

**LIMITED PHASE II  
ENVIRONMENTAL SITE ASSESSMENT**

*Prepared for:*

**West Coast Bank**

**Target Property:  
Boulevard Nursery  
2021 Boulevard Road SE  
Olympia, WA 98501**

*Submitted to:*

**West Coast Bank  
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*Prepared by:*

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**June 10, 2009**

## TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION.....</b>	<b>1-1</b>
1.1	Site Description.....	1-1
1.2	Background.....	1-1
<b>2</b>	<b>SEPTIC TANK ABANDONMENT.....</b>	<b>2-1</b>
2.1	General.....	2-1
2.2	Septic Tank Abandonment.....	2-1
<b>3</b>	<b>SOIL SAMPLING.....</b>	<b>3-1</b>
3.1	Methodology.....	3-1
3.2	Analytical Results.....	3-1
<b>4</b>	<b>CONCLUSIONS &amp; RECOMMENDATIONS.....</b>	<b>4-1</b>
4.1	Discussion.....	4-1
4.2	Recommendations.....	4-1
<b>5</b>	<b>SIGNATURES OF ENVIRONMENTAL PROFESSIONALS.....</b>	<b>5-1</b>

### FIGURES

1. Location Map
2. Site Plan

### APPENDICES

- A. Laboratory Report
- B. Soil Cleanup Guidance Documents

# 1 INTRODUCTION

## 1.1 Site Description

The subject site consists of a 0.90 acre tax lot located at 2021 Boulevard Road SE in Olympia, WA. The general site location is shown on the Location Map, Figure 1.

The property is currently developed with an abandoned nursery operation, which formerly consisted of a retail store and three greenhouses. The property has been vandalized and is currently in ruins. The site configuration is shown on the Site Plan, Figure 2.

## 1.2 Background

A Phase I Environmental Site Assessment (ESA) was completed for West Coast Bank in March 2009 by Hemphill, Green & Associates LLC (HGA).

The ESA recommendations were 1) abandonment of a former septic system tank, and 2) soil sampling due to the historic greenhouse operations. Those work tasks are described in the following sections of this report.

## **2 SEPTIC TANK ABANDONMENT**

### **2.1 General**

The septic tank was abandoned on April 23, 2009 by All Washington Septic of Olympia, WA. The work was observed and documented by Travis S. Thornton, a Washington-registered geologist with HGA. The work is described below.

### **2.2 Septic Tank Abandonment**

The septic tank was located immediately behind the former retail store on the subject site, below about 1 foot of soil and gravel. The top of the tank was excavated, and was found to be a concrete tank that measured about 5 feet by 4 feet in plan view, and about 5 feet deep. The tank contained 2 feet of waste material, which was removed by a septic service vacuum truck.

After cleaning, the tank was filled with pea gravel from on-site materials. The top of the tank was then covered with the same materials that previously covered the tank.

### 3 SOIL SAMPLING

#### 3.1 Methodology

A total of three soil samples, designated S-1 through S-3, were collected on April 23, 2009 by HGA. The discrete samples were collected at a depth of about 1 foot below ground surface, using a stainless steel spade that was washed between sampling locations.

As shown on Figure 2, soil samples S-1 and S-2 were collected within the former greenhouse areas. Sample S-3 was collected in a yard area outside the greenhouses. Obvious staining or chemical odors were not observed in any of the soil samples.

The soil samples were packed in clean glass jars, placed in a chilled cooler, and transported to Pacific Agricultural Laboratory in Portland, Oregon under chain-of-custody documentation. Each sample was analyzed for pesticides, the 8 RCRA metals, and nitrates. A copy of the laboratory report is provided in Appendix A of this report.

#### 3.2 Analytical Results

Pesticides were detected in S-1 and S-2; pesticides were not detected in sample S-3. A preliminary evaluation was performed using the online Cleanup Levels and Risk Calculation (CLARC) developed by the Washington State Department of Ecology. Table 1 provides a summary of the analytical results, along with the applicable CLARC soil cleanup standard.

**Table 1. Pesticide Results**

Sample No	Sample Location	Pesticide	Detected Level (mg/kg)	CLARC* (mg/kg)
S-1	South Greenhouse	DDE	0.14	2.9
		DDD	0.064	4.2
		DDT	0.036	2.9
S-2	North Greenhouse	DDE	0.12	2.9
		dieldrin	0.038	0.063
		DDD	0.034	4.2
		DDT	0.014	2.9
S-3	Yard Area	Non Detected		

\* CLARC soil Method B cleanup standard, carcinogen, direct contact, unrestricted land use.

Low levels of arsenic, barium, chromium, lead, and mercury were also detected in all three soil samples, as listed below.

**Table 2. Metal Results**

Sample No	Sample Location	Metal	Detected Level (mg/kg)	Cleanup Standard *
S-1	South Greenhouse	arsenic	9.77	20
		barium	151	Not Listed
		cadmium	ND	2
		chromium	39.4	19 Cr <sup>+6</sup> / 2000 Cr <sup>+3</sup>
		lead	28.5	250
		mercury	0.128	2
		selenium	ND	Not Listed
		silver	ND	Not Listed
S-2	North Greenhouse	arsenic	7.14	20
		barium	131	Not Listed
		cadmium	ND	2
		chromium	32.3	19 Cr <sup>+6</sup> / 2000 Cr <sup>+3</sup>
		lead	17.3	250
		mercury	0.100	2
		selenium	ND	Not Listed
		silver	ND	Not Listed
S-3	Yard Area	arsenic	8.07	20
		barium	205	Not Listed
		cadmium	ND	2
		chromium	37.5	19 Cr <sup>+6</sup> / 2000 Cr <sup>+3</sup>
		lead	145	250
		mercury	0.167	2
		selenium	ND	Not Listed
		silver	ND	Not Listed

\* Washington State Method A Cleanup Levels, unrestricted land use (see Appendix B)

## 4 CONCLUSIONS & RECOMMENDATIONS

### 4.1 Discussion

The pesticides detected in site soil samples were below applicable Washington State Model Toxic Control Act (MTCA) pesticide cleanup standards. However, only a screening level assessment was conducted, and the number of samples collected was not sufficient to define the magnitude or extent of the pesticide impacts. The fact that several pesticides (which are now banned from use because of their threat to human and ecological health) were detected is of concern, considering that the property could be re-developed for residential use.

With the possible exception of chromium, the metals were below applicable MTCA soil cleanup levels. Typically, "total chromium" results are mainly due to trivalent chromium ( $\text{Cr}^{+3}$ ) with a smaller percentage of hexavalent chromium ( $\text{Cr}^{+6}$ ), although analytical speciation would be required to confirm this. If this is the case, then the detected total chromium levels are below cleanup standards.

### 4.2 Recommendations

With regard to the pesticides discussed above, HGA recommends additional soil sampling and analysis to define the horizontal and lateral extent of the pesticides. An alternate approach would be to clear the site of debris and buildings, excavate the top 1 -2 feet of soil from the footprint of the three greenhouses, and properly dispose of the soil at a landfill. This work would be followed by confirmation soil samples to evaluate the effectiveness of cleanup efforts.

With regard to the chromium results, HGA recommends that at least one soil sample be analyzed for  $\text{Cr}^{+3}$  /  $\text{Cr}^{+6}$  to determine the appropriate cleanup level that would apply to the site.

## 5 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

Date: June 9, 2009

Report prepared by:



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Travis S. Thornton, PG  
Project Geologist

Reviewed By:



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Christian D. Green, REA  
Partner

<b>Pacific Agricultural Laboratories</b> 12505 N.W. Cornell Road Portland, OREGON 97229	Project: <b>Travis Thornton</b> Project Number: 090208 Project Manager: Steve Thun	Reported: 05/11/09 10:58
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## ANALYTICAL SAMPLE RESULTS

### Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
<b>S-1 / 09020801 (A904213-01)</b>			<b>Matrix: Soil</b>					
Arsenic	9.77	---	1.28	mg/kg dry	10	05/01/09 10:26	EPA 6020	
Barium	151	---	1.28	"	"	"	"	
Cadmium	ND	---	1.28	"	"	"	"	
Chromium	39.4	---	2.56	"	"	"	"	
Lead	28.5	---	1.28	"	"	"	"	
Mercury	0.128	---	0.102	"	"	"	"	
Selenium	ND	---	1.28	"	"	"	"	
Silver	ND	---	1.28	"	"	"	"	
<b>S-2 / 09020802 (A904213-02)</b>			<b>Matrix: Soil</b>					
Arsenic	7.14	---	1.25	mg/kg dry	10	05/01/09 10:29	EPA 6020	
Barium	131	---	1.25	"	"	"	"	
Cadmium	ND	---	1.25	"	"	"	"	
Chromium	32.3	---	2.50	"	"	"	"	
Lead	17.3	---	1.25	"	"	"	"	
Mercury	0.100	---	0.100	"	"	"	"	
Selenium	ND	---	1.25	"	"	"	"	
Silver	ND	---	1.25	"	"	"	"	
<b>S-3 / 09020803 (A904213-03)</b>			<b>Matrix: Soil</b>					
Arsenic	8.07	---	1.39	mg/kg dry	10	05/01/09 10:37	EPA 6020	
Barium	205	---	1.39	"	"	"	"	
Cadmium	ND	---	1.39	"	"	"	"	
Chromium	37.5	---	2.78	"	"	"	"	
Lead	145	---	1.39	"	"	"	"	
Mercury	0.167	---	0.111	"	"	"	"	
Selenium	ND	---	1.39	"	"	"	"	
Silver	ND	---	1.39	"	"	"	"	

Apex Laboratories



*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

Darwin Thomas, Business Development Director

Hydro-logics  
69495 Lazzo  
Sisters, OR 97759

Report Number: P090208  
Report Date: May 11, 2009  
Client Project ID: [none]

## Analytical Report

Client Sample ID: S-1  
Matrix: soil

PAL Sample ID: P090208-01  
Sample Date: 4/23/09

Extraction Date	Analysis Date	Analyte	Amount Detected	Method Reporting Limit	Notes
Method: Multiresidue Profile					
4/30/09	5/5/09	p,p'-DDE	0.14 mg/kg	0.0067 mg/kg	
4/30/09	5/5/09	p,p'-DDD	0.064 mg/kg	0.0067 mg/kg	
4/30/09	5/5/09	p,p'-DDT	0.036 mg/kg	0.0067 mg/kg	
4/30/09	5/5/09	Other Pesticides	Not Detected	See Analyte List	
Surrogate Recovery: 87 %					
Surrogate Recovery Range: 54-139					
(DCBP used as Surrogate)					

Client Sample ID: S-2  
Matrix: soil

PAL Sample ID: P090208-02  
Sample Date: 4/23/09

Extraction Date	Analysis Date	Analyte	Amount Detected	Method Reporting Limit	Notes
Method: Multiresidue Profile					
4/30/09	5/5/09	p,p'-DDE	0.12 mg/kg	0.0067 mg/kg	
4/30/09	5/5/09	Dieldrin	0.038 mg/kg	0.0067 mg/kg	
4/30/09	5/5/09	p,p'-DDD	0.034 mg/kg	0.0067 mg/kg	
4/30/09	5/5/09	p,p'-DDT	0.014 mg/kg	0.0067 mg/kg	
4/30/09	5/5/09	Other Pesticides	Not Detected	See Analyte List	
Surrogate Recovery: 86 %					
Surrogate Recovery Range: 54-139					
(DCBP used as Surrogate)					

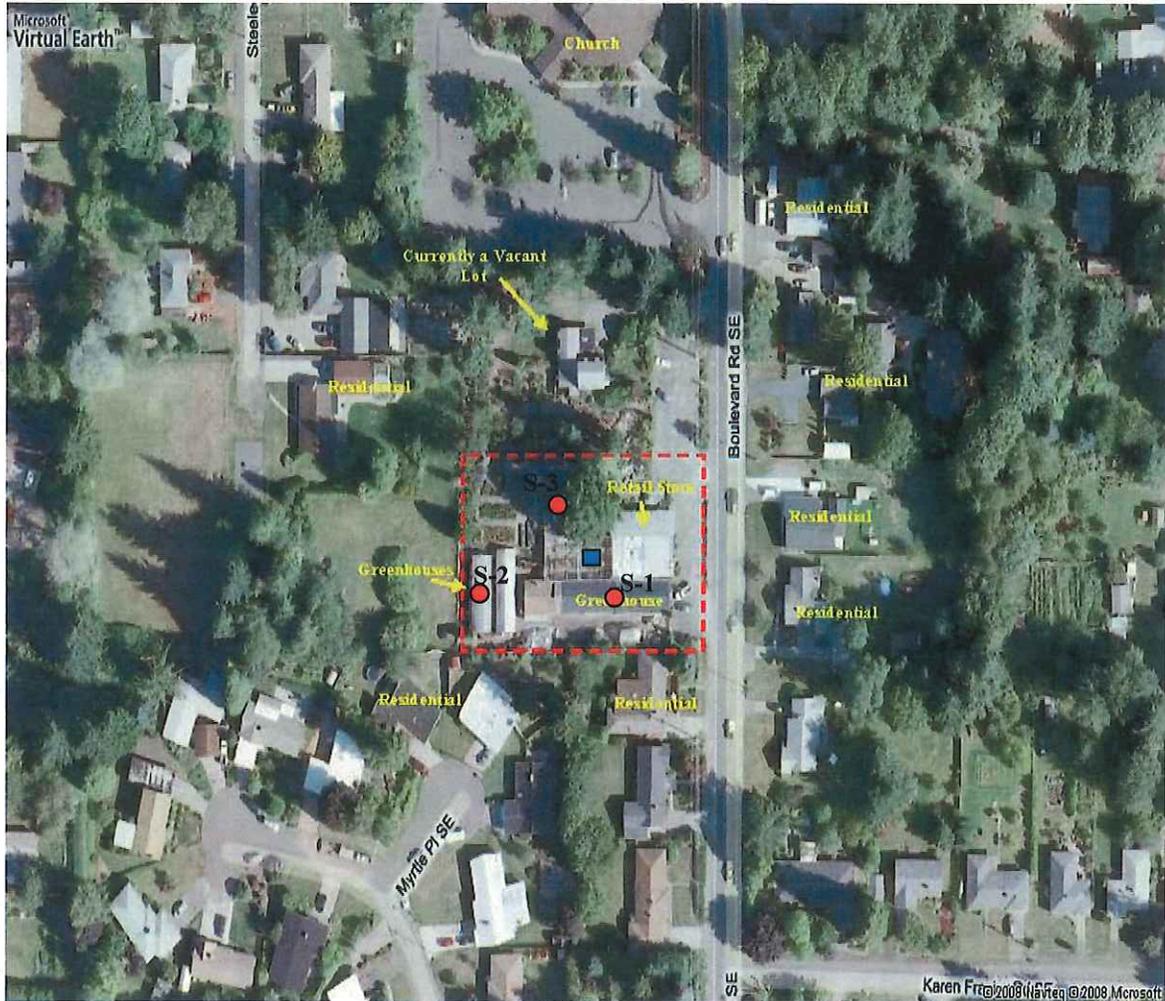
Client Sample ID: S-3  
Matrix: soil

PAL Sample ID: P090208-03  
Sample Date: 4/23/09

Extraction Date	Analysis Date	Analyte	Amount Detected	Method Reporting Limit	Notes
Method: Multiresidue Profile					
4/30/09	5/5/09	MR Pesticides	Not Detected	See Analyte List	
Surrogate Recovery: 85 %					
Surrogate Recovery Range: 54-139					
(DCBP used as Surrogate)					



Steve Thun For Rick Jordan, Laboratory Manager



--- Approximate Subject Property Boundary

- Soil Sample
- Septic Tank



<b>SITE MAP</b>	
HGA	<p><b>Figure 2: Site Map</b>          Site Name: Boulevard Nursery          2021 Boulevard Road SE          Olympia, Washington</p>