

Phase 1 Environmental Site Investigation

707 Keith Road and 825 Taylor Way West Vancouver, BC



Prepared for:
Milliken Developments
334 – 901 West 3rd Street
North Vancouver, BC
V7P 3P9

Prepared by:
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PGL File: 4151-01.01

November 2012



Executive Summary

Pottinger Gaherty Environmental Consultants Ltd. (PGL) conducted a Phase 1 Environmental Site Investigation – Site History and Inspection of 707 Keith Road and 825 Taylor Way, West Vancouver, BC (the Site). To look for risk of environmental contamination on the subject Site, we reviewed the history of the Site and area, visited the Site on November 14, 2012 and interviewed people familiar with it.

The Site is in the Sentinel Hill area of West Vancouver and consists of two legal lots at the northwest corner of Keith Road and Taylor Way. Each lot is occupied by a single-family dwelling. The 825 Taylor Way lot is a large parcel (5,321m²) with the dwelling located near the northwest corner. The 707 Keith Road lot is a small parcel (1,123m²) at the corner of Taylor Way and Keith Road with the dwelling occupying the centre of the lot. 825 Taylor Way has been occupied by a single-family dwelling since 1954, and 707 Keith Road has been occupied by a single-family dwelling since late 1979. Prior to 1954, the entire Site was undeveloped forested land.

The area surrounding the Site has been residential use since the first local development in the 1940s. Park Royal Mall, located to the south, was opened in 1950 and commercial development along Marine Drive soon followed.

We reviewed the Site for environmental issues normally assessed in a Phase 1 investigation. We identified the following as areas of potential environmental concern.

- Possible historical heating-oil underground storage tanks (UST) at the 825 Taylor Way dwelling; and
- Regulated building materials in both dwellings.

No evidence of USTs was found in our inspection or interviews, but an UST cannot be entirely ruled out for the pre-1973 dwelling on 825 Taylor Way because it may have been heated with oil. Further investigation in the absence of indicators of contamination is not warranted. Possible USTs are generally best dealt with during excavation or Site preparation, if they are encountered. PGL recommends a qualified environmental consultant be available during Site excavation (if any) in case an UST is discovered.

Due to the age of the buildings, building components that are regulated in some circumstances, such as asbestos, lead paint and polychlorinated biphenyls (PCBs) (in light ballasts) may be present. PGL recommends a regulated building materials survey be completed prior to renovation or demolition.

No further investigation is recommended.

This Executive Summary is subject to the same standard limitations as contained in the report and must be read in conjunction with the entire report.

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List of Acronyms

AST	-	aboveground fuel storage tank
MOE	-	BC Ministry of Environment
PCBs	-	polychlorinated biphenyls
PGL	-	Pottinger Gaherty Environmental Consultants Ltd.
UST	-	underground fuel storage tank

1.0 INTRODUCTION

Pottinger Gaherty Environmental Consultants Ltd. (PGL) is pleased to provide our Phase 1 Environmental Site Investigation – Site History and Inspection of 707 Keith Road and 825 Taylor Way, West Vancouver, BC (the Site, Figure 1). This Phase 1 investigation was conducted to assess the likelihood of environmental contamination at the Site, whether from Site use or nearby site use. This report describes the Site and area uses and history, discusses environmental contamination risks, and presents our conclusions/recommendations.

1.1 Purpose

We understand that this report is intended for due diligence purposes. This Phase 1 investigation has been completed in accordance with Canadian Standards Association (CSA) Z768-01 and pertinent BC legislation including the *Environmental Management Act* (July 2004) and Contaminated Sites Regulation. This report may not include sufficient documentation for regulatory review. Regulatory reports are more technical than what is typically required for financing purposes and therefore, more costly to prepare. If regulatory submission is ever necessary, we can augment this report. For more information, please see the attached Information Sheet – Phase 1 Site Investigation.

2.0 RECORDS REVIEW

This assessment was based on our review of the records listed below:

1. Business directories;
2. Historical aerial photographs of the area;
3. Municipal Internet sites; and
4. Ministry of Environment Site Registry.

For this report a historical title search was not conducted and fire insurance maps were not available for the Site. A historical title search was not warranted given the property use and information available. Fire insurance maps were never developed for the area of the Site. The absence of this information is not considered a significant limitation to this investigation, as sufficient information was obtained from reviewed sources.

3.0 SITE DESCRIPTION

The Site is in the Sentinel Hill area of West Vancouver and consists of two legal lots at the northwest corner of Keith Road and Taylor Way. Each lot is occupied by a single-family dwelling. The 825 Taylor Way lot is a large parcel (5,323m²) with the dwelling located near the northwest corner. The 707 Keith Road lot is a small parcel (1,123m²) at the corner of Taylor Way and Keith Road with the dwelling occupying the centre of the lot. Both dwellings are wood-frame construction on concrete foundations that follow the steep slope of the Site. The 825 Taylor Way dwelling is a one-storey building with a basement, but the basement is at grade on the south side of the house. The 707 Keith Road dwelling is a two-storey building with a basement, but the basement is at grade on the south side of the house. Except for the immediate area around the dwelling, the 825 Taylor Way parcel is undisturbed natural tree growth and dense underbrush, mostly brambles. The 707 Keith Road Parcel is fully landscaped with lawns, decorative plantings and a water feature. A paved driveway fronts the house on the Keith Road side.

The local topography generally slopes downward steeply to the south. We assume the groundwater flow direction is to the south based on topography. The inferred water table in the area is approximately 5m or more below ground. Geological maps and company data indicate surficial soils in the area consist of raised marine, deltaic and fluvial deposits of the Capilano Sediments Group. The stratigraphy consists of raised deltaic and channel fill medium to coarse sand up to 15m thick deposited by proglacial streams and commonly underlain by silty to silty clay loam. The groundwater at the Site is likely highly vulnerable to contamination originating at the surface, and contamination in groundwater is likely highly mobile, given the soil texture and setting.

Table A: Site Identification Information

Civic Address	707 Keith Road and 825 Taylor Way, West Vancouver, BC
Land Use	Residential
Parcel Identifier	007-947-534, 007-947-526
Legal Description	Lot 3, Except Part In Plan VAP 23118 South East 1/4 Of District Lot 1047 Plan 14144 Lot 1 South East 1/4 Of District Lot 1047 Plan 14144
Latitude*	49° 19' 53.18" North
Longitude*	123° 8' 8.14" West
Site Area	6,446m ²
MOE Site #	Not Applicable

* Source: Google Earth

3.1 Site History

Based on aerial photographs, business directories, Fortis BC records, and City of West Vancouver information, 825 Taylor Way has been occupied by a single-family dwelling since 1954, and 707 Keith Road has been occupied by a single-family dwelling since late 1979.

707 Keith Road was originally assigned with a civic address of 805 Taylor Way and was likely a subdivided parcel of 825 Taylor Way. It was re-assigned to 707 Keith Road sometime after 2001.

825 Taylor Way was purchased by Minoru Hasegawa in 2001 from the estate of Robert Odum, who was the sole previous owner and builder of the original dwelling on the Site. According to Mr. Hasegawa, the original dwelling was destroyed by fire and a new dwelling was built in the same location. Mr. Hasegawa did not know the actual date of the fire, but based on a discussion with a neighbour, it was over 30 years ago. There is no building visible on the 1954 aerial photograph. A building appears to be visible through the tree shadows on the 1963 photograph and a building is clearly visible on the 1974 photograph that exactly matches in size and position the dwelling observed on the 825 portion of the Site at the time of inspection.

Prior to 1954, the entire Site was undeveloped forested land.

3.2 Surrounding Site History

Based on aerial photographs and business directories, the area surrounding the Site has been residential in use since the first local development in the 1940s. Park Royal Mall, located to the south, was opened in 1950 and commercial development along Marine Drive soon followed. Except for Park Royal, there has been no business commercial development within 300m of the Site. Non-residential developments in the surrounding area have included schools and churches. A property to the south of the Site, across Keith Road, has been undergoing redevelopment as a higher-density residential development since about 2009.

3.3 Ministry of Environment Site Registry Search

PGL conducted a database search for properties listed on the Ministry of Environment (MOE) Site Registry. Our search identified six properties on file within a 0.5km radius of the Site. None of them are a concern based on distance greater than 200m from the Site.

3.4 Previous Environmental Reports

PGL is not aware of any environmental reports previously prepared for the Site.

4.0 INTERVIEWS

PGL interviewed Mr. Minoru Hasegawa, the owner of 825 Taylor Way since 2001 and Mr. Naser Guivan, the owner of 707 Keith Road since 2006. Information obtained from the interviews is included in relevant sections of this report.

5.0 SITE VISIT

PGL inspected the subject property and area on November 14, 2012. There were no significant limitations to our Site visit.

Our Site visit included:

- Carrying out a reconnaissance of the neighbouring properties;
- Reviewing physical factors that may affect Site contamination such as topography, groundwater, and soils; and
- Inspecting the Site and improvements for indications of environmentally significant materials such as those listed in the following sections.

5.1 Fill

The Site is on steeply sloping ground but has not been significantly re-graded or altered for the dwellings that have been constructed onsite. No fill of environmental concern is evident.

5.2 Storage Tanks

PGL inspected the Site for evidence of aboveground storage tanks (ASTs) and underground storage tanks (USTs). No evidence of ASTs or USTs was found in our inspection or interviews.

The 707 Keith Road parcel of the Site was developed with the current dwelling in late 1979. A natural gas connection record for 707 Keith Road is dated January 12, 1980. ASTs and USTs are not a concern for 707 Keith Road.

The 825 Taylor Way parcel of the Site was originally developed with a dwelling in 1954. The original dwelling was destroyed by fire and a new dwelling was built in its place. A natural gas connection record for 825 Taylor Way is dated September 11, 1973. Based on the information obtained through interviews, the 1973 gas connection likely corresponds to the new dwelling construction after the fire. The type of fuel used to heat the original dwelling is unknown but may have been heating oil stored in an UST. It was represented by the current owner that fuel storage tanks were never brought up as an issue at the time of his purchase. While an abandoned UST cannot be entirely ruled out for the pre-1973 dwelling on 825 Taylor Way, further investigation in the absence of indicators is not warranted. Possible USTs are generally best dealt with during excavation or Site preparation, if they are encountered. More information is presented in the attached Information Sheet – USTs for Domestic Heating.

5.3 Hazardous Materials

There was no evidence of hazardous materials during our site inspection.

5.4 Waste Streams

Household garbage and recyclables are removed via the curb side municipal waste disposal system.

5.5 Stains, Odours and Stressed Vegetation

No stains, odours or stressed vegetation (a potential indicator of contamination) were observed.

5.6 Regulated Building Materials

There are two dwellings of differing ages on the Site. The dwelling on the 707 Keith Road Parcel was constructed in late 1979. The current dwelling on the 825 Taylor Way parcel appears to have been constructed in 1973. Due to the age of the buildings, building components that are regulated in some circumstances, such as asbestos, lead paint and polychlorinated biphenyls (PCBs) (in light ballasts) may be present. Potentially asbestos-containing materials at the Site may include drywall tape compound and vinyl flooring. The building has fluorescent fixtures that could have PCB-containing ballasts. These items are common in buildings of this age and are not a hazard unless disturbed, as in renovation or demolition. If regulated building materials are present, building owners have certain obligations to protect workers under the *BC Workers' Compensation Act*. More information is presented in the attached Information Sheets – Asbestos and PCBs.

5.7 Potable Water and Sewage

The Site is supplied with municipal drinking water and sewage systems.

5.8 Heating and Cooling Systems

Both dwellings have natural gas fired, forced air furnace systems. There is no air conditioning in either dwelling.

5.9 Neighbouring Property Use

The surrounding area is residential. Surrounding property uses include:

- North – single-family dwellings;
- East – Taylor Way, followed by single-family dwellings;
- South – Keith Road, followed by a residential development site undergoing site preparation; and
- West – single-family dwellings.

We did not observe any service stations, dry cleaners or other operations that might pose a risk to the Site through migration of contamination.

6.0 CONCLUSIONS

We reviewed the Site for environmental issues normally assessed in a Phase 1 investigation. We identified the following as areas of potential environmental concern.

- Possible abandoned heating-oil UST at the 825 Taylor Way dwelling; and
- Regulated building materials in both dwellings.

No evidence of USTs was found in our inspection or interviews, but an UST cannot be entirely ruled out for the pre-1973 dwelling on 825 Taylor Way because it may have been heated with oil. Further investigation in the absence of indicators is not warranted. Possible USTs are generally best dealt with during excavation or Site preparation, if they are encountered. PGL recommends a qualified environmental consultant be available during Site excavation (if any) in case an UST is discovered.

Due to the age of the buildings, building components that are regulated in some circumstances, such as asbestos, lead paint and PCBs (in light ballasts) may be present. PGL recommends a regulated building materials survey be completed prior to renovation or demolition.

No further investigation is recommended.

7.0 STANDARD LIMITATIONS

PGL prepared this report for our client, Milliken Developments, its agents and its lender exclusively. PGL accepts no responsibility for any damages that may be suffered by third parties as a result of decisions or actions based on this report.

The purpose of this report is to provide an assessment of the potential for environmental contamination on the subject property. Our investigation identified reasonably foreseeable risks that can be detected by normal archival research and a single untimed Site visit with no sampling or testing. Our conclusions rely on there having been complete and accurate disclosure of conditions by the client and our sources. As with all environmental investigations, the potential remains for unknown, unidentified, or unforeseen contamination. Environmental investigations are limited by both practical limitations in scope and inherent limitations in technique.

The findings and conclusions are Site-specific and were developed in a manner consistent with that level of care and skill normally exercised by environmental professionals currently practicing under similar conditions in the area. Conclusions and costs are time sensitive, so this report is for use now. The report should not be used after that without PGL review/approval. Use of this report should recognize that the rapid pace of change in the environmental field and regulations means that environmental investigations and their conclusions can quickly become dated.

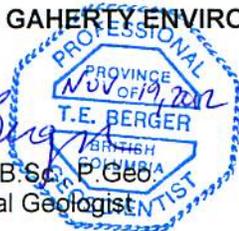
The project has been conducted according to our instructions and work program. Additional conditions and limitations on our liability are set forth in our work program/contract. This report is neither an endorsement nor a condemnation of the subject property. No warranty, expressed or implied, is made.

We trust this meets your needs. If you have any questions or require clarification, please contact Tom Berger or Kathy Minehan at 604-895-7605 and 604-895-7622, respectively.

Respectfully submitted,

POTTINGER GAHERTY ENVIRONMENTAL CONSULTANTS LTD.

Per:

Tom Berger, B.Sc., P. Geol.
Environmental Geologist




Kathleen P. Minehan, M.Sc., P. Geol.
Senior Geologist

TEB/KPM/stm
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Bibliography

Aerial photographs of the area:

Year	Serial No.	Photo No.	Notes
1926	BA23	14	The Site and most of the surrounding area appear as undeveloped, treed land with a few sparse areas cleared for what appear as farm plots with associated dwellings and farm buildings. No roads visible in area of Site.
1949	BC729	25/26	The Site appears as an undeveloped treed parcel. The surrounding area is developed with roads including Taylor Way and Keith Road and sparse dwellings. No development on Marine Drive to the south.
1954	BC1673	69	The Site is unchanged from the 1949 photograph. The density of dwellings has increased in the surrounding area and Park Royal Mall is visible to the south.
1963	BC5060	9/10	The Site remains heavily treed. A driveway entrance is visible in the northeast corner from Taylor Way and a dwelling is barely visible in the northwest corner at the same location and position as the dwelling that currently occupies 825 Taylor Way. The surrounding area shows continued increase in dwelling density.
1974	BC5591	281/282	A dwelling is clearly visible on the Site in the northwest corner at the same location and position as the dwelling that currently occupies 825 Taylor Way. The balance of the Site is heavily treed. The surrounding area shows continued increase in dwelling density.
1979	BC79047	128/129	No visibly significant changes to the Site and surrounding area as compared to the 1974 photograph.
1984	A26511	71/72	A dwelling is visible on the 707 Keith Road parcel of the Site of the same size and position as the one that is currently present on the Site. The balance of the Site is unchanged from the 1979 photograph. No significant changes are visible in the surrounding area as compared to the 1979 photograph.
1991	FF9131	207/208	No visibly significant changes to the Site and surrounding area as compared to the 1984 photograph.

Year	Serial No.	Photo No.	Notes
1996	BCC96129	28/29	No visibly significant changes to the Site and surrounding area as compared to the 1991 photograph.
2002	SRS6600	26/27	No visibly significant changes to the Site and surrounding area as compared to the 1996 photograph.
2009	SRS7987	218	No visibly significant changes to the Site as compared to the 2002 photograph. The Site appears as occupied by two dwellings of the same size and position as those observed at the time of inspection. The surrounding area is visible unchanged as compared to the 2002 photograph except for the property across Keith Road to the south of the Site, which has been cleared of dwellings and is undergoing preparation for a new development.

Business Directories: 2001, 1995/96, 1990, 1985, 1980, 1975, 1970, 1965, 1960, 1955, 1950, 1945, 1940, 1935, 1930

- 8th Street
- Anderson Crescent
- Arthur Ericson Place
- Eden Place
- Esquimalt Avenue
- Keith Road
- Taylor Way
- Taylorwood Place

Surficial Geology of Vancouver, Map 1486A, Geological Survey of Canada, 1974 Geological Survey of Canada, 1976 and 1977

Interviewed:

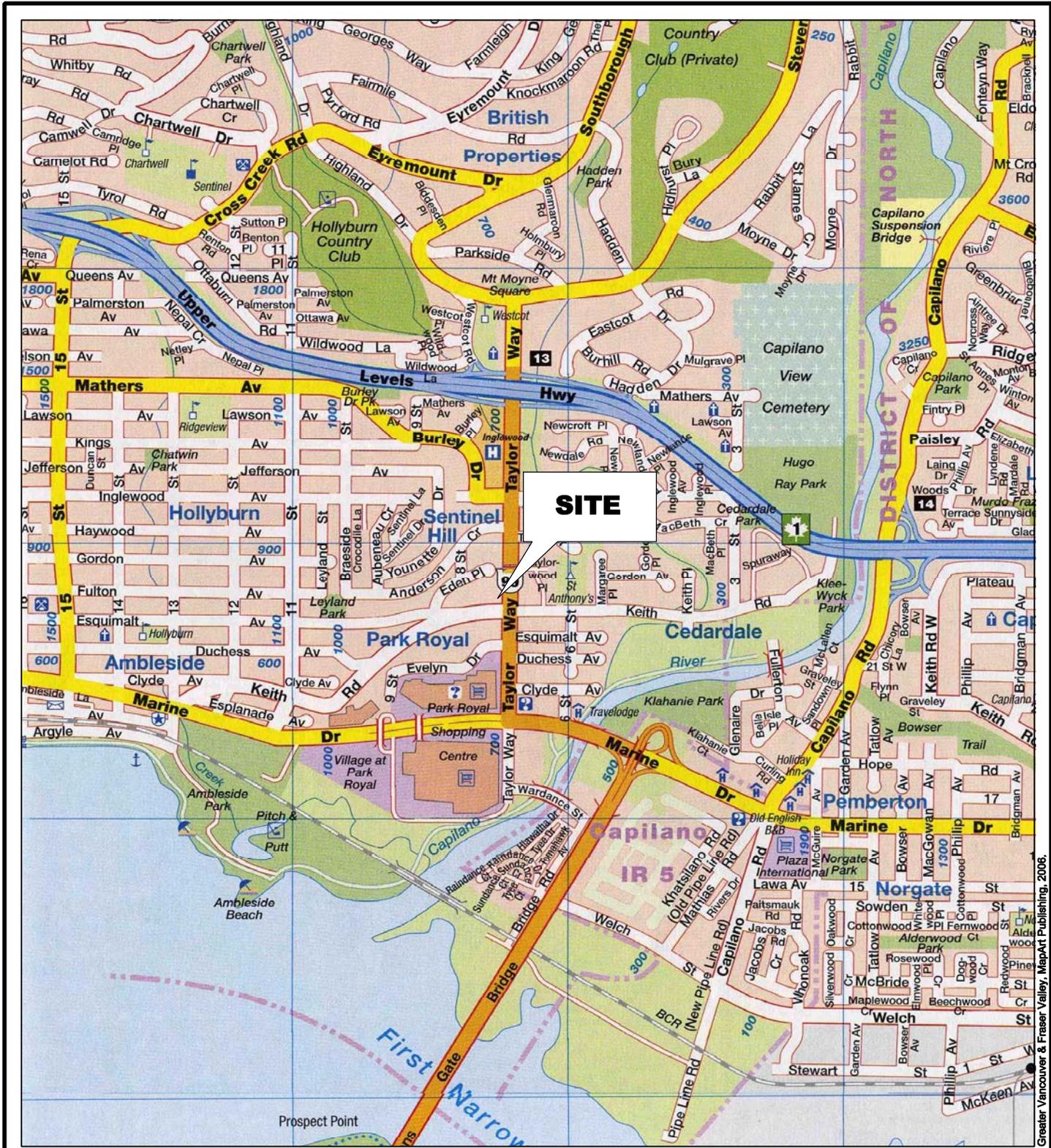
- Minoru Hasegawa, Owner, 825 Taylor Way
- Naser Guivan, Owner, 707 Keith Road

Site Registry: 0.5km radius area search

Google Earth

http://westmap2.westvancouver.ca/westmap_basic/map.htm

Figure



Greater Vancouver & Fraser Valley, MapART Publishing, 2006.

<p>0 750m Scale 1:20 000</p>	SITE LOCATION	
	707 Keith Road and 825 Taylor Way, West Vancouver, BC	File No.: 4151-01.01
	Milliken Developments	Date: NOV. 2012
	PGL Pottinger Gaherty <small>ENVIRONMENTAL CONSULTANTS</small>	Dwg No.: S1
		Drawn by: HLI
		FIGURE 1

ORIGINAL IN COLOUR

Appendix 1

Ministry of Environment Site Registry Search

Table of Contents

Order Number: 20121108058
Site Name: 4151-01.01
Site Address: 707 Keith Rd and 825 Taylor Way West Vancouver, BC V7T1M2
Report Type: BC Site Registry Report, 0.50 km Search Radius

	<u>Section</u>	<u>Page</u>
Report Summary <i>This outlines the number of records from each database that fall on the site, and within various distances from the site.</i>	i	
Site Diagram <i>The records that were found within a specified distance from the project property (the primary search radius) have been plotted on a diagram to provide you with a visual representation of the information available. Sites will be plotted on the diagram if there is sufficient information from the database source to determine accurate geographic coordinates. Each plotted site is marked with an acronym identifying the database in which the record was found (i.e., WDS for Waste Disposal Sites). These are referred to as "Map Keys". A variety of problems are inherent when attempting to associate various government or private source records with locations. EcoLog ERIS has attempted to make the best fit possible between the available data and their positions on the site diagram.</i>	ii	
Site Profile <i>This table describes the records that relate directly to the property that is being researched.</i>	iii	
Detail Report <i>This section represents information, by database, for the records found within the primary search radius. Listed at the end of each database are the sites that could not be plotted on the locator diagram because of insufficient address information. These records will not have map keys. They have been included because they may be found to be relevant during a more detailed investigation.</i>	iv	
Site Registry		1
Appendix: Database Descriptions		

Report Summary

Order Number: 20121108058
 Site Name: 4151-01.01
 Site Address: 707 Keith Rd and 825 Taylor Way West Vancouver, BC V7T1M2
 Report Type: BC Site Registry Report, 0.50 km Search Radius

Number of Mappable Records Surrounding the Site

Database		Selected	On-site	Within 0.50	0.50km to 2.00km	Total
AMS	Authorization Management System (formerly WASTE)	N	0	0	8	8
ARIS	Assessment Report Indexing System	N	0	0	0	0
AUWR	Automobile Wrecking & Supplies	N	0	0	0	0
BOGW	Oil and Gas Wells	N	0	0	0	0
CHEM	Chemical Register	N	0	0	1	1
COAL	Coal Tar Sites	N	0	0	0	0
CONV	Compliance and Enforcement Summary	N	0	0	0	0
DIS	Wastewater Discharge Inventory	N	0	0	2	2
EEM	Environmental Effects Monitoring	N	0	0	0	0
EHS	ERIS Historical Searches	N	0	0	6	6
EIIS	Environmental Issues Information System	N	0	0	0	0
FCON	Federal Convictions	N	0	0	0	0
FCS	Contaminated Sites on Federal Land	N	0	0	9	9
FISH	Commercial Fisheries	N	0	0	7	7
FOFT	Fisheries & Oceans Fuel Storage Tanks	N	0	0	0	0
GEN	Waste Generators Summary	N	0	3	28	31
IAFT	Indian & Northern Affairs Fuel Tanks	N	0	0	0	0
LUM	Lumber Mills	N	0	0	0	0
MINE	Canadian Mine Locations	N	0	0	0	0
MNR	Minerals Deposits Database	N	0	0	0	0
NATE	National Analysis of Trends in Emergencies System (NATES)	N	0	0	0	0
NCPL	Non-Compliance Reports	N	0	0	0	0
NDFT	National Defence & Canadian Forces Fuel Storage Tanks	N	0	0	0	0
NDSP	National Defence & Canadian Forces Spills	N	0	0	0	0
NDWD	National Defence & Canadian Forces Waste Disposal Sites	N	0	0	0	0
NEBW	National Energy Board Wells	N	0	0	0	0
NEES	National Environmental Emergencies System (NEES)	N	0	1	11	12
NPCB	National PCB Inventory	N	0	0	14	14
NPRI	National Pollutant Release Inventory	N	0	0	23	23
OGW	Oil and Gas Wells	N	0	0	0	0
PAP	Canadian Pulp and Paper	N	0	0	0	0
PCB	Inventory of PCB Storage Sites	N	0	1	14	15
PCFT	Parks Canada Fuel Storage Tanks	N	0	0	0	0
PES	Pesticide Register	N	0	2	21	23
PRAI	Private Aggregate Inventory	N	0	0	0	0
PUAI	Public Aggregate Inventory	N	0	0	0	0
REC	Waste Receivers Summary	N	0	0	9	9
RST	Retail Fuel Storage Tanks	N	0	4	21	25
SCT	Scott's Manufacturing Directory	N	0	7	62	69
SREG	Site Registry	Y	0	6	104	110
TCFT	Transport Canada Fuel Storage Tanks	N	0	0	0	0
WDS	Waste Disposal Site Inventory	N	0	0	3	3

Report Summary

Order Number: 20121108058

Site Name: 4151-01.01

Site Address: 707 Keith Rd and 825 Taylor Way West Vancouver, BC V7T1M2

Report Type: BC Site Registry Report, 0.50 km Search Radius

Database		Selected	On-site	Within 0.50	0.50km to 2.00km	Total
WWIS	Water Wells	N	0	0	1	1
		TOTAL	0	24	344	368

The databases chosen by the client as per the submitted order form are denoted in the 'Selected' column in the above table. Counts have been provided outside the primary buffer area for cursory examination only. These records have not been examined or verified, therefore, they are subject to change.



Pinpointing Your Environmental Risks

80 Valleybrook Dr, Toronto, ON M3B 2S9
416-510-5204

Project Property: 4151-01.01
707 Keith Rd and 825 Taylor Way
West Vancouver, BC
V7T1M2

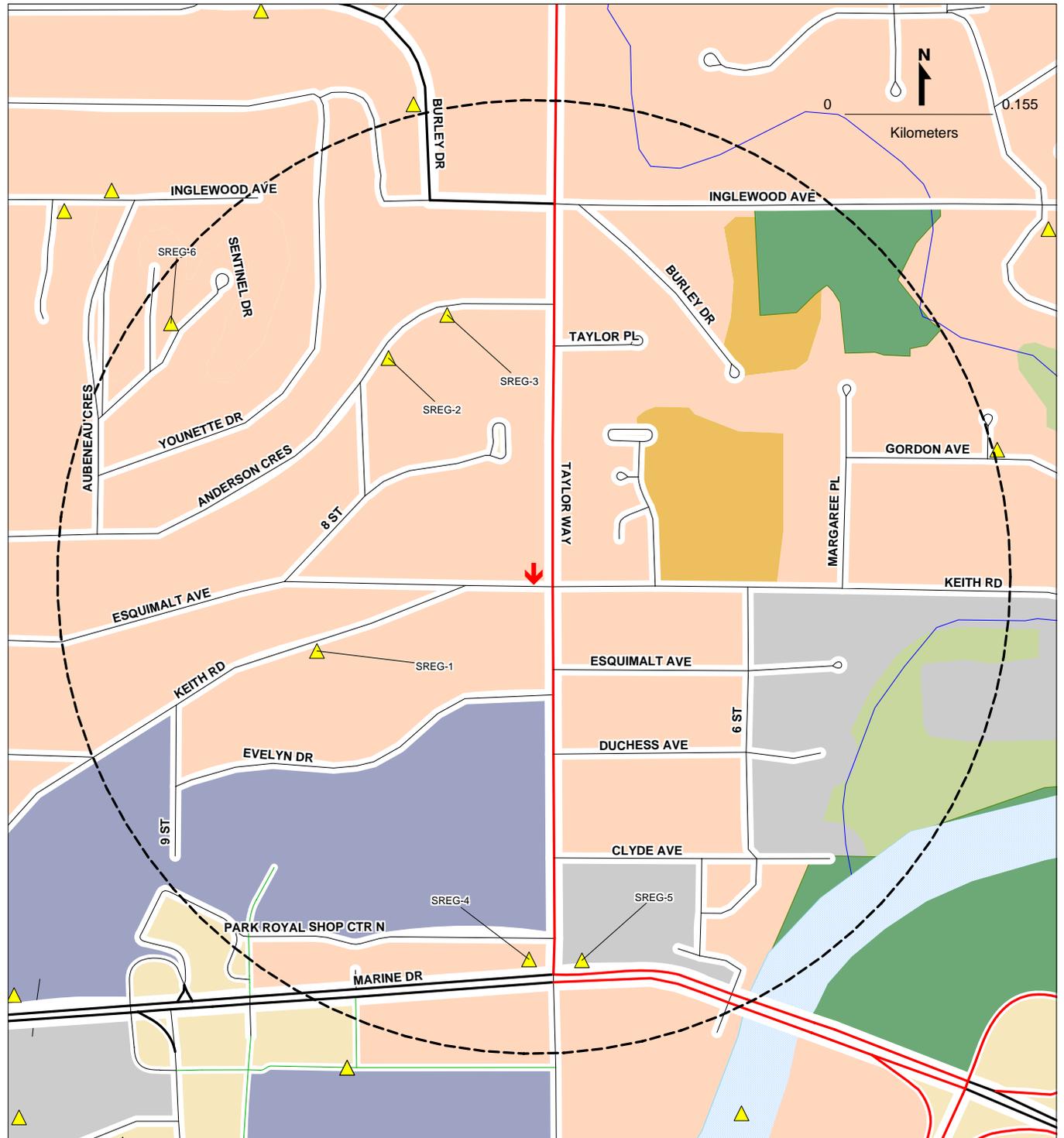
ERIS Project #: 20121108058

Date: NOV-12-2012

LEGEND

Project Property	Landuse Classifications
Database Location	Open Area
Points of Interest	Residential
Chimney	Commercial
Silo	Resource and Industrial
Pipe & Transmission Lines	Government and Institutional
Pipeline	Parks and Recreational
Transmission Line	Waterbody
Transmission Tower	Recreation
Transformer Station	Golf Course/Driving Range
Rail	Park/Sports Field
Railway - Main	Other Recreation Area
Railway - Sidetrack	Sports/Race Track
Railway - Abandoned	Cemetery
Bridge	Campground
Tunnel	Vegetation
Transportation - Other	Wooded Area
Embankment	Orchard
Trail	Vineyard
Runway	Industrial Resources
Hydrographic Features	Conveyor
Permanent Waterway	Crane: Moveable
Intermittent Waterway	Crane: Stationary
Open Reservoir	Tank
Dyke/Levee	Rock Cut
Dam	Auto Wrecker
Breakwall	Lumber Yard
Wetland	Pit

SITE DIAGRAM



This diagram is to be used solely for relative street location purposes. It may not accurately portray street or site positions.

Site Report

Order Number: 20121108058

Site Name: 4151-01.01

Site Address: 707 Keith Rd and 825 Taylor Way West Vancouver, BC V7T1M2

Report Type: BC Site Registry Report, 0.50 km Search Radius

FOR COMPLETE INFORMATION, REFER TO DETAIL REPORT

A search has been conducted for this site (address) and company name. No records were found, within the database(s) selected, that meet either of these criteria.

Detail Report

Order Number: 20121108058

Site Name: 4151-01.01

Site Address: 707 Keith Rd and 825 Taylor Way West Vancouver BC V7T1M2

Report Type: BC Site Registry Report, 0.50 km Search Radius

If information is required for sites located beyond the selected address, please contact your ERIS representative.

Site Registry

Site Registry

Map Key	Company	Address	Site ID #	Registered	Updated	Detail Removed	Status As Of
SREG-1		820 KEITH ROAD WEST VANCOUVER V7T 1M3	13475	2011-NOV-18			Oct 2012
			Common Name:	820 KEITH ROAD, WEST VANCOUVER			
			Victoria File No.:	26250-20/13475			
			Regional File No.:				
			Region:	SURREY, LOWER MAINLAND			
			Latitude:	49.330083			
			Longitude:	123.137833			
			Location Description:				
			Site Description:	UNRANKED			
			Cleanup Status:	INACTIVE - NO FURTHER ACTION			
SREG-2		780 ANDERSON CRESCENT WEST VANCOUVER V7T 1S5	10097	2006-OCT-19	2006-NOV-06	2006-NOV-01	Oct 2012
			Common Name:	780 ANDERSON CRESCENT, WEST VANCOUVER			
			Victoria File No.:	26250-20/10097			
			Regional File No.:				
			Region:	SURREY, LOWER MAINLAND			
			Latitude:	49.332986			
			Longitude:	123.137494			
			Location Description:	LAT AND LONG DERIVED FROM 2006-10-10 NOTICE OF INDEPENDENT REMEDIATION			
			Site Description:	UNRANKED			
			Cleanup Status:	INACTIVE - NO FURTHER ACTION			
SREG-3		730 ANDERSON CRESCENT WEST VANCOUVER V7T 1S5	10992	2008-JUN-06			Oct 2012
			Common Name:	730 ANDERSON CRESCENT, WEST VANCOUVER			
			Victoria File No.:	26250-20/10992			
			Regional File No.:				
			Region:	SURREY, LOWER MAINLAND			
			Latitude:	49.333500			
			Longitude:	123.135889			
			Location Description:	LAT & LONG COORDINATES FROM (2008-05-08) NOTICE OF INDEPENDENT REMEDIATION			
			Site Description:	UNRANKED			
			Cleanup Status:	INACTIVE - NO FURTHER ACTION			
SREG-4		725 MARINE DRIVE WEST VANCOUVER	1152	1997-OCT-09	2001-AUG-15	2001-AUG-02	Oct 2012
			Common Name:	FORMER CHEVRON PARK ROYAL NORTH			
			Victoria File No.:	26250-20/0694			
			Regional File No.:	26250-20/0362			
			Region:	SURREY, LOWER MAINLAND			
			Latitude:	49.327333			
			Longitude:	123.135278			
			Location Description:	TAYLOR WAY AND MARINE DRIVE. UPATED 96-03-07 BY VCH. LOCATION DERIVED BY BC ENVIRONMENT REFERENCING RECTIFIED NAD 83 ORTHOPHOTOGRAPHY - OCT.15,1996			
			Site Description:	UNRANKED			
			Cleanup Status:	INACTIVE - NO FURTHER ACTION			

Site Registry

Map Key	Company	Address	Site ID #	Registered	Updated	Detail Removed	Status As Of
SREG-5		675 MARINE DRIVE WEST VANCOUVER V7T 1A4	13381	2011-SEP-22	2012-MAY-29	2012-MAY-29	Oct 2012
			Common Name:	675 MARINE DRIVE, WEST VANCOUVER			
			Victoria File No.:	26250-20/13381			
			Regional File No.:				
			Region:	SURREY, LOWER MAINLAND			
			Latitude:	49.327431			
			Longitude:	123.134247			
			Location Description:				
			Site Description:	UNRANKED			
			Cleanup Status:	ACTIVE - UNDER REMEDIATION			
SREG-6		925 SENTINEL DRIVE WEST VANCOUVER V7T 1T3	12882	2011-MAR-18			Oct 2012
			Common Name:	925 SENTINEL DRIVE, WEST VANCOUVER			
			Victoria File No.:	26250-20/12882			
			Regional File No.:				
			Region:	SURREY, LOWER MAINLAND			
			Latitude:	49.333422			
			Longitude:	123.140553			
			Location Description:				
			Site Description:	UNRANKED			
			Cleanup Status:	INACTIVE - NO FURTHER ACTION			

Appendix: British Columbia Database Descriptions

EcoLog Environmental Risk Information Services Ltd can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to EcoLog ERIS at the time of update. **Note:** Databases denoted with “*” indicates that the database will no longer be updated. See the individual database descriptions for more information.

Provincial Government Source Databases:

Authorization Management System (formerly WASTE) 1957-Jan 2012 AMS

AMS is the Ministry of Environment’s waste permit administration system. It maintains data related to the administration of permits issued under the Environmental Management Act and registrations under various regulations where the regulation requires a discharger to register. It will include information such as companies or individuals permitted to discharge waste; type of business and locations at which waste disposal is permitted; the types, amounts and frequency of waste products that are permitted to be discharged at given locations; issue date and more. This was previously referred to as the “WASTE” database.

Assessment Report Indexing System 1947-Jan 2012 ARIS

Within British Columbia, the “Mineral Tenure Act Regulation”, requires that all results of mineral exploration and development programs be submitted to the British Columbia Ministry of Employment and Investment, where they are then maintained and housed by the Geological Survey Branch. The assessment reports provided by the Geological Survey Branch contain summary information for reports approved to November 1998; on geology, geophysics, geochemistry, drilling, prospecting and physical work.

BC Oil and Gas Wells 1918-Jan 2006* BOGW

The BC Oil and Gas Wells database was collected from the BC Oil and Gas Commission and is a comprehensive database that includes information regarding well number, well name, operator name, location, depth, status, as well as drill date and type. Please note that this database will not be updated, information on wells drilled after January 2006 can be found in the Oil and Gas Wells (OGW) database under the ‘Private Source Database’ section.

Coal Tar Sites 1992* COAL

This one-time study is an inventory of all known and historical coal tar sites, identifying sites that produced coal tar and other related tars during the mid 1800’s to the mid 1900’s.

Compliance and Enforcement Summary 1990-2011 CONV

This database summarizes orders, tickets and convictions issued by the Ministry of the Environment under applicable ministry and federal legislation. Orders are issued when action is required to prevent or stop actual or potential impact to the environment. Tickets apply to all tickets paid, deemed guilty by non-payment or expiry, or contested in court and found guilty by a judge. Convictions apply to all court convictions of ministry legislation as well as federal legislation where the ministry has taken action. This reporting summary began in January 2006, replacing Non-Compliance Reports by the former Ministry of Water, Land & Air Protection. See the *Non-Compliance Reports (NCPL)* database below for more information. This database is part of a larger COORS (Conservation Officer On-Line Reporting System) database controlled by the Ministry of Environment in BC.

Wastewater Discharge Inventory 1957-1995* DIS

This inventory contains information regarding direct dischargers of toxic pollutants for the following operations: Industrial; Commercial; Agricultural; Mining; Municipal; Urban; Aquaculture; and Pulp & Paper, operating under provincial permits. Please note that this program was discontinued and therefore the database will not be updated.

Commercial Fisheries 1993-2010

FISH

The Fisheries, Aquaculture & Commercial Fisheries Branch of the Ministry of Water, Land & Air Protection maintains a database of fish processing plant approvals, licenses and activities. Each year, licenses need to be renewed.

Waste Generators Summary 1993-2010

GEN

Within British Columbia, the *Special Waste Regulation* defines a waste generator as any site, equipment and/or operation involved in the production, collection, handling and/or storage of regulated wastes. A generator of regulated waste is required to register the waste generation site and each waste produced, collected, handled, or stored at the site. This database contains the registration number (BCG#), company name and address of registered generators; including the types of hazardous wastes generated and the form of treatment used in the handling of the waste. This information is a summary of all years from June 1993 to March 2006. Please note that a British Columbia Generator number (BCG#) are not unique to a company. This database is part of a larger SWIS (Special Waste Information System) database controlled by the Ministry of Environment in BC.

Lumber Mills 1997-2009

LUM

This database provides information regarding the general location and estimated annual output capacity of major timber processing facilities within the province of British Columbia.

Mineral Deposits Database 1852-Apr 2012

MNR

The Ministry of Energy and Mines maintains a database of more than 12,000 metallic mineral, industrial mineral and coal deposits and occurrences within British Columbia. Information within our report pertains to primary name, elevation, mining division, commodities, and status. Please note that as of January 27, 1999, information included within this database was divided into 2 categories: *released* and *unreleased* areas. Records for unreleased areas may contain incomplete, unedited, and/or inaccurate data.

Non-Compliance Reports 1990-Mar 2001*

NCPL

From 1990 to March 2001 the Ministry of Water, Land & Air Protection maintained a reporting system that identified any reported concern that pertained to compliance with authorized waste management permits or plans, approvals, orders, operational certificates and regulations, or any other activity under the *Waste Management Act*. This reporting system was discontinued in April of 2001; therefore there will be no updates to this database. However, beginning in January 2006 the Ministry of the Environment began publishing Compliance and Enforcement Summaries. See the *Compliance and Enforcement Summary (CPL)* database above for more information.

Inventory of PCB Storage Sites 1989, May 1993-2010

PCB

The Ministry of Water, Land & Air Protection maintains a database of all active PCB waste storage sites within the Special Waste Information System. Please note that there is no requirement to maintain an accurate listing of all inactive PCB waste storage equipment and/or disposal sites. The records within this database provide information regarding site name, location, an inventory of stored wastes and quantities, and status date (when site first active/inactive). Previous to May 1993, data was collected from a different source and is only available for 1989.

Pesticide Register 1989-Apr 2010

PES

This is a database of individuals who apply for a service or vendor license for the use of registered pesticides. A service license is denoted by an "S" in the license number, likewise, a vendor license by a "V" in the license number.

Private Aggregate Inventory 1975-1996*

PRAI

Within British Columbia, aggregate pits are designated as mines; and as such, the Ministry of Energy and Mines is responsible for their planning, management and regulation, including permitting, health, safety and reclamation. Owners or operators of all private aggregate pits must file Notices of Work as part of the permitting and reclamation process. In 1994, the Geological Survey Branch initiated the Aggregate Program, in order to establish an inventory of natural and crushed aggregate pits. Information about each pit in the database file includes its location, NTS map sheet number, Notice of Work file number and status (active/inactive) and the type of landform hosting the pit. This database was a one-time inventory and will not be updated.

Public Aggregate Inventory 1960-2001*

PUAI

Information about public aggregate pits in British Columbia is collected and managed by the Ministry of Transportation and Highways. Data has been gathered on more than 2000 pits, in respect to pit name, type and geographical location.

Waste Receivers Summary 1992-2010

REC

The *Special Waste Regulation* defines the disposal of regulated waste through an operating waste management system or a waste disposal site operated or used pursuant to the terms and conditions of a Certificate of Approval or a Provisional Certificate of Approval. A waste receiving location is any site or facility to which waste is transferred through a waste carrier. A receiver of regulated waste is required to register the waste receiving facility. This database represents registered receivers of regulated wastes, identified by registration number, company name and address. This database is part of a larger SWIS (Special Waste Information System) database controlled by the Ministry of Environment in BC.

Site Registry 1985-Oct 2012

SREG

This information is collected from the Ministry of Environment's Site Registry. It is **not** a registry of contaminated sites, although some sites on the registry are contaminated. Most sites have already been investigated and require minor remediation, or have already been cleaned up to government requirements. The Registry also stores environmentally relevant historic information about sites including: names of participants, legal and administrative notations, references to pertinent documents submitted to the ministry, associations with other sites, and much more.

Waste Disposal Site Inventory 1980-1998*

WDS

This inventory pertains to active, regulated waste disposal sites within the province of British Columbia. Registered companies may hold a permit or certificate for release of the following waste types: Effluent, Refuse, Air and Special Waste Storage. Information on Waste Disposal Sites after 1998 is contained within the Authorizations (AUTH) database.

Water Well Information System 1880-Sept 2012

WWIS

This database was collected from the Groundwater Information Center of the Ministry of Water, Land & Air Protection and contains over 90,000 records. Comprehensive information is available for each well including: well location (address/site area), latitude/longitude, legal description (section, lot, plan, district lot, range, township), BCGS Mapsheet No., depth of well, construction dates, well status and lithology. The accuracy of well locations is also provided, as well as the reference source for obtaining geographic coordinates.

Federal Government Source Databases:

Diagram Identifier:

Environmental Effects Monitoring 1992-2007*

EEM

The Environmental Effects Monitoring program assesses the effects of effluent from industrial or other sources on fish, fish habitat and human usage of fisheries resources. Since 1992, pulp and paper mills have been required to conduct EEM studies under the Pulp and Paper Effluent Regulations. This database provides information on the mill name, geographical location and sub-lethal toxicity data.

Environmental Issues Inventory System 1992-2001*

EIIS

The Environmental Issues Inventory System was developed through the implementation of the Environmental Issues and Remediation Plan. This plan was established to determine the location and severity of contaminated sites on inhabited First Nation reserves, and where necessary, to remediate those that posed a risk to health and safety; and to prevent future environmental problems. The EIIS provides information on the reserve under investigation, inventory number, name of site, environmental issue, site action (Remediation, Site Assessment), and date investigation completed.

Federal Convictions 1988-Jun 2007

FCON

Environment Canada maintains a database referred to as the "Environmental Registry" that details prosecutions under the Canadian Environmental Protection Act (CEPA) and the Fisheries Act (FA). Information is provided on the company name, location, charge date, offence and penalty.

Contaminated Sites on Federal Land June 2000-May 2012

FCS

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. The database provides information on company name, location, site ID #, property use, classification, current status, contaminant type and plan of action for site remediation.

Fisheries & Oceans Fuel Tanks 1964-Sept 2003

FOFT

Fisheries & Oceans Canada maintains an inventory of all aboveground & underground fuel storage tanks located on Fisheries & Oceans property or controlled by DFO. Our inventory provides information on the site name, location, tank owner, tank operator, facility type, storage tank location, tank contents & capacity, and date of tank installation.

Indian & Northern Affairs Fuel Tanks 1950-Aug 2003

IAFT

The Department of Indian & Northern Affairs Canada (INAC) maintains an inventory of all aboveground & underground fuel storage tanks located on both federal and crown land. Our inventory provides information on the reserve name, location, facility type, site/facility name, tank type, material & ID number, tank contents & capacity, and date of tank installation.

National Analysis of Trends in Emergencies System (NATES) 1974-1994*

NATE

In 1974 Environment Canada established the National Analysis of Trends in Emergencies System (NATES) database, for the voluntary reporting of significant spill incidents. The data was to be used to assist in directing the work of the emergencies program. NATES ran from 1974 to 1994. Extensive information is available within this database including company names, place where the spill occurred, date of spill, cause, reason and source of spill, damage incurred, and amount, concentration, and volume of materials released.

National Defence & Canadian Forces Fuel Tanks Up to May 2001*

NDFT

The Department of National Defence and the Canadian Forces maintains an inventory of all aboveground & underground fuel storage tanks located on DND lands. Our inventory provides information on the base name, location, tank type & capacity, tank contents, tank class, date of tank installation, date tank last used, and status of tank as of May 2001. This database will no longer be updated due to the new National Security protocols which have prohibited any release of this database.

National Defence & Canadian Forces Spills Mar 1999-Aug 2010

NDSP

The Department of National Defence and the Canadian Forces maintains an inventory of spills to land and water. All spill sites have been classified under the "Transportation of Dangerous Goods Act - 1992". Our inventory provides information on the facility name, location, spill ID #, spill date, type of spill, as well as the quantity of substance spilled & recovered.

National Defence & Canadian Forces Waste Disposal Sites 2001-April 2007

NDWD

The Department of National Defence and the Canadian Forces maintains an inventory of waste disposal sites located on DND lands. Where available, our inventory provides information on the base name, location, type of waste received, area of site, depth of site, year site opened/closed and status.

National Energy Board Wells 1920-Feb 2003*

NEBW

The NEBW database contains information on onshore & offshore oil and gas wells that are outside provincial jurisdiction(s) and are thereby regulated by the National Energy Board. Data is provided regarding the operator, well name, well ID No./UWI, status, classification, well depth, spud and release date. Data is not available after Feb 2003.

National Environmental Emergencies System (NEES) 1974-2003

NEES

In 2000, the Emergencies program implemented NEES, a reporting system for spills of hazardous substances. For the most part, this system only captured data from the Atlantic Provinces, some from Quebec and Ontario and a portion from British Columbia. Data for Alberta, Saskatchewan, Manitoba and the Territories was not captured. However, NEES is also a repository for all previous Environment Canada spill datasets. NEES is composed of the historic datasets – or Trends – which dates from approximately 1974 to present. **NEES Trends** is a compilation of historic databases, which were merged and includes data from NATES (National Analysis of Trends in Emergencies System), ARTS (Atlantic Regional Trends System), and NEES. In 2001, the Emergencies Program determined that variations in reporting regimes and requirements between federal and provincial agencies made national spill reporting and trend analysis difficult to achieve. As a consequence, the department has focused efforts on capturing data on spills of substances which fall under its legislative authority only (CEPA and FA). As such, the NEES database will be decommissioned in December 2004.

National PCB Inventory 1988-2008

NPCB

Environment Canada's National PCB inventory includes information on in-use PCB containing equipment in Canada including federal, provincial and private facilities. All federal out-of-service PCB containing equipment and all PCB waste owned by the federal government or by federally regulated industries such as airlines, railway companies, broadcasting companies, telephone and telecommunications companies, pipeline companies, etc. are also listed. Although it is not Environment Canada's mandate to collect data on non-federal PCB waste, the National PCB inventory includes some information on provincial and private PCB waste and storage sites.

National Pollutant Release Inventory 1993-2010

NPRI

Environment Canada has defined the National Pollutant Release Inventory ("NPRI") as a federal government initiative designed to collect comprehensive national data regarding releases to air, water, or land, and waste transfers for recycling for more than 300 listed substances.

Parks Canada Fuel Storage Tanks 1920-Jan 2005

PCFT

Canadian Heritage maintains an inventory of all known fuel storage tanks operated by Parks Canada, in both National Parks and at National Historic Sites. The database details information on site name, location, tank install/removal date, capacity, fuel type, facility type, tank design and owner/operator.

Transport Canada Fuel Storage Tanks 1970-March 2007

TCFT

With the provinces of BC, MB, NB, NF, ON, PE, and QC; Transport Canada currently owns and operates 90 fuel storage tanks. Our inventory provides information on the site name, location, tank age, capacity and fuel type.

Private Source Databases:

Automobile Wrecking & Supplies 2001-Jun 2010

AUWR

This database provides an inventory of all known locations that are involved in the scrap metal, automobile wrecking/recycling, and automobile parts & supplies industry. Information is provided on the company name, location and business type.

Chemical Register 1999-Jun 2010

CHEM

This database includes a listing of locations of facilities within British Columbia that either manufacture and/or distributes chemicals.

ERIS Historical Searches 1999-Apr 2012

EHS

EcoLog ERIS has compiled a database of all environmental risk reports completed since March 1999. Available fields for this database include: site location, date of report, type of report, and search radius. As per all other databases, the ERIS database can be referenced on both the map and "Statistical Profile" page.

Canadian Mine Locations 1998-2009

MINE

This information is collected from the Canadian & American Mines Handbook. The Mines database is a national database that provides over 290 listings on mines (listed as public companies) dealing primarily with precious metals and hard rocks. Listed are mines that are currently in operation, closed, suspended, or are still being developed (advanced projects). Their locations are provided as geographic coordinates (x, y and/or longitude, latitude). As of 2002, data pertaining to Canadian smelters and refineries has been appended to this database.

Oil and Gas Wells 1988-Sept 2012

OGW

The Nickle's Energy Group (publisher of the Daily Oil Bulletin) collects information on drilling activity including operator and well statistics. The well information database includes name, location, class, status and depth. The main Nickles' database is updated on a daily basis, however, this database is updated on a monthly basis. More information is available at www.nickles.com.

Canadian Pulp and Paper 1999, 2002, 2004, 2005, 2009

PAP

This information is part of the Pulp and Paper Canada Directory. The Directory provides a comprehensive listing of the locations of pulp and paper mills and the products that they produce.

Retail Fuel Storage Tanks 1999-Jun 2010

RST

This database includes an inventory of known fuel outlet locations (including marinas) that have on their property gasoline, petroleum oil, natural gas and / or gas propane storage tanks.

Scott's Manufacturing Directory 1999-Mar 2011

SCT

Scott's Directories is a data bank containing information on over 17,000 manufacturers in British Columbia. Even though Scott's listings are voluntary, it is the most comprehensive database of British Columbia manufacturers available. Information concerning a company's address, plant size, and main products are included in this database.

Appendix 2

Information Sheets

**Phase 1 Site Investigation
Underground Storage Tanks for Domestic Heating
Asbestos
PCBs**

INFORMATION SHEET – Phase 1 Site Investigation

What a PGL Phase 1 Site Investigation Covers

A Phase 1 Environmental Site Investigation assesses contaminant risks for a site based on historical operations onsite and in the area. This is done using archival records review, interviews, and a visual inspection.

We review risks that are identified by our sources or that are visible and readily inspected. No destructive investigation or testing is ordinarily conducted. A Phase 1 does not evaluate compliance of operations or the risk that an ongoing operation might contaminate the site; these would be evaluated in an operations or compliance audit.

Issues are discussed in the report we provide only if our investigation or qualified experience indicates they have reasonable potential to contaminate the subject site. Issues that are not a concern or not applicable are not normally documented in the report, but are documented in our files.

The topics investigated in our Phase 1 include:

- Present activities at the site and nearby sites
- Past activities at the site and nearby sites
- Environmental certificates, permits, and orders (presence/absence only)
- Regulatory history and concerns
- Fill, spills, and waste disposal onsite (visible indicators, records)
- Fuel/chemical storage facilities and past use:
 - Aboveground storage tanks
 - Underground storage tanks
 - Fixed hydraulic equipment
 - Chemicals and hazardous substances
- PCB materials/equipment
- Asbestos materials:
 - Visual scan only
 - No testing except in extraordinary circumstances
- Lead paint:
 - Unusual hazardous condition only
- Pesticides/herbicides
- Radon/methane gas:
 - Identified hazard areas only

Legal and Regulatory Context of a Phase 1 Investigation

We summarize the legal and regulatory context of a Phase 1 as we understand them. More detailed and authoritative information may be obtained from a lawyer.

There is currently no statutory requirement to conduct environmental investigations in the absence of an order by regulators, nor do you have to give them a copy if you have a Phase 1 performed for your own purposes.

A Site Profile, which is a very simple version of a Phase 1, is required to obtain rezoning, subdivision, demolition, or redevelopment permits in most municipalities if the history of the site includes certain risk uses. A Site Profile can be easily prepared if a Phase 1 has been completed.

Site profiles must also be provided to purchasers unless an exemption applies. Site Profiles provided to regulators may trigger BC Ministry of Environment protection processes that will lead to site investigation and remediation if contamination is present.

INFORMATION SHEET – Underground Storage Tanks for Domestic Heating

Possible underground storage tanks (USTs) for domestic heating oil are a risk at your site. USTs were widely used in BC urban areas from the 1930s to the early 1960s to store domestic heating oil. USTs were less common in suburban areas because space was available for aboveground storage tanks. These USTs were typically 1,350–2,280L (300–500 gallon) capacity for single-family houses and larger for apartment buildings. Most were left in place, partly full of oil, when heat was switched to natural gas.

During site inspections, PGL always searches for evidence of USTs. Visible indicators such as a fill spout, vent pipe, concrete pad, or fuel lines in the furnace room are strong evidence that an UST may be present. Indicators may be absent after renovation because they were removed/covered for aesthetic reasons, although indicators in furnace rooms are rarely removed.

Terasen records are another indicator that may lead us to suspect the presence of an UST. Terasen records tell us that an alternate fuel source (such as USTs, aboveground storage tanks, coal, wood, sawdust, etc.) was used on a site. If we suspect that an UST was present on the site at one time, the only way we can confirm it was removed is by a formal or anecdotal report by someone who was involved with the removal.

Former residential properties that have been redeveloped are a low risk of having USTs. If USTs were present, they were likely removed without any record of removal. It is not worthwhile to investigate for USTs in this circumstance unless there is some anecdotal or formal report describing contamination. Heating-oil USTs, if present, may leak and cause contamination, or corrode and collapse. Their size and the nature of heating oil means effects will normally be confined to the immediate area around the UST and remedial costs would not exceed \$10,000.

In rare cases heating oil migrates to building foundation drainage and causes more serious problems.

It is possible to search for USTs by conducting a geophysical survey, at a cost of roughly \$1,500. Unfortunately, these tests can easily give a false negative, for example, if the UST is under a building or close to a steel fence. Tanks under or close to buildings are difficult and expensive to evaluate, and often impossible to remove. In most cases, we recommend that this risk be dealt with during site redevelopment or at the time of demolition, not by investigation.

Circumstances occasionally warrant further investigation. Larger parking lots or cleared undeveloped parcels that may have had several residential buildings have a higher risk of abandoned USTs. PGL may recommend investigating these sites prior to commencement of construction, where the cost of delays caused by managing USTs can exceed the \$1,500 geophysical survey cost.



INFORMATION SHEET – Asbestos

Asbestos is a fibrous silicate mineral that was once widely used in building materials. Most uses were phased out by 1980, but some products were still available in the early 1990s.

Asbestos hazard arises from inhaling the fibres. The most dangerous forms of asbestos are “friable,” meaning that the fibres can become airborne if disturbed.

Most buildings built prior to 1980 have some asbestos-containing materials. Asbestos in a building has implications to owners and occupants.

Exposed, friable asbestos has been identified and managed in most situations where occupational exposures are likely, but has been less examined in either single- or multi-family residential buildings.

Materials at risk of containing asbestos include spray-on fire-proofing and insulation, acoustic tiles and plaster, texture coat plaster, vinyl flooring, roof felt and patch compound, cement siding and pipe, pipe insulation, and drywall joint compound. Asbestos can be positively identified only by laboratory analysis.

Where buildings contain friable asbestos, it generally must be removed, often at high cost. The cost can be closely estimated by asbestos consultants and contractors.

Non-friable asbestos is very common and usually less of a problem. It is dealt with by identification and a management system to notify potentially exposed workers.

Non-friable asbestos in buildings is not generally a risk to lenders, but does create WorkSafeBC risks for building owners if maintenance or renovation exposes maintenance staff or contractors. The BC Occupational Health and Safety Regulations (Section 6) deal with workplace exposure to asbestos. The regulations specify that “if a worker is or may be exposed to potentially harmful levels of asbestos, the employer must develop and implement an exposure control program . . .”. Building owners can reduce risk by training staff in asbestos risk management.

At demolition or renovation, asbestos-containing materials must be removed and disposed of under strict health and safety controls. In the case of demolition, asbestos management costs are generally manageable (in the context of overall redevelopment costs), but make some renovation projects economically impractical.

Asbestos surveys typically cost \$1,500–\$5,000, depending on the building. Full asbestos surveys are destructive and so complete surveys are normally only done prior to demolition. Sampling of roofing membranes, for example, risks roof integrity and so may invalidate insurance.



Friable Asbestos



Pipe Insulation



Ceiling Tile



Vinyl Flooring

INFORMATION SHEET – Polychlorinated Biphenyls (PCBs)

Polychlorinated biphenyls (PCBs) are a stable dielectric oil or wax that was used mostly in electrical equipment, high-stress hydraulic fluid and lubricants, and plasticizers in plastic and rubber manufacture.

PCBs are persistent in the environment and considered toxic, and were therefore banned from production in about 1980 in the US and Canada.

PCBs are still commonly found in old transformers and capacitors, particularly in fluorescent light ballasts.

Although they were normally used at high concentration, many non-PCB oils and dielectric fluids were inadvertently contaminated and so PCBs have become widespread in the environment.

Fluorescent lighting installed prior to 1980 is likely to have PCB-containing ballasts, although some ballasts will likely have failed and therefore will have been replaced.

PCB-containing ballasts can be identified by examination of the model and date codes.

In BC, a PCB-containing apparatus is considered to be a Hazardous Waste when it is taken out of service and is governed under Section 17.1 of the Hazardous Waste Regulation. If PCB wastes are generated and stored in amounts exceeding 1kg of PCBs, 100L of PCB liquid, or 100kg of PCB solids, a short-term storage facility is required. Storage in sealed 205L (45-gallon) drums within a “registered short-term storage facility” on the subject property or another site deemed acceptable by the BC Ministry of Environment is allowed. The cost to set up a PCB storage facility is in the order of \$2,500–\$5,000.

The weight and volume measurements apply to the entire apparatus. In a fluorescent light ballast, for example, the actual capacitor containing the PCB may be only two grams, yet the ballast in which the capacitor is imbedded may weigh 500 grams, all of which counts towards the quantity limit.

PCB incineration facilities in Canada are limited. Incineration costs are roughly \$2,000 per drum, which can hold up to about 100 ballasts. Some cost savings are possible by bulking drums together. PCBs of 500g or more require shipping manifests.



Fluorescent light ballast



Oil-filled Transformer



PCB Capacitors