD ZONE POTENTIAL

According to Environment Canada’s “Index of Designated Floodplain Areas by Region” the Site is not within a mapped flood zone and is therefore is considered to have a low potential for flooding from major off-site water bodies.

3.7 PRECIPITATION RECORDS

The nearest climate station to the Site is known as “Victoria Francis Park” (N 48°28’35.000”/ W 123°26’35.000”). According to Environment Canada Canadian Climate Normals³, the 29 year (1981-2010) mean-average annual precipitation for this area is 1,029.3 millimetres. The greatest amount of precipitation occurs during the months of November, December and January, while the driest months are July and August.

² BC MOE web site, “Aquifers and Water Wells of BC” aquifer data search. September 5, 2017

³ Environment Canada. *Canadian Climate Normals 1981-2010*.
http://climate.weatheroffice.ec.gc.ca/climate_normals/index_e.html

4 HISTORICAL RECORDS REVIEW

The results of the historical search and records review are summarized in the following sections.

4.1 CITY DIRECTORIES

City directories were reviewed to identify commercial and industrial purposes or activities likely to cause contamination (CSR Schedule 2 Activity). City directories were provided by the Vancouver Public Library. The City directories for the years: 1954, 1959, 1964, 1969, 1974, 1979, 1984, 1989, 1994 and 1999 were reviewed for the Site and the surrounding properties, within an approximate 300m radius of the Site. The findings of the review of the city directories for the Site and the surrounding properties are summarized in the following table:

Table 4-1 Summary of City Directory Search Results

CIVIC #	TENANT(S)	LISTED YEARS	DIST. FROM SITE (M)	DIR'N	INFERRED HYDROGEOLOGICAL POSITION
Subject Site					
Burnside Road West					
2401	Not listed	1954 - 1999	-	-	-
Surrounding Properties					
Burnett Road					
100 Block	Not listed Various individuals and businesses including the following	1954 - 1959 1964 - 1989	-	-	-
108	Douglas Carpet & Upholsters & Cleaning	1999	375	SE	Down-gradient
126	Klaus Masonry Klaus RV Tours Kanada West	1979 - 1999 1994 - 1999	385	SE	Down-gradient
129	Fort Victoria RV Park	1999	100	SE	Down-gradient
Burnside Road West					
1900 to 2699	No listings for these blocks Private individuals Various individuals and businesses including the following	1954 1959 - 1984 1989	-	-	-
1975	Burnside Photography Burnside Manor Wedding Coordinators	1999	285	N	
2586	Basketland Garden Centre	1989 - 1994	175	W/SW	Cross-gradient

CIVIC #	TENANT(S)	LISTED YEARS	DIST. FROM SITE (M)	DIR'N	INFERRED HYDROGEOLOGICAL POSITION
Kislingbury Lane					
All	Not listed No listings Private individuals	1954 - 1974 1979 - 1989 1994 - 1999	-	-	-
Talcott Road					
All	Not listed No listings Private individuals	1954 - 1959 1964 1969 - 1999	-	-	-
Trans-Canada Highway					
1500 to 1699	No listings Various individuals and businesses including the following	1954 1959 - 1974	-	-	-
es	Kingdom Hall of Jehovah's Witnesses	1959	Unknown	-	-
1560	Wilkin's Repairs (welding)	1964 - 1984	Adjacent	E	Down-gradient
1580	Henson Bulldozing Mount View Tree Service Alpine Arborists Greenleaves Tree Preservation Co. Patton Corrosion Control Acme Sanitary Rentals	1969 - 1984 1984 1984 1984 1989 1994	Adjacent	E	Down-gradient
1699	Adams Storage Village	1989 - 1999	270	SW	Down-gradient
Watkiss Way					
1800 to 2599	Not listed Private Individuals	1954 - 1989 1994 - 1999	-	-	-

Note: Businesses with potential historical CSR Schedule 2 activities are in **Bold**. Businesses of particular potential environmental concern are in **Bold and highlighted in yellow**.

Site

A review of the City Directories indicated that the Site was never listed.

Surrounding Properties

The surrounding properties were largely residential, with some small commercial and home-based businesses. Only two potential Schedule 2 Activities were identified in the immediate surrounding area which listed as a

welding shop (circa 1964 to 1984) and a bulldozing operation/yard and corrosion control business (circa 1969 to 1989). Both of these properties, which have since been redeveloped, are inferred to have been part of the adjacent property to east of the Site and are considered down-gradient. These properties are discussed further in Section 4.7.2.

4.2 AERIAL PHOTOGRAPHS

Aerial photographs relevant to the Site and surrounding area dating from 1926 (BA21: 57), 1932 (A4517: 68), 1949 (BC809: 114-115), 1956 (BC2042: 64-65), 1964 (BC5091: 146-147), 1969 (BC7119: 120-121), 1974 (BC5568: 21-22), 1979 (BC79213: 55-56), 1986 (BC86003:101-102), 1992 (BCB92141: 243-244), 1997 (BCB97005: 152-153) and 2005 (ME05493C: 56-57) (obtained from the UBC's Geographic Information Centre) were reviewed. In addition, the ortho map from the CRD's Webmap (2015) was reviewed. Features observed at the Site and the surrounding areas in the aerial photographs are summarized in the following table:

Table 4-2 Summary of Reviewed Aerial Photographs

YEAR	SUBJECT SITE	NORTH	SOUTH	EAST	WEST
1926	The Site appears to be agricultural land and the southwest corner appears to be treed. A clearing, inferred to be the CNR Railway runs through the north end of the Site.	Land to the north appears to be undeveloped, forested land. Burnside Road West is visible to the northwest of the Site.	Land to the south appears to be agricultural and undeveloped land. Scattered development is visible further south along the Island Highway.	Craigflower Creek is visible to the east of the Site. Areas beyond the creek appear to be undeveloped.	Land to the west appears to be agricultural and undeveloped land. Burnside Road West is visible adjacent to the Site.
1932	Generally similar to the previous photograph.				
1949	Generally similar to the previous photograph.	Generally similar to the previous photograph.	Increased development is visible further to the south.	Generally similar to the previous photograph.	Generally similar to the previous photograph.
1956	Generally similar to the previous photograph.	Generally similar to the previous photograph.	The Trans-Canada Highway is visible to the south of the Site. Increased development is visible further south.	Generally similar to the previous photograph.	Generally similar to the previous photograph. Scattered rural residential development is visible further west and northwest.
1964	Generally similar to the previous photograph.	Generally similar to the previous photograph.	Generally similar to the previous photograph. Increased development is visible further south.	Generally similar to the previous photograph. Scattered rural residential development is visible further east	Residential development to the west has increased.

YEAR	SUBJECT SITE	NORTH	SOUTH	EAST	WEST
1969	Generally similar to the previous photograph.	Generally similar to the previous photograph.	Generally similar to the previous photograph.	A small commercial operation is visible at the far east end of the adjacent property.	Generally similar to the previous photograph.
1974	Generally similar to the previous photograph.	Generally similar to the previous photograph.	Residential development to the south has increased.	Generally similar to the previous photograph.	A long building, inferred to be a greenhouse is visible to the west, just north of the Highway.
1979	Generally similar to the previous photograph.	Generally similar to the previous photograph.	Generally similar to the previous photograph.	The commercial operation on the adjacent property has expanded.	The greenhouse is no longer visible to the west.
1986	A high voltage power line is visible at the centre of the Site.	Generally similar to the previous photograph.	Increased development is visible across the Highway including a trailer park to the south and a storage unit property to the southwest.	An additional building is visible on the adjacent property, inferred to be a private residence.	A small operation, inferred to be a nursery, is visible further west.
1992	Generally similar to the previous photograph.	Generally similar to the previous photograph.	Development to the south, including the trailer park, has expanded.	Generally similar to the previous photograph.	Generally similar to the previous photograph.
1997	The Site appears to have been cleared. Two ditches, inferred to be man-made watercourses are visible at the centre and south end of the Site. The CNR Rail Line appears to end part way through the Site, with a new connection heading north. This is inferred to be the Galloping Goose Regional Trail, similar to its current configuration. The west end of the Site appears to have been built up in elevation.	Watkiss Way is visible to the north. Scattered residential development is visible beyond.	Substantial residential development is visible to the south of the Site across the Highway.	The adjacent property appears to have been cleared of previous structures. Residential development is visible beyond.	The adjacent area has been cleared of trees and the nursery property beyond is no longer visible. A new access from the Highway to Burnside Road West is under construction. Residential development further west and northwest is visible.

YEAR	SUBJECT SITE	NORTH	SOUTH	EAST	WEST
2005	An access road to the centre of the Site from Burnside Road West is visible which connects to a gravel figure 8. The fenced in electrical equipment is visible at the east end of the electrical tower. The right of way for the CRD Water is visible the the north end of the Site.	Residential development to the north and northeast of the Site has increased significantly. A school is visible to the north.	The Trans-Canada Highway has been changed to a split highway and the current off-ramp is clearly visible. Residential development across the Highway has continued to increase.	The adjacent property to the east has been redeveloped with a large facility inferred to be a youth custody centre. Five residential dwellings are visible on the adjacent properties to the northeast.	Residential development further west has continued to increase.
Ortho Map (2015)	The current archery range is visible at the centre of the Site in the area of the former figure 8. The trailer and other out buildings are also visible as are the trails to the sandbag targets at the west end of the Site.	Residential development to the north has continued to expand.	Generally similar to the previous photograph.	Residential development to the east has continued to expand.	Generally similar to the previous photograph. A small mixed commercial and residential development is visible immediately to the northwest.

SITE

A review of the aerial photographs indicates that the Site was largely agricultural land circa 1926. The Canadian National Railway (CNR) line bisected the north end of the Site at this time. The Site remained relatively unchanged until circa 1986 when the current electrical tower was first visible. By circa 1997, the Site appeared to have been cleared and the CNR line appeared to end part way through the Site and extend north, inferred to be the current Galloping Goose Trail. Two man-made watercourses were visible at the centre and west end of the Site at this time and the west end of the Site appeared to have been built up in elevation. By circa 2005, a gravel access road extended from Burnside Road West to the centre of the Site where a gravel 'figure 8' was visible. This area was redeveloped in to the current archery range by circa 2015. A spot check of Google Earth™ showed that the area of the archery range was filled in and levelled by October 2011 with the berm at the northeast end of the range and the sea can trailers visible to the north. Targets were visible on the range by 2012.

SURROUNDING PROPERTIES

A review of the historical aerial photographs indicates that the surrounding properties were a combination of agricultural and undeveloped land with scattered residential development circa 1926. The Trans-Canada Highway was first visible circa 1956 and an increase in residential development was also evident at this time. The area of the south across the highway was largely residential which continued to expand over the years through to the early 2000s. The surrounding properties to the north, east and west remained largely undeveloped until circa 1997 when construction along the Trans-Canada Highway was visible and Watkiss Road was present. By circa 2005, the Highway had been split and the current off-ramp to Burnside Road West was visible and residential development in the surrounding area expanded significantly. A small commercial operation was visible at the east end of the adjacent property to the east of the Site circa 1969. This property expanded over the years until circa 1997 when the property was cleared. By circa 2005, the adjacent property to the east was redeveloped with the current large facility, inferred to be a youth custody centre at that time.

4.3 FIRE INSURANCE PLANS

Fire Insurance Plans for the Greater Victoria area are kept at the City of Victoria Archives and BC Archives. The View Royal area is not included on the plans for Greater Victoria.

4.4 FORTIS BC RECORDS (FORMERLY TERASEN GAS)

Effective April 1, 2006, Fortis BC no longer provides connection and disconnection dates for gas services⁴. Natural gas was not connected to the temporary structures at the time of the Site visit.

4.5 GOVERNMENT RECORDS

4.5.1 TOWN OF VIEW ROYAL RECORDS

WSP contacted the Town of View Royal on September 8, 2017 regarding information on permits, utility connections and zoning. Information provided by the Town is summarized in the following sections:

BUILDING PERMITS AND BUILDING CONSTRUCTION DRAWINGS

According to the Town of View Royal, there was only one permit on file for the Site which was a highway access permit dated 2011. There are no building permits or building plans as there are no permanent buildings on-site. They also did not have any permits for the placement or removal of fill material for the Site.

UTILITY CONNECTIONS

The temporary structures on-site are not connected to any municipal services.

UNDERGROUND STORAGE TANKS

According to the Town of View Royal, they have no records for the installation or removal of storage tanks at the Site.

ZONING

The Site is currently zoned as "Parks and Recreation (P-3)". According to the Town of View Royal Zoning Bylaw No. 900, the P-3 zone provides for community gardens, golf courses, parks and open space and indoor/outdoor recreational facilities. A description of the zoning is provided in Appendix C.

4.5.2 HISTORICAL LAND TITLES

Current and historical land title information for the Site was provided by West Coast Title Search Ltd. A review of the historical land titles for the Site indicated that the Site was Crown Land until February 2001 when it was registered to BC Transportation Financing Authority. By March 2001, the Site was registered to the Provincial Capital Commission, who are the current owners of the Site.

⁴ Fortis BC letter: Titled "Environmental Inquiries Relating to Gas Service Installation Dates" (March 1, 2006). Fortis BC was formerly known as BC Gas in 2006.

Three Statutory Right-of-Ways (SRW) are identified on the current land title for the Site which are summarized as follows:

- Capital Regional District SRW ES12641 for a water trunk that runs along the south end of the north portion of the Site.
- British Columbia Hydro and Power Authority SRW EW81698 for an overhead power transmission line. This SWR runs in a northwest/southeast direction through the centre of the Site.
- Capital Regional District SRW CA4303457 for a portion of the Galloping Goose Trail. This SWR runs north from the former CNR Rail Line property to the intersection at Watkiss Way and Burnside Road West.

A copy of the current title and the results of a historical land title search are included in Appendix D.

4.6 FEDERAL CONTAMINATED SITES INVENTORY

The Treasury Board of Canada Secretariat maintains an inventory of all known contaminated sites held by various federal departments and agencies. This inventory does not include properties owned by Crown corporations, but does contain non-federal sites for which the Government of Canada has accepted some or all financial responsibility. All sites have been classified through a system developed by the Canadian Council of Ministers of the Environment (CCME).

A search of the Federal Contaminated Sites Inventory was conducted on September 11, 2017; no records were found within 500 m of the Site.

4.7 MINISTRY OF ENVIRONMENT

4.7.1 BC AQUIFER AND WATER WELL DATABASE

The existence and location of groundwater wells near the Site was searched on the BC MOE Water Resources Atlas database. The online database of the Water Management Division of BC MOE indicated that there were no water wells located on-Site and eleven water wells were within 500m of the Site. These wells were identified as private domestic or unknown well use and one irrigation well was identified approximately 385 m southeast of the Site.

The results of the BC MOE water well search are included in Figure 4, Appendix A.

4.7.2 BC ONLINE SITE REGISTRY SEARCH

A search of the online BC MOE Environmental Site Registry for the Site and surrounding properties within a radius of 500m from the Site was conducted on September 11, 2017. According to the BC MOE Online Site Registry, two (2) properties within 500m of the Site are registered or “listed”. A property listed in the Site Registry does not necessarily imply that the property is contaminated.

The following table provides details of the registered properties, their proximities and potential risk to the Site.

Table 4-3 Summary of Site Registry Search Results

SITE ID	ADDRESS	APPROXIMATE DISTANCE AND DIRECTION	DIRECTION FROM THE SITE WITH REGARDS TO THE INFERRED GROUNDWATER FLOW DIRECTION	SITE REGISTRY STATUS	POTENTIAL TO AFFECT THE ENVIRONMENTAL CONDITION OF THE SITE
1685	356 Old Island Highway	205 m southwest	Down-gradient	Report not obtained	Low
1714	1580 Trans-Canada Highway	Adjacent east	Down-gradient	Not assigned	Low

Based on its proximity to the Site, a detail report was obtained for Site ID 1714 (1580 Trans-Canada Highway) which indicated that the recorded status is “not assigned”. The building currently on this property is occupied by the Choices Transitional Home and was formerly the Victoria Youth Custody Centre. Prior to this building’s construction in the early 2000s, a portion of this property was occupied by various commercial and light industrial operations which, according to the Detail Report, had various Schedule 2 Activities present. This property is considered to pose a low potential of environmental concern to the Site due to the following:

- The former Schedule 2 Activities at this property are inferred to have occurred at the east end of the property (based on aerial review) and are considered hydraulically down-gradient from the Site.
- A Notice of Independent Remediation Initiation was submitted to the MoE for the property in January 2001 and the subsequent Notice of Independent Remediation Completion was submitted in April of the same year.
- The Site owner has not received a third party notification regarding off-site migration from this property.

The remaining above-listed registered property is considered to pose a low environmental concern to the Site based on its distances from the Site and/or locations with respect to the inferred groundwater flow direction.

The BC Online Site Registry search results are presented in Appendix E.

5 SITE RECONNAISSANCE

Ms. Christie Lucas of WSP completed a Site and surrounding area reconnaissance on September 6, 2017. The Site reconnaissance consisted of a walk-through to observe conditions at accessible areas onsite.

During the Site visit, WSP completed a Site Visit checklist to cover standard items involved in a Phase I ESA. Select photographs taken during the Site visit are presented in Appendix B. Observations and on-Site conditions recorded during the Site visit are discussed in the following sections.

5.1 SUBJECT SITE

SITE DESCRIPTION

- The Site is located on the east side of Burnside Road West, between the Trans-Canada Highway and Watkiss Way in View Royal, BC.
- The Site is accessible from Burnside Road West.
- The Site is bounded to the north by Watkiss Way followed by residential development and undeveloped land, to the east by residential properties and the Choices Transitional Home, to the south by the Trans-Canada

highway and west by Burnside Road West followed by residential properties, offices and a café and undeveloped land.

- The Site and surrounding area slopes from the northwest down to the southeast.

SITE BUILDING(S) AND INTERIORS

- No permanent buildings are present at the Site.
- Two sea can containers for archery supplies are present at the north end of the archery range. These containers are not connected to municipal utilities.

UNCOVERED AREAS

- A gravel access road and parking area extend from Burnside Road West easterly in to the centre of the Site.
- The centre area of the Site has been cleared, leveled and developed as an archery range. Walking trails through the southwest end of the Site have been cut in to the brush for sand bag targets for the range.
- Craigflower Creek flows along the eastern border of the Site and is surrounded by native vegetation. A wetland is present immediately south of the Site. Two man-made channels, inferred to be storm water diversion channels exist at the centre-south and southwest end of the Site. WSP understands that these waterways are being addressed by Stantec Inc. under a separate cover.
- The Galloping Goose Regional Trail extends from the east end of the Site to just north of the archery range where it veers north to the Watkiss Way and Burnside Road West intersection.

INACCESSIBLE AREAS

- Heavily wooded areas at the east end of the Site were not accessed at the time of the Site visit.

ABOVEGROUND AND UNDERGROUND STORAGE TANKS (ASTS / USTS)

- At the time of the Site visit, WSP's staff did not observe conditions typically associated with a UST, such as fill or vent pipes that would indicate a UST being present on the Site.
- There were no ASTs observed on-Site during the Site visit.
- According to the Town of View Royal, they do not have records of storage tanks being installed or removed from the Site.

AIR AND WATER DISCHARGES

- No issues regarding any air or water discharges were identified at the time of the Site reconnaissance.
- Water discharges at the Site are anticipated to infiltrate into the pervious ground surfaces.

NON- HAZARDOUS WASTE GENERATION, STORAGE AND DISPOSAL

- Non-hazardous waste generated on-site is collected and disposed of by a third party contractor.

HAZARDOUS WASTE GENERATION, STORAGE, HANDLING AND DISPOSAL

- No hazardous wastes were observed to be stored, generated or disposed of at the Site.

CHEMICAL STORAGE AND HANDLING

- Three jerry cans for gasoline are kept in one of the sea can containers to fuel a lawn mower. The jerry cans are always stored in the locked container. The container is in good repair and no major staining or spills were observed. No pesticides, herbicides or other chemicals are used at the Site.

SPILL AND STAIN AREAS

- No significant spills or stained areas of potential environmental concern were observed on-Site.

SOILS AND FILLS

- Based on observations made at the time of the Site visit and information reviewed during this investigation, WSP understands that there are various areas of fill material at the Site, which include the following:
 - Fill material was brought on to the Site in 2011 by a qualified contractor to level the area for the current archery range and build the berm at the east end of the range. Due to the unknown source of this material, the area of the archery range is considered an APEC.
 - A preliminary test-pitting investigation was recently completed by WSP's geotechnical division within the proposed development area at the west end of the Site. Fill material was identified in all six test pits, some of which extended beyond 4 meters below the ground surface. No foreign debris, odorous or stained soils or deleterious material was observed in the test pits; however, as this is the primary area for the planned development at the Site, this area is considered an APEC and environmental characterization of this fill material is recommended. The geotechnical report for the Site is being completed under a separate cover.

RADON GAS

- The Ministry of Health has completed a regional study of radon in homes in British Columbia (2012). The results of the study were published in a document entitled Cross-Canada Survey of Radon Concentrations in Homes - Final Report. According to the report, the average percentage of homes with elevated radon levels in Canada was near 7%. In BC, the proportion of homes with elevated radon levels in the Lower Mainland and Vancouver Island were significantly below the national average while the interior of BC had some of the highest elevated radon levels in Canada. For example, the East Kootenay region had 19% of homes with elevated radon levels while Kootenay Boundary had 19.3% and the Okanagan had 17.4% of homes with elevated radon levels.
- As the Site is located in View Royal, BC, WSP does not expect radon gas to be an environmental issue at the Site.

METHANE GAS

- WSP did not observe any areas of organic landfilling on-site during the Site visit. Therefore, there is a low potential that methane gas is an environmental issue at the Site.

5.1.1 HAZARDOUS BUILDING MATERIALS AND SUBSTANCES

Detailed background information of the hazardous building materials is included in Appendix F. The hazardous building materials and substances are discussed as follows.

As there are no permanent buildings at the Site, hazardous building materials such as asbestos containing materials, ozone depleting substances, lead-based paints and/or mercury are not anticipated to be present at the Site.

Polychlorinated Biphenyls (PCBs)

A BC Hydro tower and associated electrical equipment are present at the centre of the Site. No staining was noted in the area of the equipment at the time of the Site visit; however, the fenced hydroelectric area was not accessed during the Site visit and therefore it is inferred that PCB containing equipment may present within the fenced area and is considered a potential APEC at this time.

5.2 SURROUNDING PROPERTIES

During the September 6, 2017 Site visit, WSP conducted a reconnaissance of the surrounding area. WSP observed and photographed the surrounding properties from either the Site or from areas accessible to the public. The Site Photographs in Appendix B show various features of the surrounding area as of September 6, 2017.

At the time of Site visit, surrounding properties to the north included Watkiss Way followed by residential development and undeveloped land, to the east were residential properties and the Choices Transitional Home, to the south was the Burnside Road off-ramp and the Trans-Canada Highway and to the west were Burnside Road West followed by residential properties, offices and a café and undeveloped land.

6 INTERVIEWS

Mr. Al Wills of the Victoria Bowmen Archery Club, has been familiar with the Site for approximately 6 years and provided the following information:

- He informed WSP that the archery club has leased the Site since approximately 2011. The range was constructed specifically for the archery club and has never been used as a gun or rifle range.
- He was not aware of any previous industrial uses of the Site.
- He was not aware of any previous landfilling activities at the Site.
- He was aware of fill material that was brought on-site in 2011 for the purposes of leveling the archery range and building the berm at the east end of the range. He was unaware of the source of the fill material, however, the material was brought in by a qualified contractor (Don Mann Excavating). He was also aware that the west end of the Site had been filled in over time. To the best of his knowledge, the majority of it was done during construction of the Burnside Road off-ramp along the Trans-Canada Highway.
- He was not aware of the presence of any underground storage tanks at the Site.
- He was not aware of any historical environmental issues at the Site.
- He was aware of the Riparian Areas Assessment that was completed for the Site in 2011.
- He was not aware of any historical environmental issues at properties surrounding the Site.
- He was not aware of any third party notification letters issued by the owners of any surrounding properties.
- He was not aware of any spill or stain areas on the Site which need to be brought to the attention of WSP.
- He was not aware of any waste disposal areas onsite.
- He informed WSP that the on-site structures at the Site are not serviced. There are currently two self-contained outhouses on-site which are emptied on an as-needed basis by a qualified contractor.

7 APPLICABLE STANDARDS

At the time of preparation of this report, the Site was zoned as “Parks and Recreation (P-3)”. WSP understands that the proposed development for the Site is for a bus maintenance and administration facility. As such, the BC CSR soil standards for urban park land use (PL) currently apply and the commercial land use (CL) standards may apply in the future. For groundwater, the CSR drinking water (DW), irrigation water (IW) and freshwater aquatic life (AW-f) standards apply. For soil-vapour, the CSR soil vapour remediation standards for PL currently apply.

For soil classification/disposal purposes, the BC Hazardous Waste Regulation (HWR) standards/criteria also apply to the Site. Site-specific factors that apply at the Site are outlined in the following table.

Table 7-1 Applicable Regulatory Standards

SITE SPECIFIC FACTORS	APPLICABILITY	RATIONALE
Intake of contaminated soil	Yes	Applicable at all sites.
Groundwater used for drinking water (DW)	Yes	The drinking water standards are applicable at all sites unless the underlying aquifers' hydraulic conductivity, quality and/or yield proves that it is not capable of being a drinking water source.
Toxicity to soil invertebrates and plants	Yes	Applicable at all sites.
Groundwater flow to surface water used by freshwater (AW-f)	Yes	Freshwater surface water bodies are located within a 500m radius of the Site.
Groundwater flow to surface water used by marine (AW-m)	No	No marine surface water bodies are located within a 500m radius of the Site.
Groundwater used for livestock watering (LW) or irrigation (IW)	Yes	An irrigation well was identified within a 500 m radius of the Site.

Therefore, the following standards apply to the Site:

SOIL

- CSR PL standards

Site Specific factors include:

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

GROUNDWATER

- CSR Drinking Water (DW)
- CSR Irrigation Water (IW);
- CSR Freshwater Aquatic Life (AW-f);
- CSR Groundwater standards for EPHW₁₀₋₁₉ and VHW₆₋₁₀ apply to all sites irrespective of water uses.

SOIL VAPOUR

- CSR PL Standards

8 AREAS OF POTENTIAL ENVIRONMENTAL CONCERN (APECS)

From the information gathered during this investigation, four (4) on-site APECs and one (1) off-site APEC were identified. Information for the APECs are summarized in the following table. An APEC Location Plan (Figure 6) is attached in Appendix A.

Table 8-1 Summary of Identified APECs and PCOCs

APEC NO.	APEC DESCRIPTION	REGULATED PCOCS IN SOIL AND GROUNDWATER	REGULATED PCOCS IN VAPOUR	RISK RATING*
APEC #1 (on-Site)	Archery range - historical fill placement during construction of the range in 2011.	Metals Screening PCOCs: LEPHs/HEPHs, PAHs and VOCs including BTEX/VPH	VOCv, VPHv, Naphthalene if detectable in soil or groundwater	Moderate
APEC #2 (on-Site)	West end of the Site - area of fill placement and fill material identified during geotechnical investigation.	Metals and PAHs Screening PCOCs: LEPHs/HEPHs and VOCs including BTEX/VPH	VOCv, VPHv, Naphthalene if detectable in soil or groundwater	Moderate
APEC #3 (on-Site)	CRD Statutory Right-of-Ways (SRWs) at the north end of the Site - potential for use of herbicides to keep the SRWs clear of vegetation.	Herbicides	None	Low to Moderate
APEC #4 (on-Site)	BC Hydro SRW at the centre of the Site - potential for PCBs associated with on-site electrical equipment.	PCBs	None	Low to Moderate
APEC #5 (off-Site)	Former CNR and current Ministry of Transportation property bisecting the Site - potential historical use of herbicides and/or petroleum hydrocarbons to keep the rail line clear. Potential for buried rail materials from the former railway.	Metals, LEPHs/HEPHs, PAHs and herbicides	Naphthalene if detectable in soil or groundwater	Low to Moderate

Notes:

* Relative scale indicating potential for contamination to be present at the Site

High - Evidence of actual significant contamination

Moderate - Inferred potential significant contamination or evidence of minor contamination

Low to Moderate - Inferred potential minor contamination

Low - No inferred contamination

BTEX - Benzene, toluene, ethylbenzene, xylenes in soil groundwater and in vapour

VPH - Volatile petroleum hydrocarbons in soil and groundwater

VPHv - Volatile petroleum hydrocarbons in vapour

VOC - Volatile organic compounds in soil and groundwater

VOCv - Volatile organic compounds in vapour

LEPH - Light extractable petroleum hydrocarbons

HEPH - Heavy extractable petroleum hydrocarbons

PAHs - Polycyclic aromatic hydrocarbons

PCBs - Polychlorinated biphenyls

9 CONCLUSIONS

From information gathered from this assessment, WSP concludes the following:

- A review of historical information indicates that the Site was largely agricultural land as of the mid-1920s with the CNR rail line bisected the north end of the Site at that time. The Site remained relatively unchanged until the mid-1980s when the current high voltage tower was present. By the mid-1990s, the CNR rail line was no longer in use and the Galloping Goose Trail was present in its place. The current archery range has been present at the Site since 2011. Municipal services have never been connected to the Site. The current archery range has been present at the Site since 2011. Municipal services have never been connected to the Site.
- The surrounding area was a combination of agricultural and undeveloped land with scattered residential development as of the 1920s. Development in the area, which was largely residential, increased with the establishment of major roadways in the area which included the Trans-Canada Highway in the 1950s, and Watkiss Road in the 1990s. By the early 2000s, the Highway had been split and the current off-ramp to Burnside Road West was present and residential development in the surrounding area expanded significantly.
- A small commercial operation, occupants that included a welding shop, bulldozing operation/yard and corrosion control business, was present at the east end of the adjacent property to the east of the Site from the 1960s to the mid-1990s. This property was cleared and by the early 2000s, the current building was constructed which opened as a youth custody centre and is currently the Choices Transitional Home.
- Based on our historical records review, interview information and Site reconnaissance, four (4) on-Site and one (1) off-site areas of potential environmental concern were identified.
- At the time of the Site visit, there were no indications of aboveground or underground storage tanks observed being present at the Site.

10 RECOMMENDATIONS

Based on the reviewed information and current Site conditions, WSP's recommendations are as follows:

- A sub-surface investigation in the form of a Phase II Environmental Site Assessment is recommended at the Site at this time to assess the identified on and off-Site APECs.
- If any environmentally suspect fill material is encountered onsite during any future redevelopment activities, such fill should be characterized prior to disposal offsite or at a permitted facility.

11 PROFESSIONAL STATEMENT

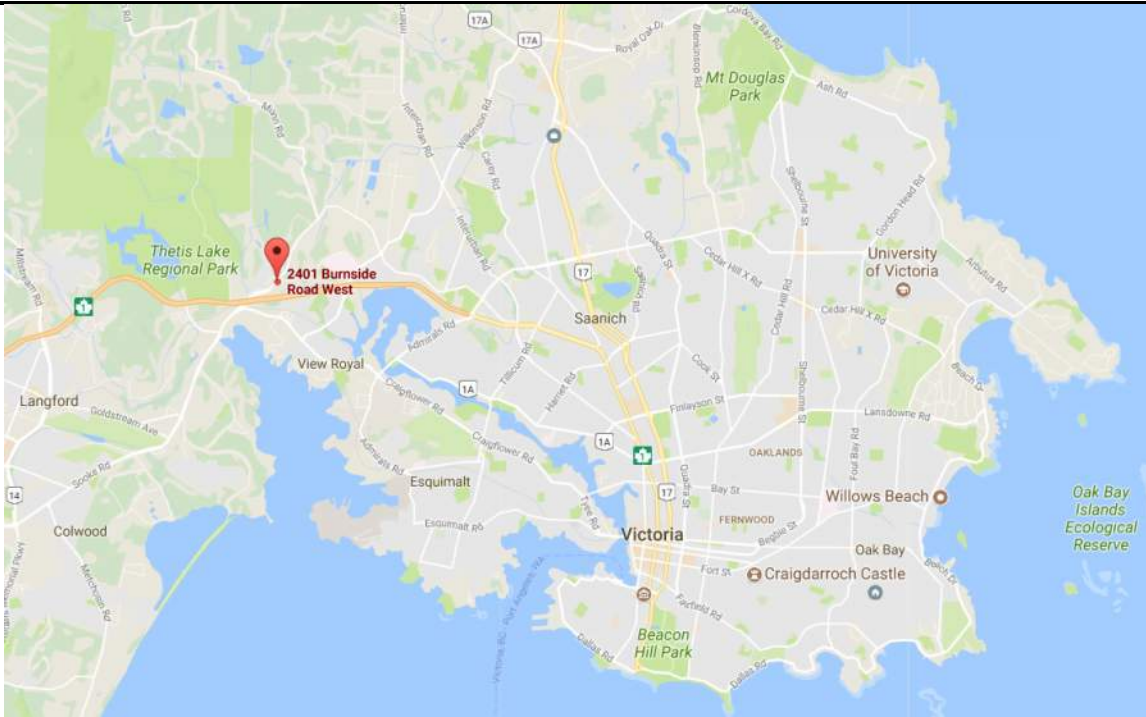
As required under Part 16, Section 63 of the "Environmental Management Act", Contaminated Sites Regulations (CSR, BC Reg. 375/96 including amendments up to BC Reg. 184/2016, July 19, 2016), WSP confirms that:

- 1** The Environmental Site Assessment report has been prepared in accordance with requirements of the Act and its regulations, policies, procedures and protocols; and
- 2** The person(s) signing this report has (have) demonstrable experience in conducting investigations of this type and are familiar with the investigation completed at the Site.

APPENDIX

A FIGURES





Approximate Site Boundaries



PROJECT:

PHASE I ENVIRONMENTAL SITE ASSESSMENT
2401 BURNSIDE ROAD WEST
VIEW ROYAL, BC

TITLE:

SITE LOCATION AND SITE PLAN

CLIENT:

BC TRANSIT

FIGURE NO.:
1

DATE:
SEPT 2017

FILE NO.:
169-00385-20

SCALE:
NTS

DRAWN BY:
CL

REV NO.:
1



LEGEND

— Site Boundaries



PROJECT:

PHASE I ENVIRONMENTAL SITE ASSESSMENT
2401 BURNSIDE ROAD WEST
VIEW ROYAL, BC

TITLE:

SURROUNDING LAND USE PLAN

CLIENT:

BC TRANSIT

FIGURE NO.:
2

DATE:
SEPT 2017

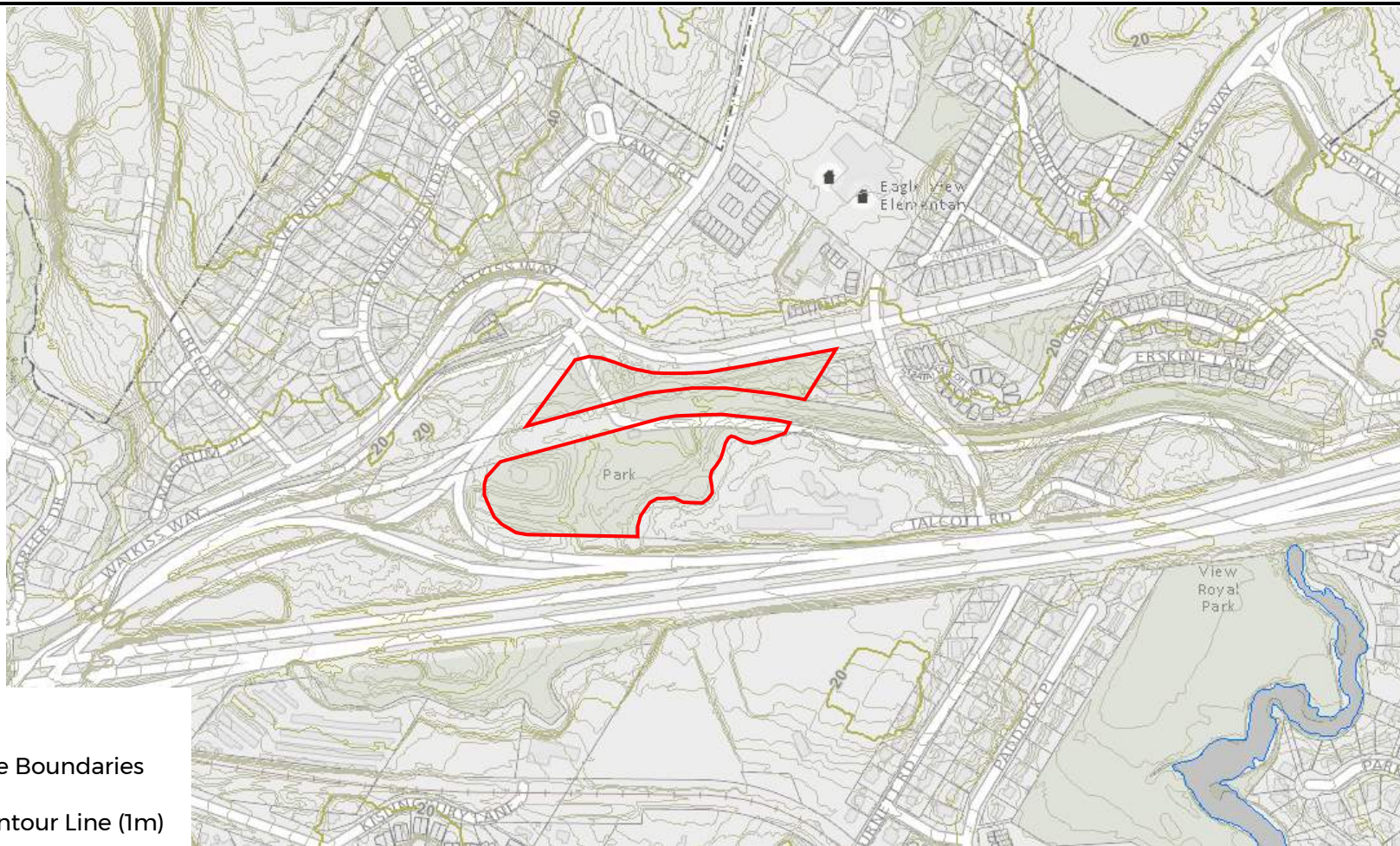
FILE NO.:
169-00385-20

SCALE:
NTS

DRAWN BY:
CL

REV NO.:

1



LEGEND

- Site Boundaries
- Contour Line (1m)



PROJECT:	PHASE I ENVIRONMENTAL SITE ASSESSMENT 2401 BURNSIDE ROAD WEST VIEW ROYAL, BC
TITLE:	SITE AND SURROUNDING TOPOGRAPHY
CLIENT:	BC TRANSIT

FIGURE NO.: 3	DATE: SEPT 2017	FILE NO.: 169-00385-20	SCALE: NTS	DRAWN BY: CL	REV NO.: 1
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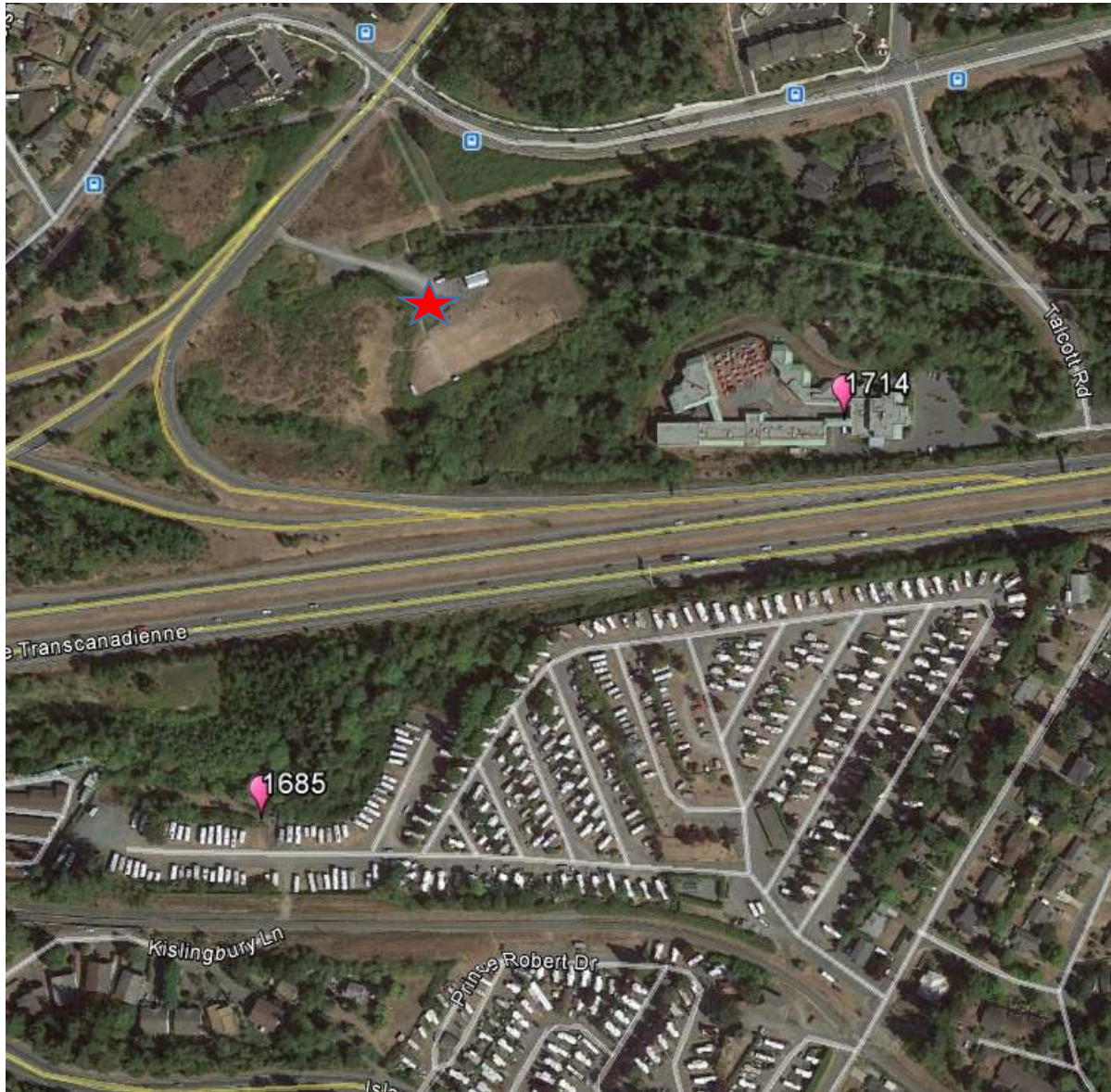
LEGEND

- Water Well
- ★ Subject Site






	PROJECT:				
	PHASE I ENVIRONMENTAL SITE ASSESSMENT 2401 BURNSIDE ROAD WEST VIEW ROYAL, BC				
	TITLE:				
WATER WELL SEARCH RESULTS					
CLIENT:					
BC TRANSIT					

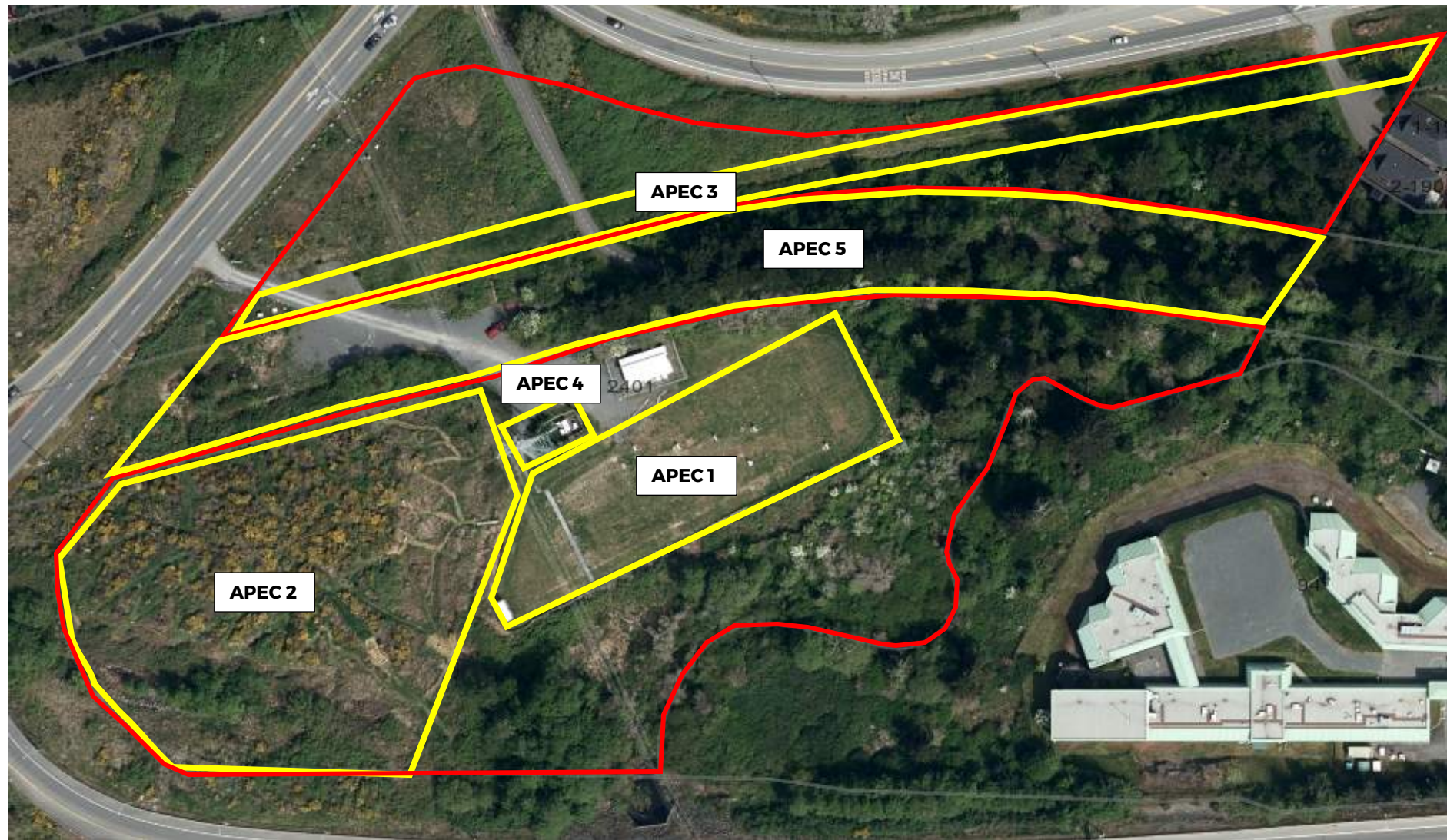
FIGURE NO.:	DATE:	FILE NO.:	SCALE:	DRAWN BY:	REV NO.:
4	SEPT 2017	169-00385-20	NTS	CL	1



LEGEND

-  Subject Site
-  Registered Sites

	PROJECT: PHASE I ENVIRONMENTAL SITE ASSESSMENT 2401 BURNSIDE ROAD WEST VIEW ROYAL, BC				
	TITLE: SITE REGISTRY SEARCH RESULTS				
	CLIENT: BC TRANSIT				
FIGURE NO.: 5	DATE: SEPT 2017	FILE NO.: 169-00385-20	SCALE: NTS	DRAWN BY: CL	REV NO.: 1



Summary of Identified APECs and PCOCs

APEC NO.	APEC DESCRIPTION	RISK RATING*
APEC #1 (on-Site)	Archery range - historical fill placement during construction of the range in 2011.	Moderate
APEC #2 (on-Site)	West end of the Site - area of fill placement and fill material identified during geotechnical investigation.	Moderate
APEC #3 (on-Site)	CRD Statutory Right-of-Ways (SRWs) at the north end of the Site - potential for use of herbicides to keep the SRWs clear of vegetation.	Low to Moderate
APEC #4 (on-Site)	BC Hydro SRW at the centre of the Site - potential for PCBs associated with on-site electrical equipment.	Low to Moderate
APEC #5 (off-Site)	Former CNR and current Ministry of Transportation property bisecting the Site - potential historical use of herbicides and/or petroleum hydrocarbons to keep the rail line clear. Potential for buried rail materials from the former railway.	Low to Moderate


Notes:

- * Relative scale indicating potential for contamination to be present at the Site
- High - Evidence of actual significant contamination
- Moderate - Inferred potential significant contamination or evidence of minor contamination
- Low to Moderate - Inferred potential minor contamination
- Low - No inferred contamination
- BTEX - Benzene, toluene, ethylbenzene, xylenes in soil groundwater and in vapour
- VPH - Volatile petroleum hydrocarbons in soil and groundwater
- VPH_v - Volatile petroleum hydrocarbons in vapour
- VOC - Volatile organic compounds in soil and groundwater
- VOC_v - Volatile organic compounds in vapour
- LEPH - Light extractable petroleum hydrocarbons
- HEPH - Heavy extractable petroleum hydrocarbons
- PAHs - Polycyclic aromatic hydrocarbons
- PCBs - Polychlorinated Biphenyls

LEGEND

- Site Boundaries
- APECs



	PROJECT: PHASE I ENVIRONMENTAL SITE ASSESSMENT 2401 BURNSIDE ROAD WEST VIEW ROYAL, BC					
	TITLE: APEC LOCATION PLAN					
	CLIENT: BC TRANSIT					
FIGURE NO.: 6	DATE: SEPT 2017	FILE NO.: 169-00385-20	SCALE: NTS	DRAWN BY: CL	REV NO.: 1	

APPENDIX

B

PHOTOGRAPHS





Photograph 1: Photo showing the gravel driveway entrance to the Site. Photo looking southeast.



Photograph 2: Photo showing the archery range at the centre of the Site that was levelled with fill circa 2011 (APEC #1). Photo looking northeast.



Photograph 3: Photo showing the west end of the Site where fill material was identified during a geotechnical investigation (APEC #2). Photo looking west.



Photograph 4: Photo showing the Statutory Right-of-Way for the CRD water line (APEC #3). Photo looking northeast.



Photograph 5: Photo showing the base of the BC Hydro Electrical Transmission Tower (APEC #4). Photo looking southeast.



Photograph 6: Photo showing a portion of the former Canadian National Railway, currently the Galloping Goose Trail (APEC #5). Photo looking east.



Photograph 7: Photo showing the surrounding properties to the northwest.



Photograph 8: Photo showing the surrounding area to the southeast.

APPENDIX

C

TOWN OF VIEW
ROYAL
INFORMATION

10.3.P-3: Parks and Recreation

10.3.1. Principal Uses

- a) Community Garden
- b) Golf Course
- c) Park and Open Space
- d) Recreational Facility, Outdoor
- e) Recreational Facility, Indoor

10.3.2. Accessory Uses

- a) Café
- b) Office
- c) Restaurant, Full-Service
- d) Retail Store

10.3.3. Conditions of *Use*

- a) *Accessory uses* must not exceed 25% of the *floor area* of the *principal uses* on the *lot*.

10.3.4. Lot Size, Lot Coverage, Building Height and Setbacks

P-3: Parks and Recreation	
Lot Size	
<i>Lot Size</i> , minimum	700m ²
<i>Lot Width</i> , minimum	16m
Lot Density	
<i>Floor Space Ratio</i> , Base Density	0.4
<i>Lot Coverage</i> , maximum	20%
<i>Impermeable Surface Coverage</i> , maximum	60%
Building Size	
<i>Building Height</i> , maximum	9m
<i>Building Width</i> , minimum	6m
<i>Accessory Building Height</i> , maximum	4.5m
Siting of <i>Principal Buildings</i> and Other Structures	
<i>Front Lot Line Setback</i> , minimum	7.5m
<i>Rear Lot Line Setback</i> , minimum	7.5m
<i>Side Lot Line Setback</i> , minimum	6.0m
<i>Flanking Lot Line Setback</i> , minimum	6.0m
Siting of <i>Accessory Buildings</i> and Other Structures	
All <i>lot lines</i> , minimum	1.2m

APPENDIX

D

HISTORICAL LAND
TITLES





West Coast
Title Search

ENVIRONMENTAL SEARCH FORM

CURRENT LEGAL: THAT PART OF SECTION 6 LAKE DISTRICT (LYING
PARTLY IN ESQUIMALT DISTRICT) INCLUDED WITHIN
PLAN VIP71333, EXCEPT THAT PART IN PLAN VIP88964

Client: WSP CANADA INC.

Invoice #: 116-412800

PID: 024-850-225

File Ref.: 169-00385-20

Title No.	Registered Owner	Title Registered	Title Cancelled	Prior Legal(s)	See Title attached for Charges Pertinent Charges noted below
FB 418342	PROVINCIAL CAPITAL COMMISSION	22/JUN/2011		SEE ABOVE	STATUTORY RIGHT OF WAY x 3; COVENANT
ES12640	PROVINCIAL CAPITAL COMMISSION	7/MAR/2001	22/JUN/2011	THAT PART OF SECTION 6 LAKE DISTRICT (LYING PARTLY IN ESQUIMALT DISTRICT) INCLUDED WITHIN PLAN VIP71333	STATUTORY RIGHT OF WAY x 2; COVENANT
ES12632	BC TRANSPORTATION FINANCING AUTHORITY	22/FEB/2001	7/MAR/2001	THAT PART OF SECTION 6 LAKE DISTRICT (LYING PARTLY IN ESQUIMALT DISTRICT) INCLUDED WITHIN PLAN VIP71333	COVENANT
CROWN					

DISCLAIMER: It is recommended to always obtain online titles (current and cancelled) showing live and cancelled charges. If requested, we will print online titles reflecting all current/former registered owners and any live and cancelled charges. The notation "online title not viewed" indicates we have only confirmed the name of one registered owner and have not checked charge information. Information on the form can be verified by checking the LTO documents. If you have any questions, please contact West Coast Title Search Ltd. in New Westminster at 604-659-8600 or 1-800-553-1936 and in Victoria at 250-405-6000 or 1-800-667-7767.

The requested title search results are displayed below. There is no fee for these results.



2017-09-01 12:34:00

Title Search Results

Requestor: Christina Lucas

File Reference: 169-00385-20

PID 024-850-225 U/ESQUIMALT////////6 PT IN PLAN VIP71333

PENDING APPLICATIONS: There are no pending applications

Title Number	Land Title District	Status	First Owner Name on Title
FB418342	Victoria	REGISTERED	PROVINCIAL CAPITAL COMMISSION
ES12632	Victoria	CANCELLED	BC TRANSPORTATION FINANCING AUTHORITY
ES12640	Victoria	CANCELLED	PROVINCIAL CAPITAL COMMISSION

1
CROWN

TITLE SEARCH PRINT

File Reference: 169-00385-20

2017-09-01, 12:34:57

Requestor: Christina Lucas

****CURRENT AND CANCELLED INFORMATION SHOWN****

Title Issued Under SECTION 189 LAND TITLE ACT

Land Title District VICTORIA
Land Title Office VICTORIA

Title Number FB418342
From Title Number ES12640

Application Received 2011-06-16

Application Entered 2011-06-22

Registered Owner in Fee Simple
Registered Owner/Mailing Address: PROVINCIAL CAPITAL COMMISSION
613 PANDORA AVENUE
VICTORIA, BC
V8W 1N9

Taxation Authority View Royal, Town of

Description of Land
Parcel Identifier: 024-850-225
Legal Description:
THAT PART OF SECTION 6 LAKE DISTRICT (LYING PARTLY IN ESQUIMALT DISTRICT)
INCLUDED WITHIN PLAN VIP71333, EXCEPT THAT PART IN PLAN VIP88964

Legal Notations NONE

Charges, Liens and Interests

Nature: COVENANT
Registration Number: ES12636
Registration Date and Time: 2001-02-20 09:17
Registered Owner: THE CROWN IN RIGHT OF BRITISH COLUMBIA
Remarks: INTER ALIA

Nature: STATUTORY RIGHT OF WAY
Registration Number: ES12641
Registration Date and Time: 2001-02-20 09:21
Registered Owner: CAPITAL REGIONAL DISTRICT
Remarks: PART IN PLAN VIP71973

TITLE SEARCH PRINT

File Reference: 169-00385-20

2017-09-01, 12:34:57

Requestor: Christina Lucas

Nature: STATUTORY RIGHT OF WAY
Registration Number: EW81698
Registration Date and Time: 2004-06-28 11:08
Registered Owner: BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

Nature: STATUTORY RIGHT OF WAY
Registration Number: CA4303457
Registration Date and Time: 2015-03-27 09:54
Registered Owner: CAPITAL REGIONAL DISTRICT
Remarks: PART IN PLAN EPP44260

Duplicate Infeasible Title NONE OUTSTANDING

Transfers NONE

Pending Applications NONE

Corrections NONE

TITLE SEARCH PRINT

File Reference:
Declared Value \$285000

2017-09-01, 13:06:52
Requestor: Cathy Studley

****CURRENT AND CANCELLED INFORMATION SHOWN****

Land Title District	VICTORIA
Land Title Office	VICTORIA
Title Number	ES12640
From Title Number	ES12632
Application Received	2001-02-20
Application Entered	2001-03-07
Title Cancelled	2011-06-22
Registered Owner in Fee Simple	
Registered Owner/Mailing Address:	PROVINCIAL CAPITAL COMMISSION 613 PANDORA AVENUE VICTORIA, BC V8W 1N9
Taxation Authority	View Royal, Town of
Description of Land	
Parcel Identifier:	024-850-225
Legal Description:	THAT PART OF SECTION 6 LAKE DISTRICT (LYING PARTLY IN ESQUIMALT DISTRICT) INCLUDED WITHIN PLAN VIP71333
Legal Notations	NONE
Charges, Liens and Interests	
Nature:	COVENANT
Registration Number:	ES12636
Registration Date and Time:	2001-02-20 09:17
Registered Owner:	THE CROWN IN RIGHT OF BRITISH COLUMBIA
Remarks:	INTER ALIA
Nature:	STATUTORY RIGHT OF WAY
Registration Number:	ES12641
Registration Date and Time:	2001-02-20 09:21
Registered Owner:	CAPITAL REGIONAL DISTRICT
Remarks:	PART IN PLAN VIP71973

TITLE SEARCH PRINT

2017-09-01, 13:06:52
Requestor: Cathy Studley

File Reference:

Declared Value \$285000

Nature:	STATUTORY RIGHT OF WAY
Registration Number:	EW81698
Registration Date and Time:	2004-06-28 11:08
Registered Owner:	BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

Duplicate Indefeasible Title NONE OUTSTANDING

Transfers

Registration Date:	2011-06-16
Description:	PART IN PLAN VIP88964 (ROAD ONLY) FB418803

Registration Date:	2011-06-22
Description:	REM FB418342

Corrections NONE

TITLE SEARCH PRINT
File Reference: 116-412800
Declared Value \$285000

2017-09-01, 13:15:55
Requestor: Cathy Studley

****CURRENT AND CANCELLED INFORMATION SHOWN****

Land Title District Land Title Office	VICTORIA VICTORIA
Title Number From Title Number	ES12632 CROWN GRANT
Application Received	2001-02-20
Application Entered	2001-02-22
Title Cancelled	2001-03-07
Registered Owner in Fee Simple Registered Owner/Mailing Address:	BC TRANSPORTATION FINANCING AUTHORITY BOX STN PROV. GOVT VICTORIA, BC V8W 9R1
Taxation Authority	View Royal, Town of
Description of Land Parcel Identifier: Legal Description:	024-850-225 THAT PART OF SECTION 6 LAKE DISTRICT (LYING PARTLY IN ESQUIMALT DISTRICT) INCLUDED WITHIN PLAN VIP71333
Legal Notations	NONE
Charges, Liens and Interests Nature: Registration Number: Registration Date and Time: Registered Owner: Remarks:	COVENANT ES12636 2001-02-20 09:17 THE CROWN IN RIGHT OF BRITISH COLUMBIA INTER ALIA
Duplicate Indefeasible Title	NONE OUTSTANDING
Transfers Registration Date: Description:	2001-03-07 ALL ES12640

TITLE SEARCH PRINT
File Reference: 116-412800
Declared Value \$285000

2017-09-01, 13:15:55
Requestor: Cathy Studley

Corrections

NONE

APPENDIX

E BC MOE DOCUMENTS



1_SiteRegSearchLat48Long123.txt

As Of: SEP 10, 2017 BC Online: Site Registry 17/09/11
For: PI63056 WSP CANADA INC. 13:30:23
Folio: 169-00385-20 Page 1
2 records selected for 0.5 km from latitude 48 deg, 27 min, 49.0 sec
and Longitude 123 deg, 26 min, 44.9 sec

Site Id	Lastupd	Address / City
0001685	02NOV04	356 OLD ISLAND HIGHWAY VICTORIA
0001714	01NOV23	1580 TRANS CANADA HIGHWAY VICTORIA

2_SiteRegDetailSiteID1714Lat48Long123.txt

As of: SEP 10, 2017 BC Online: Site Registry 17-09-11
Folio: 169-00385-20 For: PI63056 WSP CANADA INC. 13:45:37
Page 1

Detail Report

SITE LOCATION

Site ID: 1714 Latitude: 48d 27m 47.7s
Victoria File: Longitude: 123d 26m 34.7s
Regional File: 26250-20/1714
Region: NANAIMO, VANCOUVER ISLAND

Site Address: 1580 TRANS CANADA HIGHWAY
City: VICTORIA Prov/State: BC
Postal Code:

Registered: OCT 09, 1997 Updated: NOV 23, 2001 Detail Removed: NOV 14, 2001

Notations: 8 Participants: 10 Associated Sites: 0
Documents: 3 Susp. Land Use: 7 Parcel Descriptions: 2

Location Description: ALSO INCLUDES 1560 TALCOTT RD. LAT/LONG DERIVED BY
MAGELLAN GPS

Record Status: NOT ASSIGNED
Fee category: UNRANKED

=====
NOTATIONS

Notation Type: NOTICE OF INDEPENDENT REMEDIATION COMPLETION SUBMITTED (WMA
28(2))
Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS
Initiated: JUN 19, 2001 Approved: JUN 19, 2001

Ministry Contact: COLLISON-BAKER, JOHN

Notation Participants Notation Roles
LEVELTON ENGINEERING ASSOCIATES LTD (VICTORIA) SUBMITTED BY

Note: CLEAN UP LIMITED TO A PORTION OF THE SITE.

Notation Type: NOTICE OF INDEPENDENT REMEDIATION COMPLETION SUBMITTED (WMA
28(2))
Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS
Initiated: APR 10, 2001 Approved: APR 10, 2001

Ministry Contact: COLLISON-BAKER, JOHN

Notation Participants Notation Roles
LEVELTON ENGINEERING ASSOCIATES LTD (VICTORIA) SUBMITTED BY

Notation Type: NOTICE OF INDEPENDENT REMEDIATION INITIATION SUBMITTED (WMA
28(2))
Notation Class: WASTE MANAGEMENT ACT: CONTAMINATED SITES NOTATIONS
Initiated: JAN 05, 2001 Approved: JAN 05, 2001

Ministry Contact: COLLISON-BAKER, JOHN

As of: SEP 10, 2017 BC Online: Site Registry 17-09-11
For: PI63056 WSP CANADA INC. 13:45:37
Folio: 169-00385-20 Page 2
NOTATIONS

Notation Participants Notation Roles
LEVELTON ENGINEERING ASSOCIATES LTD (VICTORIA) SUBMITTED BY

Notation Type: CASE MANAGEMENT ITEM
Notation Class: ADMINISTRATIVE
Initiated: JUN 22, 1995 Approved: JUN 22, 1995

Ministry Contact: PATTEN, BARRY

Notation Participants Notation Roles
BC BUILDINGS CORPORATION (VICTORIA) REQUESTED BY

Note: PERMISSION TO DISPOSE OF STOCKPILE

Notation Type: REMEDIATED TO RESIDENTIAL/RECREATIONAL/AGRICULTURAL LEVELS
(DRAFT CMCS 21/11/89)
Notation Class: ADMINISTRATIVE
Initiated: JUN 22, 1995 Approved: JUN 22, 1995

Ministry Contact: PATTEN, BARRY

Notation Participants Notation Roles
LEVELTON ENGINEERING ASSOCIATES LTD (VICTORIA) SUBMITTED BY
PATTEN, BARRY REVIEWED BY
BC BUILDINGS CORPORATION (VICTORIA) RECEIVED BY

Notation Type: CONCENTRATION CRITERIA APPROACH USED
Notation Class: ADMINISTRATIVE
Initiated: JUN 22, 1995 Approved: JUN 22, 1995

Ministry Contact: PATTEN, BARRY

Notation Type: SITE INVESTIGATION REPORT SUBMITTED
Notation Class: ADMINISTRATIVE
Initiated: AUG 15, 1994 Approved: AUG 15, 1994

Ministry Contact: PATTEN, BARRY

Notation Participants Notation Roles
BC BUILDINGS CORPORATION (VICTORIA) SUBMITTED BY

Note: REPORT OF PHASE II ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED VICTORIA
YOUTH CUSTODY CENTRE VIEW ROYAL, B.C.

Notation Type: REMEDIATION PLAN REPORT SUBMITTED
Notation Class: ADMINISTRATIVE
Initiated: AUG 15, 1994 Approved: AUG 15, 1994

Ministry Contact: PATTEN, BARRY

As of: SEP 10, 2017

BC Online: Site Registry
For: PI63056 WSP CANADA INC.

17-09-11

13:45:37

Page 3

Folio: 169-00385-20

NOTATIONS

Notation Participants

BC BUILDINGS CORPORATION (VICTORIA)

Notation Roles

SUBMITTED BY

Note: REPORT OF PHASE II ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED VICTORIA
YOUTH CUSTODY CENTRE VIEW ROYAL, B.C.

=====

SITE PARTICIPANTS

Participant: BC BUILDINGS CORPORATION (VICTORIA)

Role(s): PROPERTY OWNER

Start Date: MAR 15, 1993

End Date:

Notes: J. CUTHBERT

Participant: BOLLANS, RON A

Role(s): ALTERNATE MINISTRY CONTACT

Start Date: JAN 05, 2001

End Date: MAR 29, 2002

Participant: COLLISON-BAKER, JOHN

Role(s): ALTERNATE MINISTRY CONTACT

Start Date: JAN 05, 2001

End Date:

Participant: HENSON, JACK ROBERT

Role(s): FORMER PROPERTY OWNER

Start Date: JAN 01, 1964

End Date:

Notes: 1580 TRANS CANADA

Participant: LEVELTON ENGINEERING ASSOCIATES LTD (VICTORIA)

Role(s): ENVIRONMENTAL CONSULTANT/CONTRACTOR

Start Date: APR 03, 1993

End Date:

Notes: LORI REYNOLDS

Participant: PATTEN, BARRY

Role(s): MAIN MINISTRY CONTACT

Start Date: MAR 15, 1993

End Date: MAR 31, 2003

Participant: THREE SISTERS HOLDINGS LTD.

Role(s): FORMER PROPERTY OWNER

Start Date: MAR 16, 1990

End Date: OCT 13, 1993

Participant: THURBER ENVIRONMENTAL CONSULTANTS LTD (VICTORIA)

Role(s): ENVIRONMENTAL CONSULTANT/CONTRACTOR

Start Date: FEB 15, 1993

End Date:

Notes: E.J. MCQUARRIE

Participant: UPTON, MAURICE

Role(s): LEASEE/RENTER/TENANT

Start Date: MAR 15, 1993

End Date:

Participant: WILKIN, GORDON AND MARGERY
Role(s): FORMER PROPERTY OWNER
Start Date: JAN 01, 1958 End Date:

As of: SEP 10, 2017 BC Online: Site Registry 17-09-11
For: PI63056 WSP CANADA INC. 13:45:37
Folio: 169-00385-20 Page 4
SITE PARTICIPANTS

Notes: 1560 TALCOTT

DOCUMENTS

Title: SOIL STOCKPILE DISPOSAL PROPOSED YOUTH CUSTODY CENTRE 1580 ISLAND
HIGHWAY, VIEW ROYAL
Authored: JUN 05, 1995 Submitted: JUN 13, 1995
Participants Role
LEVELTON ENGINEERING ASSOCIATES LTD (VICTORIA) AUTHOR
BC BUILDINGS CORPORATION (VICTORIA) COMMISSIONER
PATTEN, BARRY REVIEWER

Title: REPORT OF PHASE 2 ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED VICTORIA
YOUTH CUSTODY CENTER VIEW ROYAL, BC
Authored: APR 16, 1993 Submitted: AUG 15, 1994
Participants Role
LEVELTON ENGINEERING ASSOCIATES LTD (VICTORIA) AUTHOR
BC BUILDINGS CORPORATION (VICTORIA) COMMISSIONER
PATTEN, BARRY REVIEWER

Notes: SIRS AND RPRS

Title: 1560 TALCOTT ROAD 1580 TRANS CANADA HIGHWAY ENVIRONMENTAL SITE
ASSESSMENT
Authored: MAR 15, 1993 Submitted: AUG 15, 1994
Participants Role
THURBER ENVIRONMENTAL CONSULTANTS LTD (VICTORIA) AUTHOR
BC BUILDINGS CORPORATION (VICTORIA) COMMISSIONER
PATTEN, BARRY REVIEWER

Notes: PRELIMINARY ENVIRONMENTAL ASSESSMENT

SUSPECTED LAND USE

Description: AUTO/TRUCK/BUS/SUBWAY/OTHER VEHICLE REPAIR/SALVAGE/WRECKING
Notes: 1580 ISLAND HWY AND 1560 TALCOTT RD

Description: BATTERY (LEAD ACID/OTHER) MANUFACTURING/WHOLESALE BULK STORAGE
Notes: 1560 TALCOTT RD, BATTERY STORAGE

Description: PAINT/LACQUER/VARNISH MANU/FORMULAT/RECYCLE/WHOLESALE BULK STORAGE
Notes: 1560 TALCOTT RD

Description: PETRO. PROD., /PRODUCE WATER STRG ABOVEGRND/UNDERGRND TANK
Notes: 1560 TALCOTT RD

2_SiteRegDetailSiteID1714Lat48Long123.txt

Description: SANDBLASTING WASTE DISPOSAL
Notes: 1580 ISLAND HWY, PATTON COROSION CONTROL

Description: WASTE OIL, REPROCESSING, RECYCLING OR BULK STORAGE
Notes: 1560 TALCOTT RD

Description: WELDING OR MACHINE SHOPS (REPAIR OR FABRICATION)

As of: SEP 10, 2017 BC Online: Site Registry 17-09-11
For: PI63056 WSP CANADA INC. 13:45:37
Folio: 169-00385-20 Page 5
SUSPECTED LAND USE

Notes: 1560 TALCOTT RD

=====

PARCEL DESCRIPTIONS
Date Added: NOV 23, 1995 Crown Land PIN#:
LTO PID#: 004151615 Crown Land File#:
Land Desc: LOT 1, SECTIONS 92 AND 94, ESQUIMALT DISTRICT, PLAN 15478EXCEPT
PART IN PLAN 3768 RW AND VIP65934

Date Added: NOV 23, 1995 Crown Land PIN#:
LTO PID#: 004572394 Crown Land File#:
Land Desc: LOT 1, SECTION 92, ESQUIMALT DISTRICT, PLAN 13451 EXCEPT PART IN
PLAN 3768 RW

No activities were reported for this site

End of Detail Report

APPENDIX

F

BACKGROUND
INFORMATION EMA,
CSR AND HAZARDOUS
BUILDING MATERIALS



BACKGROUND INFORMATION OF EMA AND CSR

The Waste Management Act (WMA) addressed contaminated sites in British Columbia since 1988. The Waste Management Amendment Act, 1993 (WMAA, also known as Bill 26) was passed in June 1993. The MOE added provisions, which specifically addressed contaminated sites, and promulgated the Contaminated Sites Regulation¹ (CSR), which came into effect on 1 April 1997. The first, second and third stage amendments to the CSR were made on 19 July 1999, 4 February 2002 and 20 November 2003, respectively. In July 2004, the WMA was repealed and replaced by the Environmental Management Act (EMA), and the CSR was amended. A revised CSR with 10 Schedules was promulgated at this time. The fifth, sixth, seventh, eighth, and ninth stage amendments were made to the CSR in 2007, 2008, 2011, 2013, and 2014 respectively. The CSR is currently in effect under the EMA. The current version of the CSR has 11 Schedules. The 11th Schedule contains soil vapour standards for volatile substances in different land use scenarios. The CSR has staged investigations as follows:

- Stage 1 PSI comprises of a historical search and records review, and a walk-through site visit.
- Stage 2 PSI comprises of selective sampling and analyses of environmental media at identified APECs to determine the presence or absence of potential contaminants of concern (PCOCs) exceeding the applicable standards.
- Detailed Site Investigation (DSI) comprises of evaluation of the lateral and vertical extents of contaminants of environmental concern (COCs) in different media at areas of environmental concern (AECs) identified during the Stage 2 PSI.

Canadian Standards Association² (CSA) refers to Stage 1 and Stage 2 PSIs as Phase I and Phase II Environmental Site Assessments (ESAs), respectively. The DSI is considered a part of the Phase II ESA if contamination is identified. A Phase III ESA consists of remediation or risk assessment.

¹ Contaminated Sites Regulation (CSR, BC Reg. 375/96 including amendments up to BC Reg. 184/2016, July 19, 2016); Effective 1 April 1997; Ministry of Environment; Victoria, British Columbia.

² Canadian Standards Association (CSA); Phase I Environmental Site Assessment (CSAZ768-01 (R2012)); Rexdale, Ontario.



BACKGROUND INFORMATION OF HAZARDOUS BUILDING MATERIALS

ASBESTOS CONTAINING MATERIALS (ACMS):

Asbestos is a naturally occurring fibrous material that has been commonly used in construction from the early 1900s until the 1990s. It was used extensively because it is an insulator, has good fire protection properties, has tensile strength, and is resistant to chemical erosion. Some of the common uses of asbestos in buildings include spray applied fireproofing, mechanical insulation, linoleum, floor tiles, dry wall taping compound, vermiculite, asbestos cement board and tiles, asbestos cement pipes, and textured decorative coating.

The use of friable asbestos containing materials (ACMs) in buildings was gradually reduced in Canada through the 1970s and 1980s. WorkSafe BC requires that all buildings constructed before 1990 should be tested for asbestos before any demolition or renovation work. Any building which is a workplace must have an inventory prepared of all asbestos containing materials and an Asbestos Management Plan must be developed and maintained until all ACMs have been removed from the building.

OZONE DEPLETING SUBSTANCES:

An ozone-depleting substance ("ODS") refers to any substance containing chlorofluorocarbon ("CFC"), hydrochlorofluorocarbon ("HCFC"), halon or any other material capable of destroying ozone in the atmosphere. ODSs have been used in rigid polyurethane foam and insulation, laminates, aerosols, air conditioners, fire extinguishers, cleaning solvents and the sterilization of medical equipment.

Federal regulations introduced in 1995 required the elimination of production and import of CFCs by 1 January 1996 (subject to certain essential uses) and a freeze on the production and import of HCFC-22 by 1 January 1996. These regulations also require the complete elimination of HCFC-22 by the year 2020. The provincial/territorial governments manage the use and handling of ODS. The B.C. Government passed the Ozone Depleting Substances Regulation in 1993 to control ODS stored in products and equipment, and encourage consumers and industry to use more environmentally safe alternatives.

WSP expects a low potential for environmental concern with respect to ODSs at the Site as long as any ODS containing items are maintained properly. Prior to demolition or disposal, equipment which contains ozone depleting substances should be degassed by a certified / licensed contractor as required by British Columbia's Ozone Depleting Substances Regulation.

POLYCHLORINATED BIPHENYLS:

In Canada, polychlorinated biphenyls ("PCBs") were prohibited from being used in products, fluorescent light ballasts, equipment, machinery, electrical transformers and capacitors, which were manufactured or imported into the country after July 1, 1980. However, older equipment in use after this date may still contain PCBs if the equipment's fluid has not been changed, or if there was sufficient inventory of such equipment.

If a building is to be demolished all light ballasts and dielectric fluid containing equipment should be checked for PCB content prior to disposal. PCB ballasts should be recycled when removed from service. The Light Recycle website provides a list of recycling facilities which accept PCB ballasts at <http://www.lightrecycle.ca/>.



LEAD-BASED PAINTS:

Many older properties in Canada may have surfaces that are painted with lead-based paint. Removing or disturbing this paint when you are renovating could expose people within the building to serious health risks. Buildings built and painted before 1960 probably contain lead-based paint. Buildings built and painted between 1960 and 1990 may have small amounts of lead in some of the painted indoor surfaces. Highest amounts of lead were used in exterior paints. There is little concern about lead-based paint in buildings built and painted in 1991 or later, because most consumer paints produced in Canada and the U.S. since that time contain no more than background levels of lead. However, some specialty coatings (such as artists' paints and metal touch-up coatings) can contain higher levels of lead.

The lead content of consumer paints sold, imported or advertised in Canada is regulated under the Surface Coating Materials Regulations. In October 2010, the Government amended the *Surface Coating Materials Regulations* to significantly lower the level of total lead allowed in paints and other surface coating materials from 600mg/kg to 90 mg/kg - which is equivalent to a lead concentration of 0.009%.

Lead-based paint in good condition presents a relatively low risk if left undisturbed. If paint is in a flaking condition, it is advisable to have the paint chips tested for lead content. Any lead abatement should only be conducted by a qualified contractor following WorkSafe BC guidelines. Lead painted surfaces must be tested for leachability before disposal at a landfill site.

MERCURY:

Mercury switches were commonly used in thermostats both in residential and commercial/industrial buildings. Mercury is a poisonous heavy metal and devices containing mercury once out of use are to be treated as hazardous waste. These switches therefore have to be disposed appropriately. Mercury is also present in fluorescent light tubes, compact fluorescent lamps and halide lamps.

Mercury thermostats can be disposed of under the "Switch the 'Stat" program which is a thermostat replacement and collection program delivered in partnership with the Heating Refrigeration and Air Conditioning Institute of Canada (HRAI) in British Columbia. Drop of locations can be found at <http://switchthestat.ca/eng/index.php>. Fluorescent light tubes and compact fluorescent lamps can be disposed of under the Light Recycle program <http://www.lightrecycle.ca/>.

RADON GAS:

Radon is a colourless, odourless radioactive gas that occurs naturally from the breakdown of uranium. Radon can be found where soils and rocks contain uranium mineral. It is a radioactive gas that is produced by the decay of uranium. Radon is naturally occurring, and emanates from soil and rocks. It percolates up through soil into buildings, and if it is not evacuated there can be much higher exposure levels indoors than outdoors. In open air or in areas with high air circulation, radon is not considered a health problem. Fortunately, high radon levels can be easily tested for, allowing for mitigation. Health Canada's guideline for the acceptable level of indoor radon in a normal living area is 200 Bq/m³. Radon is a known carcinogen, and is estimated to cause up to 10% of all lung cancers in Canada.

In March 2012, Health Canada undertook a large scale study of radon levels in homes across Canada and the results of the study were published in a document entitled *Cross-Canada Survey of Radon Concentrations in Homes - Final Report*. According to the report, the average percentage of homes with elevated radon levels in Canada was near 7%. In BC, the proportion of homes with elevated radon levels in the Lower Mainland and Vancouver Island were significantly below the national average while the interior of BC had some of the highest elevated radon levels in Canada. For example, the East Kootenay region had 19% of homes with elevated radon levels while Kootenay Boundary had 19.3% and the Okanagan had 17.4% of homes with elevated radon levels.

However, according to Health Canada's *Reducing Radon Levels in Existing Homes: A Canadian Guide for Professional Contractors*, there is such a high variability in housing construction that even adjacent homes can have significantly different concentrations of radon. Only through radon testing can the radon levels in a home be determined with certainty.

APPENDIX

G

STANDARD
LIMITATIONS



STANDARD LIMITATIONS

WSP CANADA INC. CONDUCTED A PHASE I ENVIRONMENTAL SITE ASSESSMENT (THE “Project”) AT THE PROPERTY LOCATED AT 2401 BURNSIDE ROAD WEST IN VIEW ROYAL, BC (THE “Site”) AS REQUESTED BY BC TRANSIT (THE “Client”) AND AGREED UPON IN THE REQUEST FOR PROPOSAL SUBMITTAL DATED JULY 28, 2017 (THE “Proposal”). THE FINDINGS AND CONCLUSIONS ARE DOCUMENTED IN THIS REPORT (THE “Report”). SUCH USE AND RELIANCE BY Client IN THIS Report IS SUBJECT TO THE TERMS, CONDITIONS AND LIMITATIONS SET OUT IN WSP’S TERMS OF ENGAGEMENT FOR THE Project.

1. The findings and conclusions documented in this Report have been prepared for specific application to this Project and have been developed in a manner consistent with that level of care normally exercised by environmental professionals currently practicing under similar conditions in the area.
2. The findings of this Report are based solely on data collected on Site during this investigation and pertain only to the locations that have been investigated and on the conditions of the Site during the completion of the work and services. WSP Canada Inc. has relied on good faith on information provided by individuals and sources noted in the Report. No other warranty, expressed or implied, is made.
3. If new information is developed in future work that affects the conclusions of this Report, WSP Canada Inc. should be contacted to re-evaluate the conclusions of this Report and provide amendments as required.
4. The service provided by WSP Canada Inc. in completing this Report is intended to assist the Client in a business decision. The liability of the Site is not transferred to WSP Canada Inc. as a result of such work and services, and WSP Canada Inc. does not make recommendation regarding the purchase, sale, or investment in the property.
5. This document is intended for the exclusive use of BC Transit for whom it has been prepared. WSP does not accept responsibility to any third party for the use of information presented in this Report, or decisions made or actions taken based on its content.
6. The information presented in this Report is based on, and limited by, the circumstances and conditions acknowledged herein, and on information available at the time of its preparation. WSP has exercised reasonable skill, care, and diligence to assess the information acquired during the preparation of this Report, but cannot guarantee or warrant the accuracy or completeness of the information. Information provided by others, whether represented or otherwise utilized, is believed to be accurate but cannot be guaranteed.

