Los Angeles County
Metropolitan Transportation Authority

Link Union Station

Phase I Environmental Site Assessment

October 2016

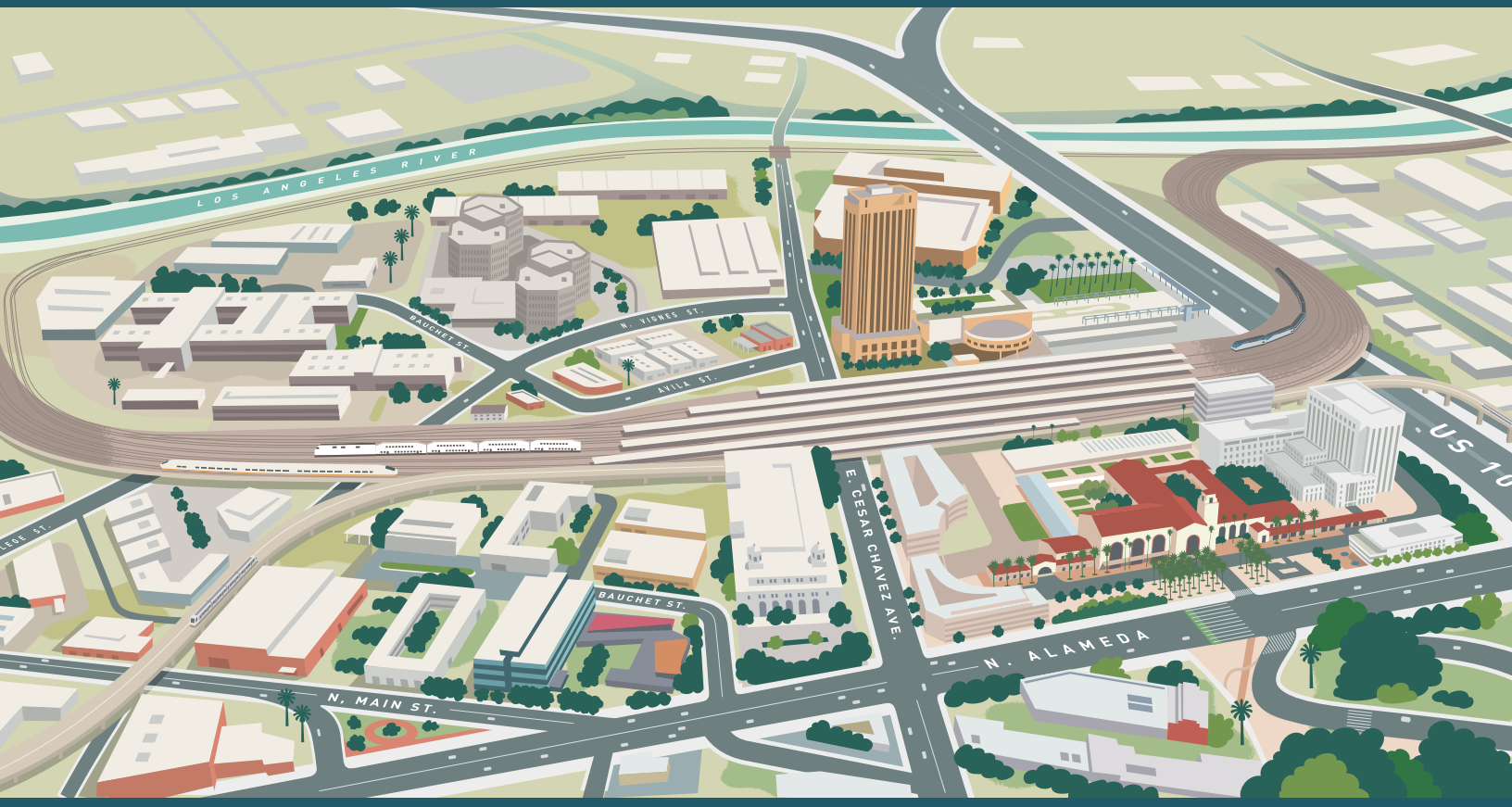

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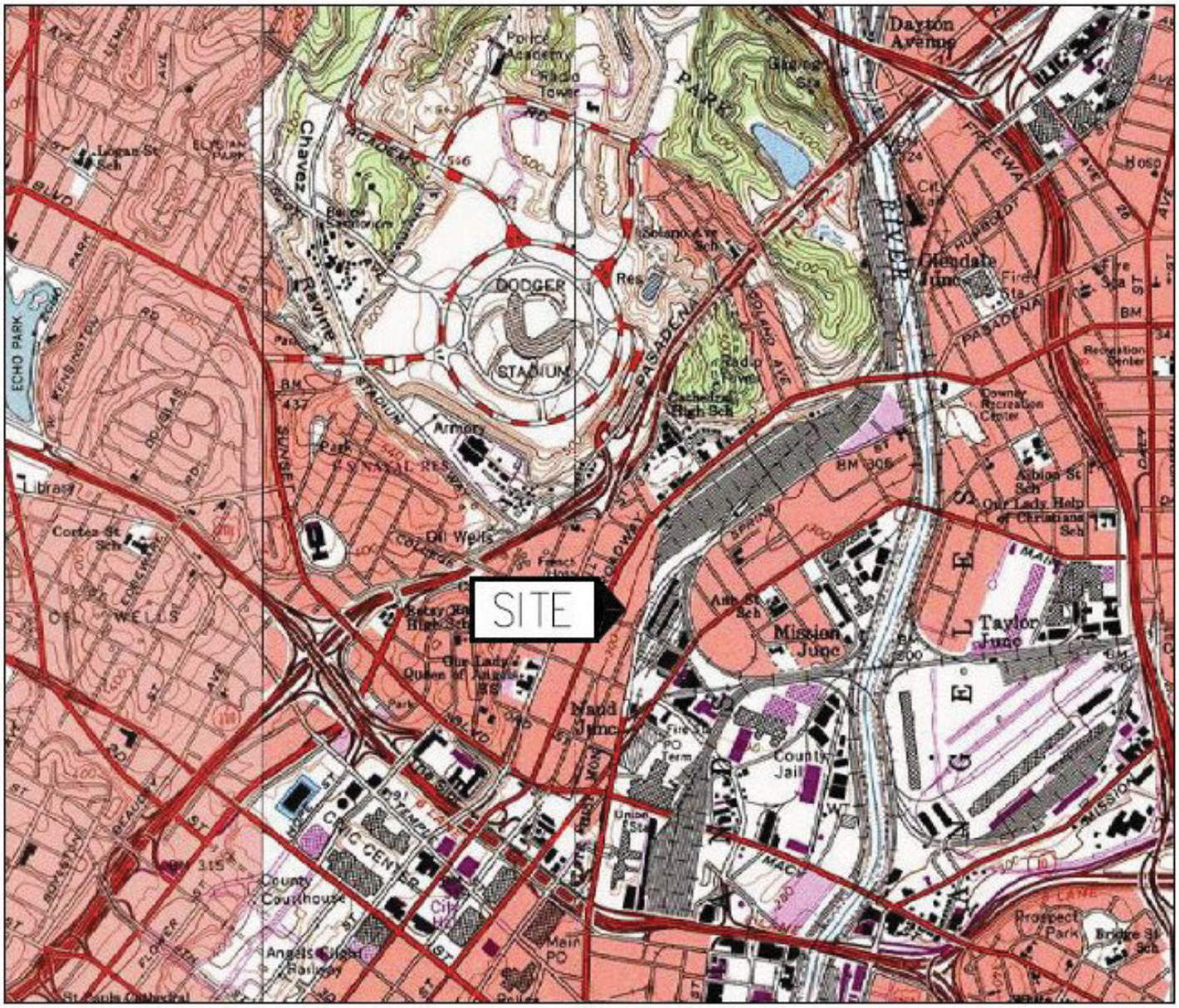
Table 3
Soil Import Criteria
Risk Management Plan
Proposed Blossom Plaza Development Site
900 Broadway, Los Angeles, California

Chemical	Regional Screening Levels[1] (mg/kg)	Background Concentration (mg/kg)
Total Petroleum Hydrocarbons (TPH)		
TPH-Diesel	--	--
TPH-Gasoline	--	--
TPH-Residual (Oil and Grease)	--	--
Volatile Organic Compounds (VOCs)		
Benzene	1.1	--
Ethylbenzene	5.4	--
Toluene	5,000	--
p-Xylene	600	--
m-Xylene	590	--
o-Xylene	690	--
Xylenes (Total)	630	--
Polynuclear Aromatic Hydrocarbons (PAHs)		
Acenaphthene	3,400	--
Anthracene	17,000	--
Benz[a]anthracene	0.15	--
Benzo(j)fluoranthene	0.38	--
Benzo[a]pyrene	0.015	--
Benzo[b]fluoranthene	0.15	--
Benzo[k]fluoranthene	1.5	--
Chrysene	15	--
Dibenz[a,h]anthracene	0.015	--
Dibenzo(a,e)pyrene	0.038	--
Dimethylbenz(a)anthracene, 7,12-	0.00043	--
Fluoranthene	2,300	--
Fluorene	2,300	--
Indeno[1,2,3-cd]pyrene	0.15	--
Methylnaphthalene, 1-	16	--
Methylnaphthalene, 2-	230	--
Naphthalene	3.60	--
Nitropyrene, 4-	0.38	--
Pyrene	1,700	--
Metals		
Aluminum	77,000	--
Antimony	31	--
Arsenic	0.61	6
Barium	15,000	--
Beryllium	160	--
Cadmium	70	--
Chromium (total)	--	--
Chromium (VI)	0.29	--
Cobalt	23	--
Copper	3,100	--
Lead	400	--
Manganese	--	--
Mercury	10	--
Molybdenum	390	--
Nickel	1,500	--
Selenium	390	--
Silver	390	--
Thallium	0.78	--
Vanadium	390	--
Zinc	23,000	--

Notes:
-- = not established
mg/kg = milligrams per kilogram
1. United States Environmental Protection Agency Region 9, Regional Screening Levels (RSLs), May 2013.
2. Final Report - Background Metals at Los Angeles Unified School Sites, California Department of Toxic Substances Control
California Environmental Protection Agency, 6 January 2005

FIGURES



REFERENCE: USGS 7.5-MINUTE LOS ANGELES QUADRANGLE (JULY 1981).

Site Location Map

Risk Management Plan
Proposed Blossom Plaza Development Site
900 Broadway, Los Angeles, California

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EXPLANATION

- O-3 — FEBRUARY 2005 AQUIFER TESTING INVESTIGATION OBSERVATION WELLS (4953-03-3444)
- P-2 — FEBRUARY 2005 AQUIFER TESTING INVESTIGATION PIEZOMETER (4953-03-3444)
- E-1 — FEBRUARY 2005 AQUIFER TESTING INVESTIGATION EXTRACTION WELL (4953-03-3444)
- CPT-1 — FEBRUARY 2005 CONE PENETROMETER TEST BORING (4953-03-3444)
- S3/D4 — MARCH 2005 METHANE AND HYDROGEN SULFIDE INVESTIGATION (4953-03-3445)
- MW-1 — DECEMBER 2004 MONITORING WELL INSTALLED BY CITY OF LOS ANGELES, DEPT. OF PUBLIC WORKS, GEOTECHNICAL ENGINEERING DIVISION
- B-16 — MARCH 2004 BORING (4953-03-3442)
- B-19 — MARCH 2004 GEOPROBE BORING (4953-03-3442)
- B-11 — FEBRUARY 2004 BORING (4953-03-3441)
- 7 — PRIOR INVESTIGATION (A-81132)
- 20a — PRIOR INVESTIGATION (70111-0-0041)
  - "BENT" BORING LOCATION AND NUMBER
- B-15B — GEOPROBE REDRILLED THROUGH BORING B-15
- PREVIOUS UST LOCATION (REMOVED 1956)
- A A' — LOCATION OF CROSS SECTION

NOTE: MONITORING WELL NOT CONSTRUCTED AT MW-4; BORING TERMINATED

REFERENCES:

1. SITE PLAN DATED FEBRUARY 2, 2004 AND PROVIDED BY NAKADA & ASSOCIATES, INC.
2. MONITORING WELLS SURVEYED BY DULIN & BOYNTON LICENSED SURVEYORS FEBRUARY 2005.
3. A.L.T.A./ACSM LAND TITLE SURVEY DATED JANUARY 31, 2003 BY MOLLENHAJER GROUP.

SCALE: 1"=50'

Scale 0 25 50 feet

Existing Site Plan

Risk Management Plan
Proposed Blossom Plaza Development Site
900 Broadway, Los Angeles, California

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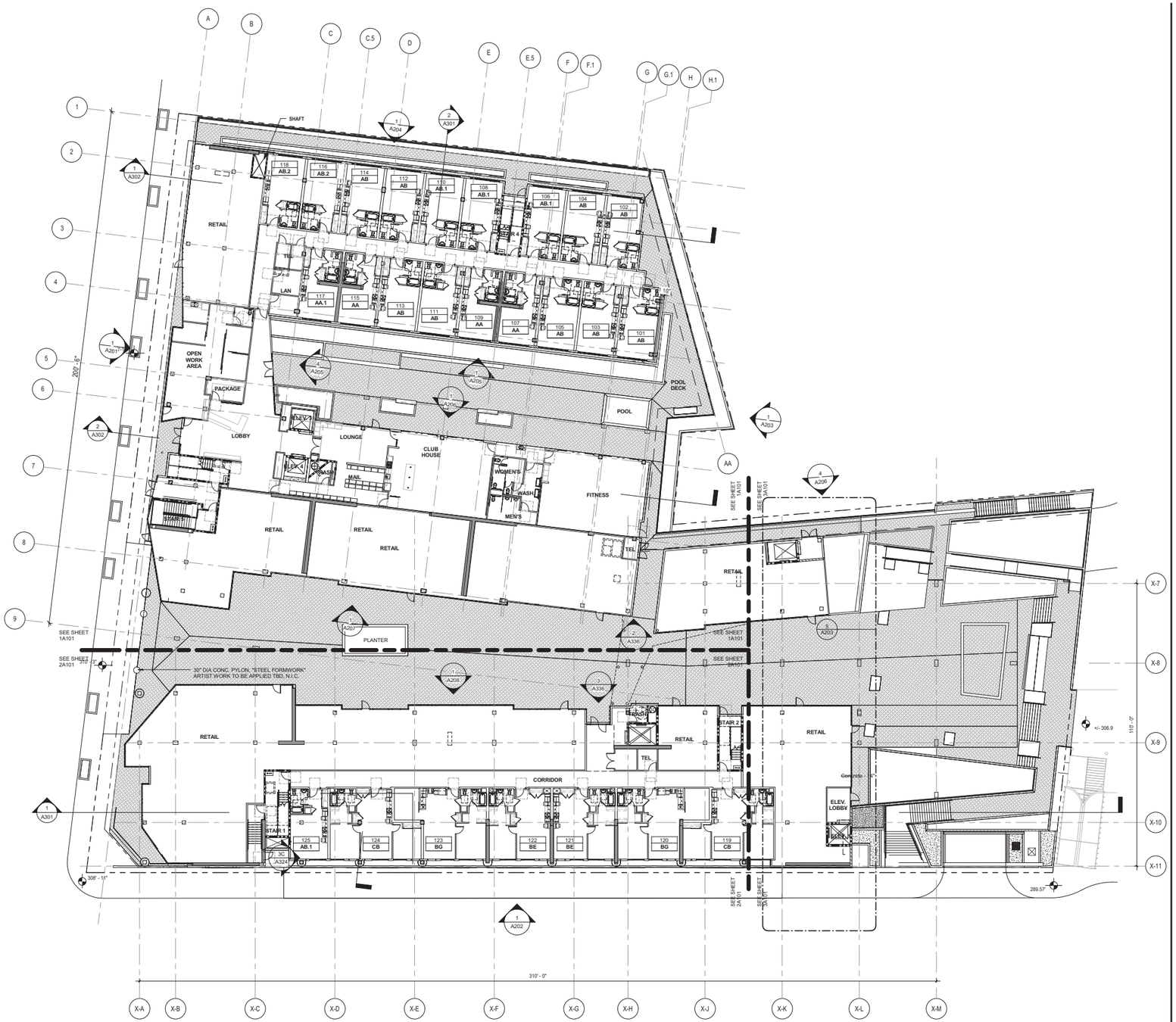
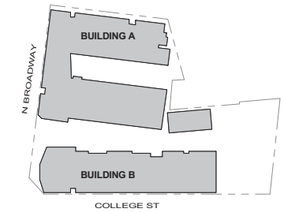


1 GROUND FLOOR PLAN - OVERALL PLAN

1/16" = 1'-0"

0 8 16 40



BUILDING KEYPLAN

Development Layout Plan

Risk Management Plan
Proposed Blossom Plaza Development Site
900 Broadway, Los Angeles, California

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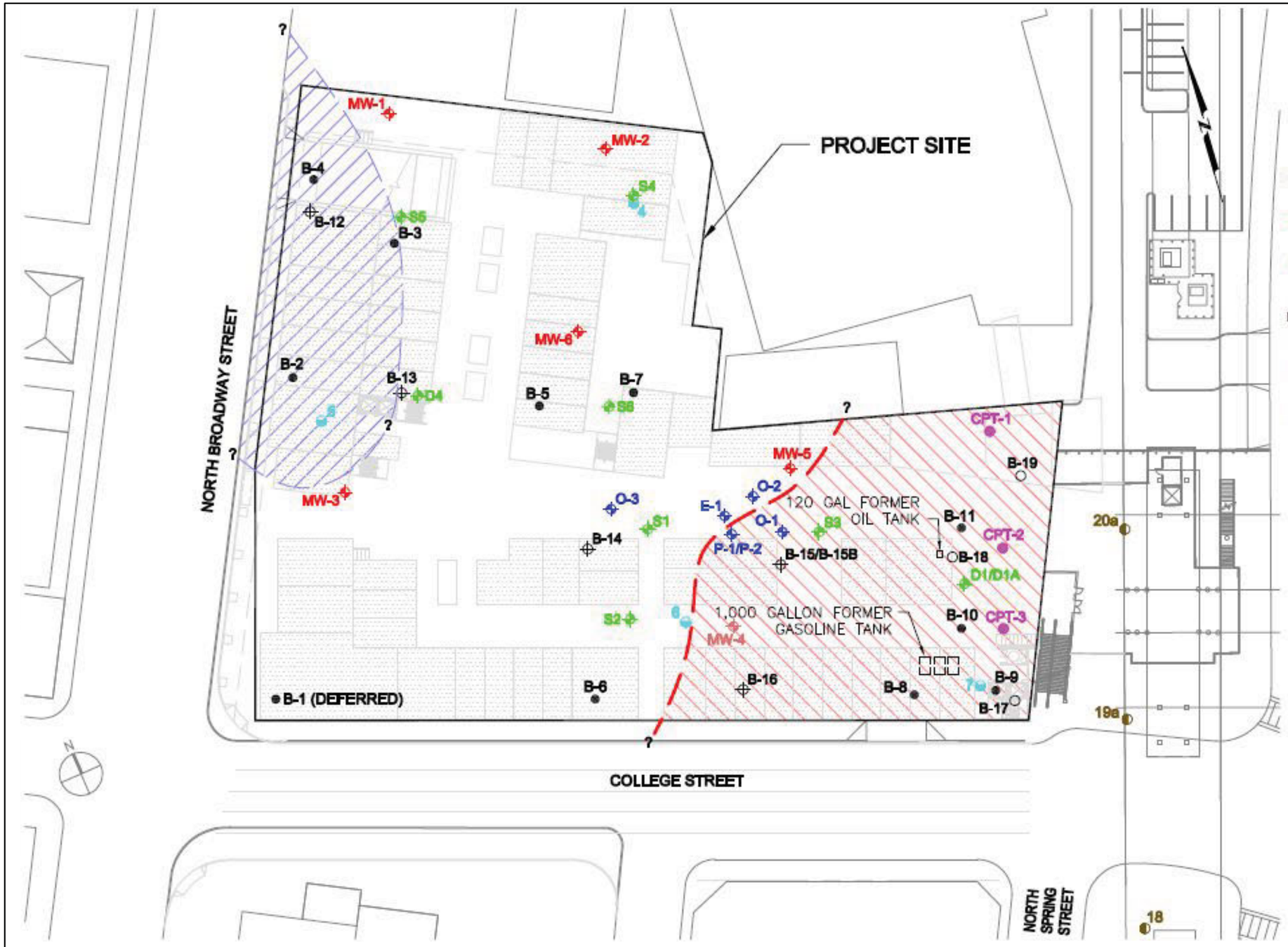

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- ESTIMATED SITE PRODUCT BOUNDARY
- ESTIMATED AREA OF ENCOUNTERED CRUDE
- ESTIMATED AREA OF SHORTER-CHAIN TPH

NOTE: MONITORING WELL NOT CONSTRUCTED AT MW-4; BORING TERMINATED

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SCALE: 1"=50'

Scale 0 25 50 feet

Approximate Extent of TPH Impacts

Risk Management Plan
Proposed Blossom Plaza Development Site
900 Broadway, Los Angeles, California

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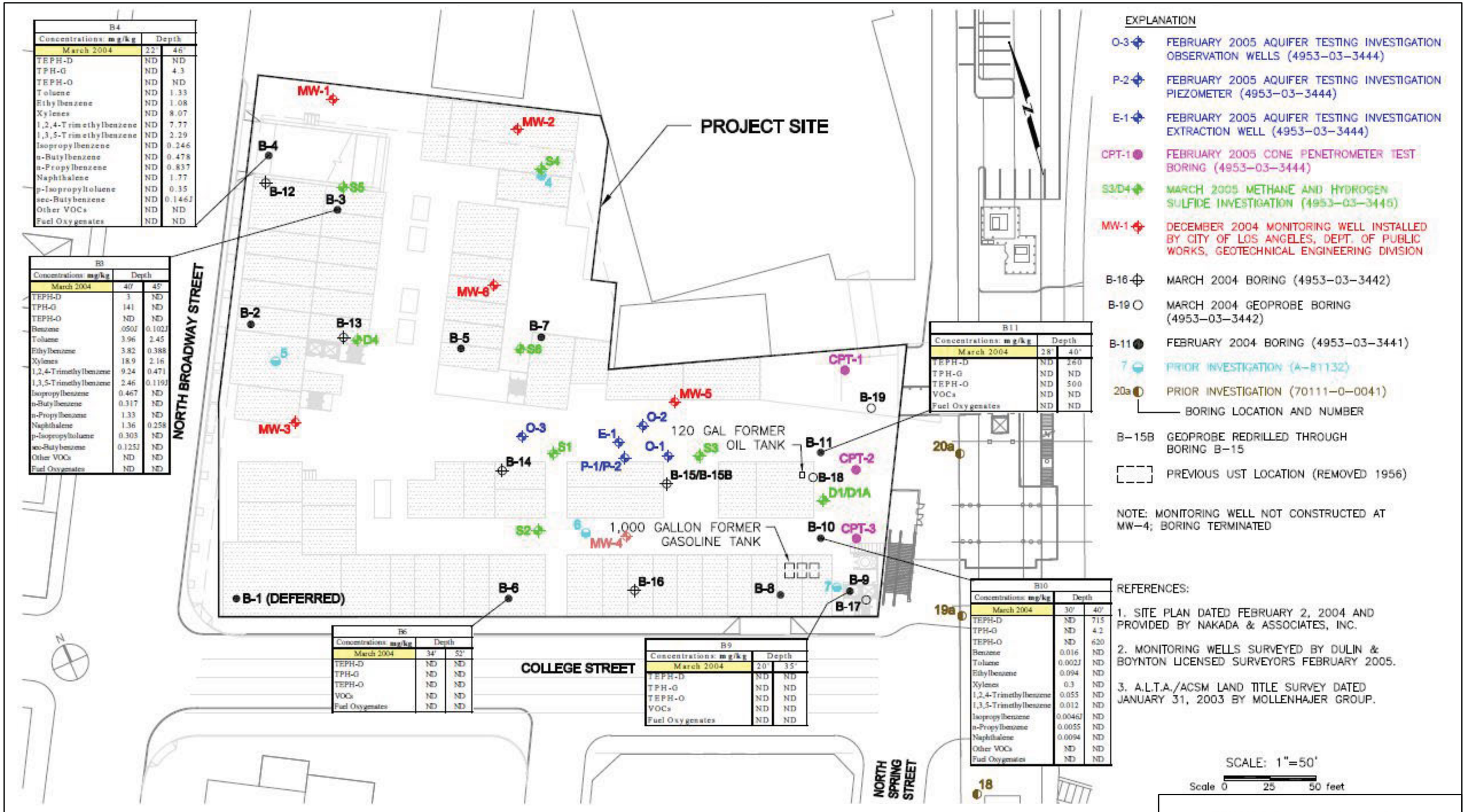

B4

Concentrations: mg/kg	Depth	
March 2004	22'	46'
TEPH-D	ND	ND
TPH-G	ND	4.3
TEPH-O	ND	ND
Toluene	ND	1.33
Ethylbenzene	ND	1.08
Xylenes	ND	8.07
1,2,4-Trimethylbenzene	ND	7.77
1,3,5-Trimethylbenzene	ND	2.29
Isopropylbenzene	ND	0.246
n-Butylbenzene	ND	0.478
n-Propylbenzene	ND	0.837
Naphthalene	ND	1.77
p-Isopropyltoluene	ND	0.35
sec-Butylbenzene	ND	0.146J
Other VOCs	ND	ND
Fuel Oxygenates	ND	ND

B3

Concentrations: mg/kg	Depth	
March 2004	40'	45'
TEPH-D	3	ND
TPH-G	141	ND
TEPH-O	ND	ND
Benzene	050J	0.102J
Toluene	3.96	2.45
Ethylbenzene	3.82	0.388
Xylenes	18.9	2.16
1,2,4-Trimethylbenzene	9.24	0.471
1,3,5-Trimethylbenzene	2.46	0.119J
Isopropylbenzene	0.467	ND
n-Butylbenzene	0.317	ND
n-Propylbenzene	1.33	ND
Naphthalene	1.36	0.258
p-Isopropyltoluene	0.303	ND
sec-Butylbenzene	0.125J	ND
Other VOCs	ND	ND
Fuel Oxygenates	ND	ND

B11

Concentrations: mg/kg	Depth	
March 2004	28'	40'
TEPH-D	ND	260
TPH-G	ND	ND
TEPH-O	ND	500
VOCs	ND	ND
Fuel Oxygenates	ND	ND

B6

Concentrations: mg/kg	Depth	
March 2004	34'	52'
TEPH-D	ND	ND
TPH-G	ND	ND
TEPH-O	ND	ND
VOCs	ND	ND
Fuel Oxygenates	ND	ND

B9

Concentrations: mg/kg	Depth	
March 2004	20'	35'
TEPH-D	ND	ND
TPH-G	ND	ND
TEPH-O	ND	ND
VOCs	ND	ND
Fuel Oxygenates	ND	ND

B10

Concentrations: mg/kg	Depth	
March 2004	30'	40'
TEPH-D	ND	715
TPH-G	ND	4.2
TEPH-O	ND	620
Benzene	0.016	ND
Toluene	0.002J	ND
Ethylbenzene	0.094	ND
Xylenes	0.3	ND
1,2,4-Trimethylbenzene	0.053	ND
1,3,5-Trimethylbenzene	0.012	ND
Isopropylbenzene	0.0046J	ND
n-Propylbenzene	0.0055	ND
Naphthalene	0.0094	ND
Other VOCs	ND	ND
Fuel Oxygenates	ND	ND

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SCALE: 1"=50'

Scale 0 25 50 feet

TPH/VOC Concentrations in Soil

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900 Broadway, Los Angeles, California

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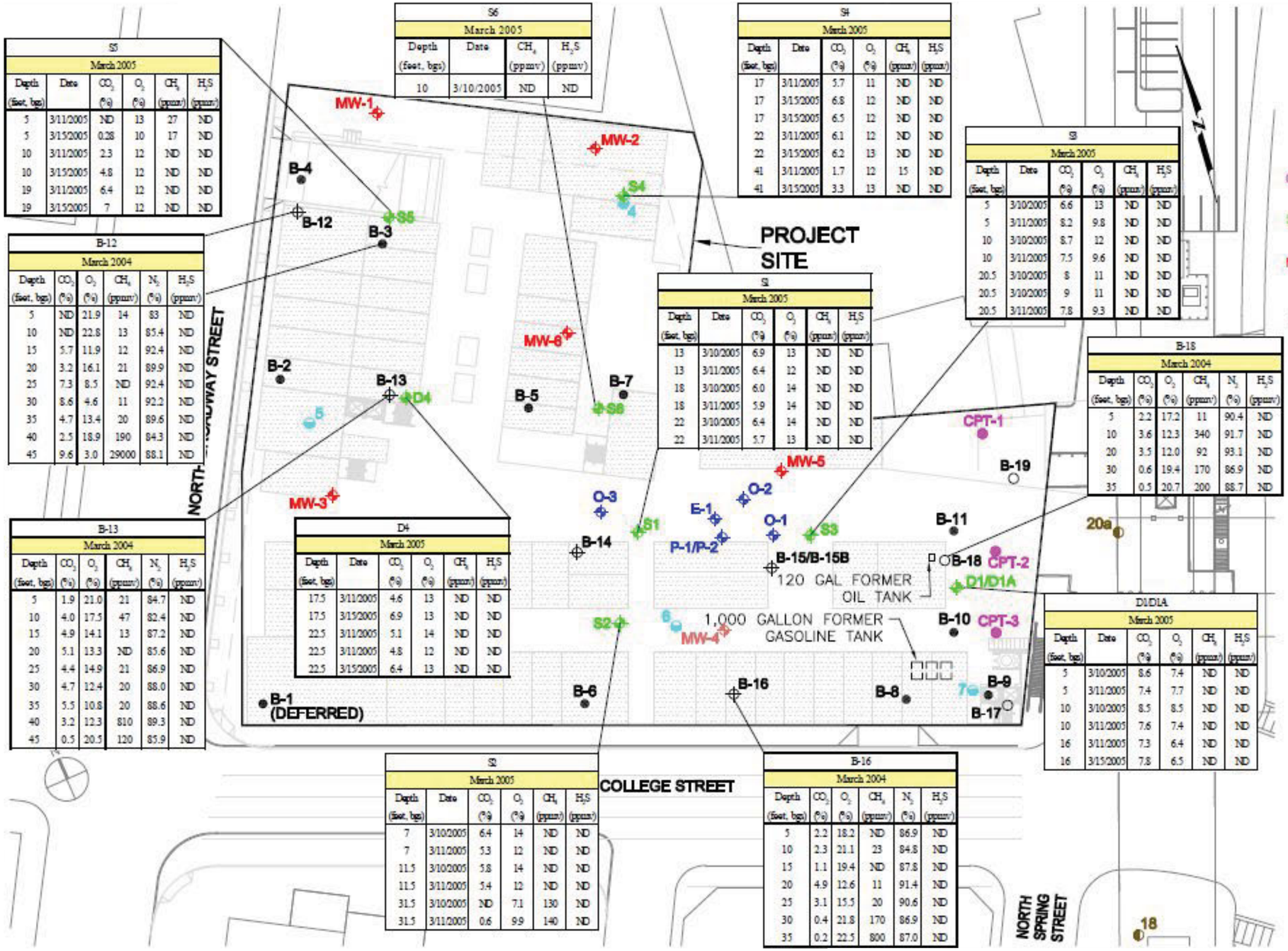

S5

March 2005

Depth (feet, bgs)	Date	CO_2 (%)	O_2 (%)	CH_4 (ppmv)	H_2S (ppmv)
5	3/11/2005	ND	13	27	ND
5	3/15/2005	0.28	10	17	ND
10	3/11/2005	2.3	12	ND	ND
10	3/15/2005	4.8	12	ND	ND
19	3/11/2005	6.4	12	ND	ND
19	3/15/2005	7	12	ND	ND

B-12

March 2004

Depth (feet, bgs)	CO_2 (%)	O_2 (%)	CH_4 (ppmv)	N_2 (%)	H_2S (ppmv)
5	ND	21.9	14	83	ND
10	ND	22.8	13	85.4	ND
15	5.7	11.9	12	92.4	ND
20	3.2	16.1	21	89.9	ND
25	7.3	8.5	ND	92.4	ND
30	8.6	4.6	11	92.2	ND
35	4.7	13.4	20	89.6	ND
40	2.5	18.9	190	84.3	ND
45	9.6	3.0	29000	88.1	ND

B-13

March 2004

Depth (feet, bgs)	CO_2 (%)	O_2 (%)	CH_4 (ppmv)	N_2 (%)	H_2S (ppmv)
5	1.9	21.0	21	84.7	ND
10	4.0	17.5	47	82.4	ND
15	4.9	14.1	13	87.2	ND
20	5.1	13.3	ND	85.6	ND
25	4.4	14.9	21	86.9	ND
30	4.7	12.4	20	88.0	ND
35	5.5	10.8	20	88.6	ND
40	3.2	12.3	810	89.3	ND
45	0.5	20.5	120	85.9	ND

S6

March 2005

Depth (feet, bgs)	Date	CH_4 (ppmv)	H_2S (ppmv)
10	3/10/2005	ND	ND

D4

March 2005

Depth (feet, bgs)	Date	CO_2 (%)	O_2 (%)	CH_4 (ppmv)	H_2S (ppmv)
17.5	3/11/2005	4.6	13	ND	ND
17.5	3/15/2005	6.9	13	ND	ND
22.5	3/11/2005	5.1	14	ND	ND
22.5	3/11/2005	4.8	12	ND	ND
22.5	3/15/2005	6.4	13	ND	ND

S4

March 2005

Depth (feet, bgs)	Date	CO_2 (%)	O_2 (%)	CH_4 (ppmv)	H_2S (ppmv)
17	3/11/2005	5.7	11	ND	ND
17	3/15/2005	6.8	12	ND	ND
17	3/15/2005	6.5	12	ND	ND
22	3/11/2005	6.1	12	ND	ND
22	3/15/2005	6.2	13	ND	ND
41	3/11/2005	1.7	12	15	ND
41	3/15/2005	3.3	13	ND	ND

S1

March 2005

Depth (feet, bgs)	Date	CO_2 (%)	O_2 (%)	CH_4 (ppmv)	H_2S (ppmv)
13	3/10/2005	6.9	13	ND	ND
13	3/11/2005	6.4	12	ND	ND
18	3/10/2005	6.0	14	ND	ND
18	3/11/2005	5.9	14	ND	ND
22	3/10/2005	6.4	14	ND	ND
22	3/11/2005	5.7	13	ND	ND

S3

March 2005

Depth (feet, bgs)	Date	CO_2 (%)	O_2 (%)	CH_4 (ppmv)	H_2S (ppmv)
5	3/10/2005	6.6	13	ND	ND
5	3/11/2005	8.2	9.8	ND	ND
10	3/10/2005	8.7	12	ND	ND
10	3/11/2005	7.5	9.6	ND	ND
20.5	3/10/2005	8	11	ND	ND
20.5	3/10/2005	9	11	ND	ND
20.5	3/11/2005	7.8	9.3	ND	ND

B-18

March 2004

Depth (feet, bgs)	CO_2 (%)	O_2 (%)	CH_4 (ppmv)	N_2 (%)	H_2S (ppmv)
5	2.2	17.2	11	90.4	ND
10	3.6	12.3	340	91.7	ND
20	3.5	12.0	92	93.1	ND
30	0.6	19.4	170	86.9	ND
35	0.5	20.7	200	88.7	ND

D1/D1A

March 2005

Depth (feet, bgs)	Date	CO_2 (%)	O_2 (%)	CH_4 (ppmv)	H_2S (ppmv)
5	3/10/2005	8.6	7.4	ND	ND
5	3/11/2005	7.4	7.7	ND	ND
10	3/10/2005	8.5	8.5	ND	ND
10	3/11/2005	7.6	7.4	ND	ND
16	3/11/2005	7.3	6.4	ND	ND
16	3/15/2005	7.8	6.5	ND	ND

S2

March 2005

Depth (feet, bgs)	Date	CO_2 (%)	O_2 (%)	CH_4 (ppmv)	H_2S (ppmv)
7	3/10/2005	6.4	14	ND	ND
7	3/11/2005	5.3	12	ND	ND
11.5	3/10/2005	5.8	14	ND	ND
11.5	3/11/2005	5.4	12	ND	ND
31.5	3/10/2005	ND	7.1	130	ND
31.5	3/11/2005	0.6	9.9	140	ND

B-16

March 2004

Depth (feet, bgs)	CO_2 (%)	O_2 (%)	CH_4 (ppmv)	N_2 (%)	H_2S (ppmv)
5	2.2	18.2	ND	86.9	ND
10	2.3	21.1	23	84.8	ND
15	1.1	19.4	ND	87.8	ND
20	4.9	12.6	11	91.4	ND
25	3.1	15.5	20	90.6	ND
30	0.4	21.8	170	86.9	ND
35	0.2	22.5	800	87.0	ND

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SCALE: 1"=50'

Scale 0 25 50 feet

Methane Concentrations in Soil Gas

Risk Management Plan
Proposed Blossom Plaza Development Site
900 Broadway, Los Angeles, California

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PROJECT SITE

NORTH BROADWAY STREET

COLLEGE STREET

NORTH SPRING STREET

120 GAL. FORMER OIL TANK

1,000 GALLON FORMER GASOLINE TANK

B-12	
March 2004	
Concentrations:	mg/L
TEPH-D	2
TPH-G	210
TEPH-O	ND
	µg/L
Benzene	3,500
Toluene	41,900
Ethylbenzene	5,700
Xylenes	24,300
1,2,4-Trimethylbenzene	2,920
1,3,5-Trimethylbenzene	808J
Other VOCs	ND
Fuel Oxygenates	ND

B-13	
March 2004	
Concentrations:	mg/L
TEPH-D	0.2
TPH-G	0.87
TEPH-O	ND
	µg/L
Ethylbenzene	6.4
Xylenes	30
1,2,4-Trimethylbenzene	38
1,3,5-Trimethylbenzene	2.1
Isopropylbenzene	5.1
n-Propylbenzene	3 .0J
sec-Butylbenzene	3.5J
Other VOCs	ND
Fuel Oxygenates	ND

B-14	
March 2004	
Concentrations:	mg/L
TEPH-D	ND
TPH-G	ND
TEPH-O	ND
	µg/L
VOCs	ND
Fuel Oxygenates	ND

B-15	
March 2004	
Concentrations:	mg/L
TEPH-D	ND
TPH-G	ND
TEPH-O	ND
	µg/L
VOCs	ND
Fuel Oxygenates	ND

E-1	
March 2005	
Concentrations:	mg/L
TEPH-D	ND
TPH-G	ND
Oil and Grease	ND
	µg/L
BTEX	ND
VOCs	ND
Fuel Oxygenates	ND
SVOCs	ND
PAHs	ND
PCBs	ND
Pesticides	ND
Perchlorate	ND
1,4-Dioxane	ND
Methanol	ND
	ng/L
2,3,7,8-TCDD	ND
NDMA	33

B-19	
March 2004	
Concentrations:	mg/L
TEPH-D	0.1
TPH-G	ND
TEPH-O	ND
	µg/L
VOCs	ND
Fuel Oxygenates	ND

B-18	
March 2004	
Concentrations:	mg/L
TEPH-D	0.1
TPH-G	ND
TEPH-O	ND
	µg/L
VOCs	ND
Fuel Oxygenates	ND

*B-15B	
March 2004	
Concentrations:	mg/L
TEPH-D	ND
TPH-G	ND
TEPH-O	ND
	µg/L
VOCs	ND
Fuel Oxygenates	ND

B-17	
March 2004	
Concentrations:	mg/L
TEPH-D	1.6
TPH-G	ND
TEPH-O	ND
	µg/L
VOCs	ND
Fuel Oxygenates	ND

MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, B-1 (DEFERRED), B-2, B-3, B-4, B-5, B-6, B-7, B-8, B-9, B-10, B-11, B-12, B-13, B-14, B-15/B-15B, B-16, B-17, B-18, B-19, S1, S2, S3, S4, S5, S6, 7, 8, 18, 19a, 20a, D1/D1A, D4, O-1, O-2, O-3, P-1/P-2, E-1, CPT-1, CPT-2, CPT-3

EXPLANATION

- O-3 — FEBRUARY 2005 AQUIFER TESTING INVESTIGATION OBSERVATION WELLS (4953-03-3444)
- P-2 — FEBRUARY 2005 AQUIFER TESTING INVESTIGATION PIEZOMETER (4953-03-3444)
- E-1 — FEBRUARY 2005 AQUIFER TESTING INVESTIGATION EXTRACTION WELL (4953-03-3444)
- CPT-1 — FEBRUARY 2005 CONE PENETROMETER TEST BORING (4953-03-3444)
- S3/D4 — MARCH 2005 METHANE AND HYDROGEN SULFIDE INVESTIGATION (4953-03-3445)
- MW-1 — DECEMBER 2004 MONITORING WELL INSTALLED BY CITY OF LOS ANGELES, DEPT. OF PUBLIC WORKS, GEOTECHNICAL ENGINEERING DIVISION
- B-16 — MARCH 2004 BORING (4953-03-3442)
- B-19 — MARCH 2004 GEOPROBE BORING (4953-03-3442)
- B-11 — FEBRUARY 2004 BORING (4953-03-3441)
- 7 — PRIOR INVESTIGATION (A-81132)
- 20a — PRIOR INVESTIGATION (70111-0-0041)
  - "BENT" BORING LOCATION AND NUMBER
- B-15B — GEOPROBE REDRILLED THROUGH BORING B-15
- PREVIOUS UST LOCATION (REMOVED 1956)

NOTE: MONITORING WELL NOT CONSTRUCTED AT MW-4; BORING TERMINATED

REFERENCES:

1. SITE PLAN DATED FEBRUARY 2, 2004 AND PROVIDED BY NAKADA & ASSOCIATES, INC.
2. MONITORING WELLS SURVEYED BY DULIN & BOYNTON LICENSED SURVEYORS FEBRUARY 2005.
3. A.L.T.A./ACSM LAND TITLE SURVEY DATED JANUARY 31, 2003 BY MOLLENHAJER GROUP.

SCALE: 1"=50'

Scale 0 25 50 feet

TPH/VOC Concentrations in Groundwater

Risk Management Plan
Proposed Blossom Plaza Development Site
900 Broadway, Los Angeles, California

October 2013 | Figure: 7 | Geosyntec consultants

P:\PRJ2003REM\Forest City\WR1777-Blossom Plaza\Documents\Figures\Figure02.ai

APPENDIX A

Environmental Health and Safety Plan Outline

APPENDIX A

Example Environmental Health and Safety Plan Outline

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Approval and Certification of Environmental Health and Safety Plan

Project Name: _____

Project Number/ID: _____

"This Project Specific Environmental Health and Safety Plan and Attachments were prepared under my direction to comply with applicable occupational health and safety standards, including, but not limited to OSHA 1910.120"

_____ _____

Certified Industrial Hygienist Signature and Stamp *Date*

APPENDIX B

DTSC Soil Import Advisory

Information Advisory
Clean Imported Fill Material

October 2001

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

It is DTSC's mission to restore, protect and enhance the environment, to ensure public health, environmental quality and economic vitality, by regulating hazardous waste, conducting and overseeing cleanups, and developing and promoting pollution prevention.

State of California

California Environmental Protection Agency

Executive Summary

This fact sheet has been prepared to ensure that inappropriate fill material is not introduced onto sensitive land use properties under the oversight of the DTSC or applicable regulatory authorities. Sensitive land use properties include those that contain facilities such as hospitals, homes, day care centers, and schools. This document only focuses on human health concerns and ecological issues are not addressed. It identifies those types of land use activities that may be appropriate when determining whether a site may be used as a fill material source area. It also provides guidelines for the appropriate types of analyses that should be performed relative to the former land use, and for the number of samples that should be collected and analyzed based on the estimated volume of fill material that will need to be used. The information provided in this fact sheet is not regulatory in nature, rather is to be used as a guide, and in most situations the final decision as to the acceptability of fill material for a sensitive land use property is made on a case-by-case basis by the appropriate regulatory agency.

Introduction

The use of imported fill material has recently come under scrutiny because of the instances where contaminated soil has been brought onto an otherwise clean site. However, there are currently no established standards in the statutes or regulations that address environmental requirements for imported fill material. Therefore, the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) has prepared this fact sheet to identify procedures that can be used to minimize the possibility of introducing contaminated soil onto a site that requires imported fill material. Such sites include those that are undergoing site remediation, corrective action, and closure activities overseen by DTSC or the appropriate regulatory agency. These procedures may also apply to construction projects that will result in sensitive land uses. The intent of this fact sheet is to protect people who live on or otherwise use a sensitive land use property. By using this fact sheet as a guide, the reader will minimize the chance of introducing fill material that may result in potential risk to human health or the environment at some future time.

Overview

Both natural and manmade fill materials are used for a variety of purposes. Fill material properties are commonly controlled to meet the necessary site specific engineering specifications. Because most sites requiring fill material are located in or near urban areas, the fill materials are often obtained from construction projects that generate an excess of soil, and from demolition debris (asphalt, broken concrete, etc.). However, materials from those types of sites may or may not be appropriate, depending on the proposed use of the fill, and the quality of the assessment and/or mitigation measures, if necessary. Therefore, unless material from construction projects can be demonstrated to be free of contamination and/or appropriate for the proposed use, the use of that material as fill should be avoided.

Selecting Fill Material

In general, the fill source area should be located in nonindustrial areas, and not from sites undergoing an environmental cleanup. Nonindustrial sites include those that were previously undeveloped, or used solely for residential or agricultural purposes. If the source is from an agricultural area, care should be taken to insure that the fill does not include former agricultural waste process byproducts such as manure or other decomposed organic material. Undesirable sources of fill material include industrial and/or commercial sites where hazardous ma-

Potential Contaminants Based on the Fill Source Area

Fill Source:	Target Compounds
Land near to an existing freeway	Lead (EPA methods 6010B or 7471A), PAHs (EPA method 8310)
Land near a mining area or rock quarry	Heavy Metals (EPA methods 6010B and 7471A), asbestos (polarized light microscopy), pH
Agricultural land	Pesticides (Organochlorine Pesticides: EPA method 8081A or 8080A; Organophosphorus Pesticides: EPA method 8141A; Chlorinated Herbicides: EPA method 8151A), heavy metals (EPA methods 6010B and 7471A)
Residential/acceptable commercial land	VOCs (EPA method 8021 or 8260B, as appropriate and combined with collection by EPA Method 5035), semi-VOCs (EPA method 8270C), TPH (modified EPA method 8015), PCBs (EPA method 8082 or 8080A), heavy metals including lead (EPA methods 6010B and 7471A), asbestos (OSHA Method ID-191)

**The recommended analyses should be performed in accordance with USEPA SW-846 methods (1996). Other possible analyses include Hexavalent Chromium: EPA method 7199*

Recommended Fill Material Sampling Schedule

Area of Individual Borrow Area	Sampling Requirements
2 acres or less	Minimum of 4 samples
2 to 4 acres	Minimum of 1 sample every 1/2 acre
4 to 10 acres	Minimum of 8 samples
Greater than 10 acres	Minimum of 8 locations with 4 subsamples per location
Volume of Borrow Area Stockpile	**Samples per Volume**
Up to 1,000 cubic yards	1 sample per 250 cubic yards
1,000 to 5,000 cubic yards	4 samples for first 1000 cubic yards +1 sample per each additional 500 cubic yards
Greater than 5,000 cubic yards	12 samples for first 5,000 cubic yards + 1 sample per each additional 1,000 cubic yards

terials were used, handled or stored as part of the business operations, or unpaved parking areas where petroleum hydrocarbons could have been spilled or leaked into the soil. Undesirable commercial sites include former gasoline service stations, retail strip malls that contained dry cleaners or photographic processing facilities, paint stores, auto repair and/or painting facilities. Undesirable industrial facilities include metal processing shops, manufacturing facilities, aerospace facilities, oil refineries, waste treatment plants, etc. Alternatives to using fill from construction sites include the use of fill material obtained from a commercial supplier of fill material or from soil pits in rural or suburban areas. However, care should be taken to ensure that those materials are also uncontaminated.

Documentation and Analysis

In order to minimize the potential of introducing contaminated fill material onto a site, it is necessary to verify through documentation that the fill source is appropriate and/or to have the fill material analyzed for potential contaminants based on the location and history of the source area. Fill documentation should include detailed information on the previous use of the land from where the fill is taken, whether an environmental site assessment was performed and its findings, and the results of any testing performed. It is recommended that any such documentation should be signed by an appropriately licensed (CA-registered) individual. If such documentation is not available or is inadequate, samples of the fill material should be chemically analyzed. Analysis of the fill material should be based on the source of the fill and knowledge of the prior land use.

Detectable amounts of compounds of concern within the fill material should be evaluated for risk in accordance with the DTSC Preliminary Endangerment Assessment (PEA) Guidance Manual. If

metal analyses are performed, only those metals (CAM 17 / Title 22) to which risk levels have been assigned need to be evaluated. At present, the DTSC is working to establish California Screening Levels (CSL) to determine whether some compounds of concern pose a risk. Until such time as these CSL values are established, DTSC recommends that the DTSC PEA Guidance Manual or an equivalent process be referenced. This guidance may include the Regional Water Quality Control Board's (RWQCB) guidelines for reuse of non-hazardous petroleum hydrocarbon contaminated soil as applied to Total Petroleum Hydrocarbons (TPH) only. The RWQCB guidelines should not be used for volatile organic compounds (VOCs) or semi-volatile organic compounds (SVOCS). In addition, a standard laboratory data package, including a summary of the QA/QC (Quality Assurance/Quality Control) sample results should also accompany all analytical reports.

When possible, representative samples should be collected at the borrow area while the potential fill material is still in place, and analyzed prior to removal from the borrow area. In addition to performing the appropriate analyses of the fill material, an appropriate number of samples should also be determined based on the approximate volume or area of soil to be used as fill material. The table above can be used as a guide to determine the number of samples needed to adequately characterize the fill material when sampled at the borrow site.

Alternative Sampling

A Phase I or PEA may be conducted prior to sampling to determine whether the borrow area may have been impacted by previous activities on the property. After the property has been evaluated, any sampling that may be required can be determined during a meeting with DTSC or appropriate regulatory agency. However, if it is not possible to analyze the fill material at the borrow area or determine that it is appropriate for use via a Phase I or PEA, it is recommended that one (1) sample per truckload be collected and analyzed for all compounds of concern to ensure that the imported soil is uncontaminated and acceptable. (See chart on Potential Contaminants Based on the Fill Source Area for appropriate analyses). This sampling frequency may be modified upon consultation with the DTSC or appropriate regulatory agency if all of the fill material is derived from a common borrow area. However, fill material that is not characterized at the borrow area will need to be stockpiled either on or off-site until the analyses have been completed. In addition, should contaminants exceeding acceptance criteria be identified in the stockpiled fill material, that material will be deemed unacceptable and new fill material will need to be obtained, sampled and analyzed. Therefore, the DTSC recommends that all sampling and analyses should be completed prior to delivery to the site to ensure the soil is free of contamination, and to eliminate unnecessary transportation charges for unacceptable fill material.

Composite sampling for fill material characterization may or may not be appropriate, depending on quality and homogeneity of source/borrow area, and compounds of concern. Compositing samples for volatile and semivolatile constituents is not acceptable. Composite sampling for heavy metals, pesticides, herbicides or PAH's from unanalyzed stockpiled soil is also unacceptable, unless it is stockpiled at the borrow area and originates from the same source area. In addition, if samples are composited, they should be from the same soil layer, and not from different soil layers.

When very large volumes of fill material are anticipated, or when larger areas are being considered as borrow areas, the DTSC recommends that a Phase I or PEA be conducted on the area to ensure that the borrow area has not been impacted by previous activities on the property. After the property has been evaluated, any sampling that may be required can be determined during a meeting with the DTSC.

For further information, call Richard Coffman, Ph.D., R.G., at (818) 551-2175.

November 13, 2013
Project: IRLA13006

Ms. Mia Hunt
California Department of Toxic Substances Control
9211 Oakdale Avenue
Chatsworth, California 91311

Via: Electronic Mail mia.hunt@dtsc.ca.gov

Re: Response to DTSC Comments Dated October 31, 2013
Vapor Intrusion (VI) Human Health Risk Evaluation
Blossom Plaza Development, Los Angeles, California

Dear Ms. Hunt:

Pursuant to the request of Forest City Development (Forest City), AMEC Environment and Infrastructure, Inc. (AMEC), has reviewed comments regarding the Vapor Intrusion (VI) Human Health Risk Evaluation (HHRE) Report[1] received from the California Department of Toxic Substances Control (DTSC) dated October 31, 2013[2]. The HHRE was prepared to present results of potential human health risks related to potential vapor intrusion of volatile organic compounds (VOCs) in soil vapor based on soil vapor survey data collected at the proposed Blossom Plaza Development project located at 900 North Broadway in Los Angeles, California (site).

As requested by Forest City, AMEC is responding to the comments received from DTSC. DTSC's comments are shown in bold print below; and our response follows in normal print.

1. **Page 2: Please elaborate on the statement "…ventilation system operation is discontinuous and actual operation will vary based on demand." Specifically, please discuss the control system that will be implemented to monitor and maintain adequate ventilation (i.e., approximately 5 air exchanges per hour) in the parking structure over time.**

   The ventilation system in the underground parking structure will operate intermittently based on the need to mitigate automobile exhaust in the parking structure. Intermittent operation is used to conserve energy during times of low vehicle travel in the parking structure. Operation of the ventilation system is interlocked with carbon monoxide monitoring instruments located at various locations throughout the parking structure. If carbon monoxide concentrations exceed threshold levels at one of the monitoring stations, then the ventilation system is activated.

[1] AMEC Environment and Infrastructure, Inc. (2013) "Vapor Intrusion Human Health Risk Assessment" letter to Ms. Mia Hunt, California Department of Toxic Substances Control dated October 11, 2013.
[2] California Department of Toxic Substances Control (2013) "Review of Vapor Intrusion Human Health Risk Evaluation prepared by AMEC" received via electronic mail on October 31.

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While the operating capacity of the ventilation system is more than 5 air exchanges per hour, the actual operation will be less than operating capacity due to the intermittent operation. To provide a more realistic estimate of the operating capacity, a factor of 1.5 air exchanges per hour was used as an assumption for estimating human health risks associated with vapor intrusion.

2. **Page 5: Please provide supporting information on the assumption of 4-ft low-permeability engineered fill beneath the foundation in the site-specific modeling, or an alternative analysis can be performed using 1 foot of engineered fill and 3 feet of loamy sand (similar to those used in the default building modeling).**

   An analysis using a 0.5 foot of engineered fill was conducted and is intended to represent site-specific conditions and the proposed development. However, the loamy sand layer was not added to this scenario. The soil vapor samples were collected in the sandy silt layer rather than the more shallow loamy sand material that will be excavated when the subterranean garage is installed. Specifically, the revised site-specific modeling scenario is 15 feet of sand, underlain by 0.5 foot of engineered fill, and 3 feet of native soil, for Stratums A, B, and C, respectively (Attachment A-1). Default OEHHA parameters for sand and engineered fill were used in the model. For the native sandy silt (Stratum C), soil classifications were matched with the corresponding soil type in the J&E model. Default total porosities based on silt loam and sandy loam and site-specific soil physical measurements (dry bulk density and moisture content) were used to estimate air and water-filled porosities (Attachment A-2). The average porosities for six samples were then used to characterize native soil. The results of the revising the analysis (for this comment and comment #3 below) indicate that the estimated total noncancer HI is 0.2 and the cancer risk is $1x10^{-6}$ for the future resident in the proposed multi-level building, which are at or below acceptable risk levels. The revised HHRE is attached for reference.

3. **Page 6: HERO does not support the air flow transfer factor of 7% that was used in the site-specific modeling, as it is just an average value from a Minnesota multifamily building study (CEE 2004) and may not represent the worse-case scenario. The CEE study mentioned several factors that affect inter-floor and inter-unit air flow, including thermal stack effect, elevator shaft as a conduit, and utility layout/penetrations, which led to significant variability of air flows among different building units. For a more protective screening evaluation, HERO used a value of 26% reported for three new 3-story buildings in the Pacific Northwest from another study cited in the CEE report. This would increase the estimated risks by approximately 4 folds in the site-specific scenarios, but they are still at or below the target risk thresholds and would not alter the conclusions of the HHRE.**

   An analysis using a value of 26% for inter-floor air flow was conducted in conjunction with the analysis performed in response to Comment #2 above. As previously discussed, the total noncancer HI and cancer risk are still below target risk thresholds.

4. **Provided that the above comments can be adequately addressed, HERO would support the key conclusion of the HHRE, i.e., the residual petroleum-related VOCs detected in soil vapor do not pose an unacceptable risk to future occupants in the proposed multi-level buildings. HERO also supports the recommendation to re-evaluate the health risks if the site would be redeveloped with slab-on-grade residential buildings as the calculated cancer risk in the default building modeling exceeds the target risk of 1E-6. Please note that the assumed thickness of soil stratums (30 feet of loamy sand and 10 feet of native soil) in the default building modeling appear arbitrary and should be modified to reflect actual soil profiles in the plan, if needed.**

   DTSC's comment is acknowledged. The assumed thickness of soil stratums used in the model are estimated based on cross-sections and actual soil profiles reported during previous geotechnical and environmental investigations performed at the site. Modeling 40 feet of lithology was complex. To simplify the lithology for this hypothetical scenario within the constraints of a three-layer model, native lithology was simplified into two layers: default loamy sand and a site-specific sandy silt. As described in the HHRE report, extensive excavation will occur as part of the site development, including excavation of the loamy sand material.

   AMEC concurs with DTSC's recommendation to re-evaluate potential vapor intrusion risks in the event that site development plans change from the conditions used in the modeling in this HHRE.

Thank you for your assistance with this project. If you have any questions, please call the undersigned at (949) 642-0245.

Sincerely yours,
AMEC

Calvin H. Hardcastle, PE
Principal Engineer

cc: James Ostrom – Forest City Development
Frank Fralliccardi – Forest City Development
Nicholas Targ – HK Law
Randy Brandt – Geosyntec

November 13, 2013

Project IRLA130061

Ms. Mia Hunt
Project Manager
Brownfields & Environmental Restoration Program
Cal/EPA Department of Toxic Substances Control
9211 Oakdale Avenue
Chatsworth, California 91311

Via Email: mia.hunt@dtsc.ca.gov

Subject: **Vapor Intrusion (VI) Human Health Risk Evaluation**
Blossom Plaza Development
900 North Broadway, Los Angeles

Dear Ms. Hunt:

On behalf of Forest City Development, AMEC Environment and Infrastructure, Inc. (AMEC), has prepared the following report to present the results of a vapor intrusion (VI) human health risk evaluation (HHRE) conducted at the Blossom Plaza site located at 900 N. Broadway in Los Angeles, California. The HHRE was conducted based on soil vapor sampling collected at the Blossom Plaza site in September 2013.

SITE BACKGROUND

AMEC collected soil vapor samples to further evaluate potential human health risks associated with environmental impacts encountered at the site during previous site assessments. The environmental impacts were described in reports prepared by Mactec in 2004 and 2005. As discussed in those reports, the environmental impacts were attributed to potentially offsite sources, such as releases from petroleum storage tanks to the west and northwest and crude oil impacts to the southeast. The estimated extent of impacts from petroleum hydrocarbons, based on data obtained in 2004 and 2005, is shown on Figure 1. Potential chemicals of concern (COCs) at the site include petroleum hydrocarbons and aromatic volatile organic compounds such as fuel constituents. In addition, the Blossom Plaza site is located within a Methane Zone as designated by the City of Los Angeles. On this basis, COCs also include methane and hydrogen sulfide.

The proposed Blossom Plaza includes the construction of a mixed-use development, consisting of three five-story structures with a common podium over a 1- to 3-level subgrade parking structure located at the northeast corner of College Street and North Broadway in Los Angeles, California. A portion of the podium will include a plaza. The existing site grade slopes from the west side of the site at Elevation 310 to the east side at Elevation 290. The podium will be at Elevation 310. Excavation of the site is also expected to occur over the entire footprint of the property to approximate Elevation 273 feet.

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As discussed above, the Blossom Plaza site is located within a Methane Zone. Previous investigative work conducted at the site indicated that methane mitigation measures will be required. The level of mitigation measures have been selected based on discussions between Forest City's consultants and the City of Los Angeles Department of Building and Safety and the mitigation measures are expected to consist of a membrane barrier impervious to methane, a methane monitoring and alarm system, and mechanical ventilation in lowest occupied level of the parking structure. The methane membrane barrier material has not been selected at this time.

Five groundwater monitoring wells are currently located at the site. Historically, groundwater elevations have been measured at elevations ranging from approximately 264 to 275 feet above mean sea level. These historical measurements suggest that the building foundation may be at or slightly submerged below the water table depending on fluctuating site conditions such that there may be no vadose zone underlying the building foundation as was the case during 2005. The groundwater elevation was at approximate Elevation 265, or 8 feet below the total depth of the planned excavation, on September 11, 2013.

Based on the historical groundwater elevations, the building foundation will require protection from potential damage from hydrostatic forces caused by groundwater. Blossom Plaza has elected to provide the proposed building with a matte foundation, which consists of a 36-inch thick concrete slab. The matte foundation serves to reduce potential differential settlement by distributing the weight of the building over a larger area, as well as to protect the foundation from potential damage by hydrostatic forces. A permanent dewatering system will not be used.

Typical methane mitigation measures in the City of Los Angeles also consist of a passive or, in some cases, active venting systems beneath the building foundation (i.e., sub-slab venting system). However in order for the sub-slab venting system to be effective, a dewatering system is required to lower the groundwater elevation so that the venting system is exposed to unsaturated soil. In consideration that a permanent dewatering system will not be used, Blossom Plaza applied for, and received, a variance from the City of Los Angeles to eliminate the requirement to install a sub-slab venting system.

The lowest occupied floor of the proposed Blossom Plaza development is an underground parking structure at an approximate Elevation 277, and is situated on a matte foundation that is 36-inches thick and underlain by engineered fill. The parking structure will be mechanically ventilated by an on-demand system activated by carbon monoxide monitors located in the parking structure. As required by the California Mechanical Code, the ventilation system will be designed based on the number of parking spaces in the parking structure and will have a capacity of 350 cubic feet per minute per parking space, or the approximate equivalent of 5.1 air exchanges per hour. The ventilation system operation is discontinuous and actual operation will vary based on demand.

SOIL VAPOR SAMPLING OVERVIEW

AMEC submitted a work plan for the planned soil vapor investigation to the California Department of Toxic Substances Control (DTSC) on September 16, 2013. DTSC reviewed the work plan and approved the work plan, with comments, for implementation on September 18, 2013. AMEC incorporated DTSC's comments into the work plan and evaluation of the soil vapor survey data during the HHRE.

The objective of the soil vapor sampling program was to characterize the presence and nature of volatile organic compounds (primarily aromatics associated with refined and naturally occurring petroleum hydrocarbons), methane, and hydrogen sulfide gas in the vadose zone beneath the proposed building foundation.

To meet this objective, AMEC collected soil vapor samples from seven (7) locations at the site, as shown on Figure 1. An attempt was made to collect a soil vapor sample from an eighth location (SV-2); however the sampling equipment was not able to penetrate to the target sampling depth during a total of five attempts to collect the sample in proximity to location SV-2. This location was abandoned after the fifth attempt to collect the sample was unsuccessful.

Results of the laboratory analyses indicated the presence of volatile organic compounds (VOCs) in one of the seven samples analyzed (SV-1). The list of detected VOCs included xylenes, ethylbenzene, toluene, isopropylbenzene, 4-isopropyltoluene, n-propylbenzene, 1,3,5-trimethylbenzene, and 1,2,4-trimethylbenzene. No chlorinated VOCs were detected. The sole sample with VOC detections was located on the northwest corner of the property, which is an area previously identified to be impacted by petroleum hydrocarbons from a potential off-site source of gasoline compounds. Methane was detected in four of the seven soil vapor samples; and hydrogen sulfide was not detected in any of the soil vapor samples.

The HHRE evaluated baseline health impacts from potential vapor intrusion of these VOCs into the indoor air of future buildings with a slab-on-grade foundation in addition to the proposed multilevel building. Methane was not evaluated for chronic toxicity because methane is a simple asphyxiant.

A summary of the soil vapor investigation is contained in a companion document to this letter titled Soil Vapor Sampling Results dated October 3, 2013.

DEVELOPMENT OF RISK-BASED SCREENING LEVELS

Hazard indices (HIs) for non-cancer health effects and carcinogenic risks were estimated for future residential and commercial exposure scenarios. The HIs and carcinogenic risks were estimated for the VOCs detected in sample SV-1 by comparing the soil vapor data to risk-based soil vapor criteria. To comply with DTSC policy to use the most current and conservative OEHHA and U.S. EPA toxicity criteria, the soil vapor criteria were derived using the lowest (most conservative) risk-based target indoor air concentrations from the May 2013 U.S. EPA Regional Screening Levels (RSLs) and the San Francisco Regional Water Quality Control

Board Environmental Screening Levels (ESLs). In addition, DTSC's alternative air screening levels recommended in lieu of RSLs were also reviewed for detected chemicals (DTSC, 2013a). Specifically, to derive a soil vapor screening level, the lowest indoor air screening level for each exposure scenario (residential or commercial) was divided by a soil vapor-to-indoor air attenuation factor modeled consistent with the methodology presented by the DTSC Vapor Intrusion Guidance and the Office of Environmental Health Hazard Assessment (OEHHA) for California Human Health Screening Levels (CHHSLs). Alternatively, the lowest indoor air screening level was multiplied by the soil vapor-to-indoor air attenuation factor to estimate an indoor air concentration.

Risk and non-cancer health effects were not calculated for isopropyltoluene as neither OEHHA nor U.S. EPA have derived toxicity values for this compound. The risk-based soil vapor criteria used to estimate health risks from vapor intrusion are presented in Table 1 for both the slab-on-grade scenarios and the mixed residential/commercial use of the multiple floors above the proposed basement garage.

CALCULATION OF SITE-SPECIFIC ATTENUATION FACTORS

Maximum detected analytical results from soil vapor were used to estimate volatilization from the subsurface to indoor air using the Johnson & Ettinger (J&E) vapor transport model, as published by U.S. EPA (2004) and adopted by DTSC with appropriate updates for California toxicity criteria. The J&E model incorporates both convective and diffusive mechanisms for estimating the transport of chemical vapors emanating from the subsurface into indoor spaces located directly above or in close proximity to a source of chemicals. The model is a one-dimensional analytical solution to convective and diffusive vapor transport into indoor spaces and provides an estimated attenuation factor (AF) that relates the vapor concentration in the indoor space to the vapor concentration at the source. As parameterized by U.S. EPA, the J&E model spreadsheets have two levels, screening and advanced. Screening spreadsheets have most model parameters set equal to central tendency or upper bound values; values for the most sensitive parameters may be user-defined. In the advanced spreadsheets, site-specific data may be input for all model parameters. To reduce the number of model spreadsheets necessary, AMEC modified the advanced soil vapor model spreadsheets to evaluate multiple chemicals and subsequently, used to estimate the AFs for the multiple exposure scenarios evaluated in this HHRE. An AF relates the chemical concentration in soil vapor to the resulting concentration in indoor air and is dependent on chemical properties, soil characteristics, and building conditions.

Modeling with Default Slab-on-Grade Building Characteristics

In response to Preliminary Endangerment Assessment documents prepared by Mactec, DTSC requested that exposure scenarios with default building characteristics be evaluated in addition to a site-specific building layout (DTSC, 2013b). VOCs were detected in only one sample collected at 41 feet bgs. Therefore, the baseline modeling for the hypothetical slab-on-grade buildings was modeled assuming a building with default characteristics was built above this vapor source. With the exception of partially adjusting for native soil type and conditions, default

parameters used are consistent with the CHHSLs methodology (OEHHA, 2005) and DTSC guidance (2011) for the both future resident and commercial worker as presented in Attachment A. Based on geologic cross-sections, the site primarily includes four lithologic layers between the surface and the soil vapor sampling depth: artificial fill, silt and clay, sand, and sandy silt. To simplify the lithology for this hypothetical scenario within the constraints of a three-layer model, a default one-foot layer of engineered fill was modeled followed by 30 feet of a loamy sand evaluated with default properties and 10 feet of sandy silt evaluated with the site-specific characteristics presented in Attachment A 2.

Site-Specific Modeling with Proposed Building Characteristics

Soil vapor samples were collected between approximately 20.5 and 41 feet below ground surface (bgs) depending on the grade of the site surface. However, the sample intervals were selected based on elevations between 273.5 and 270 feet above mean sea level (msl) in order to represent vapor approximately 3.5 feet below the bottom of the foundation of the proposed building. Therefore, the modeling for the proposed residential scenario above a multilevel subterranean parking garage was performed for a 18.5-foot bgs soil vapor sampling depth. This is an equivalent depth to represent vapor located 3.5-feet below the future foundation (12-foot standard basement, 3-foot thick high density concrete slab (i.e., matte foundation), 0.5 foot of engineered fill, and 3 feet of native soil separation). The modeled scenario assumes that a low permeability “engineered fill” of one-half foot will be developed by scarifying and recompacting the soil underneath the foundation on top of the native soil. Default U.S. EPA and OEHHA parameters were used in the model for soil and engineered fill, respectively.

For native soil, a sandy silt to silty sand is present at the elevation where soil vapor samples were collected based on boring logs and soil testing results from geotechnical laboratories. These soil classifications were matched with the corresponding soil types used in the J&E model. Default total porosities based on soil type and soil physical measurements (dry bulk density and moisture content) were used to estimate air and water-filled porosities (Attachment A-2). The average porosities for six samples were then used to characterize native soil.

Although the mechanical ventilation system in the garage is being designed for an approximate air exchange rate (AER) of 5.1 exchanges per hour, an average commercial AER of 1.5 (U.S. EPA, 2011) was used to be conservative. Other default parameters used in the modeling are consistent with the CHHSLs methodology (OEHHA, 2005) and DTSC guidance (2011) as presented in Attachment A.

Attachment A-1 summarizes the input parameters used in the vapor intrusion model and A-2 summarizes the geotechnical results evaluated for native soil characteristics. The individual model spreadsheets are contained in Attachments A-3 through A-5.

Multiple Level Vapor Transfer

The proposed building plans include up to three subgrade parking levels with an approximate footprint of approximately 83,000 square feet and mixed residential/commercial use of the five

levels above the garage. Future residents and commercial workers would be occupying the upper levels of the building; however, the modeling performed (and described above) to calculate the site-specific soil vapor criteria assumes that future occupants would be exposed to predicted basement vapor concentrations full-time for their 25 to 30 year occupancy.

To reasonably estimate the predicted health risks from a multiple level separation from the basement that would be in contact with the subsurface, vapor transfer between floors was evaluated. A vapor transfer factor was applied to estimate potential health risks from first level indoor air concentrations rather than a sub-grade garage. An maximum fraction of inter-unit flow was selected based on tracer gas studies performed in support of an environmental tobacco smoke study in multifamily buildings (CEE, 2004). Specifically, a factor of twenty-six percent was the maximum flow measured in new three-story buildings in the Pacific Northwest that was selected to adjust the potential health risks and characterize more relevant exposure.

ESTIMATED NON-CANCER AND CARCINOGENIC RISK

A non-cancer hazard index of less than or equal to 1 indicates acceptable levels of exposure for chemicals having an additive effect. However, in this HHRE, a screening-level hazard index was calculated by summing the hazard quotients for all chemicals, regardless of the toxicity endpoint, as recommended by regulatory agency guidance. This approach is generally believed to overestimate the potential for non-carcinogenic health effects due to simultaneous exposure to multiple chemicals because it does not account for different toxicity endpoints. However, this approach can be used as a screening tool to rapidly identify those exposure scenarios for which exposure to multiple chemicals does not pose a non-carcinogenic health risk.

Estimates of lifetime excess cancer risk of less than one-in-one-million ($1x10^{-6}$) associated with exposure to chemicals are considered to be so low as to not warrant any further investigation or analysis. Therefore, a cancer risk of $1x10^{-6}$ is considered a point of departure for risk management decisions. Cancer risks in the $1x10^{-6}$ to $1x10^{-4}$ range do not necessarily mean that adverse health effects will be observed. Current methodology for estimating the carcinogenic potential of chemicals does not likely underestimate the true risk, but could overestimate the true risk by a considerable degree. Pursuant to the California Safe Drinking Water & Toxic Enforcement Act of 1986 (Proposition 65), OEHHA has established a no significant risk level at one-in-one hundred thousand ($1x10^{-5}$; CCR Title 27, Division 4, §25703). In fact, many air management districts consider $1x10^{-5}$ to be an acceptable risk level for managing air emissions under the Toxics Hot Spots program.

The HIs and carcinogenic risks estimated for both the residential and commercial/industrial exposure above the site-specific basement and the slab-on-grade scenario are calculated in Tables 2 through 5 and the results are summarized below. The health risk estimates presented assume that there is no methane barrier mitigating exposure.

Property Scenario	Noncancer Hazard Index	DTSC Acceptable Threshold	Potential Carcinogenic Risk	DTSC Risk Management Range
Residential Slab-on-Grade	0.8	1.0	6E-06	1E-06 to 1E-04
Commercial/Industrial Slab-on-Grade	0.09		6E-07	
Site-Specific; Residential Above Basement	0.2		1E-06	
Site-Specific; Commercial Above Basement	0.04		3E-07	

CONCLUSIONS

Modeling with Default Slab-on-Grade Building Characteristics

The total noncancer HIs estimated for the residential and commercial/industrial slab-on-grade construction scenarios are 0.8 and 0.09, respectively, which are below the regulatory threshold of 1.0. The estimated excess cancer risks for the residential and commercial/industrial slab-on-grade construction scenarios are $6x10^{-6}$ and $6x10^{-7}$, respectively, which are within and below the regulatory risk management range of $1x10^{-6}$ to $1x10^{-4}$.

Site-Specific Modeling with Proposed Building Characteristics

The total noncancer HIs estimated for the residential and commercial exposure above a site-specific basement are 0.2 and 0.04, respectively, which are below the regulatory threshold of 1.0. The estimated excess cancer risks for the residential and commercial exposure above a site-specific basement are $1x10^{-6}$ and $3x10^{-7}$, respectively, which are at or below the target risk level of $1x10^{-6}$.

Uncertainties Associated with Exposure and Risk Estimates

- These estimates assume a conservative air exchange rate of 1.5 exchanges per hour, when the ventilation in the basement may be three times greater because of ventilation requirements due to car emissions.
- Biodegradation, which refers to the process by which chemical compounds are altered through the biological activity of microorganisms in the subsurface, was not considered. Field studies have indicated that biodegradation of petroleum hydrocarbons at sites can be significant because it is generally recognized that petroleum hydrocarbons will rapidly biodegrade in the presence of oxygen (i.e., when conditions are aerobic), resulting in reduced concentrations by several orders of

magnitude over relatively short vertical distances and limiting the potential for vapor intrusion in unsaturated soil.

- Risk estimates were derived using conservative transport and exposure parameters that assume constant exposure points over a 25- to 30-year period.
- This assessment conservatively assumes a single level garage structure. In reality, the project plan calls for up to three sub levels. Increasing the total volume of the garage structure, while maintaining the size of the building footprint, will reduce the amount of chemicals potentially reaching the indoor air space of residents and commercial workers at ground level.
- The estimated attenuation factors are dependent on porosity and moisture content. Soil lithology beneath the parking structure is likely to vary across the site both vertically and horizontally, which may lead to variation in flux from different areas, which results in uncertainty in the estimation of potential risks. To account for this uncertainty, the average of six soil physical measurements was used to estimate the flux from soil vapor.
- The analysis assumes that the maximum concentrations are uniformly distributed below the entire footprint of the garage slab foundation. The results from the most recent soil vapor investigation supports that this assumption is conservative. Thus, the risk estimates presented herein are likely overestimates.
- In addition, although methane mitigation measures will be required before site development, the exposure and risk estimates presented for all scenarios assume no mitigation.

Based the on the health risk evaluation of the September 2013 soil vapor data set, the residual petroleum-related VOCs detected in soil vapor beneath the northwest corner of the proposed building do not pose an unacceptable vapor intrusion risk relative to future occupancy in a multilevel building under the conditions evaluated. However, if the site is redeveloped with default slab-on-grade residential buildings on the northern portion of the property, the health risks should be re-evaluated.

CLOSING

If you have any questions, please contact either of the undersigned at (949) 642-0245.

Sincerely yours,
AMEC Environment & Infrastructure, Inc.

Caryn A. Kelly
Senior Toxicologist

Calvin H. Hardcastle, PE
Principal Engineer

Enclosures

Table 1	Calculation of Soil Vapor Criteria
Table 2	Risks and Hazard Indices Estimated for the Inhalation of Indoor Air – Resident – Slab-on-Grade Foundation
Table 3	Risks and Hazard Indices Estimated for the Inhalation of Indoor Air – Commercial Worker – Slab-on-Grade Foundation
Table 4	Risks and Hazard Indices Estimated for the Inhalation of Indoor Air – Site-Specific Resident – Multiple Floor Levels
Table 5	Risks and Hazard Indices Estimated for the Inhalation of Indoor Air – Site-Specific Commercial Worker – Multiple Floor Levels
Figure 1	Soil Vapor Sample Locations
Attachment A	Johnson & Ettinger Model Input Parameters and Output

REFERENCES

Center for Energy and Environment (CEE), 2004, Reduction of Environmental Tobacco Smoke Transfer in Minnesota Multifamily Buildings Using Air Sealing and Ventilation Treatments, November 2004.

Department of Toxic Substances Control (DTSC), 2011, Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance). California Environmental Protection Agency. October.

DTSC Office of Human and Ecological Risk (HERO), 2013a, HHRA Note Number 3, DTSC recommended methodology for use of U.S. EPA Regional Screening Levels (RSLs) in the Human Health Risk Assessment process at hazardous waste sites and permitted facilities, May 21, 2013.

DTSC, 2013b, Review of Preliminary Endangerment Assessment Equivalent Documents, Blossom Plaza, 900 North Broadway, Los Angeles (Site Code: 301619), August 27, 2013.

Office of Environmental Health Hazard Assessment (OEHHA), 2005, Human-Exposure-Based Screening Numbers Developed to Aid Estimation of Cleanup Costs for Contaminated Soil, California Environmental Protection Agency, January.

Regional Water Quality Control Board, San Francisco Bay Region, 2013, ESL Workbook, May.

U.S. EPA, 2004, User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings: Office of Emergency and Remedial Response, February 22.

U.S. EPA, 2011, Exposure Factors Handbook, 2011 Edition, Table 19-27. Air Exchange Rates in Commercial Buildings by Building Type, September.

U.S. EPA, 2013, Regional Screening Levels for Chemical Contaminants at Superfund Sites, Regions 3, 6, & 9, Oak Ridge National Laboratory, May.

TABLES

TABLE 1

CALCULATION OF SOIL VAPOR CRITERIA
Blossom Plaza
900 North Broadway
Los Angeles, California

Concentrations are presented in micrograms per liter (µg/l)

		Ethyl benzene	Isopropylbenzene (Cumene)	n-Propyl benzene	Toluene	1,2,4-TMB	1,3,5-TMB	m/p-Xylenes	o-Xylene
Residential Indoor Air Screening Levels									
Cancer	SFRWQCB ESL[1]	0.00097	NC	NC	NC	NC	NC	NC	NC
	USEPA RSL[2]	0.00097							
Noncancer	SFRWQCB ESL[1]	1.0	--	--	0.31	--	--	0.1	0.1
	USEPA RSL[2]	1.0	0.42	1.0	5.2	0.0073	--	0.1	0.1
	DTSC Note[3]	--	--	--	0.31	--	0.037	--	--
Lowest Cancer value		0.00097	NC	NC	NC	NC	NC	NC	NC
Lowest Noncancer value		1.0	0.42	1.0	0.31	0.0073	0.037	0.1	0.1
Commercial Indoor Air Screening Levels									
Cancer	SFRWQCB ESL[1]	0.0049	NC	NC	NC	NC	NC	NC	NC
	USEPA RSL[2]	0.0049							
Noncancer	SFRWQCB ESL[1]	4.4	--	--	1.3	--	--	0.44	0.44
	USEPA RSL[2]	4.4	1.8	4.4	22	0.031	--	0.44	0.44
	DTSC Note[3]	--	--	--	1.3	--	0.15	--	--
Lowest Cancer value		0.0049	NC	NC	NC	NC	NC	NC	NC
Lowest Noncancer value		4.4	1.8	4.4	1.3	0.031	0.15	0.44	0.44
Slab-on-Grade Soil Vapor Screening Levels									
Attenuation Factors - 41 feet bgs[4]	Residential	3.81E-05	3.31E-05	3.07E-05	4.42E-05	3.10E-05	3.08E-05	3.91E-05	4.43E-05
	Commercial	1.91E-05	1.65E-05	1.53E-05	2.21E-05	1.55E-05	1.54E-05	1.96E-05	2.21E-05
Soil Vapor Screening Level - **Residential**	Cancer[5]	2.5E+01	NC	NC	NC	NC	NC	NC	NC
	Noncancer[5]	2.6E+04	1.3E+04	3.3E+04	7.0E+03	2.4E+02	1.2E+03	2.6E+03	2.3E+03
Soil Vapor Screening Level - **Commercial**	Cancer[5]	2.6E+02	NC	NC	NC	NC	NC	NC	NC
	Noncancer[5]	2.3E+05	1.1E+05	2.9E+05	5.9E+04	2.0E+03	9.7E+03	2.3E+04	2.0E+04

TABLE 1

CALCULATION OF SOIL VAPOR CRITERIA
Blossom Plaza
900 North Broadway
Los Angeles, California

Concentrations are presented in micrograms per liter (µg/l)

		Ethyl benzene	Isopropylbenzene (Cumene)	n-Propyl benzene	Toluene	1,2,4-TMB	1,3,5-TMB	m/p-Xylenes	o-Xylene
Site-Specific Soil Vapor Screening Levels (Multilevel Building Above Parking Garage)									
Site-Specific Attenuation Factor - 3 feet below foundation [4]	Residential	3.57E-05	3.11E-05	2.90E-05	4.10E-05	2.93E-05	2.92E-05	3.66E-05	4.11E-05
	Commercial	3.57E-05	3.11E-05	2.90E-05	4.10E-05	2.93E-05	2.92E-05	3.66E-05	4.11E-05
Soil Vapor Screening Level - **Residential**	Cancer [5]	2.7E+01	NC	NC	NC	NC	NC	NC	NC
	Noncancer [5]	2.8E+04	1.3E+04	3.5E+04	7.6E+03	2.5E+02	1.3E+03	2.7E+03	2.4E+03
Soil Vapor Screening Level - **Commercial**	Cancer [5]	1.4E+02	NC	NC	NC	NC	NC	NC	NC
	Noncancer [5]	1.2E+05	5.8E+04	1.5E+05	3.2E+04	1.1E+03	5.1E+03	1.2E+04	1.1E+04

Notes

1. Regional Water Quality Control Board, San Francisco Bay Region (SFRWQCB), 2013, ESL Workbook, May.
2. U.S. EPA, 2013, Regional Screening Levels for Chemical Contaminants at Superfund Sites, Regions 3, 6, & 9, Oak Ridge National Laboratory, May. <http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm>
3. DTSC Office of Human and Ecological Risk (HERO), May 21, 2013, HHRA Note Number 3, DTSC recommended methodology for use of U.S. EPA Regional Screening Levels (RSLs) in the Human Health Risk Assessment process at hazardous waste sites and permitted facilities.
4. Slab-on-Grade and Site-Specific soil vapor to indoor air attenuation factors (AF) were developed using the Johnson & Ettinger Vapor Intrusion model. The models and input parameters are attached and described in the text.
5. Soil Vapor Screening Levels were derived by dividing the lowest Cancer and Noncancer Target Indoor Air Screening Levels by the AF.

Abbreviations
bgs = below ground surface
NC= not carcinogenic
-- = not available

TABLE 2

RISKS AND HAZARD INDICES ESTIMATED FOR THE INHALATION OF INDOOR AIR - RESIDENT - SLAB-ON-GRADE FOUNDATION

Blossom Plaza
900 North Broadway
Los Angeles, California

Chemical	Soil Vapor Concentration (µg/L)	Soil Vapor Screening Level (µg/L)		Noncancer Hazard Index [1]	Cancer Risk [2]
		Noncancer	Cancer		
Ethylbenzene	150	2.6E+04	2.5E+01	5.7E-03	6E-06
Isopropyl (Cumene)	20	1.3E+04	--	1.6E-03	--
n-Propylbenzene	28	3.3E+04	--	8.6E-04	--
Toluene	1.2	7.0E+03	--	1.7E-04	--
1,2,4-Trimethylbenzene	110	2.4E+02	--	4.7E-01	--
1,3,5-Trimethylbenzene	45	1.2E+03	--	3.8E-02	--
m/p-Xylenes	590	2.6E+03	--	2.3E-01	--
o-Xylene	15	2.3E+03	--	6.6E-03	--
Total				**8E-01**	**6.E-06**

Notes

1. Noncancer Hazard Index = Soil Vapor Concentration / Noncancer Screening Level
2. Cancer Risk = Soil Vapor Concentration / Cancer Screening Level x $1x10^{-6}$

Abbreviations

-- = not applicable

TABLE 3

RISKS AND HAZARD INDICES ESTIMATED FOR THE INHALATION OF INDOOR AIR - COMMERCIAL WORKER - SLAB-ON-GRADE FOUNDATION

Blossom Plaza
900 North Broadway
Los Angeles, California

Chemical	Soil Vapor Concentration (µg/L)	Soil Vapor Screening Level (µg/L)		Noncancer Hazard Index [1]	Cancer Risk [2]
		Noncancer	Cancer		
Ethylbenzene	150	2.3E+05	2.6E+02	6.5E-04	6E-07
Isopropyl (Cumene)	20	1.1E+05	--	1.8E-04	--
n-Propylbenzene	28	2.9E+05	--	9.8E-05	--
Toluene	1.2	5.9E+04	--	2.0E-05	--
1,2,4-Trimethylbenzene	110	2.0E+03	--	5.5E-02	--
1,3,5-Trimethylbenzene	45	9.7E+03	--	4.6E-03	--
m/p-Xylenes	590	2.3E+04	--	2.6E-02	--
o-Xylene	15	2.0E+04	--	7.5E-04	--
Total				**9E-02**	**6.E-07**

Notes

1. Noncancer Hazard Index = Soil Vapor Concentration / Noncancer Screening Level
2. Cancer Risk = Soil Vapor Concentration / Cancer Screening Level x $1x10^{-6}$

Abbreviation

-- = not applicable

TABLE 4

RISKS AND HAZARD INDICES ESTIMATED FOR THE INHALATION OF INDOOR AIR
- SITE-SPECIFIC RESIDENT - MULTIPLE FLOOR LEVELS
Blossom Plaza
900 North Broadway
Los Angeles, California

Chemical	Soil Vapor Concentration (µg/L)	Predicted Basement Concentration [1] (µg/L)	Predicted Indoor Air Concentration [2] (Next Level) (µg/L)	Indoor Screening Level (µg/L)		Noncancer Hazard Index [3]	Cancer Risk [4]
				Noncancer	Cancer		
Ethylbenzene	150	5.35E-03	1.39E-03	1.0	0.00097	1.4E-03	1E-06
Isopropyl (Cumene)	20	6.23E-04	1.62E-04	0.42	--	3.9E-04	--
n-Propylbenzene	28	8.11E-04	2.11E-04	1.0	--	2.1E-04	--
Toluene	1.2	4.92E-05	1.28E-05	0.31	--	4.1E-05	--
1,2,4-Trimethylbenzene	110	3.22E-03	8.38E-04	0.0073	--	1.1E-01	--
1,3,5-Trimethylbenzene	45	1.31E-03	3.41E-04	0.037	--	9.2E-03	--
m/p-Xylenes	590	2.16E-02	5.61E-03	0.1	--	5.6E-02	--
o-Xylene	15	6.17E-04	1.60E-04	0.1	--	1.6E-03	--
Total						**0.2**	**1.E-06**

Notes

1. Predicted Basement Concentration = Soil Vapor Concentration x Site-Specific Building Residential AF
2. Predicted Indoor Air Concentration (floor above basement garage) = Predicted Basement Concentration x 26% air flow transfer factor
   Maximum fraction of inter-unit flow based on tracer gas studies in new three-story buildings in the Pacific Northwest (CEE, 2004)
3. Noncancer Hazard Index = Predicted Indoor Air Concentration / Noncancer Screening Level
4. Cancer Risk = Predicted Indoor Air Concentration / Cancer Screening Level x $1x10^{-6}$

Abbreviations

AF = attenuation factor

-- = not applicable

Reference

CEE, 2004 = Center for Energy and Environment, Reduction of Environmental Tobacco Smoke Transfer in Minnesota Multifamily Buildings Using Air Sealing and Ventilation Treatments, November 2004.

TABLE 5

RISKS AND HAZARD INDICES ESTIMATED FOR THE INHALATION OF INDOOR AIR
- SITE-SPECIFIC COMMERCIAL WORKER - MULTIPLE FLOOR LEVELS

Blossom Plaza
900 North Broadway
Los Angeles, California

Chemical	Soil Vapor Concentration (µg/L)	Predicted Basement Concentration [1] (µg/L)	Predicted Indoor Air Concentration [2] (Next Level) (µg/L)	Indoor Screening Level (µg/L)		Noncancer Hazard Index [3]	Cancer Risk [4]
				Noncancer	Cancer		
Ethylbenzene	150	5.35E-03	1.39E-03	4.4	0.0049	3.2E-04	3E-07
Isopropyl (Cumene)	20	6.23E-04	1.62E-04	1.8	--	9.0E-05	--
n-Propylbenzene	28	8.11E-04	2.11E-04	4.4	--	4.8E-05	--
Toluene	1.2	4.92E-05	1.28E-05	1.3	--	9.8E-06	--
1,2,4-Trimethylbenzene	110	3.22E-03	8.38E-04	0.031	--	2.7E-02	--
1,3,5-Trimethylbenzene	45	1.31E-03	3.41E-04	0.15	--	2.3E-03	--
m/p-Xylenes	590	2.16E-02	5.61E-03	0.44	--	1.3E-02	--
o-Xylene	15	6.17E-04	1.60E-04	0.44	--	3.6E-04	--
Total						**0.04**	**3.E-07**

Notes

1. Predicted Basement Concentration = Soil Vapor Concentration x Site-Specific Building Commercial AF
2. Predicted Indoor Air Concentration (floor above basement garage) = Predicted Basement Concentration x 26% air flow transfer factor
   Maximum fraction of inter-unit flow based on tracer gas studies in new three-story buildings in the Pacific Northwest (CEE, 2004).
3. Noncancer Hazard Index = Predicted Indoor Air Concentration / Noncancer Screening Level
4. Cancer Risk = Predicted Indoor Air Concentration / Cancer Screening Level x $1x10^{-6}$

Abbreviations

AF = attenuation factor

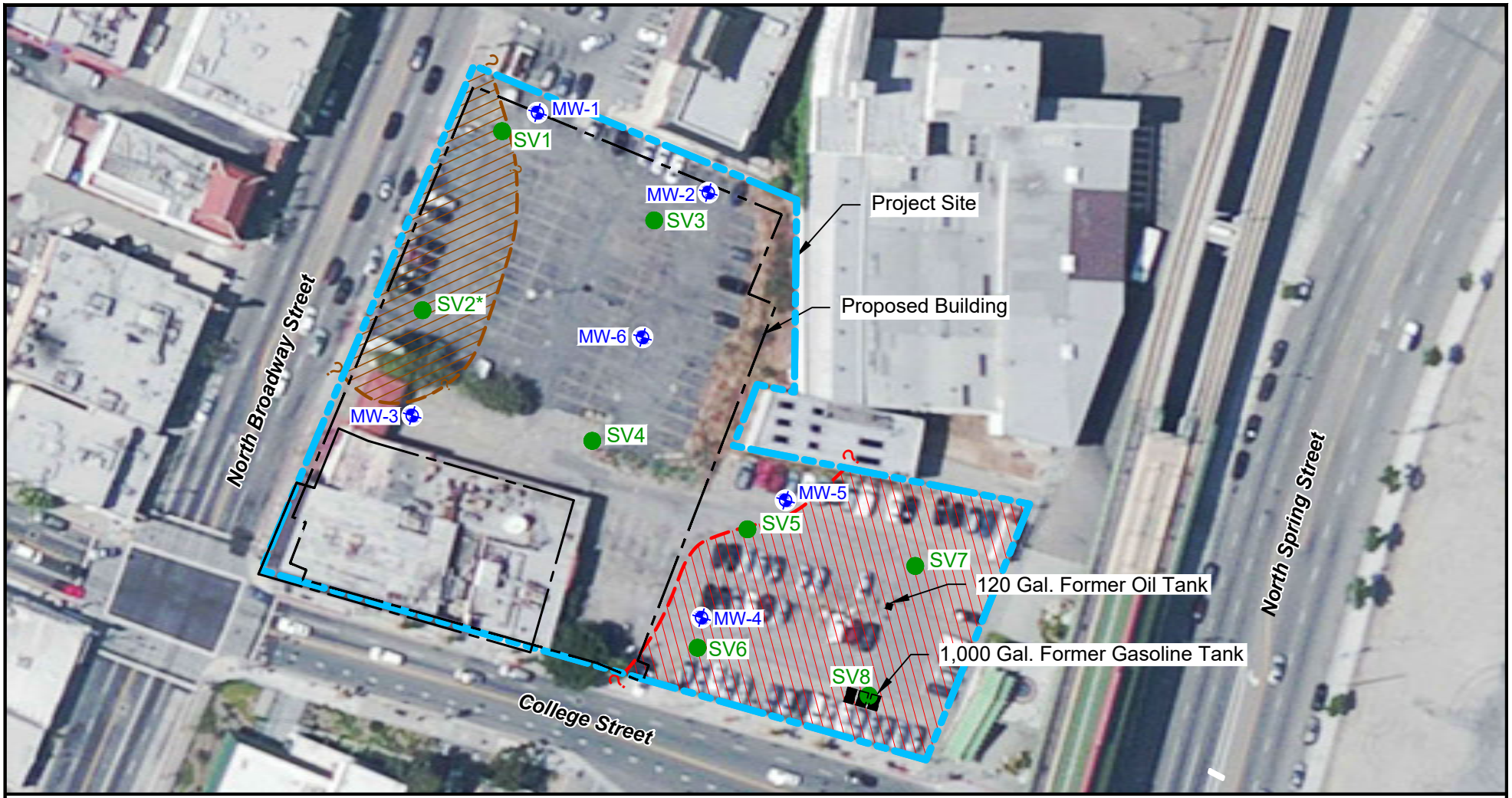
-- = not applicable

Reference

CEE, 2004 = Center for Energy and Environment, Reduction of Environmental Tobacco Smoke Transfer in Minnesota Multifamily Buildings Using Air Sealing and Ventilation Treatments, November 2004.

FIGURE

Plot Date: 09/27/13 - 4:31pm, Plotted by: pat.herring
Drawing Path: C:\Users\pat.herring\appdata\local\temp\AcPublish_3236\, Drawing Name: _tb_001_Soil Vapor Sampling Locations.dwg



Explanation

- SV8 — Soil vapor sampling location
- * — Soil vapor well not installed
- MW-5 — Groundwater monitoring well
- Estimated site product boundary
- Estimated area of encountered crude
- Estimated area of shorter-chain total petroleum hydrocarbons

N

0 40 80

Approximate Scale in Feet

Basemap modified from ESRI World Imagery, 2013.

SOIL VAPOR SAMPLING LOCATIONS
Blossom Plaza
Forest City Development
Los Angeles, California

By: pah	Date: 09/27/13	Project No. 4953-13-0061
amec		Figure 1

ATTACHMENT A

Johnson & Ettinger Model Input Parameters and Output

ATTACHMENT A-1
JOHNSON AND ETTINGER MODEL INPUT PARAMETERS
Blossom Plaza
900 North Broadway
Los Angeles, California

Parameter	Symbol	Units	Value				Rationale
			Residential Slab-on-Grade	Commercial Slab-on-Grade	Rationale	Site-Specific Basement	
Depth below grade to bottom of enclosed floor space	L_F	(cm)	9	9	OEHHA, 2005	457.2	15 ft, site-specific; basement height (12 feet) + 3-foot slab
Soil gas sample depth	L_s	(cm)/(ft)	1250	1250	41 feet bgs; depth of SV-1	563.9	18.5 ft; Equivalent site-specific sampling depth; 3.5 ft below bottom of foundation
Soil temperature	Ts	(^oC)	22	22	Regional; U.S. EPA, 2004	22	Regional; U.S. EPA, 2004
Soil Vapor Permeability	K_v	(cm^2)	S	S	OEHHA, 2005	S	OEHHA, 2005
Soil type – Stratum A	--	--	SIC	SIC	Silty clay; OEHHA, 2005 designation for engineered fill	S	Sand; OEHHA, 2005, future buildings
Thickness of Soil Stratum A	h_A	(cm)	30	30	OEHHA, 2005	457.2	U.S. EPA, 2004; Stratum A must ≥ L_F
Soil dry bulk density – Stratum A	ρ_b	(g/cm^3)	1.8	1.8	OEHHA, 2005	1.66	Sand; default
Soil total porosity – Stratum A	n	--	0.3	0.3	OEHHA, 2005	0.375	Sand; default
Soil water-filled porosity – Stratum A	θ_w	(cm^3/cm^3)	0.15	0.15	OEHHA, 2005	0.054	Sand; default
Soil type – Stratum B	--	--	LS	LS	Loamy sand; U.S. EPA, 2004, 12 to 25% fines	SIC	Silty clay; OEHHA, 2005 designation for engineered fill
Thickness of Soil Stratum B	h_B	(cm)	914	914	Site-specific	15.2	Site-specific; 0.5 foot
Soil dry bulk density – Stratum B	ρ_b	(g/cm^3)	1.62	1.62	Loamy sand; default, U.S. EPA, 2004	1.8	OEHHA, 2005
Soil total porosity – Stratum B	n	--	0.39	0.39		0.3	OEHHA, 2005
Soil water-filled porosity – Stratum B	θ_w	(cm^3/cm^3)	0.076	0.076		0.15	OEHHA, 2005
Soil type – Stratum C	--	--	SIL	SIL	Site-specific	SIL	Site-specific; silty loam in USDA, sandy silt in USCS
Thickness of Soil Stratum C	h_C	(cm)	305	305	Site-specific	91.4	Site-specific; 3 feet
Soil dry bulk density – Stratum C	ρ_b	(g/cm^3)	1.75	1.75	Site-specific; Attachment A-2	1.75	Site-specific; Attachment A-2
Soil total porosity – Stratum C	n	--	0.422	0.422		0.422	Site-specific; Attachment A-2
Soil water-filled porosity – Stratum C	θ_w	(cm^3/cm^3)	0.293	0.293		0.293	Site-specific; Attachment A-2
Enclosed Space Floor Thickness	L_{crack}	(cm)	9	9	OEHHA, 2005	91.44	Site-specific; high density concrete, 3-foot slab
Soil/Building pressure differential	DP	($g/cm\text{-}s^2$)	40	40	DTSC, 2011	40	Default; DTSC, 2011
Length of building	L_B	(cm)/(ft)	1000 (30 ft)	1000 (30 ft)	OEHHA, 2005; DTSC, 2011	8700	83,000 square foot building; equivalent
Width of building	W_B	(cm)/(ft)	1000 (30 ft)	1000 (30 ft)		8700	
Height of building	H_B	(cm)/(ft)	244 (8 ft)	244 (8 ft)	OEHHA, 2005	366 (12 ft)	Default basement height; U.S. EPA, 2004
Floor-wall Seam Crack Width	w	(cm)	0.1	0.1	U.S. EPA, 2004	0.1	Default; U.S. EPA, 2004
Crack-to-total-area ratio	h	(--)	0.005	0.005	DTSC, 2011	0.005	DTSC, 2011
Indoor air exchange rate	ER	(1/hr)	0.5	1.0	OEHHA, 2005; DTSC, 2011	1.5	Mean commercial building; U.S. EPA, 2011
Average Vapor Flow Rate	Q_{soil}	(L/min)	5	5	OEHHA, 2005; DTSC, 2011	378	Default of 5 L/min adjusted for larger site-specific building footprint area per DTSC, 2011

Abbreviations:
^oC = degrees Celsius
cm = centimeter
cm^2 = centimeter squared
cm^3/cm^3 = cubic centimeter per cubic centimeter
ft = feet
L = liter
s^2 = seconds squared
g = grams
hr = hour
min = minute
USDA = U.S. Department of Agriculture soil classification
USCS = Unified Soil Classification System

References:

Office of Environmental Health Hazard Assessment (OEHHA), 2005, Human-Exposure-Based Screening Numbers Developed to Aid Estimation of Cleanup Costs for Contaminated Soil. January.

Department of Toxic Substances Control (DTSC), 2011, Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance). October.

U.S. EPA, 2004, User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings: Office of Emergency and Remedial Response, February 22.

ATTACHMENT A-2

SOIL CHARACTERISTIC PROPERTIES

Blossom Plaza
900 North Broadway
Los Angeles, California

Boring [1] ID	Depth [2] (ft.)	Grain Size Description [3]	Moisture Content (% wt)	Density Dry Bulk (lb/ft^3)	Density Dry Bulk (g/cm^3)	Total Porosity [4] (%vb)	Air-filled Porosity [5] (%vb)	Water-filled Porosity [6] (%vb)
B-2	35-40	Sandy silt (ML)	27.1	96	1.54	43.9	2.2	41.7
B-3	35-40	Sandy silt (ML)	--	--	--	--	--	--
B-4	35-40	Sand to Sandy clay (SW-SC)	17.1	112	1.79	38.7	8.0	30.7
B-103	35-40	Sandy silt (ML)	--	--	--	--	--	--
B-5	37-39	Sandy silt (ML)	16.0	109	1.75	43.9	16.0	27.9
B-6	29-34	Sandy silt (ML)	15.1	107	1.71	43.9	18.0	25.9
B-7	32-37	Sandy silt (ML)	19.0	109	1.75	43.9	10.7	33.2
B-8	17-22	Silty sand (SM-SW)	8.3	123	1.97	38.7	22.3	16.4
AVERAGE					1.75	42.2	12.9	29.3

Notes:

[1] Shaded borings are the closest to location of VOCs detected in soil vapor at northern corner of property (SV-1).

[2] Depth of interval described is located at the approximate elevation of soil vapor samples.

[3] Soil description for samples B-2 through B-8 were presented in Mactec's *Report of Geotechnical Investigation* (2004) and determined by sieve analysis and hydrometer analysis; B-103 soil type was confirmed by Atterberg limits (ASTM D 4318) and presented in AMEC's *Supplemental Geotechnical Investigation* (2013).

[4] Total Porosity; defaults (U.S. EPA, 2004) based on soil type

[5] Air-Filled Porosity = (Total Porosity/100) - (Dry Bulk Density x Moisture content/100) x 100

[6] Water-Filled Porosity = Total Porosity - Air-Filled Porosity

Abbreviations:

% wt = Percent weight
lb/ft^3 = pounds per cubic foot
g/cm^3 = grams per centimeter cubed
%vb = Bulk volume

SG-ADV Version 3.1; 02/04

Reset to Defaults

AMEC
modified by CAK; 07/13
Mult. Chemical; version 3.1.4

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
100414	1.50E+05			Ethylbenzene
98828	2.00E+04			Cumene
103651	2.80E+04			n-Propylbenzene
108883	1.20E+03			Toluene
95636	4.50E+04			1,2,4-Trimethylbenzene
108678	1.10E+05			1,3,5-Trimethylbenzene
95476	1.50E+04			o-Xylene
106423	5.90E+05			p-Xylene

ENTER U.S. EPA or Cal-EPA: Cal-EPA

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (°C)	ENTER Totals must add up to value of Ls (cell F24) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
9	1250	22	30	914	305	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
SIC	1.8	0.3	0.15	LS	1.62	0.39	0.076	SIL	1.75	0.422	0.293

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
9	40	1000	1000	244	0.1	0.5	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES

	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Molecular weight, MW (g/mol)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
Ethylbenzene	7.50E-02	7.80E-06	7.86E-03	25	8,501	409.34	617.20	106.17	2.5E-06	1.0E+00
Cumene	6.50E-02	7.10E-06	1.46E-02	25	10,335	425.56	631.10	120.19	0.0E+00	4.0E-01
n-Propylbenzene	6.01E-02	7.83E-06	1.07E-02	25	9,123	432.20	630.00	120.19	0.0E+00	1.0E+00
Toluene	8.70E-02	8.60E-06	6.62E-03	25	7,930	383.78	591.79	92.14	0.0E+00	3.0E-01
1,2,4-Trimethylbenzene	6.06E-02	7.92E-06	6.14E-03	25	9,369	442.30	649.17	120.20	0.0E+00	7.0E-03
1,3,5-Trimethylbenzene	6.02E-02	8.67E-06	5.87E-03	25	9,321	437.89	637.25	120.20	0.0E+00	3.5E-02
o-Xylene	8.70E-02	1.00E-05	5.18E-03	25	8,661	417.60	630.30	106.17	0.0E+00	1.0E-01
p-Xylene	7.69E-02	8.44E-06	7.64E-03	25	8,525	411.52	616.20	106.17	0.0E+00	1.0E-01

	Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
Ethylbenzene	9.46E+08	1240.68	0.150	0.314	0.129	0.393	1.01E-07	0.520	5.27E-08	4,000	1.50E+05	3.39E+04
Cumene	9.46E+08	1240.68	0.150	0.314	0.129	0.393	1.01E-07	0.520	5.27E-08	4,000	2.00E+04	3.39E+04
n-Propylbenzene	9.46E+08	1240.68	0.150	0.314	0.129	0.393	1.01E-07	0.520	5.27E-08	4,000	2.80E+04	3.39E+04
Toluene	9.46E+08	1240.68	0.150	0.314	0.129	0.393	1.01E-07	0.520	5.27E-08	4,000	1.20E+03	3.39E+04
1,2,4-Trimethylbenzene	9.46E+08	1240.68	0.150	0.314	0.129	0.393	1.01E-07	0.520	5.27E-08	4,000	4.50E+04	3.39E+04
1,3,5-Trimethylbenzene	9.46E+08	1240.68	0.150	0.314	0.129	0.393	1.01E-07	0.520	5.27E-08	4,000	1.10E+05	3.39E+04
o-Xylene	9.46E+08	1240.68	0.150	0.314	0.129	0.393	1.01E-07	0.520	5.27E-08	4,000	1.50E+04	3.39E+04
p-Xylene	9.46E+08	1240.68	0.150	0.314	0.129	0.393	1.01E-07	0.520	5.27E-08	4,000	5.90E+05	3.39E+04

	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} ($atm-m^3/mol$)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
Ethylbenzene	1.00E+06	5.00E-03	9	10,017	6.62E-03	2.73E-01	1.79E-04	1.50E-03	1.04E-02	4.63E-04	1.63E-03	1240.68
Cumene	1.00E+06	5.00E-03	9	12,475	1.18E-02	4.87E-01	1.79E-04	1.30E-03	9.03E-03	4.00E-04	1.41E-03	1240.68
n-Propylbenzene	1.00E+06	5.00E-03	9	11,212	8.79E-03	3.63E-01	1.79E-04	1.21E-03	8.35E-03	3.71E-04	1.30E-03	1240.68
Toluene	1.00E+06	5.00E-03	9	9,023	5.67E-03	2.34E-01	1.79E-04	1.75E-03	1.21E-02	5.37E-04	1.89E-03	1240.68
1,2,4-Trimethylbenzene	1.00E+06	5.00E-03	9	11,541	5.04E-03	2.08E-01	1.79E-04	1.22E-03	8.42E-03	3.75E-04	1.32E-03	1240.68
1,3,5-Trimethylbenzene	1.00E+06	5.00E-03	9	11,521	4.82E-03	1.99E-01	1.79E-04	1.21E-03	8.36E-03	3.73E-04	1.31E-03	1240.68
o-Xylene	1.00E+06	5.00E-03	9	10,268	4.34E-03	1.79E-01	1.79E-04	1.75E-03	1.21E-02	5.39E-04	1.90E-03	1240.68
p-Xylene	1.00E+06	5.00E-03	9	10,107	6.42E-03	2.65E-01	1.79E-04	1.54E-03	1.07E-02	4.75E-04	1.67E-03	1240.68

	Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
Ethylbenzene	9	1.50E+05	1.25	8.33E+01	1.50E-03	5.00E+03	2.00E+43	3.81E-05	5.72E+00	2.5E-06	1.0E+00
Cumene	9	2.00E+04	1.25	8.33E+01	1.30E-03	5.00E+03	9.37E+49	3.31E-05	6.61E-01	NA	4.0E-01
n-Propylbenzene	9	2.80E+04	1.25	8.33E+01	1.21E-03	5.00E+03	1.09E+54	3.07E-05	8.58E-01	NA	1.0E+00
Toluene	9	1.20E+03	1.25	8.33E+01	1.75E-03	5.00E+03	2.13E+37	4.42E-05	5.30E-02	NA	3.0E-01
1,2,4-Trimethylbenzene	9	4.50E+04	1.25	8.33E+01	1.22E-03	5.00E+03	3.79E+53	3.10E-05	1.40E+00	NA	7.0E-03
1,3,5-Trimethylbenzene	9	1.10E+05	1.25	8.33E+01	1.21E-03	5.00E+03	8.49E+53	3.08E-05	3.39E+00	NA	3.5E-02
o-Xylene	9	1.50E+04	1.25	8.33E+01	1.75E-03	5.00E+03	2.09E+37	4.43E-05	6.64E-01	NA	1.0E-01
p-Xylene	9	5.90E+05	1.25	8.33E+01	1.54E-03	5.00E+03	1.70E+42	3.91E-05	2.31E+01	NA	1.0E-01

END

Note:
Shaded values used to calculate slab-on-grade soil vapor screening levels in risk evaluation.

SG-ADV Version 3.1; 02/04

Reset to Defaults

AMEC
modified by CAK; 07/13
Mult. Chemical; version 3.1.4

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical	ENTER U.S. EPA or Cal-EPA
					Cal-EPA
100414	1.50E+05			Ethylbenzene	
98828	2.00E+04			Cumene	
103651	2.80E+04			n-Propylbenzene	
108883	1.20E+03			Toluene	
95636	4.50E+04			1,2,4-Trimethylbenzene	
108678	1.10E+05			1,3,5-Trimethylbenzene	
95476	1.50E+04			o-Xylene	
106423	5.90E+05			p-Xylene	

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (°C)	ENTER Totals must add up to value of Ls (cell F24) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
9	1250	22	30	914.4	305	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
SIC	1.8	0.3	0.15	LS	1.62	0.39	0.076	SIL	1.75	0.422	0.293

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
9	40	1000	1000	244	0.1	1	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES

	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Molecular weight, MW (g/mol)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
Ethylbenzene	7.50E-02	7.80E-06	7.86E-03	25	8,501	409.34	617.20	106.17	2.5E-06	1.0E+00
Cumene	6.50E-02	7.10E-06	1.46E-02	25	10,335	425.56	631.10	120.19	0.0E+00	4.0E-01
n-Propylbenzene	6.01E-02	7.83E-06	1.07E-02	25	9,123	432.20	630.00	120.19	0.0E+00	1.0E+00
Toluene	8.70E-02	8.60E-06	6.62E-03	25	7,930	383.78	591.79	92.14	0.0E+00	3.0E-01
1,2,4-Trimethylbenzene	6.06E-02	7.92E-06	6.14E-03	25	9,369	442.30	649.17	120.20	0.0E+00	7.0E-03
1,3,5-Trimethylbenzene	6.02E-02	8.67E-06	5.87E-03	25	9,321	437.89	637.25	120.20	0.0E+00	3.5E-02
o-Xylene	8.70E-02	1.00E-05	5.18E-03	25	8,661	417.60	630.30	106.17	0.0E+00	1.0E-01
p-Xylene	7.69E-02	8.44E-06	7.64E-03	25	8,525	411.52	616.20	106.17	0.0E+00	1.0E-01

	Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
Ethylbenzene	7.88E+08	1240.68	0.150	0.314	0.129	0.393	1.01E-07	0.520	5.27E-08	4,000	1.50E+05	6.78E+04
Cumene	7.88E+08	1240.68	0.150	0.314	0.129	0.393	1.01E-07	0.520	5.27E-08	4,000	2.00E+04	6.78E+04
n-Propylbenzene	7.88E+08	1240.68	0.150	0.314	0.129	0.393	1.01E-07	0.520	5.27E-08	4,000	2.80E+04	6.78E+04
Toluene	7.88E+08	1240.68	0.150	0.314	0.129	0.393	1.01E-07	0.520	5.27E-08	4,000	1.20E+03	6.78E+04
1,2,4-Trimethylbenzene	7.88E+08	1240.68	0.150	0.314	0.129	0.393	1.01E-07	0.520	5.27E-08	4,000	4.50E+04	6.78E+04
1,3,5-Trimethylbenzene	7.88E+08	1240.68	0.150	0.314	0.129	0.393	1.01E-07	0.520	5.27E-08	4,000	1.10E+05	6.78E+04
o-Xylene	7.88E+08	1240.68	0.150	0.314	0.129	0.393	1.01E-07	0.520	5.27E-08	4,000	1.50E+04	6.78E+04
p-Xylene	7.88E+08	1240.68	0.150	0.314	0.129	0.393	1.01E-07	0.520	5.27E-08	4,000	5.90E+05	6.78E+04

	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
Ethylbenzene	1.00E+06	5.00E-03	9	10,017	6.62E-03	2.73E-01	1.79E-04	1.50E-03	1.04E-02	4.63E-04	1.63E-03	1240.68
Cumene	1.00E+06	5.00E-03	9	12,475	1.18E-02	4.87E-01	1.79E-04	1.30E-03	9.03E-03	4.00E-04	1.41E-03	1240.68
n-Propylbenzene	1.00E+06	5.00E-03	9	11,212	8.79E-03	3.63E-01	1.79E-04	1.21E-03	8.35E-03	3.71E-04	1.30E-03	1240.68
Toluene	1.00E+06	5.00E-03	9	9,023	5.67E-03	2.34E-01	1.79E-04	1.75E-03	1.21E-02	5.37E-04	1.89E-03	1240.68
1,2,4-Trimethylbenzene	1.00E+06	5.00E-03	9	11,541	5.04E-03	2.08E-01	1.79E-04	1.22E-03	8.42E-03	3.75E-04	1.32E-03	1240.68
1,3,5-Trimethylbenzene	1.00E+06	5.00E-03	9	11,521	4.82E-03	1.99E-01	1.79E-04	1.21E-03	8.36E-03	3.73E-04	1.31E-03	1240.68
o-Xylene	1.00E+06	5.00E-03	9	10,268	4.34E-03	1.79E-01	1.79E-04	1.75E-03	1.21E-02	5.39E-04	1.90E-03	1240.68
p-Xylene	1.00E+06	5.00E-03	9	10,107	6.42E-03	2.65E-01	1.79E-04	1.54E-03	1.07E-02	4.75E-04	1.67E-03	1240.68

	Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
Ethylbenzene	9	1.50E+05	1.25	8.33E+01	1.50E-03	5.00E+03	2.00E+43	1.91E-05	2.86E+00	2.5E-06	1.0E+00
Cumene	9	2.00E+04	1.25	8.33E+01	1.30E-03	5.00E+03	9.37E+49	1.65E-05	3.31E-01	NA	4.0E-01
n-Propylbenzene	9	2.80E+04	1.25	8.33E+01	1.21E-03	5.00E+03	1.09E+54	1.53E-05	4.29E-01	NA	1.0E+00
Toluene	9	1.20E+03	1.25	8.33E+01	1.75E-03	5.00E+03	2.13E+37	2.21E-05	2.65E-02	NA	3.0E-01
1,2,4-Trimethylbenzene	9	4.50E+04	1.25	8.33E+01	1.22E-03	5.00E+03	3.79E+53	1.55E-05	6.98E-01	NA	7.0E-03
1,3,5-Trimethylbenzene	9	1.10E+05	1.25	8.33E+01	1.21E-03	5.00E+03	8.49E+53	1.54E-05	1.70E+00	NA	3.5E-02
o-Xylene	9	1.50E+04	1.25	8.33E+01	1.75E-03	5.00E+03	2.09E+37	2.21E-05	3.32E-01	NA	1.0E-01
p-Xylene	9	5.90E+05	1.25	8.33E+01	1.54E-03	5.00E+03	1.70E+42	1.96E-05	1.15E+01	NA	1.0E-01

END

Note:
Shaded values used to calculate slab-on-grade soil vapor screening levels in risk evaluation.

SG-ADV Version 3.1; 02/04

Reset to Defaults

AMEC
modified by CAK; 07/13
Mult. Chemical; version 3.1.4

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical	ENTER U.S. EPA or Cal-EPA
					Cal-EPA
100414	1.50E+05			Ethylbenzene	
98828	2.00E+04			Cumene	
103651	2.80E+04			n-Propylbenzene	
108883	1.20E+03			Toluene	
95636	4.50E+04			1,2,4-Trimethylbenzene	
108678	1.10E+05			1,3,5-Trimethylbenzene	
95476	1.50E+04			o-Xylene	
106423	5.90E+05			p-Xylene	

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (°C)	ENTER Totals must add up to value of Ls (cell F24) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
457.2	563.9	22	457.2	15.2	91.44	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	SIC	1.8	0.3	0.15	SIL	1.75	0.422	0.293

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
91.44	40	8700	8700	366	0.1	1.5	378

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Molecular weight, MW (g/mol)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
Ethylbenzene	7.50E-02	7.80E-06	7.86E-03	25	8,501	409.34	617.20	106.17	2.5E-06	1.0E+00
Cumene	6.50E-02	7.10E-06	1.46E-02	25	10,335	425.56	631.10	120.19	0.0E+00	4.0E-01
n-Propylbenzene	6.01E-02	7.83E-06	1.07E-02	25	9,123	432.20	630.00	120.19	0.0E+00	1.0E+00
Toluene	8.70E-02	8.60E-06	6.62E-03	25	7,930	383.78	591.79	92.14	0.0E+00	3.0E-01
1,2,4-Trimethylbenzene	6.06E-02	7.92E-06	6.14E-03	25	9,369	442.30	649.17	120.20	0.0E+00	7.0E-03
1,3,5-Trimethylbenzene	6.02E-02	8.67E-06	5.87E-03	25	9,321	437.89	637.25	120.20	0.0E+00	3.5E-02
o-Xylene	8.70E-02	1.00E-05	5.18E-03	25	8,661	417.60	630.30	106.17	0.0E+00	1.0E-01
p-Xylene	7.69E-02	8.44E-06	7.64E-03	25	8,525	411.52	616.20	106.17	0.0E+00	1.0E-01

	Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
Ethylbenzene	9.46E+08	106.68	0.321	0.150	0.129	0.003	1.01E-07	0.998	1.01E-07	34,800	1.50E+05	1.15E+07
Cumene	9.46E+08	106.68	0.321	0.150	0.129	0.003	1.01E-07	0.998	1.01E-07	34,800	2.00E+04	1.15E+07
n-Propylbenzene	9.46E+08	106.68	0.321	0.150	0.129	0.003	1.01E-07	0.998	1.01E-07	34,800	2.80E+04	1.15E+07
Toluene	9.46E+08	106.68	0.321	0.150	0.129	0.003	1.01E-07	0.998	1.01E-07	34,800	1.20E+03	1.15E+07
1,2,4-Trimethylbenzene	9.46E+08	106.68	0.321	0.150	0.129	0.003	1.01E-07	0.998	1.01E-07	34,800	4.50E+04	1.15E+07
1,3,5-Trimethylbenzene	9.46E+08	106.68	0.321	0.150	0.129	0.003	1.01E-07	0.998	1.01E-07	34,800	1.10E+05	1.15E+07
o-Xylene	9.46E+08	106.68	0.321	0.150	0.129	0.003	1.01E-07	0.998	1.01E-07	34,800	1.50E+04	1.15E+07
p-Xylene	9.46E+08	106.68	0.321	0.150	0.129	0.003	1.01E-07	0.998	1.01E-07	34,800	5.90E+05	1.15E+07

	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
Ethylbenzene	9.16E+07	5.00E-03	457.2	10,017	6.62E-03	2.73E-01	1.79E-04	1.21E-02	1.50E-03	4.63E-04	5.13E-04	106.68
Cumene	9.16E+07	5.00E-03	457.2	12,475	1.18E-02	4.87E-01	1.79E-04	1.05E-02	1.30E-03	4.00E-04	4.44E-04	106.68
n-Propylbenzene	9.16E+07	5.00E-03	457.2	11,212	8.79E-03	3.63E-01	1.79E-04	9.72E-03	1.21E-03	3.71E-04	4.11E-04	106.68
Toluene	9.16E+07	5.00E-03	457.2	9,023	5.67E-03	2.34E-01	1.79E-04	1.41E-02	1.75E-03	5.37E-04	5.96E-04	106.68
1,2,4-Trimethylbenzene	9.16E+07	5.00E-03	457.2	11,541	5.04E-03	2.08E-01	1.79E-04	9.80E-03	1.22E-03	3.75E-04	4.16E-04	106.68
1,3,5-Trimethylbenzene	9.16E+07	5.00E-03	457.2	11,521	4.82E-03	1.99E-01	1.79E-04	9.73E-03	1.21E-03	3.73E-04	4.14E-04	106.68
o-Xylene	9.16E+07	5.00E-03	457.2	10,268	4.34E-03	1.79E-01	1.79E-04	1.41E-02	1.75E-03	5.39E-04	5.98E-04	106.68
p-Xylene	9.16E+07	5.00E-03	457.2	10,107	6.42E-03	2.65E-01	1.79E-04	1.24E-02	1.54E-03	4.75E-04	5.27E-04	106.68

	Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
Ethylbenzene	457.2	1.50E+05	13.16	6.31E+03	1.21E-02	4.58E+05	1.28E+45	3.57E-05	5.35E+00	2.5E-06	1.0E+00
Cumene	457.2	2.00E+04	13.16	6.31E+03	1.05E-02	4.58E+05	1.11E+52	3.11E-05	6.23E-01	NA	4.0E-01
n-Propylbenzene	457.2	2.80E+04	13.16	6.31E+03	9.72E-03	4.58E+05	1.95E+56	2.90E-05	8.11E-01	NA	1.0E+00
Toluene	457.2	1.20E+03	13.16	6.31E+03	1.41E-02	4.58E+05	7.69E+38	4.10E-05	4.92E-02	NA	3.0E-01
1,2,4-Trimethylbenzene	457.2	4.50E+04	13.16	6.31E+03	9.80E-03	4.58E+05	6.70E+55	2.93E-05	1.32E+00	NA	7.0E-03
1,3,5-Trimethylbenzene	457.2	1.10E+05	13.16	6.31E+03	9.73E-03	4.58E+05	1.57E+56	2.92E-05	3.21E+00	NA	3.5E-02
o-Xylene	457.2	1.50E+04	13.16	6.31E+03	1.41E-02	4.58E+05	7.69E+38	4.11E-05	6.17E-01	NA	1.0E-01
p-Xylene	457.2	5.90E+05	13.16	6.31E+03	1.24E-02	4.58E+05	9.84E+43	3.66E-05	2.16E+01	NA	1.0E-01

END

Note:
Shaded values used to calculate site-specific soil vapor screening levels in risk evaluation.

Geosyntec consultants

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Memorandum

Date:	13 March 2015
To:	Mr. Javier Hinojosa, Department of Toxic Substances Control
Cc:	Mr. Nathan Arnold, Forest City Blossom, LP Mr. James Ostrom, Forest City Blossom, LP Mr. Frank Frallicciardi, Forest City Blossom, LP Mr. Nicholas Targ, Holland & Knight, LLP Ms. Nuna Tersibashian, City of Los Angeles
From:	Ms. Wendy Key, Geosyntec Consultants, Inc. Mr. Randy Brandt, Geosyntec Consultants, Inc.
Subject:	Final Utility Trench Sampling Results Blossom Plaza Development 900 North Broadway, Los Angeles, California Geosyntec Project: WR1777

Dear Mr. Hinojosa:

Geosyntec Consultants, Inc. (Geosyntec) on behalf of Forest City Blossom, LP (Forest City) has prepared this Final Utility Trench Sampling Results Memorandum (Memorandum) to document the steps and procedures which were taken to assess offsite fill material located in planned utility trenches proximate to the Blossom Plaza Development Site located at 900 North Broadway in Los Angeles, California (Site). The Department of Toxic Substances Control (DTSC) had required, per the Voluntary Cleanup Agreement[1] (VCA) between Forest City and the DTSC and the protocol documented in the Risk Management Plan[2] (RMP), that representative fill samples be obtained from offsite utility trenches to assess the presence of lead and evaluate appropriate

[1] DTSC, 2013. Voluntary Cleanup Agreement, Docket No. HSA VCA 12/13-094, Blossom Plaza, 900 North Broadway, Los Angeles, California 90012, 9 June 2013.

[2] Geosyntec, 2013. Risk Management Plan, Proposed Blossom Plaza Development Site, 900 Broadway, Los Angeles, California, 10 December, 2013.

disposal options due to the presence of lead-impacted soil discovered on-site during excavation activities[3].

Sampling Methodology

Utility trenches selected for sampling are shown in Figure 1. While several utility trench excavations are planned, the target trenches are the largest (longest and deepest) utility trenches planned for installation on both North Broadway and College Street and are believed to be representative of the material that will be encountered in all of the utility trenches. Consistent with the procedures outlined in Geosyntec's Final Utility Trench Sampling Memorandum[4], potholes were installed to the maximum planned depth of excavation at each trench with two potholes per trench to allow for representative sample collection.

Two potholes were advanced on North Broadway (T1-NW and T1-SE) and two potholes were advanced on College Street (T2-N and T2-S). Each pothole was excavated using a backhoe equipped with a two-foot wide bucket. Potholes installed on Broadway were 7 feet long and 10 feet deep (T1-NW) and 5 feet long and 8.5 feet deep (T1-SE). One soil sample (vertical field composite consisting of a small amount of soil taken from each bucket excavated from the pothole and placed/combined in a laboratory supplied jar) was collected from T1-NW from depths ranging from 20 inches to 10 feet below ground surface (bgs) and one soil (vertical field composite) sample was collected from T1-SE from depths ranging from 1 to 8.5 feet bgs.

Potholes installed on College Street were 7 feet long and 6 feet deep (T2-S) and 5 feet long and 2.5 feet deep (T2-N). Two soil samples (vertical field composites) were collected from T2-N (T2-N-1 and T2-N-2) at depths ranging from 1.5 to 6 feet bgs and two soil samples (vertical field composites) were collected from T2-S (T2-S-1 and T2-S-2) at depths ranging from 1.25 to 2.5 feet bgs.

The soil samples collected were submitted to Eurofins CalScience analytical laboratory in Garden Grove, California and analyzed for the following constituents as summarized in the table below:

---

[3] Geosyntec, 2014. Final Unexpected Condition Response Action Completion Report, Blossom Plaza Development, 900 North Broadway, Los Angeles, California, 10 October 2014.

[4] Geosyntec, 2015. Final Utility Trench Sampling Memorandum, Blossom Plaza Development, 900 North Broadway, Los Angeles, California, 6 January 2015.

Constituent	US EPA Analysis Method	Composite		Trench 1 (T1) Samples Analyzed	Trench 2 (T2) Samples Analyzed
		Field	*Laboratory*		
Title 22 Metals	6010B/7071	X	X	Composite (T1-NW and T1-SE)	Composite (T2-N-1, T2-N-2, T2-S-1, and T2-S-2)
Volatile Organic Constituents (VOCs)	8260	X		T1-NW and T1-SE	T2-N-1, T2-N-2, T2-S-1, and T2-S-2
Total Petroleum Hydrocarbons (TPH)	8015	X		T1-NW and T1-SE	T2-N-1, T2-N-2, T2-S-1, and T2-S-2
Semi-Volatile Organic Constituents (SVOCs)	8270C	X	X	Composite (T1-NW and T1-SE)	Composite (T2-N-1, T2-N-2, T2-S-1, and T2-S-2)

Results

Soil encountered in the potholes installed on Broadway generally consisted of clayey sands and sandy clays with some silt, gravel, and cobbles (fill). Some concrete debris was noted at a depth of approximately 4 feet bgs in T1-NW. No evidence of fill materials containing glass, slag, or other significant construction debris similar to that encountered in the on-site Blossom Plaza excavations was observed in the potholes installed during sampling activities. Native soil was not encountered in the potholes to the depths explored.

Soil encountered in the potholes installed on College Street generally consisted of clayey sands with silt, gravel, and cobbles (fill). No evidence of fill materials containing glass, slag, or other significant construction debris similar to that encountered in the on-site Blossom Plaza excavations was observed in the potholes installed during sampling activities. Native soil was not encountered in the potholes to the depths explored.

Laboratory analytical results are provided as Attachment 1. Results showed that the VOCs and SVOCs in soil are not present above laboratory reporting limits. Metals concentrations reported in soil were generally below Regional Screening Levels (RSL) and consistent with background concentrations as identified in Table 3 of the RMP (Geosyntec, 2013). Lead concentrations ranged from 10.5 milligrams per kilogram (mg/kg) in the composite sample collected from T2 on College Street and 10.9 mg/kg in the composite sample collected from T1 on Broadway. Total petroleum hydrocarbons (TPH) in the diesel range (C10-28) were reported at a concentration of 8.2 milligrams per kilogram (mg/kg) in one sample (T1-NW) on Broadway. TPH concentrations in the diesel range and residual oil range (C28-C44) were reported as present in soil collected from College Avenue with TPH as diesel values reported at concentrations ranging from 5.2 mg/kg to 33 mg/kg. TPH as residual oil was reported at concentrations ranging from 107 mg/kg

to 170 mg/kg. These concentrations are below the screening levels of 100 mg/kg for TPH as diesel and 500 mg/kg for TPH as residual oil established in the RMP for reuse. As such, additional waste profiling analyses such as Soluble Threshold Limit Concentration (STLC) and Toxic Characterization Leaching Procedure (TCLP) was not conducted.

Conclusion and Construction Completion

Based on the above results, it was Geosyntec's opinion that the soil that was planned to be excavated from the utility trenches could be either: i) re-used as trench backfill following utility installation; ii) re-used on the Blossom Plaza Site in accordance with the conditions specified in the Risk Management Plan; or, iii) disposed offsite as non-hazardous waste.

Due to space restraints and construction logistics preventing the storage of excavated soil at the Site, the General Contractor elected to dispose the soil offsite as non-hazardous waste. Soil excavated from the Broadway utility trenches (approximately 90 cubic yards) was taken to ConGlobal Industries, Inc.'s (a construction material recycling company) facility located in Wilmington, California. Due to the higher TPH concentrations in soil from College Street, excavated soil from the utility trenches on College Street (approximately 121 cubic yards) was disposed at Waste Connections, Inc.'s Chiquita Canyon Landfill in Castaic, California and manifested as Class III non-hazardous waste.

If you have any questions or wish to discuss this memorandum, please contact Wendy Key (916-637-8326) or Randy Brandt (510-285-2736).

*****

ATTACHMENTS:

Figure 1: Utility Sampling Location Map
Attachment 1: Laboratory Analytical Data

Geosyntec consultants

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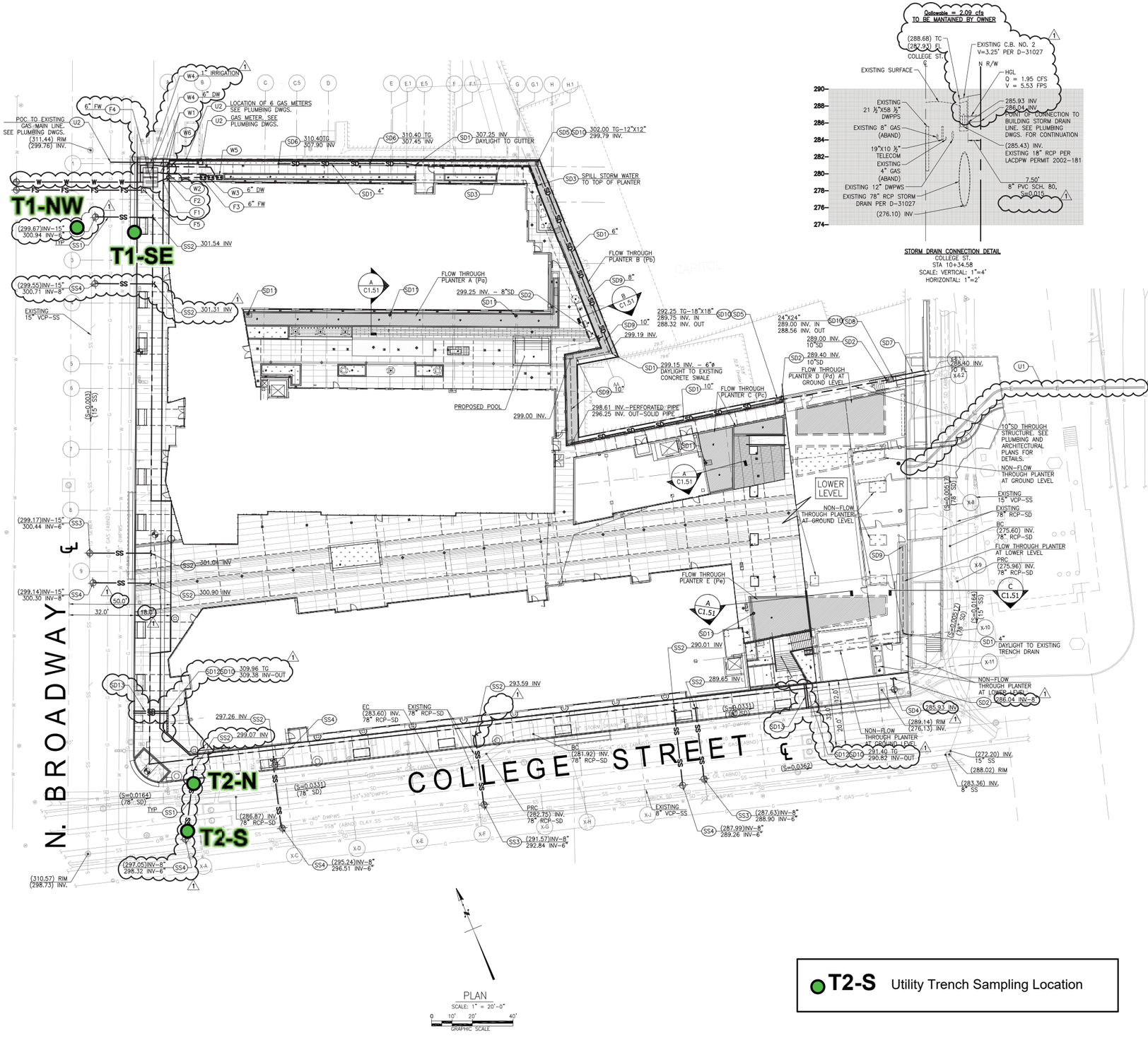
Oakland, California 94607
PH 510.836.3034
FAX 510.836.3036
www.geosyntec.com

ATTACHMENTS



UTILITY CONSTRUCTION NOTES:

STORM DRAIN

(SD1) PVC, SDR-35 STORM DRAIN PIPE PER DETAIL 1, SHEET C5.00 SIZE AND SLOPE PER PLAN.

(SD2) POINT OF CONNECTION 5 FEET FROM BUILDING FACE. COORDINATE AND MATCH LOCATION WITH PLUMBING DRAWINGS. PROVIDE REDUCING FITTINGS AS REQUIRED TO MATCH SIZE OF PLUMBING LINES. SEE PLUMBING DRAWINGS FOR CONTINUATION.

(SD3) GUTTER PER ARCHITECTURAL.

(SD4) POINT OF CONNECTION TO EXISTING STORM DRAIN SYSTEM PER APWA STD. PLAN 335-2, CASE 1 AND L.A. COUNTY FLOOD CONTROL DISTRICT PERMIT NO. T201304548. CONNECT TO EXISTING CATCH BASIN. VERIFY IN FIELD INVERT ELEVATION.

(SD5) CAST-IN-PLACE CONCRETE CATCH BASIN PER DETAIL 4, SHEET C5.00. SEE PLAN FOR SIZE.

(SD6) 6" DIA. PLANTER DRAIN PER DETAIL 5, SHEET C5.00.

(SD7) 24" WIDE PARKWAY DRAIN PER APWA STD. PLAN 151-2.

(SD8) CUSTOM POURED IN PLACE TRANSITION BOX WITH 24"X24" FRAME AND COVER.

(SD9) PERFORATED PVC PIPE, SDR 35. SEE PLAN FOR SIZE AND INVERT ELEVATIONS.

(SD10) PROVIDE "NO DUMPING" SYMBOL PER DETAIL 1, HEREON.

(SD11) DOWNSPOUT. SEE PLUMBING AND ARCHITECTURAL DRAWINGS.

(SD12) INSTALL NDS DURA SLOPE TRENCH DRAINS WITH ADA COMPLIANT/HEEL PROOF GRATING. PROVIDE FLOGARD LOPRO TRENCH DRAIN FILTER INSERT FG-TDOF4. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

(SD13) 2-4" CIP CURB DRAIN PER APWA STD. PLAN 150-3.

SANITARY SEWER

(SS1) VCP SANITARY SEWER PIPE PER DETAIL 1, SHEET C5.00 SIZE AND SLOPE PER PLAN.

(SS2) POINT OF CONNECTION 5 FEET FROM BUILDING FACE. COORDINATE AND MATCH LOCATION WITH PLUMBING DRAWINGS. PROVIDE REDUCING FITTINGS AS REQUIRED TO MATCH SIZE OF PLUMBING LINES. SEE PLUMBING DRAWINGS FOR CONTINUATION.

(SS3) POINT OF CONNECTION TO EXISTING SEWER MAIN LINE. PROVIDE NEW HOUSE CONNECTION PER DETAIL 2, SHEET C5.00. CONTRACTOR TO OBTAIN A SEWER CONNECTION PERMIT FROM THE CITY OF LA DEPARTMENT OF PUBLIC WORKS.

(SS4) CONNECT TO EXISTING SEWER LATERAL OR WYE. CONTRACTOR TO FIELD VERIFY THE ELEVATION AND CONDITION OF EXISTING LATERAL. IF EXISTING LATERAL IS NOT FEASIBLE FOR CONNECTION, EXTEND P.O.C TO SEWER MAIN LINE AND PROVIDE NEW CONNECTION PER CITY OF LOS ANGELES STANDARDS. CONTRACTOR TO OBTAIN A SEWER CONNECTION PERMIT FROM THE CITY OF LA DEPARTMENT OF PUBLIC WORKS.

DOMESTIC WATER

(W1) PVC C-900 DOMESTIC WATER PIPE PER DETAIL 1, SHEET C5.00 SIZE PER PLAN.

(W2) POINT OF CONNECTION 5 FEET FROM BUILDING FACE. SEE PLUMBING DRAWINGS FOR CONTINUATION.

(W3) BACKFLOW PREVENTION DEVICE PER PLUMBING DRAWINGS.

(W4) WATER METER VAULT. INSTALLATION BY DEPARTMENT OF WATER AND POWER. SHOWN FOR COORDINATION PURPOSES ONLY. CONTRACTOR TO COORDINATE WATER SERVICE CONNECTION WITH LOCAL PROVIDER.

(W5) BACKFLOW PREVENTION DEVICE PER IRRIGATION PLANS.

(W6) IRRIGATION POC. SEE IRRIGATION PLANS.

FIRE WATER

(F1) PVC C-900 FIRE WATER PIPE PER DETAIL 1, SHEET C5.00 SIZE AND MATERIAL PER PLAN.

(F2) POINT OF CONNECTION 5 FEET FROM BUILDING FACE. SEE PLUMBING DRAWINGS FOR CONTINUATION.

(F3) BACKFLOW PREVENTION DEVICE PER PLUMBING DRAWINGS.

(F4) WATER METER VAULT. INSTALLATION BY DEPARTMENT OF WATER AND POWER. SHOWN FOR COORDINATION PURPOSES ONLY. CONTRACTOR TO COORDINATE FIRE WATER SERVICE CONNECTION WITH LOCAL PROVIDER.

(F5) FIRE HYDRANT. INSTALLATION BY DEPARTMENT OF WATER AND POWER. CONTRACTOR TO COORDINATE FIRE SERVICE CONNECTION WITH LOCAL PROVIDER.

OTHER UTILITIES

(U1) ELECTRICAL CONDUIT. SEE ELECTRICAL DRAWINGS FOR DETAILS AND SPECIFICATIONS. SHOWN FOR COORDINATION PURPOSES ONLY.

(U2) GAS LINE / METERS. SEE PLUMBING AND GAS COMPANY DRAWINGS FOR DETAILS AND SPECIFICATIONS. SHOWN FOR COORDINATION PURPOSES ONLY.

LEGEND:

- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- SHORING LINE
- FLOW THROUGH PLANTER (SEE C1.51 FOR DETAILS)
- NON-FLOW THOUGH PLANTER AREA/LANDSCAPE (REFER TO LANDSCAPING PLANS FOR DETAILS)

T2-S Utility Trench Sampling Location

Utility Trench Sampling Locations

Blossom Plaza Development
900 North Broadway, Los Angeles, California

January 2015 | Figure: 1 | Geosyntec consultants

P:\GIS\BlossomPlaza\AI\2015Jan\UtilityTrenchSamples.ai

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WORK ORDER NUMBER: 15-01-0618

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Geosyntec Consultants

Client Project Name: Blossom Plaza Utility Trench Sampling / WR1777-04

Attention: Wendy Key
3043 Gold Canal Drive
Suite 201
Rancho Cordova, CA 95670-6394

Approved for release on 01/14/2015 by:
Stephen Nowak
Project Manager

ResultLink

Email your PM

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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Contents

Client Project Name: Blossom Plaza Utility Trench Sampling / WR1777-04
Work Order Number: 15-01-0618

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Work Order Narrative

Work Order: 15-01-0618 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 01/13/15. They were assigned to Work Order 15-01-0618.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

New York NELAP air certification does not certify for all reported methods and analytes, reference the accredited items here: http://www.calscience.com/PDF/New_York.pdf

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

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Sample Summary

Client:	Geosyntec Consultants 3043 Gold Canal Drive, Suite 201 Rancho Cordova, CA 95670-6394	Work Order:	15-01-0618
		Project Name:	Blossom Plaza Utility Trench Sampling / WR1777-04
		PO Number:	
		Date/Time Received:	01/13/15 07:30
		Number of Containers:	3
Attn:	Wendy Key		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
T1-NW	15-01-0618-1	01/13/15 00:30	1	Solid
T1-SE	15-01-0618-2	01/13/15 02:00	1	Solid
Composite (T1-NW & T1-SE)	15-01-0618-3	01/13/15 00:30	1	Solid

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Detections Summary

Client:	Geosyntec Consultants 3043 Gold Canal Drive, Suite 201 Rancho Cordova, CA 95670-6394	Work Order:	15-01-0618
		Project Name:	Blossom Plaza Utility Trench Sampling / WR1777-04
		Received:	01/13/15

Attn: Wendy Key

Client SampleID Analyte	Result	Qualifiers	RL	Units	Method	Extraction
T1-NW (15-01-0618-1)						
C6-C44 Total	8.2		5.0	mg/kg	EPA 8015B (M)	EPA 3550B
Composite (T1-NW & T1-SE) (15-01-0618-3)						
Arsenic	3.60		0.750	mg/kg	EPA 6010B	EPA 3050B
Barium	155		0.500	mg/kg	EPA 6010B	EPA 3050B
Beryllium	0.452		0.250	mg/kg	EPA 6010B	EPA 3050B
Chromium	18.2		0.250	mg/kg	EPA 6010B	EPA 3050B
Cobalt	9.71		0.250	mg/kg	EPA 6010B	EPA 3050B
Copper	22.7	B	0.500	mg/kg	EPA 6010B	EPA 3050B
Lead	10.9		0.500	mg/kg	EPA 6010B	EPA 3050B
Molybdenum	0.681		0.250	mg/kg	EPA 6010B	EPA 3050B
Nickel	18.1		0.250	mg/kg	EPA 6010B	EPA 3050B
Vanadium	38.6		0.250	mg/kg	EPA 6010B	EPA 3050B
Zinc	62.3	B	1.00	mg/kg	EPA 6010B	EPA 3050B

Subcontracted analyses, if any, are not included in this summary.

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* MDL is shown

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Analytical Report

Geosyntec Consultants		Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 1 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
T1-NW	**15-01-0618-1-A**	**01/13/15 00:30**	**Solid**	**GC 47**	**01/13/15**	**01/13/15 13:05**	**150113B01A**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C6	ND	5.0	1.00	
C7	ND	5.0	1.00	
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C41-C44	ND	5.0	1.00	
C6-C44 Total	8.2	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	91	61-145	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 2 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
T1-SE	**15-01-0618-2-A**	**01/13/15 02:00**	**Solid**	**GC 47**	**01/13/15**	**01/13/15 13:22**	**150113B01A**

Parameter	Result	RL	DF	Qualifiers
C6	ND	4.9	1.00	
C7	ND	4.9	1.00	
C8	ND	4.9	1.00	
C9-C10	ND	4.9	1.00	
C11-C12	ND	4.9	1.00	
C13-C14	ND	4.9	1.00	
C15-C16	ND	4.9	1.00	
C17-C18	ND	4.9	1.00	
C19-C20	ND	4.9	1.00	
C21-C22	ND	4.9	1.00	
C23-C24	ND	4.9	1.00	
C25-C28	ND	4.9	1.00	
C29-C32	ND	4.9	1.00	
C33-C36	ND	4.9	1.00	
C37-C40	ND	4.9	1.00	
C41-C44	ND	4.9	1.00	
C6-C44 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	98	61-145	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 3 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-15-490-1355**	**N/A**	**Solid**	**GC 47**	**01/13/15**	**01/13/15 11:51**	**150113B01A**

Parameter	Result	RL	DF	Qualifiers
C6	ND	5.0	1.00	
C7	ND	5.0	1.00	
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C41-C44	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	96	61-145	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite (T1-NW & T1-SE)	**15-01-0618-3-A**	**01/13/15 00:30**	**Solid**	**ICP 7300**	**01/13/15**	**01/13/15 18:11**	**150113L01**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.750	1.00	
Arsenic	3.60	0.750	1.00	
Barium	155	0.500	1.00	
Beryllium	0.452	0.250	1.00	
Cadmium	ND	0.500	1.00	
Chromium	18.2	0.250	1.00	
Cobalt	9.71	0.250	1.00	
Copper	22.7	0.500	1.00	B
Lead	10.9	0.500	1.00	
Molybdenum	0.681	0.250	1.00	
Nickel	18.1	0.250	1.00	
Selenium	ND	0.750	1.00	
Silver	ND	0.250	1.00	
Thallium	ND	0.750	1.00	
Vanadium	38.6	0.250	1.00	
Zinc	62.3	1.00	1.00	B

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**097-01-002-20164**	**N/A**	**Solid**	**ICP 7300**	**01/13/15**	**01/13/15 17:58**	**150113L01**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.750	1.00	
Arsenic	ND	0.750	1.00	
Barium	ND	0.500	1.00	
Beryllium	ND	0.250	1.00	
Cadmium	ND	0.500	1.00	
Chromium	ND	0.250	1.00	
Cobalt	ND	0.250	1.00	
Copper	0.711	0.500	1.00	
Lead	ND	0.500	1.00	
Molybdenum	ND	0.250	1.00	
Nickel	ND	0.250	1.00	
Selenium	ND	0.750	1.00	
Silver	ND	0.250	1.00	
Thallium	ND	0.750	1.00	
Vanadium	ND	0.250	1.00	
Zinc	1.09	1.00	1.00	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
		Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite (T1-NW & T1-SE)	**15-01-0618-3-A**	**01/13/15 00:30**	**Solid**	**Mercury 05**	**01/13/15**	**01/13/15 22:18**	**150113L07**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0833	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-16-272-877**	**N/A**	**Solid**	**Mercury 05**	**01/13/15**	**01/13/15 21:21**	**150113L07**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0833	1.00	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394		Preparation:	EPA 3545
		Method:	EPA 8270C
		Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 1 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite (T1-NW & T1-SE)	**15-01-0618-3-A**	**01/13/15 00:30**	**Solid**	**GC/MS TT**	**01/13/15**	**01/14/15 13:26**	**150113L03**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	0.50	1.00	
Acenaphthylene	ND	0.50	1.00	
Aniline	ND	0.50	1.00	
Anthracene	ND	0.50	1.00	
Azobenzene	ND	0.50	1.00	
Benzidine	ND	10	1.00	
Benzo (a) Anthracene	ND	0.50	1.00	
Benzo (a) Pyrene	ND	0.50	1.00	
Benzo (b) Fluoranthene	ND	0.50	1.00	
Benzo (g,h,i) Perylene	ND	0.50	1.00	
Benzo (k) Fluoranthene	ND	0.50	1.00	
Benzoic Acid	ND	2.5	1.00	
Benzyl Alcohol	ND	0.50	1.00	
Bis(2-Chloroethoxy) Methane	ND	0.50	1.00	
Bis(2-Chloroethyl) Ether	ND	2.5	1.00	
Bis(2-Chloroisopropyl) Ether	ND	0.50	1.00	
Bis(2-Ethylhexyl) Phthalate	ND	0.50	1.00	
4-Bromophenyl-Phenyl Ether	ND	0.50	1.00	
Butyl Benzyl Phthalate	ND	0.50	1.00	
4-Chloro-3-Methylphenol	ND	0.50	1.00	
4-Chloroaniline	ND	0.50	1.00	
2-Chloronaphthalene	ND	0.50	1.00	
2-Chlorophenol	ND	0.50	1.00	
4-Chlorophenyl-Phenyl Ether	ND	0.50	1.00	
Chrysene	ND	0.50	1.00	
Di-n-Butyl Phthalate	ND	0.50	1.00	
Di-n-Octyl Phthalate	ND	0.50	1.00	
Dibenz (a,h) Anthracene	ND	0.50	1.00	
Dibenzofuran	ND	0.50	1.00	
1,2-Dichlorobenzene	ND	0.50	1.00	
1,3-Dichlorobenzene	ND	0.50	1.00	
1,4-Dichlorobenzene	ND	0.50	1.00	
3,3'-Dichlorobenzidine	ND	10	1.00	
2,4-Dichlorophenol	ND	0.50	1.00	
Diethyl Phthalate	ND	0.50	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants	Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394	Preparation:	EPA 3545
	Method:	EPA 8270C
	Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 2 of 6

Parameter	Result	RL	DF	Qualifiers
Dimethyl Phthalate	ND	0.50	1.00	
2,4-Dimethylphenol	ND	0.50	1.00	
4,6-Dinitro-2-Methylphenol	ND	2.5	1.00	
2,4-Dinitrophenol	ND	2.5	1.00	
2,4-Dinitrotoluene	ND	0.50	1.00	
2,6-Dinitrotoluene	ND	0.50	1.00	
Fluoranthene	ND	0.50	1.00	
Fluorene	ND	0.50	1.00	
Hexachloro-1,3-Butadiene	ND	0.50	1.00	
Hexachlorobenzene	ND	0.50	1.00	
Hexachlorocyclopentadiene	ND	2.5	1.00	
Hexachloroethane	ND	0.50	1.00	
Indeno (1,2,3-c,d) Pyrene	ND	0.50	1.00	
Isophorone	ND	0.50	1.00	
2-Methylnaphthalene	ND	0.50	1.00	
1-Methylnaphthalene	ND	0.50	1.00	
2-Methylphenol	ND	0.50	1.00	
3/4-Methylphenol	ND	0.50	1.00	
N-Nitroso-di-n-propylamine	ND	0.50	1.00	
N-Nitrosodimethylamine	ND	0.50	1.00	
N-Nitrosodiphenylamine	ND	0.50	1.00	
Naphthalene	ND	0.50	1.00	
4-Nitroaniline	ND	0.50	1.00	
3-Nitroaniline	ND	0.50	1.00	
2-Nitroaniline	ND	0.50	1.00	
Nitrobenzene	ND	2.5	1.00	
4-Nitrophenol	ND	0.50	1.00	
2-Nitrophenol	ND	0.50	1.00	
Pentachlorophenol	ND	2.5	1.00	
Phenanthrene	ND	0.50	1.00	
Phenol	ND	0.50	1.00	
Pyrene	ND	0.50	1.00	
Pyridine	ND	0.50	1.00	
1,2,4-Trichlorobenzene	ND	0.50	1.00	
2,4,6-Trichlorophenol	ND	0.50	1.00	
2,4,5-Trichlorophenol	ND	0.50	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	71	27-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants	Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394	Preparation:	EPA 3545
	Method:	EPA 8270C
	Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 3 of 6

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorophenol	82	25-120	
Nitrobenzene-d5	72	33-123	
p-Terphenyl-d14	71	27-159	
Phenol-d6	83	26-122	
2,4,6-Tribromophenol	95	18-138	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394		Preparation:	EPA 3545
		Method:	EPA 8270C
		Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 4 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-549-3164**	**N/A**	**Solid**	**GC/MS TT**	**01/13/15**	**01/14/15 12:49**	**150113L03**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	0.50	1.00	
Acenaphthylene	ND	0.50	1.00	
Aniline	ND	0.50	1.00	
Anthracene	ND	0.50	1.00	
Azobenzene	ND	0.50	1.00	
Benzidine	ND	10	1.00	
Benzo (a) Anthracene	ND	0.50	1.00	
Benzo (a) Pyrene	ND	0.50	1.00	
Benzo (b) Fluoranthene	ND	0.50	1.00	
Benzo (g,h,i) Perylene	ND	0.50	1.00	
Benzo (k) Fluoranthene	ND	0.50	1.00	
Benzoic Acid	ND	2.5	1.00	
Benzyl Alcohol	ND	0.50	1.00	
Bis(2-Chloroethoxy) Methane	ND	0.50	1.00	
Bis(2-Chloroethyl) Ether	ND	2.5	1.00	
Bis(2-Chloroisopropyl) Ether	ND	0.50	1.00	
Bis(2-Ethylhexyl) Phthalate	ND	0.50	1.00	
4-Bromophenyl-Phenyl Ether	ND	0.50	1.00	
Butyl Benzyl Phthalate	ND	0.50	1.00	
4-Chloro-3-Methylphenol	ND	0.50	1.00	
4-Chloroaniline	ND	0.50	1.00	
2-Chloronaphthalene	ND	0.50	1.00	
2-Chlorophenol	ND	0.50	1.00	
4-Chlorophenyl-Phenyl Ether	ND	0.50	1.00	
Chrysene	ND	0.50	1.00	
Di-n-Butyl Phthalate	ND	0.50	1.00	
Di-n-Octyl Phthalate	ND	0.50	1.00	
Dibenz (a,h) Anthracene	ND	0.50	1.00	
Dibenzofuran	ND	0.50	1.00	
1,2-Dichlorobenzene	ND	0.50	1.00	
1,3-Dichlorobenzene	ND	0.50	1.00	
1,4-Dichlorobenzene	ND	0.50	1.00	
3,3'-Dichlorobenzidine	ND	10	1.00	
2,4-Dichlorophenol	ND	0.50	1.00	
Diethyl Phthalate	ND	0.50	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants	Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394	Preparation:	EPA 3545
	Method:	EPA 8270C
	Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 5 of 6

Parameter	Result	RL	DF	Qualifiers
Dimethyl Phthalate	ND	0.50	1.00	
2,4-Dimethylphenol	ND	0.50	1.00	
4,6-Dinitro-2-Methylphenol	ND	2.5	1.00	
2,4-Dinitrophenol	ND	2.5	1.00	
2,4-Dinitrotoluene	ND	0.50	1.00	
2,6-Dinitrotoluene	ND	0.50	1.00	
Fluoranthene	ND	0.50	1.00	
Fluorene	ND	0.50	1.00	
Hexachloro-1,3-Butadiene	ND	0.50	1.00	
Hexachlorobenzene	ND	0.50	1.00	
Hexachlorocyclopentadiene	ND	2.5	1.00	
Hexachloroethane	ND	0.50	1.00	
Indeno (1,2,3-c,d) Pyrene	ND	0.50	1.00	
Isophorone	ND	0.50	1.00	
2-Methylnaphthalene	ND	0.50	1.00	
1-Methylnaphthalene	ND	0.50	1.00	
2-Methylphenol	ND	0.50	1.00	
3/4-Methylphenol	ND	0.50	1.00	
N-Nitroso-di-n-propylamine	ND	0.50	1.00	
N-Nitrosodimethylamine	ND	0.50	1.00	
N-Nitrosodiphenylamine	ND	0.50	1.00	
Naphthalene	ND	0.50	1.00	
4-Nitroaniline	ND	0.50	1.00	
3-Nitroaniline	ND	0.50	1.00	
2-Nitroaniline	ND	0.50	1.00	
Nitrobenzene	ND	2.5	1.00	
4-Nitrophenol	ND	0.50	1.00	
2-Nitrophenol	ND	0.50	1.00	
Pentachlorophenol	ND	2.5	1.00	
Phenanthrene	ND	0.50	1.00	
Phenol	ND	0.50	1.00	
Pyrene	ND	0.50	1.00	
Pyridine	ND	0.50	1.00	
1,2,4-Trichlorobenzene	ND	0.50	1.00	
2,4,6-Trichlorophenol	ND	0.50	1.00	
2,4,5-Trichlorophenol	ND	0.50	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	69	27-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants	Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394	Preparation:	EPA 3545
	Method:	EPA 8270C
	Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 6 of 6

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorophenol	73	25-120	
Nitrobenzene-d5	66	33-123	
p-Terphenyl-d14	68	27-159	
Phenol-d6	72	26-122	
2,4,6-Tribromophenol	83	18-138	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 1 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
T1-NW	**15-01-0618-1-A**	**01/13/15 00:30**	**Solid**	**GC/MS RR**	**01/13/15**	**01/13/15 15:12**	**150113L004**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	130	1.00	
Benzene	ND	5.0	1.00	
Bromobenzene	ND	5.0	1.00	
Bromochloromethane	ND	5.0	1.00	
Bromodichloromethane	ND	5.0	1.00	
Bromoform	ND	5.0	1.00	
Bromomethane	ND	25	1.00	
2-Butanone	ND	50	1.00	
n-Butylbenzene	ND	5.0	1.00	
sec-Butylbenzene	ND	5.0	1.00	
tert-Butylbenzene	ND	5.0	1.00	
Carbon Disulfide	ND	50	1.00	
Carbon Tetrachloride	ND	5.0	1.00	
Chlorobenzene	ND	5.0	1.00	
Chloroethane	ND	5.0	1.00	
Chloroform	ND	5.0	1.00	
Chloromethane	ND	25	1.00	
2-Chlorotoluene	ND	5.0	1.00	
4-Chlorotoluene	ND	5.0	1.00	
Dibromochloromethane	ND	5.0	1.00	
1,2-Dibromo-3-Chloropropane	ND	10	1.00	
1,2-Dibromoethane	ND	5.0	1.00	
Dibromomethane	ND	5.0	1.00	
1,2-Dichlorobenzene	ND	5.0	1.00	
1,3-Dichlorobenzene	ND	5.0	1.00	
1,4-Dichlorobenzene	ND	5.0	1.00	
Dichlorodifluoromethane	ND	5.0	1.00	
1,1-Dichloroethane	ND	5.0	1.00	
1,2-Dichloroethane	ND	5.0	1.00	
1,1-Dichloroethene	ND	5.0	1.00	
c-1,2-Dichloroethene	ND	5.0	1.00	
t-1,2-Dichloroethene	ND	5.0	1.00	
1,2-Dichloropropane	ND	5.0	1.00	
1,3-Dichloropropane	ND	5.0	1.00	
2,2-Dichloropropane	ND	5.0	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants	Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394	Preparation:	EPA 5030C
	Method:	EPA 8260B
	Units:	ug/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 2 of 6

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	5.0	1.00	
c-1,3-Dichloropropene	ND	5.0	1.00	
t-1,3-Dichloropropene	ND	5.0	1.00	
Ethylbenzene	ND	5.0	1.00	
2-Hexanone	ND	50	1.00	
Isopropylbenzene	ND	5.0	1.00	
p-Isopropyltoluene	ND	5.0	1.00	
Methylene Chloride	ND	50	1.00	
4-Methyl-2-Pentanone	ND	50	1.00	
Naphthalene	ND	50	1.00	
n-Propylbenzene	ND	5.0	1.00	
Styrene	ND	5.0	1.00	
1,1,1,2-Tetrachloroethane	ND	5.0	1.00	
1,1,2,2-Tetrachloroethane	ND	5.0	1.00	
Tetrachloroethene	ND	5.0	1.00	
Toluene	ND	5.0	1.00	
1,2,3-Trichlorobenzene	ND	10	1.00	
1,2,4-Trichlorobenzene	ND	5.0	1.00	
1,1,1-Trichloroethane	ND	5.0	1.00	
1,1,2-Trichloroethane	ND	5.0	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50	1.00	
Trichloroethene	ND	5.0	1.00	
1,2,3-Trichloropropane	ND	5.0	1.00	
1,2,4-Trimethylbenzene	ND	5.0	1.00	
Trichlorofluoromethane	ND	50	1.00	
1,3,5-Trimethylbenzene	ND	5.0	1.00	
Vinyl Acetate	ND	50	1.00	
Vinyl Chloride	ND	5.0	1.00	
p/m-Xylene	ND	5.0	1.00	
o-Xylene	ND	5.0	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	91	60-132	
Dibromofluoromethane	113	63-141	
1,2-Dichloroethane-d4	113	62-146	
Toluene-d8	102	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 3 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
T1-SE	**15-01-0618-2-A**	**01/13/15 02:00**	**Solid**	**GC/MS RR**	**01/13/15**	**01/13/15 17:29**	**150113L004**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	120	1.00	
Benzene	ND	4.9	1.00	
Bromobenzene	ND	4.9	1.00	
Bromochloromethane	ND	4.9	1.00	
Bromodichloromethane	ND	4.9	1.00	
Bromoform	ND	4.9	1.00	
Bromomethane	ND	25	1.00	
2-Butanone	ND	49	1.00	
n-Butylbenzene	ND	4.9	1.00	
sec-Butylbenzene	ND	4.9	1.00	
tert-Butylbenzene	ND	4.9	1.00	
Carbon Disulfide	ND	49	1.00	
Carbon Tetrachloride	ND	4.9	1.00	
Chlorobenzene	ND	4.9	1.00	
Chloroethane	ND	4.9	1.00	
Chloroform	ND	4.9	1.00	
Chloromethane	ND	25	1.00	
2-Chlorotoluene	ND	4.9	1.00	
4-Chlorotoluene	ND	4.9	1.00	
Dibromochloromethane	ND	4.9	1.00	
1,2-Dibromo-3-Chloropropane	ND	9.8	1.00	
1,2-Dibromoethane	ND	4.9	1.00	
Dibromomethane	ND	4.9	1.00	
1,2-Dichlorobenzene	ND	4.9	1.00	
1,3-Dichlorobenzene	ND	4.9	1.00	
1,4-Dichlorobenzene	ND	4.9	1.00	
Dichlorodifluoromethane	ND	4.9	1.00	
1,1-Dichloroethane	ND	4.9	1.00	
1,2-Dichloroethane	ND	4.9	1.00	
1,1-Dichloroethene	ND	4.9	1.00	
c-1,2-Dichloroethene	ND	4.9	1.00	
t-1,2-Dichloroethene	ND	4.9	1.00	
1,2-Dichloropropane	ND	4.9	1.00	
1,3-Dichloropropane	ND	4.9	1.00	
2,2-Dichloropropane	ND	4.9	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants	Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394	Preparation:	EPA 5030C
	Method:	EPA 8260B
	Units:	ug/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 4 of 6

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	4.9	1.00	
c-1,3-Dichloropropene	ND	4.9	1.00	
t-1,3-Dichloropropene	ND	4.9	1.00	
Ethylbenzene	ND	4.9	1.00	
2-Hexanone	ND	49	1.00	
Isopropylbenzene	ND	4.9	1.00	
p-Isopropyltoluene	ND	4.9	1.00	
Methylene Chloride	ND	49	1.00	
4-Methyl-2-Pentanone	ND	49	1.00	
Naphthalene	ND	49	1.00	
n-Propylbenzene	ND	4.9	1.00	
Styrene	ND	4.9	1.00	
1,1,1,2-Tetrachloroethane	ND	4.9	1.00	
1,1,2,2-Tetrachloroethane	ND	4.9	1.00	
Tetrachloroethene	ND	4.9	1.00	
Toluene	ND	4.9	1.00	
1,2,3-Trichlorobenzene	ND	9.8	1.00	
1,2,4-Trichlorobenzene	ND	4.9	1.00	
1,1,1-Trichloroethane	ND	4.9	1.00	
1,1,2-Trichloroethane	ND	4.9	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	49	1.00	
Trichloroethene	ND	4.9	1.00	
1,2,3-Trichloropropane	ND	4.9	1.00	
1,2,4-Trimethylbenzene	ND	4.9	1.00	
Trichlorofluoromethane	ND	49	1.00	
1,3,5-Trimethylbenzene	ND	4.9	1.00	
Vinyl Acetate	ND	49	1.00	
Vinyl Chloride	ND	4.9	1.00	
p/m-Xylene	ND	4.9	1.00	
o-Xylene	ND	4.9	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	4.9	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	94	60-132	
Dibromofluoromethane	107	63-141	
1,2-Dichloroethane-d4	106	62-146	
Toluene-d8	101	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 5 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-796-9269**	**N/A**	**Solid**	**GC/MS RR**	**01/13/15**	**01/13/15 14:17**	**150113L004**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	120	1.00	
Benzene	ND	5.0	1.00	
Bromobenzene	ND	5.0	1.00	
Bromochloromethane	ND	5.0	1.00	
Bromodichloromethane	ND	5.0	1.00	
Bromoform	ND	5.0	1.00	
Bromomethane	ND	25	1.00	
2-Butanone	ND	50	1.00	
n-Butylbenzene	ND	5.0	1.00	
sec-Butylbenzene	ND	5.0	1.00	
tert-Butylbenzene	ND	5.0	1.00	
Carbon Disulfide	ND	50	1.00	
Carbon Tetrachloride	ND	5.0	1.00	
Chlorobenzene	ND	5.0	1.00	
Chloroethane	ND	5.0	1.00	
Chloroform	ND	5.0	1.00	
Chloromethane	ND	25	1.00	
2-Chlorotoluene	ND	5.0	1.00	
4-Chlorotoluene	ND	5.0	1.00	
Dibromochloromethane	ND	5.0	1.00	
1,2-Dibromo-3-Chloropropane	ND	10	1.00	
1,2-Dibromoethane	ND	5.0	1.00	
Dibromomethane	ND	5.0	1.00	
1,2-Dichlorobenzene	ND	5.0	1.00	
1,3-Dichlorobenzene	ND	5.0	1.00	
1,4-Dichlorobenzene	ND	5.0	1.00	
Dichlorodifluoromethane	ND	5.0	1.00	
1,1-Dichloroethane	ND	5.0	1.00	
1,2-Dichloroethane	ND	5.0	1.00	
1,1-Dichloroethene	ND	5.0	1.00	
c-1,2-Dichloroethene	ND	5.0	1.00	
t-1,2-Dichloroethene	ND	5.0	1.00	
1,2-Dichloropropane	ND	5.0	1.00	
1,3-Dichloropropane	ND	5.0	1.00	
2,2-Dichloropropane	ND	5.0	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants	Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394	Preparation:	EPA 5030C
	Method:	EPA 8260B
	Units:	ug/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 6 of 6

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	5.0	1.00	
c-1,3-Dichloropropene	ND	5.0	1.00	
t-1,3-Dichloropropene	ND	5.0	1.00	
Ethylbenzene	ND	5.0	1.00	
2-Hexanone	ND	50	1.00	
Isopropylbenzene	ND	5.0	1.00	
p-Isopropyltoluene	ND	5.0	1.00	
Methylene Chloride	ND	50	1.00	
4-Methyl-2-Pentanone	ND	50	1.00	
Naphthalene	ND	50	1.00	
n-Propylbenzene	ND	5.0	1.00	
Styrene	ND	5.0	1.00	
1,1,1,2-Tetrachloroethane	ND	5.0	1.00	
1,1,2,2-Tetrachloroethane	ND	5.0	1.00	
Tetrachloroethene	ND	5.0	1.00	
Toluene	ND	5.0	1.00	
1,2,3-Trichlorobenzene	ND	10	1.00	
1,2,4-Trichlorobenzene	ND	5.0	1.00	
1,1,1-Trichloroethane	ND	5.0	1.00	
1,1,2-Trichloroethane	ND	5.0	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50	1.00	
Trichloroethene	ND	5.0	1.00	
1,2,3-Trichloropropane	ND	5.0	1.00	
1,2,4-Trimethylbenzene	ND	5.0	1.00	
Trichlorofluoromethane	ND	50	1.00	
1,3,5-Trimethylbenzene	ND	5.0	1.00	
Vinyl Acetate	ND	50	1.00	
Vinyl Chloride	ND	5.0	1.00	
p/m-Xylene	ND	5.0	1.00	
o-Xylene	ND	5.0	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	94	60-132	
Dibromofluoromethane	110	63-141	
1,2-Dichloroethane-d4	110	62-146	
Toluene-d8	103	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - Spike/Spike Duplicate

Geosyntec Consultants	Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394	Preparation:	EPA 3550B
	Method:	EPA 8015B (M)
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 1 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
15-01-0532-1	**Sample**	**Solid**	**GC 47**	**01/13/15**	**01/13/15 13:40**	**150113S01**
15-01-0532-1	**Matrix Spike**	**Solid**	**GC 47**	**01/13/15**	**01/13/15 12:28**	**150113S01**
15-01-0532-1	**Matrix Spike Duplicate**	**Solid**	**GC 47**	**01/13/15**	**01/13/15 12:46**	**150113S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TPH as Diesel	ND	400.0	311.8	78	314.9	79	64-130	1	0-15	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Spike/Spike Duplicate

Geosyntec Consultants	Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394	Preparation:	EPA 3050B
	Method:	EPA 6010B
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 2 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
15-01-0606-2	**Sample**	**Solid**	**ICP 7300**	**01/13/15**	**01/13/15 18:01**	**150113S01**
15-01-0606-2	**Matrix Spike**	**Solid**	**ICP 7300**	**01/13/15**	**01/13/15 18:02**	**150113S01**
15-01-0606-2	**Matrix Spike Duplicate**	**Solid**	**ICP 7300**	**01/13/15**	**01/13/15 18:08**	**150113S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Antimony	ND	25.00	5.361	21	5.247	21	50-115	2	0-20	3
Arsenic	4.608	25.00	33.47	115	32.84	113	75-125	2	0-20	
Barium	158.1	25.00	200.9	4X	201.4	4X	75-125	4X	0-20	Q
Beryllium	0.4347	25.00	28.24	111	27.72	109	75-125	2	0-20	
Cadmium	ND	25.00	25.85	103	25.99	104	75-125	1	0-20	
Chromium	19.56	25.00	50.14	122	49.81	121	75-125	1	0-20	
Cobalt	11.13	25.00	38.42	109	38.54	110	75-125	0	0-20	
Copper	16.88	25.00	47.20	121	46.47	118	75-125	2	0-20	
Lead	6.831	25.00	32.74	104	34.00	109	75-125	4	0-20	
Molybdenum	ND	25.00	23.37	93	22.93	92	75-125	2	0-20	
Nickel	11.86	25.00	39.35	110	39.55	111	75-125	0	0-20	
Selenium	ND	25.00	24.92	100	24.42	98	75-125	2	0-20	
Silver	ND	12.50	11.11	89	8.329	67	75-125	29	0-20	3,4
Thallium	ND	25.00	9.998	40	9.394	38	75-125	6	0-20	3
Vanadium	45.78	25.00	78.31	130	77.70	128	75-125	1	0-20	3
Zinc	57.78	25.00	89.00	125	91.20	134	75-125	2	0-20	3

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Spike/Spike Duplicate

Geosyntec Consultants	Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394	Preparation:	EPA 7471A Total
	Method:	EPA 7471A
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 3 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
15-01-0289-26	**Sample**	**Solid**	**Mercury 05**	**01/13/15**	**01/13/15 21:25**	**150113S07**
15-01-0289-26	**Matrix Spike**	**Solid**	**Mercury 05**	**01/13/15**	**01/13/15 21:27**	**150113S07**
15-01-0289-26	**Matrix Spike Duplicate**	**Solid**	**Mercury 05**	**01/13/15**	**01/13/15 21:29**	**150113S07**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.8350	0.8950	107	0.9036	108	71-137	1	0-14	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Spike/Spike Duplicate

Geosyntec Consultants	Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394	Preparation:	EPA 3545
	Method:	EPA 8270C
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 4 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
15-01-0494-62	**Sample**	**Solid**	**GC/MS TT**	**01/13/15**	**01/14/15 13:45**	**150113S03**
15-01-0494-62	**Matrix Spike**	**Solid**	**GC/MS TT**	**01/13/15**	**01/14/15 14:04**	**150113S03**
15-01-0494-62	**Matrix Spike Duplicate**	**Solid**	**GC/MS TT**	**01/13/15**	**01/14/15 14:22**	**150113S03**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Acenaphthene	ND	10.00	9.858	99	9.588	96	34-148	3	0-20	
Acenaphthylene	ND	10.00	9.565	96	9.348	93	53-120	2	0-20	
Butyl Benzyl Phthalate	ND	10.00	9.574	96	9.332	93	15-189	3	0-20	
4-Chloro-3-Methylphenol	ND	10.00	9.178	92	8.970	90	32-120	2	0-20	
2-Chlorophenol	ND	10.00	9.311	93	9.055	91	53-120	3	0-20	
1,4-Dichlorobenzene	ND	10.00	9.336	93	9.063	91	43-120	3	0-26	
Dimethyl Phthalate	ND	10.00	9.553	96	9.232	92	44-122	3	0-20	
2,4-Dinitrotoluene	ND	10.00	9.521	95	9.418	94	28-120	1	0-20	
Fluorene	ND	10.00	10.17	102	9.910	99	12-186	3	0-20	
N-Nitroso-di-n-propylamine	ND	10.00	8.845	88	8.539	85	38-140	4	0-20	
Naphthalene	ND	10.00	9.510	95	9.345	93	20-140	2	0-20	
4-Nitrophenol	ND	10.00	8.361	84	8.426	84	14-128	1	0-59	
Pentachlorophenol	ND	10.00	8.266	83	8.315	83	10-124	1	0-20	
Phenol	ND	10.00	8.843	88	8.585	86	22-124	3	0-20	
Pyrene	ND	10.00	9.231	92	8.831	88	31-169	4	0-20	
1,2,4-Trichlorobenzene	ND	10.00	9.638	96	9.418	94	56-120	2	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Spike/Spike Duplicate

Geosyntec Consultants	Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394	Preparation:	EPA 5030C
	Method:	EPA 8260B
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 5 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
T1-NW	**Sample**	**Solid**	**GC/MS RR**	**01/13/15**	**01/13/15 15:12**	**150113S009**
T1-NW	**Matrix Spike**	**Solid**	**GC/MS RR**	**01/13/15**	**01/13/15 16:07**	**150113S009**
T1-NW	**Matrix Spike Duplicate**	**Solid**	**GC/MS RR**	**01/13/15**	**01/13/15 16:34**	**150113S009**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Benzene	ND	50.00	47.84	96	47.04	94	61-127	2	0-20	
Carbon Tetrachloride	ND	50.00	43.91	88	45.85	92	51-135	4	0-29	
Chlorobenzene	ND	50.00	43.64	87	43.08	86	57-123	1	0-20	
1,2-Dibromoethane	ND	50.00	40.05	80	42.04	84	64-124	5	0-20	
1,2-Dichlorobenzene	ND	50.00	41.12	82	41.37	83	35-131	1	0-25	
1,2-Dichloroethane	ND	50.00	44.41	89	44.19	88	80-120	1	0-20	
1,1-Dichloroethene	ND	50.00	40.81	82	41.84	84	47-143	2	0-25	
Ethylbenzene	ND	50.00	44.86	90	44.95	90	57-129	0	0-22	
Toluene	ND	50.00	46.94	94	46.06	92	63-123	2	0-20	
Trichloroethene	ND	50.00	43.49	87	43.40	87	44-158	0	0-20	
Vinyl Chloride	ND	50.00	45.99	92	47.23	94	49-139	3	0-47	
p/m-Xylene	ND	100.0	88.41	88	88.30	88	70-130	0	0-30	
o-Xylene	ND	50.00	45.01	90	44.75	90	70-130	1	0-30	
Methyl-t-Butyl Ether (MTBE)	ND	50.00	40.01	80	42.64	85	57-123	6	0-21	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Geosyntec Consultants	Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394	Preparation:	EPA 3550B
	Method:	EPA 8015B (M)
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 1 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-15-490-1355	**LCS**	**Solid**	**GC 47**	**01/13/15**	**01/13/15 12:09**	**150113B01A**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
TPH as Diesel	400.0	333.3	83	75-123	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Geosyntec Consultants	Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394	Preparation:	EPA 3050B
	Method:	EPA 6010B
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 2 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
097-01-002-20164	**LCS**	**Solid**	**ICP 7300**	**01/13/15**	**01/13/15 18:00**	**150113L01**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Antimony	25.00	27.13	109	80-120	73-127	
Arsenic	25.00	27.13	109	80-120	73-127	
Barium	25.00	26.54	106	80-120	73-127	
Beryllium	25.00	25.19	101	80-120	73-127	
Cadmium	25.00	26.08	104	80-120	73-127	
Chromium	25.00	27.74	111	80-120	73-127	
Cobalt	25.00	28.02	112	80-120	73-127	
Copper	25.00	26.83	107	80-120	73-127	
Lead	25.00	27.24	109	80-120	73-127	
Molybdenum	25.00	25.51	102	80-120	73-127	
Nickel	25.00	27.83	111	80-120	73-127	
Selenium	25.00	24.55	98	80-120	73-127	
Silver	12.50	12.53	100	80-120	73-127	
Thallium	25.00	25.25	101	80-120	73-127	
Vanadium	25.00	26.19	105	80-120	73-127	
Zinc	25.00	26.04	104	80-120	73-127	

Total number of LCS compounds: 16
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Geosyntec Consultants		Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 3 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-272-877	**LCS**	**Solid**	**Mercury 05**	**01/13/15**	**01/13/15 21:23**	**150113L07**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Mercury	0.8350	0.8931	107	85-121	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Geosyntec Consultants	Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394	Preparation:	EPA 3545
	Method:	EPA 8270C
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 4 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-12-549-3164	**LCS**	**Solid**	**GC/MS TT**	**01/13/15**	**01/14/15 13:08**	**150113L03**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Acenaphthene	10.00	6.614	66	51-123	39-135	
Acenaphthylene	10.00	6.456	65	52-120	41-131	
Butyl Benzyl Phthalate	10.00	6.604	66	43-139	27-155	
4-Chloro-3-Methylphenol	10.00	6.252	63	55-121	44-132	
2-Chlorophenol	10.00	5.725	57	58-124	47-135	ME
1,4-Dichlorobenzene	10.00	5.640	56	42-132	27-147	
Dimethyl Phthalate	10.00	6.626	66	51-123	39-135	
2,4-Dinitrotoluene	10.00	6.691	67	51-129	38-142	
Fluorene	10.00	6.909	69	54-126	42-138	
N-Nitroso-di-n-propylamine	10.00	5.718	57	40-136	24-152	
Naphthalene	10.00	6.093	61	32-146	13-165	
4-Nitrophenol	10.00	5.402	54	24-126	7-143	
Pentachlorophenol	10.00	4.035	40	23-131	5-149	
Phenol	10.00	5.637	56	40-130	25-145	
Pyrene	10.00	6.333	63	47-143	31-159	
1,2,4-Trichlorobenzene	10.00	6.105	61	45-129	31-143	

Total number of LCS compounds: 16
Total number of ME compounds: 1
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Geosyntec Consultants	Date Received:	01/13/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0618
Rancho Cordova, CA 95670-6394	Preparation:	EPA 5030C
	Method:	EPA 8260B
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 5 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-12-796-9269	**LCS**	**Solid**	**GC/MS RR**	**01/13/15**	**01/13/15 11:26**	**150113L004**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Benzene	50.00	57.96	116	78-120	71-127	
Carbon Tetrachloride	50.00	54.56	109	49-139	34-154	
Chlorobenzene	50.00	54.71	109	79-120	72-127	
1,2-Dibromoethane	50.00	51.78	104	80-120	73-127	
1,2-Dichlorobenzene	50.00	50.77	102	75-120	68-128	
1,2-Dichloroethane	50.00	54.78	110	80-120	73-127	
1,1-Dichloroethene	50.00	49.90	100	74-122	66-130	
Ethylbenzene	50.00	55.55	111	76-120	69-127	
Toluene	50.00	56.03	112	77-120	70-127	
Trichloroethene	50.00	52.24	104	80-120	73-127	
Vinyl Chloride	50.00	53.33	107	68-122	59-131	
p/m-Xylene	100.0	111.2	111	75-125	67-133	
o-Xylene	50.00	55.68	111	75-125	67-133	
Methyl-t-Butyl Ether (MTBE)	50.00	48.18	96	77-120	70-127	

Total number of LCS compounds: 14
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 15-01-0618 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA 6010B	EPA 3050B	771	ICP 7300	1
EPA 7471A	EPA 7471A Total	915	Mercury 05	1
EPA 8015B (M)	EPA 3550B	682	GC 47	1
EPA 8260B	EPA 5030C	796	GC/MS RR	2
EPA 8270C	EPA 3545	923	GC/MS TT	1

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Glossary of Terms and Qualifiers

Work Order: 15-01-0618 Page 1 of 1

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

CHAIN-OF-CUSTODY RECORD

WO NO. / LAB USE ONLY: **15-01-0618**

DATE: 1/12/15
PAGE: 1 OF 1

LABORATORY CLIENT: GEOSYNTEC CONSULTANTS
ADDRESS: 3043 Gold Canal Drive, Ste 201
CITY: Rancho Cordova STATE: Ca ZIP: 95670
TEL: 916-637-8326 E-MAIL: WKey@Geosyntec.com

CLIENT PROJECT NAME / NO.: Blossom Plaza Utility Trench Sampling / WR1777/04
PROJECT CONTACT: WENDY KEY
GLOBAL ID: LOG CODE:
P.O. NO.:
LAB CONTACT OR QUOTE NO.:
SAMPLER(S): (PRINT) RACHEL RAGDO

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):
☐ SAME DAY ☒ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☐ STANDARD

EDD:
☐ COELT EDF ☐ OTHER

SPECIAL INSTRUCTIONS:
Composite T1-NW and T1-SE for T22 Metals (6010B/7071) and SVOCs (8270C); analyze T1-NW and T1-SE discretely for TPH (8015) and VOCs (8260).

Hold samples for ~~discrete~~ composite analysis of PCBs (8082) and STLC / TCLP for Lead.

REQUESTED ANALYSES
Please check box or fill in blank as needed.

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH(g) ☐ GRO	TPH(d) ☐ DRO	TPH ☐ C6-C36 ~~C6~~-C44	TPH ____	BTEX / MTBE ☐ 8260 ☐ ____	VOCs (8260)	Oxygenates (8260)	Prep (5035) ☐ En Core ☐ Terra Core	SVOCs (8270)	Pesticides (8081)	PCBs (8082) (Hold Analysis)	PAHs ☐ 8270 ☐ 8270 SIM	T22 Metals ~~6010~~/747X ☐ 6020/747X	Cr(VI) ☐ 7196 ☐ 7199 ☐ 218.6	STLC / TCLP for Lead (Hold Analysis)			
1	T1-NW	1/13/15	0030	Soil	1	X					X			X			X		X		X		X			
2	T1-SE	1/13/15	0200	Soil	1	X					X			X			X		X		X		X			

Relinquished by: (Signature)	Received by: (Signature/Affiliation) Wcbath ECI	Date: 1-13-15	Time: 0730
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

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WORK ORDER #: 15-01-0 6 1 8 426 1/13/15

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: GEOSYNTEC DATE: 01/13/15

TEMPERATURE: Thermometer ID: SC4 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 2.7 °C + 0.2 °C (CF) = 2.9 °C ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter Checked by: 426

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Checked by: 426

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Checked by: 426

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
Aqueous samples received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfides ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation noted on COC or sample container	☐	☐	☑
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☑8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Aqueous: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐1PB**na** ☐500PB

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Canister **Other:** ☐_____ **Trip Blank Lot#:**_____ Labeled/Checked by: 426

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope Reviewed by: SM

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:**$Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered Scanned by: SM

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WORK ORDER NUMBER: 15-01-0737

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Geosyntec Consultants

Client Project Name: Blossom Plaza Utility Trench Sampling / WR1777-04

Attention: Wendy Key
3043 Gold Canal Drive
Suite 201
Rancho Cordova, CA 95670-6394

Approved for release on 01/19/2015 by:
Stephen Nowak
Project Manager

ResultLink

Email your PM

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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Client Project Name: Blossom Plaza Utility Trench Sampling / WR1777-04
Work Order Number: 15-01-0737

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Work Order Narrative

Work Order: 15-01-0737 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 01/14/15. They were assigned to Work Order 15-01-0737.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

New York NELAP air certification does not certify for all reported methods and analytes, reference the accredited items here: http://www.calscience.com/PDF/New_York.pdf

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

All samples for EPA 8015B(M) Carbon Chain analysis were Silica Gel Treated.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

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Sample Summary

Client:	Geosyntec Consultants 3043 Gold Canal Drive, Suite 201 Rancho Cordova, CA 95670-6394	Work Order:	15-01-0737
		Project Name:	Blossom Plaza Utility Trench Sampling / WR1777-04
		PO Number:	
		Date/Time Received:	01/14/15 14:10
		Number of Containers:	5
Attn:	Wendy Key		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
T2-S-1	15-01-0737-1	01/14/15 01:00	1	Solid
T2-S-2	15-01-0737-2	01/14/15 01:15	1	Solid
T2-N-1	15-01-0737-3	01/14/15 01:45	1	Solid
T2-N-2	15-01-0737-4	01/14/15 02:00	1	Solid
Composite (T2-S-1, T2-S-2, T2-N-1, T2-N-2)	15-01-0737-5	01/14/15 00:00	1	Solid

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Analytical Report

Geosyntec Consultants		Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 1 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
T2-S-1	**15-01-0737-1-A**	**01/14/15 01:00**	**Solid**	**GC 48**	**01/15/15**	**01/15/15 16:12**	**150115B02**

Parameter	Result	RL	DF	Qualifiers
C6	ND	5.1	1.00	
C7	ND	5.1	1.00	
C8	ND	5.1	1.00	
C9-C10	ND	5.1	1.00	
C11-C12	ND	5.1	1.00	
C13-C14	ND	5.1	1.00	
C15-C16	ND	5.1	1.00	
C17-C18	ND	5.1	1.00	
C19-C20	ND	5.1	1.00	
C21-C22	ND	5.1	1.00	
C23-C24	ND	5.1	1.00	
C25-C28	ND	5.1	1.00	
C29-C32	ND	5.1	1.00	
C33-C36	ND	5.1	1.00	
C37-C40	ND	5.1	1.00	
C41-C44	ND	5.1	1.00	
C6-C44 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	84	61-145	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 2 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
T2-S-2	**15-01-0737-2-A**	**01/14/15 01:15**	**Solid**	**GC 48**	**01/15/15**	**01/15/15 16:29**	**150115B02**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C6	ND	5.0	1.00	
C7	ND	5.0	1.00	
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	5.6	5.0	1.00	
C21-C22	6.3	5.0	1.00	
C23-C24	10	5.0	1.00	
C25-C28	11	5.0	1.00	
C29-C32	38	5.0	1.00	
C33-C36	25	5.0	1.00	
C37-C40	28	5.0	1.00	
C41-C44	16	5.0	1.00	
C6-C44 Total	140	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	92	61-145	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 3 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
T2-N-1	**15-01-0737-3-A**	**01/14/15 01:45**	**Solid**	**GC 48**	**01/15/15**	**01/15/15 16:44**	**150115B02**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C6	ND	5.1	1.00	
C7	ND	5.1	1.00	
C8	ND	5.1	1.00	
C9-C10	ND	5.1	1.00	
C11-C12	ND	5.1	1.00	
C13-C14	ND	5.1	1.00	
C15-C16	ND	5.1	1.00	
C17-C18	ND	5.1	1.00	
C19-C20	ND	5.1	1.00	
C21-C22	ND	5.1	1.00	
C23-C24	ND	5.1	1.00	
C25-C28	5.2	5.1	1.00	
C29-C32	31	5.1	1.00	
C33-C36	32	5.1	1.00	
C37-C40	33	5.1	1.00	
C41-C44	30	5.1	1.00	
C6-C44 Total	130	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	95	61-145	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 4 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
T2-N-2	**15-01-0737-4-A**	**01/14/15 02:00**	**Solid**	**GC 48**	**01/15/15**	**01/15/15 17:01**	**150115B02**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C6	ND	4.9	1.00	
C7	ND	4.9	1.00	
C8	ND	4.9	1.00	
C9-C10	ND	4.9	1.00	
C11-C12	ND	4.9	1.00	
C13-C14	ND	4.9	1.00	
C15-C16	ND	4.9	1.00	
C17-C18	ND	4.9	1.00	
C19-C20	ND	4.9	1.00	
C21-C22	ND	4.9	1.00	
C23-C24	ND	4.9	1.00	
C25-C28	ND	4.9	1.00	
C29-C32	31	4.9	1.00	
C33-C36	37	4.9	1.00	
C37-C40	55	4.9	1.00	
C41-C44	45	4.9	1.00	
C6-C44 Total	170	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	101	61-145	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
		Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 5 of 5

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-15-490-1362**	**N/A**	**Solid**	**GC 48**	**01/15/15**	**01/15/15 15:08**	**150115B02**

Parameter	Result	RL	DF	Qualifiers
C6	ND	5.0	1.00	
C7	ND	5.0	1.00	
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C41-C44	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	72	61-145	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite (T2-S-1, T2-S-2, T2-N-1, T2-N-2)	**15-01-0737-5-A**	**01/14/15 00:00**	**Solid**	**ICP 7300**	**01/15/15**	**01/17/15 16:07**	**150115L02A**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.732	0.976	
Arsenic	2.85	0.732	0.976	
Barium	140	0.488	0.976	
Beryllium	0.405	0.244	0.976	
Cadmium	ND	0.488	0.976	
Chromium	12.6	0.244	0.976	
Cobalt	8.71	0.244	0.976	
Copper	17.5	0.488	0.976	
Lead	10.5	0.488	0.976	
Molybdenum	ND	0.244	0.976	
Nickel	15.8	0.244	0.976	
Selenium	ND	0.732	0.976	
Silver	ND	0.244	0.976	
Thallium	ND	0.732	0.976	
Vanadium	28.0	0.244	0.976	
Zinc	48.8	0.976	0.976	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394		Preparation:	EPA 3050B
		Method:	EPA 6010B
		Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**097-01-002-20172**	**N/A**	**Solid**	**ICP 7300**	**01/15/15**	**01/16/15 16:53**	**150115L02A**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.750	1.00	
Arsenic	ND	0.750	1.00	
Barium	ND	0.500	1.00	
Beryllium	ND	0.250	1.00	
Cadmium	ND	0.500	1.00	
Chromium	ND	0.250	1.00	
Cobalt	ND	0.250	1.00	
Copper	ND	0.500	1.00	
Lead	ND	0.500	1.00	
Molybdenum	ND	0.250	1.00	
Nickel	ND	0.250	1.00	
Selenium	ND	0.750	1.00	
Silver	ND	0.250	1.00	
Thallium	ND	0.750	1.00	
Vanadium	ND	0.250	1.00	
Zinc	ND	1.00	1.00	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
		Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite (T2-S-1, T2-S-2, T2-N-1, T2-N-2)	**15-01-0737-5-A**	**01/14/15 00:00**	**Solid**	**Mercury 05**	**01/15/15**	**01/15/15 15:16**	**150115L01**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0820	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-16-272-883**	**N/A**	**Solid**	**Mercury 05**	**01/15/15**	**01/15/15 14:43**	**150115L01**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0833	1.00	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394		Preparation:	EPA 3545
		Method:	EPA 8270C
		Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 1 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Composite (T2-S-1, T2-S-2, T2-N-1, T2-N-2)	**15-01-0737-5-A**	**01/14/15 00:00**	**Solid**	**GC/MS TT**	**01/14/15**	**01/15/15 16:57**	**150114L09**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	0.50	1.00	
Acenaphthylene	ND	0.50	1.00	
Aniline	ND	0.50	1.00	
Anthracene	ND	0.50	1.00	
Azobenzene	ND	0.50	1.00	
Benzidine	ND	10	1.00	
Benzo (a) Anthracene	ND	0.50	1.00	
Benzo (a) Pyrene	ND	0.50	1.00	
Benzo (b) Fluoranthene	ND	0.50	1.00	
Benzo (g,h,i) Perylene	ND	0.50	1.00	
Benzo (k) Fluoranthene	ND	0.50	1.00	
Benzoic Acid	ND	2.5	1.00	
Benzyl Alcohol	ND	0.50	1.00	
Bis(2-Chloroethoxy) Methane	ND	0.50	1.00	
Bis(2-Chloroethyl) Ether	ND	2.5	1.00	
Bis(2-Chloroisopropyl) Ether	ND	0.50	1.00	
Bis(2-Ethylhexyl) Phthalate	ND	0.50	1.00	
4-Bromophenyl-Phenyl Ether	ND	0.50	1.00	
Butyl Benzyl Phthalate	ND	0.50	1.00	
4-Chloro-3-Methylphenol	ND	0.50	1.00	
4-Chloroaniline	ND	0.50	1.00	
2-Chloronaphthalene	ND	0.50	1.00	
2-Chlorophenol	ND	0.50	1.00	
4-Chlorophenyl-Phenyl Ether	ND	0.50	1.00	
Chrysene	ND	0.50	1.00	
Di-n-Butyl Phthalate	ND	0.50	1.00	
Di-n-Octyl Phthalate	ND	0.50	1.00	
Dibenz (a,h) Anthracene	ND	0.50	1.00	
Dibenzofuran	ND	0.50	1.00	
1,2-Dichlorobenzene	ND	0.50	1.00	
1,3-Dichlorobenzene	ND	0.50	1.00	
1,4-Dichlorobenzene	ND	0.50	1.00	
3,3'-Dichlorobenzidine	ND	10	1.00	
2,4-Dichlorophenol	ND	0.50	1.00	
Diethyl Phthalate	ND	0.50	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants	Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394	Preparation:	EPA 3545
	Method:	EPA 8270C
	Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 2 of 6

Parameter	Result	RL	DF	Qualifiers
Dimethyl Phthalate	ND	0.50	1.00	
2,4-Dimethylphenol	ND	0.50	1.00	
4,6-Dinitro-2-Methylphenol	ND	2.5	1.00	
2,4-Dinitrophenol	ND	2.5	1.00	
2,4-Dinitrotoluene	ND	0.50	1.00	
2,6-Dinitrotoluene	ND	0.50	1.00	
Fluoranthene	ND	0.50	1.00	
Fluorene	ND	0.50	1.00	
Hexachloro-1,3-Butadiene	ND	0.50	1.00	
Hexachlorobenzene	ND	0.50	1.00	
Hexachlorocyclopentadiene	ND	2.5	1.00	
Hexachloroethane	ND	0.50	1.00	
Indeno (1,2,3-c,d) Pyrene	ND	0.50	1.00	
Isophorone	ND	0.50	1.00	
2-Methylnaphthalene	ND	0.50	1.00	
1-Methylnaphthalene	ND	0.50	1.00	
2-Methylphenol	ND	0.50	1.00	
3/4-Methylphenol	ND	0.50	1.00	
N-Nitroso-di-n-propylamine	ND	0.50	1.00	
N-Nitrosodimethylamine	ND	0.50	1.00	
N-Nitrosodiphenylamine	ND	0.50	1.00	
Naphthalene	ND	0.50	1.00	
4-Nitroaniline	ND	0.50	1.00	
3-Nitroaniline	ND	0.50	1.00	
2-Nitroaniline	ND	0.50	1.00	
Nitrobenzene	ND	2.5	1.00	
4-Nitrophenol	ND	0.50	1.00	
2-Nitrophenol	ND	0.50	1.00	
Pentachlorophenol	ND	2.5	1.00	
Phenanthrene	ND	0.50	1.00	
Phenol	ND	0.50	1.00	
Pyrene	ND	0.50	1.00	
Pyridine	ND	0.50	1.00	
1,2,4-Trichlorobenzene	ND	0.50	1.00	
2,4,6-Trichlorophenol	ND	0.50	1.00	
2,4,5-Trichlorophenol	ND	0.50	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	53	27-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants	Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394	Preparation:	EPA 3545
	Method:	EPA 8270C
	Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 3 of 6

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorophenol	79	25-120	
Nitrobenzene-d5	66	33-123	
p-Terphenyl-d14	73	27-159	
Phenol-d6	79	26-122	
2,4,6-Tribromophenol	91	18-138	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394		Preparation:	EPA 3545
		Method:	EPA 8270C
		Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 4 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-549-3169**	**N/A**	**Solid**	**GC/MS SS**	**01/14/15**	**01/14/15 22:32**	**150114L09**

Parameter	Result	RL	DF	Qualifiers
Acenaphthene	ND	0.50	1.00	
Acenaphthylene	ND	0.50	1.00	
Aniline	ND	0.50	1.00	
Anthracene	ND	0.50	1.00	
Azobenzene	ND	0.50	1.00	
Benzidine	ND	10	1.00	
Benzo (a) Anthracene	ND	0.50	1.00	
Benzo (a) Pyrene	ND	0.50	1.00	
Benzo (b) Fluoranthene	ND	0.50	1.00	
Benzo (g,h,i) Perylene	ND	0.50	1.00	
Benzo (k) Fluoranthene	ND	0.50	1.00	
Benzoic Acid	ND	2.5	1.00	
Benzyl Alcohol	ND	0.50	1.00	
Bis(2-Chloroethoxy) Methane	ND	0.50	1.00	
Bis(2-Chloroethyl) Ether	ND	2.5	1.00	
Bis(2-Chloroisopropyl) Ether	ND	0.50	1.00	
Bis(2-Ethylhexyl) Phthalate	ND	0.50	1.00	
4-Bromophenyl-Phenyl Ether	ND	0.50	1.00	
Butyl Benzyl Phthalate	ND	0.50	1.00	
4-Chloro-3-Methylphenol	ND	0.50	1.00	
4-Chloroaniline	ND	0.50	1.00	
2-Chloronaphthalene	ND	0.50	1.00	
2-Chlorophenol	ND	0.50	1.00	
4-Chlorophenyl-Phenyl Ether	ND	0.50	1.00	
Chrysene	ND	0.50	1.00	
Di-n-Butyl Phthalate	ND	0.50	1.00	
Di-n-Octyl Phthalate	ND	0.50	1.00	
Dibenz (a,h) Anthracene	ND	0.50	1.00	
Dibenzofuran	ND	0.50	1.00	
1,2-Dichlorobenzene	ND	0.50	1.00	
1,3-Dichlorobenzene	ND	0.50	1.00	
1,4-Dichlorobenzene	ND	0.50	1.00	
3,3'-Dichlorobenzidine	ND	10	1.00	
2,4-Dichlorophenol	ND	0.50	1.00	
Diethyl Phthalate	ND	0.50	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants	Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394	Preparation:	EPA 3545
	Method:	EPA 8270C
	Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 5 of 6

Parameter	Result	RL	DF	Qualifiers
Dimethyl Phthalate	ND	0.50	1.00	
2,4-Dimethylphenol	ND	0.50	1.00	
4,6-Dinitro-2-Methylphenol	ND	2.5	1.00	
2,4-Dinitrophenol	ND	2.5	1.00	
2,4-Dinitrotoluene	ND	0.50	1.00	
2,6-Dinitrotoluene	ND	0.50	1.00	
Fluoranthene	ND	0.50	1.00	
Fluorene	ND	0.50	1.00	
Hexachloro-1,3-Butadiene	ND	0.50	1.00	
Hexachlorobenzene	ND	0.50	1.00	
Hexachlorocyclopentadiene	ND	2.5	1.00	
Hexachloroethane	ND	0.50	1.00	
Indeno (1,2,3-c,d) Pyrene	ND	0.50	1.00	
Isophorone	ND	0.50	1.00	
2-Methylnaphthalene	ND	0.50	1.00	
1-Methylnaphthalene	ND	0.50	1.00	
2-Methylphenol	ND	0.50	1.00	
3/4-Methylphenol	ND	0.50	1.00	
N-Nitroso-di-n-propylamine	ND	0.50	1.00	
N-Nitrosodimethylamine	ND	0.50	1.00	
N-Nitrosodiphenylamine	ND	0.50	1.00	
Naphthalene	ND	0.50	1.00	
4-Nitroaniline	ND	0.50	1.00	
3-Nitroaniline	ND	0.50	1.00	
2-Nitroaniline	ND	0.50	1.00	
Nitrobenzene	ND	2.5	1.00	
4-Nitrophenol	ND	0.50	1.00	
2-Nitrophenol	ND	0.50	1.00	
Pentachlorophenol	ND	2.5	1.00	
Phenanthrene	ND	0.50	1.00	
Phenol	ND	0.50	1.00	
Pyrene	ND	0.50	1.00	
Pyridine	ND	0.50	1.00	
1,2,4-Trichlorobenzene	ND	0.50	1.00	
2,4,6-Trichlorophenol	ND	0.50	1.00	
2,4,5-Trichlorophenol	ND	0.50	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorobiphenyl	61	27-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants	Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394	Preparation:	EPA 3545
	Method:	EPA 8270C
	Units:	mg/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 6 of 6

Surrogate	Rec. (%)	Control Limits	Qualifiers
2-Fluorophenol	75	25-120	
Nitrobenzene-d5	62	33-123	
p-Terphenyl-d14	69	27-159	
Phenol-d6	75	26-122	
2,4,6-Tribromophenol	75	18-138	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 1 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
T2-S-1	**15-01-0737-1-A**	**01/14/15 01:00**	**Solid**	**GC/MS RR**	**01/14/15**	**01/15/15 01:55**	**150114L034**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	130	1.00	
Benzene	ND	5.1	1.00	
Bromobenzene	ND	5.1	1.00	
Bromochloromethane	ND	5.1	1.00	
Bromodichloromethane	ND	5.1	1.00	
Bromoform	ND	5.1	1.00	
Bromomethane	ND	26	1.00	
2-Butanone	ND	51	1.00	
n-Butylbenzene	ND	5.1	1.00	
sec-Butylbenzene	ND	5.1	1.00	
tert-Butylbenzene	ND	5.1	1.00	
Carbon Disulfide	ND	51	1.00	
Carbon Tetrachloride	ND	5.1	1.00	
Chlorobenzene	ND	5.1	1.00	
Chloroethane	ND	5.1	1.00	
Chloroform	ND	5.1	1.00	
Chloromethane	ND	26	1.00	
2-Chlorotoluene	ND	5.1	1.00	
4-Chlorotoluene	ND	5.1	1.00	
Dibromochloromethane	ND	5.1	1.00	
1,2-Dibromo-3-Chloropropane	ND	10	1.00	
1,2-Dibromoethane	ND	5.1	1.00	
Dibromomethane	ND	5.1	1.00	
1,2-Dichlorobenzene	ND	5.1	1.00	
1,3-Dichlorobenzene	ND	5.1	1.00	
1,4-Dichlorobenzene	ND	5.1	1.00	
Dichlorodifluoromethane	ND	5.1	1.00	
1,1-Dichloroethane	ND	5.1	1.00	
1,2-Dichloroethane	ND	5.1	1.00	
1,1-Dichloroethene	ND	5.1	1.00	
c-1,2-Dichloroethene	ND	5.1	1.00	
t-1,2-Dichloroethene	ND	5.1	1.00	
1,2-Dichloropropane	ND	5.1	1.00	
1,3-Dichloropropane	ND	5.1	1.00	
2,2-Dichloropropane	ND	5.1	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants	Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394	Preparation:	EPA 5030C
	Method:	EPA 8260B
	Units:	ug/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 2 of 10

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	5.1	1.00	
c-1,3-Dichloropropene	ND	5.1	1.00	
t-1,3-Dichloropropene	ND	5.1	1.00	
Ethylbenzene	ND	5.1	1.00	
2-Hexanone	ND	51	1.00	
Isopropylbenzene	ND	5.1	1.00	
p-Isopropyltoluene	ND	5.1	1.00	
Methylene Chloride	ND	51	1.00	
4-Methyl-2-Pentanone	ND	51	1.00	
Naphthalene	ND	51	1.00	
n-Propylbenzene	ND	5.1	1.00	
Styrene	ND	5.1	1.00	
1,1,1,2-Tetrachloroethane	ND	5.1	1.00	
1,1,2,2-Tetrachloroethane	ND	5.1	1.00	
Tetrachloroethene	ND	5.1	1.00	
Toluene	ND	5.1	1.00	
1,2,3-Trichlorobenzene	ND	10	1.00	
1,2,4-Trichlorobenzene	ND	5.1	1.00	
1,1,1-Trichloroethane	ND	5.1	1.00	
1,1,2-Trichloroethane	ND	5.1	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	51	1.00	
Trichloroethene	ND	5.1	1.00	
1,2,3-Trichloropropane	ND	5.1	1.00	
1,2,4-Trimethylbenzene	ND	5.1	1.00	
Trichlorofluoromethane	ND	51	1.00	
1,3,5-Trimethylbenzene	ND	5.1	1.00	
Vinyl Acetate	ND	51	1.00	
Vinyl Chloride	ND	5.1	1.00	
p/m-Xylene	ND	5.1	1.00	
o-Xylene	ND	5.1	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	5.1	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	90	60-132	
Dibromofluoromethane	106	63-141	
1,2-Dichloroethane-d4	104	62-146	
Toluene-d8	101	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 3 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
T2-S-2	**15-01-0737-2-A**	**01/14/15 01:15**	**Solid**	**GC/MS RR**	**01/14/15**	**01/15/15 02:22**	**150114L034**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	120	1.00	
Benzene	ND	4.9	1.00	
Bromobenzene	ND	4.9	1.00	
Bromochloromethane	ND	4.9	1.00	
Bromodichloromethane	ND	4.9	1.00	
Bromoform	ND	4.9	1.00	
Bromomethane	ND	25	1.00	
2-Butanone	ND	49	1.00	
n-Butylbenzene	ND	4.9	1.00	
sec-Butylbenzene	ND	4.9	1.00	
tert-Butylbenzene	ND	4.9	1.00	
Carbon Disulfide	ND	49	1.00	
Carbon Tetrachloride	ND	4.9	1.00	
Chlorobenzene	ND	4.9	1.00	
Chloroethane	ND	4.9	1.00	
Chloroform	ND	4.9	1.00	
Chloromethane	ND	25	1.00	
2-Chlorotoluene	ND	4.9	1.00	
4-Chlorotoluene	ND	4.9	1.00	
Dibromochloromethane	ND	4.9	1.00	
1,2-Dibromo-3-Chloropropane	ND	9.8	1.00	
1,2-Dibromoethane	ND	4.9	1.00	
Dibromomethane	ND	4.9	1.00	
1,2-Dichlorobenzene	ND	4.9	1.00	
1,3-Dichlorobenzene	ND	4.9	1.00	
1,4-Dichlorobenzene	ND	4.9	1.00	
Dichlorodifluoromethane	ND	4.9	1.00	
1,1-Dichloroethane	ND	4.9	1.00	
1,2-Dichloroethane	ND	4.9	1.00	
1,1-Dichloroethene	ND	4.9	1.00	
c-1,2-Dichloroethene	ND	4.9	1.00	
t-1,2-Dichloroethene	ND	4.9	1.00	
1,2-Dichloropropane	ND	4.9	1.00	
1,3-Dichloropropane	ND	4.9	1.00	
2,2-Dichloropropane	ND	4.9	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants	Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394	Preparation:	EPA 5030C
	Method:	EPA 8260B
	Units:	ug/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 4 of 10

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	4.9	1.00	
c-1,3-Dichloropropene	ND	4.9	1.00	
t-1,3-Dichloropropene	ND	4.9	1.00	
Ethylbenzene	ND	4.9	1.00	
2-Hexanone	ND	49	1.00	
Isopropylbenzene	ND	4.9	1.00	
p-Isopropyltoluene	ND	4.9	1.00	
Methylene Chloride	ND	49	1.00	
4-Methyl-2-Pentanone	ND	49	1.00	
Naphthalene	ND	49	1.00	
n-Propylbenzene	ND	4.9	1.00	
Styrene	ND	4.9	1.00	
1,1,1,2-Tetrachloroethane	ND	4.9	1.00	
1,1,2,2-Tetrachloroethane	ND	4.9	1.00	
Tetrachloroethene	ND	4.9	1.00	
Toluene	ND	4.9	1.00	
1,2,3-Trichlorobenzene	ND	9.8	1.00	
1,2,4-Trichlorobenzene	ND	4.9	1.00	
1,1,1-Trichloroethane	ND	4.9	1.00	
1,1,2-Trichloroethane	ND	4.9	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	49	1.00	
Trichloroethene	ND	4.9	1.00	
1,2,3-Trichloropropane	ND	4.9	1.00	
1,2,4-Trimethylbenzene	ND	4.9	1.00	
Trichlorofluoromethane	ND	49	1.00	
1,3,5-Trimethylbenzene	ND	4.9	1.00	
Vinyl Acetate	ND	49	1.00	
Vinyl Chloride	ND	4.9	1.00	
p/m-Xylene	ND	4.9	1.00	
o-Xylene	ND	4.9	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	4.9	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	88	60-132	
Dibromofluoromethane	106	63-141	
1,2-Dichloroethane-d4	106	62-146	
Toluene-d8	100	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 5 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
T2-N-1	**15-01-0737-3-A**	**01/14/15 01:45**	**Solid**	**GC/MS RR**	**01/14/15**	**01/15/15 02:49**	**150114L034**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	120	1.00	
Benzene	ND	5.0	1.00	
Bromobenzene	ND	5.0	1.00	
Bromochloromethane	ND	5.0	1.00	
Bromodichloromethane	ND	5.0	1.00	
Bromoform	ND	5.0	1.00	
Bromomethane	ND	25	1.00	
2-Butanone	ND	50	1.00	
n-Butylbenzene	ND	5.0	1.00	
sec-Butylbenzene	ND	5.0	1.00	
tert-Butylbenzene	ND	5.0	1.00	
Carbon Disulfide	ND	50	1.00	
Carbon Tetrachloride	ND	5.0	1.00	
Chlorobenzene	ND	5.0	1.00	
Chloroethane	ND	5.0	1.00	
Chloroform	ND	5.0	1.00	
Chloromethane	ND	25	1.00	
2-Chlorotoluene	ND	5.0	1.00	
4-Chlorotoluene	ND	5.0	1.00	
Dibromochloromethane	ND	5.0	1.00	
1,2-Dibromo-3-Chloropropane	ND	9.9	1.00	
1,2-Dibromoethane	ND	5.0	1.00	
Dibromomethane	ND	5.0	1.00	
1,2-Dichlorobenzene	ND	5.0	1.00	
1,3-Dichlorobenzene	ND	5.0	1.00	
1,4-Dichlorobenzene	ND	5.0	1.00	
Dichlorodifluoromethane	ND	5.0	1.00	
1,1-Dichloroethane	ND	5.0	1.00	
1,2-Dichloroethane	ND	5.0	1.00	
1,1-Dichloroethene	ND	5.0	1.00	
c-1,2-Dichloroethene	ND	5.0	1.00	
t-1,2-Dichloroethene	ND	5.0	1.00	
1,2-Dichloropropane	ND	5.0	1.00	
1,3-Dichloropropane	ND	5.0	1.00	
2,2-Dichloropropane	ND	5.0	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants	Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394	Preparation:	EPA 5030C
	Method:	EPA 8260B
	Units:	ug/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 6 of 10

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	5.0	1.00	
c-1,3-Dichloropropene	ND	5.0	1.00	
t-1,3-Dichloropropene	ND	5.0	1.00	
Ethylbenzene	ND	5.0	1.00	
2-Hexanone	ND	50	1.00	
Isopropylbenzene	ND	5.0	1.00	
p-Isopropyltoluene	ND	5.0	1.00	
Methylene Chloride	ND	50	1.00	
4-Methyl-2-Pentanone	ND	50	1.00	
Naphthalene	ND	50	1.00	
n-Propylbenzene	ND	5.0	1.00	
Styrene	ND	5.0	1.00	
1,1,1,2-Tetrachloroethane	ND	5.0	1.00	
1,1,2,2-Tetrachloroethane	ND	5.0	1.00	
Tetrachloroethene	ND	5.0	1.00	
Toluene	ND	5.0	1.00	
1,2,3-Trichlorobenzene	ND	9.9	1.00	
1,2,4-Trichlorobenzene	ND	5.0	1.00	
1,1,1-Trichloroethane	ND	5.0	1.00	
1,1,2-Trichloroethane	ND	5.0	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50	1.00	
Trichloroethene	ND	5.0	1.00	
1,2,3-Trichloropropane	ND	5.0	1.00	
1,2,4-Trimethylbenzene	ND	5.0	1.00	
Trichlorofluoromethane	ND	50	1.00	
1,3,5-Trimethylbenzene	ND	5.0	1.00	
Vinyl Acetate	ND	50	1.00	
Vinyl Chloride	ND	5.0	1.00	
p/m-Xylene	ND	5.0	1.00	
o-Xylene	ND	5.0	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	91	60-132	
Dibromofluoromethane	107	63-141	
1,2-Dichloroethane-d4	104	62-146	
Toluene-d8	100	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 7 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
T2-N-2	**15-01-0737-4-A**	**01/14/15 02:00**	**Solid**	**GC/MS RR**	**01/14/15**	**01/15/15 03:17**	**150114L034**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	130	1.00	
Benzene	ND	5.0	1.00	
Bromobenzene	ND	5.0	1.00	
Bromochloromethane	ND	5.0	1.00	
Bromodichloromethane	ND	5.0	1.00	
Bromoform	ND	5.0	1.00	
Bromomethane	ND	25	1.00	
2-Butanone	ND	50	1.00	
n-Butylbenzene	ND	5.0	1.00	
sec-Butylbenzene	ND	5.0	1.00	
tert-Butylbenzene	ND	5.0	1.00	
Carbon Disulfide	ND	50	1.00	
Carbon Tetrachloride	ND	5.0	1.00	
Chlorobenzene	ND	5.0	1.00	
Chloroethane	ND	5.0	1.00	
Chloroform	ND	5.0	1.00	
Chloromethane	ND	25	1.00	
2-Chlorotoluene	ND	5.0	1.00	
4-Chlorotoluene	ND	5.0	1.00	
Dibromochloromethane	ND	5.0	1.00	
1,2-Dibromo-3-Chloropropane	ND	10	1.00	
1,2-Dibromoethane	ND	5.0	1.00	
Dibromomethane	ND	5.0	1.00	
1,2-Dichlorobenzene	ND	5.0	1.00	
1,3-Dichlorobenzene	ND	5.0	1.00	
1,4-Dichlorobenzene	ND	5.0	1.00	
Dichlorodifluoromethane	ND	5.0	1.00	
1,1-Dichloroethane	ND	5.0	1.00	
1,2-Dichloroethane	ND	5.0	1.00	
1,1-Dichloroethene	ND	5.0	1.00	
c-1,2-Dichloroethene	ND	5.0	1.00	
t-1,2-Dichloroethene	ND	5.0	1.00	
1,2-Dichloropropane	ND	5.0	1.00	
1,3-Dichloropropane	ND	5.0	1.00	
2,2-Dichloropropane	ND	5.0	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants	Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394	Preparation:	EPA 5030C
	Method:	EPA 8260B
	Units:	ug/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 8 of 10

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	5.0	1.00	
c-1,3-Dichloropropene	ND	5.0	1.00	
t-1,3-Dichloropropene	ND	5.0	1.00	
Ethylbenzene	ND	5.0	1.00	
2-Hexanone	ND	50	1.00	
Isopropylbenzene	ND	5.0	1.00	
p-Isopropyltoluene	ND	5.0	1.00	
Methylene Chloride	ND	50	1.00	
4-Methyl-2-Pentanone	ND	50	1.00	
Naphthalene	ND	50	1.00	
n-Propylbenzene	ND	5.0	1.00	
Styrene	ND	5.0	1.00	
1,1,1,2-Tetrachloroethane	ND	5.0	1.00	
1,1,2,2-Tetrachloroethane	ND	5.0	1.00	
Tetrachloroethene	ND	5.0	1.00	
Toluene	ND	5.0	1.00	
1,2,3-Trichlorobenzene	ND	10	1.00	
1,2,4-Trichlorobenzene	ND	5.0	1.00	
1,1,1-Trichloroethane	ND	5.0	1.00	
1,1,2-Trichloroethane	ND	5.0	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50	1.00	
Trichloroethene	ND	5.0	1.00	
1,2,3-Trichloropropane	ND	5.0	1.00	
1,2,4-Trimethylbenzene	ND	5.0	1.00	
Trichlorofluoromethane	ND	50	1.00	
1,3,5-Trimethylbenzene	ND	5.0	1.00	
Vinyl Acetate	ND	50	1.00	
Vinyl Chloride	ND	5.0	1.00	
p/m-Xylene	ND	5.0	1.00	
o-Xylene	ND	5.0	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	89	60-132	
Dibromofluoromethane	110	63-141	
1,2-Dichloroethane-d4	107	62-146	
Toluene-d8	101	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants		Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394		Preparation:	EPA 5030C
		Method:	EPA 8260B
		Units:	ug/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 9 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-796-9275**	**N/A**	**Solid**	**GC/MS RR**	**01/14/15**	**01/15/15 01:00**	**150114L034**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	120	1.00	
Benzene	ND	5.0	1.00	
Bromobenzene	ND	5.0	1.00	
Bromochloromethane	ND	5.0	1.00	
Bromodichloromethane	ND	5.0	1.00	
Bromoform	ND	5.0	1.00	
Bromomethane	ND	25	1.00	
2-Butanone	ND	50	1.00	
n-Butylbenzene	ND	5.0	1.00	
sec-Butylbenzene	ND	5.0	1.00	
tert-Butylbenzene	ND	5.0	1.00	
Carbon Disulfide	ND	50	1.00	
Carbon Tetrachloride	ND	5.0	1.00	
Chlorobenzene	ND	5.0	1.00	
Chloroethane	ND	5.0	1.00	
Chloroform	ND	5.0	1.00	
Chloromethane	ND	25	1.00	
2-Chlorotoluene	ND	5.0	1.00	
4-Chlorotoluene	ND	5.0	1.00	
Dibromochloromethane	ND	5.0	1.00	
1,2-Dibromo-3-Chloropropane	ND	10	1.00	
1,2-Dibromoethane	ND	5.0	1.00	
Dibromomethane	ND	5.0	1.00	
1,2-Dichlorobenzene	ND	5.0	1.00	
1,3-Dichlorobenzene	ND	5.0	1.00	
1,4-Dichlorobenzene	ND	5.0	1.00	
Dichlorodifluoromethane	ND	5.0	1.00	
1,1-Dichloroethane	ND	5.0	1.00	
1,2-Dichloroethane	ND	5.0	1.00	
1,1-Dichloroethene	ND	5.0	1.00	
c-1,2-Dichloroethene	ND	5.0	1.00	
t-1,2-Dichloroethene	ND	5.0	1.00	
1,2-Dichloropropane	ND	5.0	1.00	
1,3-Dichloropropane	ND	5.0	1.00	
2,2-Dichloropropane	ND	5.0	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Geosyntec Consultants	Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394	Preparation:	EPA 5030C
	Method:	EPA 8260B
	Units:	ug/kg
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 10 of 10

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	5.0	1.00	
c-1,3-Dichloropropene	ND	5.0	1.00	
t-1,3-Dichloropropene	ND	5.0	1.00	
Ethylbenzene	ND	5.0	1.00	
2-Hexanone	ND	50	1.00	
Isopropylbenzene	ND	5.0	1.00	
p-Isopropyltoluene	ND	5.0	1.00	
Methylene Chloride	ND	50	1.00	
4-Methyl-2-Pentanone	ND	50	1.00	
Naphthalene	ND	50	1.00	
n-Propylbenzene	ND	5.0	1.00	
Styrene	ND	5.0	1.00	
1,1,1,2-Tetrachloroethane	ND	5.0	1.00	
1,1,2,2-Tetrachloroethane	ND	5.0	1.00	
Tetrachloroethene	ND	5.0	1.00	
Toluene	ND	5.0	1.00	
1,2,3-Trichlorobenzene	ND	10	1.00	
1,2,4-Trichlorobenzene	ND	5.0	1.00	
1,1,1-Trichloroethane	ND	5.0	1.00	
1,1,2-Trichloroethane	ND	5.0	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50	1.00	
Trichloroethene	ND	5.0	1.00	
1,2,3-Trichloropropane	ND	5.0	1.00	
1,2,4-Trimethylbenzene	ND	5.0	1.00	
Trichlorofluoromethane	ND	50	1.00	
1,3,5-Trimethylbenzene	ND	5.0	1.00	
Vinyl Acetate	ND	50	1.00	
Vinyl Chloride	ND	5.0	1.00	
p/m-Xylene	ND	5.0	1.00	
o-Xylene	ND	5.0	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	91	60-132	
Dibromofluoromethane	106	63-141	
1,2-Dichloroethane-d4	102	62-146	
Toluene-d8	100	80-120	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - Spike/Spike Duplicate

Geosyntec Consultants	Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394	Preparation:	EPA 3550B
	Method:	EPA 8015B (M)
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 1 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
T2-S-1	**Sample**	**Solid**	**GC 48**	**01/15/15**	**01/15/15 16:12**	**150115S02**
T2-S-1	**Matrix Spike**	**Solid**	**GC 48**	**01/15/15**	**01/15/15 15:40**	**150115S02**
T2-S-1	**Matrix Spike Duplicate**	**Solid**	**GC 48**	**01/15/15**	**01/15/15 15:56**	**150115S02**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TPH as Diesel	ND	400.0	430.3	108	454.2	114	64-130	5	0-15	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Spike/Spike Duplicate

Geosyntec Consultants	Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394	Preparation:	EPA 3050B
	Method:	EPA 6010B
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 2 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
15-01-0795-1	**Sample**	**Solid**	**ICP 7300**	**01/15/15**	**01/15/15 19:38**	**150115S02**
15-01-0795-1	**Matrix Spike**	**Solid**	**ICP 7300**	**01/15/15**	**01/15/15 19:39**	**150115S02**
15-01-0795-1	**Matrix Spike Duplicate**	**Solid**	**ICP 7300**	**01/15/15**	**01/15/15 19:40**	**150115S02**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Antimony	ND	25.00	6.569	26	6.395	26	50-115	3	0-20	3
Arsenic	7.584	25.00	33.50	104	33.29	103	75-125	1	0-20	
Barium	118.5	25.00	139.1	4X	142.0	4X	75-125	4X	0-20	Q
Beryllium	0.3598	25.00	28.13	111	28.34	112	75-125	1	0-20	
Cadmium	ND	25.00	27.48	110	27.40	110	75-125	0	0-20	
Chromium	16.27	25.00	45.67	118	44.64	113	75-125	2	0-20	
Cobalt	11.87	25.00	41.00	117	40.58	115	75-125	1	0-20	
Copper	21.35	25.00	48.36	108	47.55	105	75-125	2	0-20	
Lead	19.01	25.00	49.57	122	51.02	128	75-125	3	0-20	3
Molybdenum	ND	25.00	26.08	104	25.85	103	75-125	1	0-20	
Nickel	14.15	25.00	42.33	113	41.60	110	75-125	2	0-20	
Selenium	ND	25.00	23.91	96	23.50	94	75-125	2	0-20	
Silver	ND	12.50	10.26	82	11.59	93	75-125	12	0-20	
Thallium	ND	25.00	7.466	30	7.260	29	75-125	3	0-20	3
Vanadium	34.37	25.00	60.47	104	59.97	102	75-125	1	0-20	
Zinc	62.01	25.00	87.93	104	87.64	103	75-125	0	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Spike/Spike Duplicate

Geosyntec Consultants	Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394	Preparation:	EPA 7471A Total
	Method:	EPA 7471A
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 3 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
15-01-0757-1	**Sample**	**Solid**	**Mercury 05**	**01/15/15**	**01/15/15 14:47**	**150115S01**
15-01-0757-1	**Matrix Spike**	**Solid**	**Mercury 05**	**01/15/15**	**01/15/15 14:49**	**150115S01**
15-01-0757-1	**Matrix Spike Duplicate**	**Solid**	**Mercury 05**	**01/15/15**	**01/15/15 14:52**	**150115S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.8350	0.9837	118	0.9552	114	71-137	3	0-14	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Spike/Spike Duplicate

Geosyntec Consultants	Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394	Preparation:	EPA 3545
	Method:	EPA 8270C
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 4 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
15-01-0580-6	**Sample**	**Solid**	**GC/MS SS**	**01/14/15**	**01/14/15 21:35**	**150114S09**
15-01-0580-6	**Matrix Spike**	**Solid**	**GC/MS SS**	**01/14/15**	**01/14/15 21:54**	**150114S09**
15-01-0580-6	**Matrix Spike Duplicate**	**Solid**	**GC/MS SS**	**01/14/15**	**01/14/15 22:13**	**150114S09**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Acenaphthene	ND	10.00	6.796	68	7.838	78	34-148	14	0-20	
Acenaphthylene	ND	10.00	6.840	68	7.748	77	53-120	12	0-20	
Butyl Benzyl Phthalate	ND	10.00	8.038	80	8.918	89	15-189	10	0-20	
4-Chloro-3-Methylphenol	ND	10.00	7.251	73	8.388	84	32-120	15	0-20	
2-Chlorophenol	ND	10.00	7.356	74	8.637	86	53-120	16	0-20	
1,4-Dichlorobenzene	ND	10.00	6.652	67	7.519	75	43-120	12	0-26	
Dimethyl Phthalate	ND	10.00	6.843	68	7.829	78	44-122	13	0-20	
2,4-Dinitrotoluene	ND	10.00	7.535	75	8.884	89	28-120	16	0-20	
Fluorene	ND	10.00	7.072	71	8.072	81	12-186	13	0-20	
N-Nitroso-di-n-propylamine	ND	10.00	6.740	67	7.713	77	38-140	13	0-20	
Naphthalene	ND	10.00	6.698	67	7.582	76	20-140	12	0-20	
4-Nitrophenol	ND	10.00	6.403	64	7.666	77	14-128	18	0-59	
Pentachlorophenol	ND	10.00	6.058	61	7.383	74	10-124	20	0-20	
Phenol	ND	10.00	7.035	70	8.189	82	22-124	15	0-20	
Pyrene	ND	10.00	7.766	78	8.537	85	31-169	9	0-20	
1,2,4-Trichlorobenzene	ND	10.00	6.970	70	7.851	79	56-120	12	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Spike/Spike Duplicate

Geosyntec Consultants	Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394	Preparation:	EPA 5030C
	Method:	EPA 8260B
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 5 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
T2-S-1	**Sample**	**Solid**	**GC/MS RR**	**01/14/15**	**01/15/15 01:55**	**150114S020**
T2-S-1	**Matrix Spike**	**Solid**	**GC/MS RR**	**01/14/15**	**01/15/15 03:44**	**150114S020**
T2-S-1	**Matrix Spike Duplicate**	**Solid**	**GC/MS RR**	**01/14/15**	**01/15/15 04:11**	**150114S020**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Benzene	ND	50.00	45.89	92	42.82	86	61-127	7	0-20	
Carbon Tetrachloride	ND	50.00	44.54	89	41.72	83	51-135	7	0-29	
Chlorobenzene	ND	50.00	40.15	80	38.91	78	57-123	3	0-20	
1,2-Dibromoethane	ND	50.00	37.68	75	35.81	72	64-124	5	0-20	
1,2-Dichlorobenzene	ND	50.00	32.84	66	32.66	65	35-131	1	0-25	
1,2-Dichloroethane	ND	50.00	40.72	81	38.07	76	80-120	7	0-20	3
1,1-Dichloroethene	ND	50.00	39.46	79	36.86	74	47-143	7	0-25	
Ethylbenzene	ND	50.00	41.47	83	39.99	80	57-129	4	0-22	
Toluene	ND	50.00	43.95	88	41.58	83	63-123	6	0-20	
Trichloroethene	ND	50.00	42.34	85	40.15	80	44-158	5	0-20	
Vinyl Chloride	ND	50.00	44.50	89	40.80	82	49-139	9	0-47	
p/m-Xylene	ND	100.0	81.55	82	78.81	79	70-130	3	0-30	
o-Xylene	ND	50.00	40.46	81	39.34	79	70-130	3	0-30	
Methyl-t-Butyl Ether (MTBE)	ND	50.00	34.40	69	32.39	65	57-123	6	0-21	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Geosyntec Consultants		Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394		Preparation:	EPA 3550B
		Method:	EPA 8015B (M)
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 1 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-15-490-1362	**LCS**	**Solid**	**GC 48**	**01/15/15**	**01/15/15 15:23**	**150115B02**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
TPH as Diesel	400.0	374.3	94	75-123	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Geosyntec Consultants	Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201	Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394	Preparation:	EPA 3050B
	Method:	EPA 6010B
Project: Blossom Plaza Utility Trench Sampling / WR1777-04		Page 2 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
097-01-002-20172	**LCS**	**Solid**	**ICP 7300**	**01/15/15**	**01/15/15 18:21**	**150115L02A**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Antimony	25.00	23.05	92	80-120	73-127	
Arsenic	25.00	25.08	100	80-120	73-127	
Barium	25.00	24.12	96	80-120	73-127	
Beryllium	25.00	23.06	92	80-120	73-127	
Cadmium	25.00	25.17	101	80-120	73-127	
Chromium	25.00	24.37	97	80-120	73-127	
Cobalt	25.00	24.35	97	80-120	73-127	
Copper	25.00	24.31	97	80-120	73-127	
Lead	25.00	25.04	100	80-120	73-127	
Molybdenum	25.00	23.34	93	80-120	73-127	
Nickel	25.00	24.12	96	80-120	73-127	
Selenium	25.00	22.11	88	80-120	73-127	
Silver	12.50	11.06	88	80-120	73-127	
Thallium	25.00	24.11	96	80-120	73-127	
Vanadium	25.00	23.79	95	80-120	73-127	
Zinc	25.00	23.96	96	80-120	73-127	

Total number of LCS compounds: 16
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Geosyntec Consultants		Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394		Preparation:	EPA 7471A Total
		Method:	EPA 7471A
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 3 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-272-883	**LCS**	**Solid**	**Mercury 05**	**01/15/15**	**01/15/15 14:45**	**150115L01**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Mercury	0.8350	0.9828	118	85-121	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Geosyntec Consultants		Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394		Preparation:	EPA 3545
		Method:	EPA 8270C
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 4 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-12-549-3169	**LCS**	**Solid**	**GC/MS SS**	**01/14/15**	**01/14/15 22:52**	**150114L09**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Acenaphthene	10.00	6.890	69	51-123	39-135	
Acenaphthylene	10.00	6.847	68	52-120	41-131	
Butyl Benzyl Phthalate	10.00	8.204	82	43-139	27-155	
4-Chloro-3-Methylphenol	10.00	6.994	70	55-121	44-132	
2-Chlorophenol	10.00	7.059	71	58-124	47-135	
1,4-Dichlorobenzene	10.00	6.538	65	42-132	27-147	
Dimethyl Phthalate	10.00	6.698	67	51-123	39-135	
2,4-Dinitrotoluene	10.00	7.486	75	51-129	38-142	
Fluorene	10.00	7.138	71	54-126	42-138	
N-Nitroso-di-n-propylamine	10.00	6.548	65	40-136	24-152	
Naphthalene	10.00	6.551	66	32-146	13-165	
4-Nitrophenol	10.00	6.236	62	24-126	7-143	
Pentachlorophenol	10.00	5.763	58	23-131	5-149	
Phenol	10.00	6.795	68	40-130	25-145	
Pyrene	10.00	7.834	78	47-143	31-159	
1,2,4-Trichlorobenzene	10.00	6.812	68	45-129	31-143	

Total number of LCS compounds: 16
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Geosyntec Consultants		Date Received:	01/14/15
3043 Gold Canal Drive, Suite 201		Work Order:	15-01-0737
Rancho Cordova, CA 95670-6394		Preparation:	EPA 5030C
		Method:	EPA 8260B
Project: Blossom Plaza Utility Trench Sampling / WR1777-04			Page 5 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-12-796-9275	**LCS**	**Solid**	**GC/MS RR**	**01/14/15**	**01/15/15 00:06**	**150114L034**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Benzene	50.00	55.98	112	78-120	71-127	
Carbon Tetrachloride	50.00	54.40	109	49-139	34-154	
Chlorobenzene	50.00	53.48	107	79-120	72-127	
1,2-Dibromoethane	50.00	51.61	103	80-120	73-127	
1,2-Dichlorobenzene	50.00	50.38	101	75-120	68-128	
1,2-Dichloroethane	50.00	52.17	104	80-120	73-127	
1,1-Dichloroethene	50.00	45.27	91	74-122	66-130	
Ethylbenzene	50.00	53.68	107	76-120	69-127	
Toluene	50.00	53.87	108	77-120	70-127	
Trichloroethene	50.00	49.89	100	80-120	73-127	
Vinyl Chloride	50.00	50.36	101	68-122	59-131	
p/m-Xylene	100.0	106.4	106	75-125	67-133	
o-Xylene	50.00	54.15	108	75-125	67-133	
Methyl-t-Butyl Ether (MTBE)	50.00	47.05	94	77-120	70-127	

Total number of LCS compounds: 14
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 15-01-0737 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA 6010B	EPA 3050B	771	ICP 7300	1
EPA 7471A	EPA 7471A Total	915	Mercury 05	1
EPA 8015B (M)	EPA 3550B	682	GC 48	1
EPA 8260B	EPA 5030C	796	GC/MS RR	2
EPA 8270C	EPA 3545	923	GC/MS TT	1

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Glossary of Terms and Qualifiers

Work Order: 15-01-0737 Page 1 of 1

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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7440 Lincoln Way, Garden Grove, CA 92841-1427 • (714) 895-5494
For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

CHAIN-OF-CUSTODY RECORD

WO NO. / LAB USE ONLY: **15-01-0737**

DATE: 1/13/15
PAGE: 1 OF 1

LABORATORY CLIENT: GEOSYNTEC CONSULTANTS
ADDRESS: 3043 Gold Canal Drive, Ste 201
CITY: Rancho Cordova, STATE: Ca ZIP: 95670
TEL: 916-637-8226 E-MAIL: wkey@geosyntec.com

CLIENT PROJECT NAME / NO.: Blossom Plaza Utility Trench Sampling / WR1777/04
P.O. NO.:
PROJECT CONTACT: WENDY KEY
LAB CONTACT OR QUOTE NO.:
GLOBAL ID:
LOG CODE:
SAMPLER(S): (PRINT) RACHEL RAGOO

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):
☐ SAME DAY ☐ 24 HR ☐ 48 HR ☒ 72 HR ☐ 5 DAYS ☐ STANDARD

EDD:
☐ COELT EDF ☐ OTHER

SPECIAL INSTRUCTIONS:
For T22 Metals (6010B/7471) and SVOCs (8270C), composite T2-S-1, T2-S-2, T2-N-1, T2-N-2

For TPH (8015) and VOCs (8260), analyze samples discretely: T2-S-1, T2-S-2, T2-N-1, T2-N-2

Hold samples for composite analysis of PCBs (8082) and STLC/TCLP for Lead for T2-S-1, T2-S-2, T2-N-1, T2-N-2

REQUESTED ANALYSES

Please check box or fill in blank as needed.

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH(g) ☐ GRO	TPH(d) ☐ DRO	TPH ☐ C6-C36 / C6-C44	TPH ____	BTEX / MTBE ☐ 8260 ☐ ____	VOCs (8260)	Oxygenates (8260)	Prep (5035) ☐ En Core ☐ Terra Core	SVOCs (8270)	Pesticides (8081)	PCBs (8082) [Hold for Analysis]	PAHs ☐ 8270 ☐ 8270 SIM	T22 Metals ☐ 6010/747X ☐ 6020/747X	Cr(VI) ☐ 7196 ☐ 218.6	STLC / TCLP for Lead (Hold for Analysis)
1	T2-S-1	1/14/15	0100	Soil	1	X					X			X			X		X		X		X
2	T2-S-2	1/14/15	0115	Soil	1	X					X			X			X		X		X		X
3	T2-N-1	1/14/15	0145	Soil	1	X					X			X			X		X		X		X
4	T2-N-2	1/14/15	0200	Soil	1	X					X			X			X		X		X		X

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date: 1-14-15	Time: 0530
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date: 1/14/15	Time: 14:10
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

2014-07-01 Revision

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WORK ORDER #: 15-01-0737

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: GEOSYNTEC

DATE: 01/14/15

TEMPERATURE: Thermometer ID: SC4 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 3.3 °C + 0.2 °C (CF) = 3.5 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter Checked by: GB

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Checked by: GB

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Checked by: BM

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☒ BM 1/14/15	☑	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
Aqueous samples received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfides ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation noted on COC or sample container	☐	☐	☑
☐ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☐	☐	☑
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☑8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Aqueous: ☐VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☐1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☐500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐1PB**na** ☐500PB

☐250PB ☐250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____ BM

Air: ☐Tedlar® ☐Canister **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** _____

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** GB

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:** $Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** GB

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WORK ORDER #: 15-01-0737

SAMPLE ANOMALY FORM

SAMPLES - CONTAINERS & LABELS:

Comments:

- ☐ **Sample(s) NOT RECEIVED but listed on COC**
- ☐ **Sample(s) received but NOT LISTED on COC**
- ☐ **Holding time expired** – list sample ID(s) and test
- ☐ **Insufficient quantities for analysis** – list test
- ☐ **Improper container(s) used** – list test
- ☐ **Improper preservative used** – list test
- ☐ **No preservative noted on COC or label** – list test & notify lab
- ☐ **Sample labels illegible** – note test/container type
- ☑ **Sample label(s) do not match COC** – Note in comments
  - ☐ **Sample ID**
  - ☑ **Date and/or Time Collected**
  - ☐ **Project Information**
  - ☐ **# of Container(s)**
  - ☐ **Analysis**
- ☐ **Sample container(s) compromised** – Note in comments
  - ☐ **Water present in sample container**
  - ☐ **Broken**
- ☐ **Sample container(s) not labeled**
- ☐ **Air sample container(s) compromised** – Note in comments
  - ☐ **Flat**
  - ☐ **Very low in volume**
  - ☐ **Leaking (Not transferred - duplicate bag submitted)**
  - ☐ **Leaking (transferred into Calscience Tedlar® Bag*)**
  - ☐ **Leaking (transferred into Client's Tedlar® Bag*)**
- ☐ **Other:** _____

(-2) Collection time per label 0100.

HEADSPACE – Containers with Bubble > 6mm or ¼ inch:

Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Cont. received	Analysis

Comments: _____

*Transferred at Client's request.

Initial / Date: SM 01/14/15

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Stephen Nowak

From: Wendy Key [WKey@Geosyntec.com]
Sent: Thursday, January 15, 2015 8:56 AM
To: Stephen Nowak
Subject: RE: Blossom Plaza Utility Trench Sampling

Hi Stephen,

Per our conversation this morning, can you please add silica gel cleanup to the TPH analyses for the Blossom Plaza Utility Trench samples that were submitted by Rachel Ragoo (Geosyntec) yesterday, January 14 2015?

Thank you!

Wendy

Wendy Key, PG, CEM
Project Geologist

3043 Gold Canal Drive, Suite 201
Rancho Cordova, California 95670
Office: 916.637.8048
Direct: 916.637.8326
Fax: 916.637.8321
Mobile: 916.833.6214
www.Geosyntec.com

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J-26 - Jimmie Joe's Texaco 900 N Hill Street

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CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Los Angeles Regional Water Quality Control Board

December 8, 2015

Jimmie Joe
900 North Hill Street
Los Angeles, CA 90012

UNDERGROUND STORAGE TANK PROGRAM -- DIRECTIVE TO TAKE CORRECTIVE ACTION IN RESPONSE TO UNAUTHORIZED UNDERGROUND STORAGE TANK RELEASE – HEALTH AND SAFETY CODE SECTION 25296.10 AND TITLE 23, CHAPTER 16, CALIFORNIA CODE OF REGULATIONS, SECTIONS 2720-2727.
JIMMIE JOE'S TEXACO (D-1 CASE)
900 NORTH HILL STREET, LOS ANGELES, CA (CASE # 900120343)

Dear Mr. Joe:

Pursuant to Health and Safety Code Section 25296.10, you are required to take corrective action (i.e., Preliminary Site Assessment, Soil and Water Investigation, Corrective Action Plan Implementation, and Verification Monitoring) to ensure protection of human health, safety and the environment. Corrective action requirements are set forth in California Code of Regulations (CCR), Title 23, Sections 2720 through 2727.

We have received the "Confirmation Boring and Vapor Rebound Testing Report" (Report), dated November 19, 2015, prepared by your consultant, The Reynolds Group (TRG), for the subject site. This letter intends to provide Regional Board staff comments upon reviewing the report.

Site Condition Update

Currently, the site has twelve onsite and offsite groundwater monitoring wells (MW-1 through MW-12), and eight soil vapor extraction wells (SV1 thought SV8). Groundwater monitoring has been conducted since April 1997. Historically, maximum concentrations of TPHg of 82,700 µg/L, benzene of 2,960 µg/L, toluene of 25,700 µg/L, ethylbenzene of 5,900 µg/L, Xylenes of 30,000 µg/L and MTBE of 46,105 µg/L were detected in the groundwater beneath the site.

In July 2015, maximum concentrations of TPHg of 10,021 µg/L, benzene of 62.7 µg/L, toluene of 46.7 µg/L, ethylbenzene of 14.2 µg/L, xylenes of 65.1 µg/L and MTBE of 570.8 µg/L were detected in the groundwater. Depth to groundwater was at 35 to 53 feet bgs and groundwater flow direction was toward the southeast.

A dual-phase extraction system (DPE) has been operated at this site since August 2012. As of July 31, 2014, approximately 539,939 gallons of hydrocarbon-impacted groundwater and 3,800 pounds of vapor phase hydrocarbons were removed from the site.

In September 2015, three soil confirmation borings (CB1 through CB3) were drilled to a maximum depth of 50 feet bgs adjacent to the UST farm at the site. Soil samples detected TPHg of 4,920 mg/kg, benzene of 11.325 mg/kg, toluene of 312.073 mg/kg, ethylbenzene of 137.503 mg/kg,

Xylenes of 568.667 mg/kg and MTBE of 23.974 mg/kg were detected in the soil beneath the site. The elevated highest concentration of soil contaminations were detected from 35 feet to 50 feet bgs at the site.

Additionally, soil vapor rebound test was performed in September 2015, and slight to no rebound was observed at the vapor wells.

Remedial Action Plan Approval (Per CCR Title 23, §2726)

In the Report, although little to no rebound occurred during the vapor rebound testing conducted in September 2015, TRG proposed to operate the vapor extraction portion of the DPE system to address the residual concentrations revealed by the confimation soil samples. Groundwater wells MW4, MW11 and soil vapor well SV4 with deep screen will be conncected to the SVE system for the SVE operation.

Regional Board staff has no objection to the proposed action, with the following conditions:

1. If soil vapor samples are collected, they shall be analyzed per Regional Board's Advisory for Active Soil Gas Investigations (July 2015). Available at: http://www.waterboards.ca.gov/losangeles/water_issues/programs/ust/docs/VI_ActiveSoilGasAdvisory_FINAL.pdf

2. During the remedial actions, remedial progress reports must be submitted as part of the groundwater monitoring report (see below section) to this Regional Board. The following information must be included in each of the remedial progress reports:

- Scaled map(s) showing the location of all wells and detailed layout of remediation system (i.e., piping and treatment system).
- Hours of system operation
- Laboratory test results (in µg/L) including QA/QC data
- Tabular and graphical summaries of contaminants removed versus time
- Contamination mass removal rates and cumulative mass removal (vapor phase, free phase, dissolved phase)
- Influent concentrations and concentrations at each vapor extraction well
- Accumulated free product volume (if any)
- Cross section profiles showing the extraction wells. Contaminant plume concentration, and lithologic information
- Volume of free products and groundwater removed and the disposal facility, if any
- Data interpretation, conclusions, and recommendations

3. In addition to reporting the volume of contaminated soil vapor extracted, the remedial progress report must include the total mass in pounds of TPHg and benzene removed from the subsurface from all cleanup operations employed to date. Please include all data and calculations used to compute the total mass removed.

4. Following one year period of VES implementation, you are required to evaluate the effectiveness of the VES system for the site. More aggressive remedial alternatives must be evaluated and implemented at the site to effectively mitigate the soil beneath the site if the VES system is deemed less effective. A final remedial action plan (RAP)

must be submitted to the Regional Board to propose more aggressive remedial alternative(s) for the site, if needed.

Continuous Groundwater Monitoring Requirements (Per CCR, title 23, §2727)

1. Groundwater monitoring must be continued and monitoring reports must be submitted as part of the corresponding SCMU, with the next report due by **January 15, 2015.**

Reporting Period	Sampling Period	Report Due Date
January – June	April – June	July 15th
July – December	October – December	January 15th

2. All existing groundwater monitoring wells related to the site must be sampled.

3. Groundwater samples must be analyzed by Cal-LUFT GC/FID or Cal-LUFT GC/MS Method for total petroleum hydrocarbons as gasoline (TPH_G), total petroleum hydrocarbons as diesel (TPH_D) when diesel is identified at the site; and by EPA Method 8260B for benzene, toluene, ethylbenzene and xylenes (BTEX), naphthalene, and fuel oxygenate compounds including methyl tertiary butyl ether (MTBE), di-isopropyl ether (DIPE), ethyl tertiary butyl ether (ETBE), tertiary amyl methyl ether (TAME), and tertiary butyl alcohol (TBA). Ethanol is also required and shall be analyzed by either method above. The analytical detection limits must conform to the Regional Board General Laboratory Testing Requirements (9/06) (http://www.waterboards.ca.gov/losangeles/publications_forms/forms/ust/lab_forms/labreq9-06.pdf). All respective analytical methods must be certified by the California Environmental Laboratory Accreditation Program (ELAP). All analytical data must be reported by a California-certified laboratory. Must be analyzed using EPA Method 8060B for volatile organic compound (VOCs) including fuel oxygenates.

4. Each groundwater monitoring report must include the following:

   - A separate summary table containing current concentrations.
   - A summary table containing all historical data per each well with groundwater depth (or elevation) and well screen intervals.
   - A regional map depicting site vicinity business and street, etc.
   - A site plot plan depicting site location, tank and associated system locations.
   - A site map depicting all well locations and groundwater elevations (contour) with flow gradient and direction.
   - An isoconcentration map for TPH(g), benzene, MTBE, and TBA, respectively.
   - A hydrograph superimposing on concentration over time at the most impacted well for TPH(g), benzene, MTBE, and TBA (or at any other wells as warranted).
   - Conclusion and recommendation.

E-Report Submittal

Effective November 1, 2011, the Los Angeles Regional Water Quality Control Board implemented a Paperless Office system. For all parties who upload electronic documents to State Database GeoTracker, it is no longer necessary to email a copy of these documents to losangeles@waterboards.ca.gov or submit hard copies to our office. The Regional Board will no longer accept documents (submitted by either hard copy or email) already uploaded to GeoTracker.

Jimmie Joe
900 North Hill Street

December 7, 2015

General Requirements

1. The contractor who conducts the environmental work as required in this order shall, at all times, comply with all applicable State laws, rules, regulations, and local ordinances specifically, including but not limited to, environmental, procurement and safety laws, rules, regulations, and ordinances. The contractor shall obtain the services of a Professional Geologist or Engineer, Civil (PG/PE-Civil) to comply with the applicable requirements of the Business and Professions Code, sections 7800 et seq. implementing regulations for geological or engineering analysis and interpretation for this case. All documents prepared for others by the contractor that reflect or rely upon geological or engineering interpretations by the contractor shall be signed or stamped by the PG/PE-Civil indicating her/his responsibility for them as required by the Business and Professions Code.

2. Al necessary permits must be obtained from the appropriate agencies such as the State Department of Health Services, and the City of Burbank, prior to the start of work.

3. Prior to commencing any fieldwork, Regional Board staff must be given a minimum of **15 days** advance notice in writing, so that one of our staff may be present.

If you have any questions on this matter, please contact Mr. Magdy Baiady at (213) 576-6699 or Mbaiady@waterboards.ca.gov.

Sincerely,

Magdy Baiady
Engineering Geologist
UST Section

cc: Micah Reich, State Water Resources Control Board, Underground Storage Tank Cleanup Fund
Ed Reynolds, Jr., The Reynolds Group

J-28 - Fueling Station 1135 N. Alameda Street

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State of California
Environmental Protection Agency

UNDERGROUND STORAGE TANK
LOW RISK CASE REVIEW FORM

Los Angeles Regional
Water Quality Control Board

Case Reviewer: Errick Llamas	Unit Chief: Dr. Yi Lu	Section Chief: Dr. Yue Rong	AEO: Paula Rasmussen	EO: Samuel Unger
Date: 11/23/15	Date: 11/23/15	Date: 11/23/15	Date: 11-23-15	Date: 11-24-15

LUSTIS File No.: **900120525**		Investigation and Cleanup Priority: **D-1**	
Site Name/Address: **Fueling Station Former** **1135 North Alameda Street** **Los Angeles, CA 90012**	Responsible parties: **Tom Majich** **Arroy Hill Advisors & Builders**	Address: **715-B New High Street** **Los Angeles, CA 90012**	Phone no.: **213/798-4315**

I. CASE INFORMATION (N/A = Not Applicable)

Tank No.	Size in Gallons	Contents	Closed in-place/Removed/Active?	Date
1	1,000	Gasoline	Closed In-place	1963
2	4,000	Gasoline	Closed In-place	1963
3	1,000	Waste-Oil	Removed	April 1988
4-5	2,000	Gasoline	Removed	April 1988
6-7	5,000	Gasoline	Removed	April 1988
8	8,000	Gasoline	Removed	April 1988

II. SITE CHARACTERIZATION INFORMATION (GW = Groundwater)

GW Basin: Coastal Plain of Los Angeles	Beneficial uses: Mun, Ind, Proc, Agr	Water purveyor in the area: City of Los Angeles	
Distance to nearest municipal supply well: The nearest supply well (01S13W04P02S) is located approximately 17,036 feet away from the site.		Water purveyor contact: Attn: Mr. Greg Reed 111 North Hope Street, Rm #1460, Los Angeles, CA 90012-2607	
GW highest depth: N/a	GW lowest depth: N/a	Well screen interval: N/a	Flow Direction: N/a
Soil types:		Maximum soil depth sampled:	

III. SITE INSPECTION

Pre-closure site inspection date: N/a	Is there sensitive receptor next to the site (school, church, hospital, kindergarten etc.)? If yes, brief description: None, as per Google Maps Search

IV. MAXIMUM DOCUMENTED CONTAMINANT CONCENTRATIONS – (Initial and Latest) / ND = Non-Detect; NRQ = Not Required

Contaminant	Soil (mg/kg)		EPA SLs*		Soil Screening Levels (mg/kg)**	Water (µg/L)		MCLs/NL (µg/L)
	Initial (4/1988)	Latest (6/2015)	Residential (mg/kg)	Industrial (mg/kg)	Depth to GW: N/A Type of soil: N/A	Initial (N/A)	Latest (N/A)	
TPH (Gas)	NA	800	NE	NE	N/A	NRQ	NRQ	NE
TPH (Diesel)	NA	670	NE	NE	N/A	NRQ	NRQ	NE
TRPH	85	NA	NE	NE	N/A	NRQ	NRQ	NE
TVPH	420	NA	NE	NE	N/A	NRQ	NRQ	NE
Benzene	NA	3.4	1.2	5.1	N/A	NRQ	NRQ	1
Toluene	NA	60	4,900	47,000	N/A	NRQ	NRQ	150
Ethylbenzene	NA	36	5.8	25	N/A	NRQ	NRQ	300
Xylenes	NA	181	580	2,500	N/A	NRQ	NRQ	1,750
Methyl Tertiary Butyl Ether (MTBE)	NA	ND	47	210	N/A	NRQ	NRQ	13 (Primary) 5 (Secondary)
Di-Isopropyl Ether (DIPE)	NA	ND	2,200	9,400	NE	NRQ	NRQ	NE
Ethyl Tertiary Butyl Ether (ETBE)	NA	ND	NE	NE	NE	NRQ	NRQ	NE
Tertiary Amyl Methyl Ether (TAME)	NA	ND	NE	NE	NE	NRQ	NRQ	NE
Tertiary Butyl Alcohol (TBA)	NA	ND	NE	NE	NE	NRQ	NRQ	12 (NL)
Ethanol	NA	ND	NE	NE	NE	NRQ	NRQ	NE
Naphthalene	NA	5.2	3.8	17	NE	NRQ	NRQ	170 (NL)

Site Name/Address: **Fueling Station Former** **1135 North Alameda Street** **Los Angeles, CA 90012**	Staff Initial: **EPL**

NE = Not Established. NL = Notification Level. NA = Not Analyzed. N/A = Not Applicable.
* SLs = USEPA Risk-Based Screening Levels (January 2015). ** See Attached Table 4 –1.

V. FREE PRODUCT

Was free product encountered? No	Has free product been totally removed? No
When was free product recovery project completed? N/A	

VI. SOIL REMEDIATION

Method: None	Duration of remediation: N/A
Waste manifest document: N/A	Volume of soil disposal/mass removal: N/A

VII. GROUNDWATER REMEDIATION

Method: None	Duration of remediation: N/A
	Mass removal: N/A

VIII. COMMENTS AND JUSTIFICATION FOR RECOMMENDED ACTION

Site History:

The site was a former fueling station located at 1135 North Alameda Street in Los Angeles, California. JK Massage and Acupuncture Herb currently occupy the site with an accompanying parking lot. The area within the vicinity of the site is a mixture of commercial, industrial, and residential properties in Los Angeles, California.

The site was referred to the Regional Board on October 25, 2014, by the City of Los Angeles Fire Department.

Data Summary:

In May 1963, two underground storage tanks (USTs), which consisted of one 1,000-gallon gasoline UST and one 4,000-gallon gasoline UST, were closed in-place at the site. No soil sampling data could be located within the case file.

In April 1988, six USTs (one 8,000-gallon gasoline UST, two 5,000-gallon gasoline USTs, two 2,000-gallon gasoline USTs, and one 1,000-gallon waste-oil UST) were removed from the site. Eleven soil samples were collected from approximately 2.0 feet below the invert of the former USTs. Maximum concentrations of 85.0 mg/kg TRPH and 420 mg/kg TVPH were detected in the soil samples. Other fuel constituents and fuel oxygenates were not analyzed. See Table 1 for data.

In June 2015, thirteen soil borings (B1 through B4, and B6 through B14) were drilled to a maximum depth of 20.0 feet bgs. Maximum concentrations of 800 mg/kg TPHg, 670 mg/kg TPHd, 3.4 mg/kg benzene, 60 mg/kg toluene, 36 mg/kg ethylbenzene, 181 mg/kg xylenes, and 5.2 mg/kg naphthalene were detected in the soil samples. Other fuel constituents and oxygenates were not detected in the soil samples. See Table 1 and 2 for soil data.

Subsurface Lithology:

The subsurface lithology consisted primarily of medium-grained sand from approximately 0 feet to 15.0 feet bgs and silty clay from approximately 15.0 feet to 20.0 feet bgs. No free product or perched groundwater was encountered at the site.

Groundwater Summary:

Groundwater was not encountered during boring investigations. However, according to GeoTracker, a LUST site (Regional Board No. 900120343) approximately 968 feet northwest of the subject site encountered groundwater at approximately 40.0 feet bgs.

Based on the above site assessment results, additional soil and/or groundwater investigation is not warranted.

LOW THREAT UST CLOSURE POLICY CRITERIA EVALUATION:

General Criteria:

The site meets a through h general criteria of the low threat policy as follows:

a) The unauthorized release is located within the service area of a public water system – True, City of Los Angeles
b) The unauthorized release consists of petroleum only – True
c) The unauthorized "primary" release from the UST system has been stopped – True (All USTs were removed).
d) Free product has been removed to the extent practicable – True (free product was never observed on-site).
e) A conceptual site model has been developed – True

f) The secondary source has been removed to the extent practicable – True (remediation was not necessary)
g) Soil has been tested for MTBE – True
h) No known nuisances exist at the site - True

Groundwater:

The site is a soil only case. Therefore, the groundwater section of the Low Threat Policy is not applicable.

Vapor Intrusion To Indoor Air:

Based on the facts that low concentrations of fuel constituents are detected in the soil beneath the site (benzene and MTBE are non-detect), and that the site does not have any subsurface structures, the actual risk of vapor intrusion to indoor air is minimal.

Direct Contact And Outdoor Air Exposure:

Maximum concentrations of petroleum constituents in the soil are less than those listed in the Table below for the specified depth below ground surface. Therefore the residual constituents in the soil will have no significant risk of adversely affecting human health.

Chemical	Site Concentrations	Residential		Commercial/Industrial	
		0 to 5 ft. bgs mg/kg	Volatilization to outdoor air (0 to 5 ft. bgs) mg/kg	0 to 5 ft. bgs mg/kg	Volatilization to outdoor air (0 to 5 ft. bgs) mg/kg
Benzene	**ND**	1.9	2.8	8.2	12
Ethylbenzene	**ND**	21	32	89	134
Naphthalene	**ND**	9.7	9.7	45	45
PAH	**NA**	0.063	NA	0.68	NA

FACTORS SUPPORTING LOW RISK CLOSURE:

Based on the above assessment, staff recommends to grant a low risk closure for the site for the following reasons:

1. The extent of the soil contamination has been defined.
2. Site remediation was not necessary.
3. Free product was never observed on-site.
4. The nearest production well is approximately 17,036 feet away from the site.
5. Case Closure is consistent with the Low Threat UST Closure Policy.

IX. MTBE FATE & TRANSPORT PLUME LENGTH MODELING ANALYSIS

The MTBE Plume Length Model is not necessary because groundwater was not encountered on-site.

X. ELECTRONIC DELIVERABLE FORMAT (EDF) SUBMISSION

Has electronic data reporting requirement been met? Yes

XI. AB 681 REQUIREMENT (Land Owner Notification)

Verify property ownership http://assessor.lacounty.gov/extranet/DataMaps/Pais.aspx (date) : November 16, 2015
Has landowner or impacted site notification requirements been met? Yes
Owner: 837 North Spring Street Owner LLC
Responsible party: Arroy Hill Advisors and Builders
Pre-closure letter sent date:

(August 2012)

Site Name/Address:	Staff Initial:
Fueling Station Former **1135 North Alameda Street** **Los Angeles, CA 90012**	**EPL**

Table 4-1: Maximum Soil Screening Levels (mg/kg) for TPH, BTEX and MTBE above Drinking Water Aquifers

	Distance Above Groundwater	Carbon Range		
		C4-C12	C13-C22	C23-C32
TPH	>150 feet	1,000	10,000	50,000
	20-150 feet	500	1,000	10,000
	<20 feet	100	100	1,000

	Distance Above Groundwater	Lithology			
		Gravel	Sand	Silt	Clay
BTEX & MTBE	150 feet	B=0.044 T=2 E=8 X=23 MTBE = 0.039	B=0.077 T=4 E=17 X=48 MTBE = 0.078	B=0.165 T=9 E=34 X=93 MTBE = 0.156	B=0.8 T=43 E=170 X=465 MTBE = 0.78
	120 feet	B=0.035 T=1.57 E=6.3 X=17.9 MTBE = 0.028	B=0.058 T=3.1 E=12.7 X=36 MTBE = 0.061	B=0.123 T=7 E=25.9 X=70.3 MTBE = 0.117	B=0.603 T=32 E=128 X=351 MTBE = 0.591
	100 feet	B=0.028 T=1.3 E=5.1 X=14.4 MTBE = 0.020	B=0.046 T=2.57 E=9.86 X=28 MTBE = 0.05	B=0.094 T=5.4 E=20.4 X=55.1 MTBE = 0.091	B=0.471 T=25 E=101 X=276 MTBE = 0.464
	80 feet	B=0.022 T=1 E=4 X=11 MTBE = 0.013	B=0.033 T=2 E=7 X=20 MTBE = 0.039	B=0.066 T=4 E=15 X=40 MTBE = 0.065	B=0.34 T=18 E=73 X=200 MTBE = 0.338
	60 feet	B=0.018 T=0.72 E=2.9 X=7.9 MTBE = 0.013	B=0.026 T=1.4 E=4.9 X=13.9 MTBE = 0.03	B=0.048 T=2.8 E=10.7 X=28.4 MTBE = 0.048	B=0.241 T=13 E=52 X=141.5 MTBE = 0.247
	40 feet	B=0.015 T=0.43 E=1.8 X=4.8 MTBE = 0.013	B=0.018 T=0.87 E=2.8 X=7.8 MTBE = 0.022	B=0.029 T=1.6 E=6.3 X=16.9 MTBE = 0.03	B=0.143 T=7.5 E=30 X=83 MTBE = 0.156
	20 feet	B=0.011 T=0.15 E=0.7 X=1.75 MTBE = 0.013	B=0.011 T=0.3 E=0.7 X=1.75 MTBE = 0.013	B=0.011 T=0.45 E=2 X=5.3 MTBE = 0.013	B=0.044 T=2.3 E=9 X=24.5 MTBE = 0.065

- TPH = Total petroleum hydrocarbons.
- BTEX = benzene, toluene, ethylbenzene, and xylenes, respectively. MTBE = methyl tertiary butyl ether.
- Respective MCLs (ppm): B = 0.001, T = 0.15, E = 0.7, X = 1.75, MTBE = 0.013.
- BTEX screening concentrations determined per the attenuation factor method as described in RWQCB Guidance for VOC Impacted Sites (March 1996), with a natural degradation factor of 11 for BTEX and of 3 for MTBE. Table values can be linearly interpolated between distances above groundwater and are proportional to fraction of each lithological thickness.
- Values in Table 4-1 are for soils above drinking water aquifers. All groundwater is considered as drinking water resources unless exempted by one of the criteria as defined under SWRCB Resolution 88-63 (TDS>3000 mg/L, or deliverability <200 gal/day, or existing contamination that cannot be reasonably treated). Regional Board staff will make a determination of potential water use at a particular site considering water quality objectives and beneficial uses. For non-drinking water aquifers, regardless of depth, TPH for ">150 feet" category in the table should be used;
- Distance above groundwater must be measured from the highest anticipated water level. Lithology is based on the USCS scale.
- In areas of naturally-occurring hydrocarbons, Regional Board staff will make determinations on TPH levels.

(Revised 1/7/05)

Llamas, Errick@Waterboards

From: Van Nuys <ASSR-VanNuys@assessor.lacounty.gov>
Sent: Monday, November 16, 2015 1:55 PM
To: Llamas, Errick@Waterboards
Subject: Ownership - Property Tax Portal - Reference # 81658

AIN: 5408029001

Owner Of Record: 837 North Spring Owner LLC

Mailing Address: 837 N Spring ST., STE 213,
Los Angeles, CA 90012-2596

Van Nuys Help Desk

-----Original Message-----
From: ellamas@waterboards.ca.gov [mailto:ellamas@waterboards.ca.gov]
Sent: Friday, November 13, 2015 10:23 AM
To: L.A. County - Office of The Assessor <sinvestigation@assessor.lacounty.gov>
Subject: Ownership - Property Tax Portal - Reference # 81658

Ownership - Property Tax Portal - Reference # 81658

Thank you for completing our Public Inquiry form. A staff member from the Assessor's department will respond to your request shortly.

The Reference number for your inquiry is 81658.

Name: Llamas, Errick

Business Name: Los Angeles Regional Water Quality Control Board

Address: 320 West 4th Street, Suite 200

Los Angeles, CA 90013

Email: ellamas@waterboards.ca.gov

Phone: 2135766620

Fax: 2135766620

Situs:

, CA

AIN: 5408-029-001

Company Name:

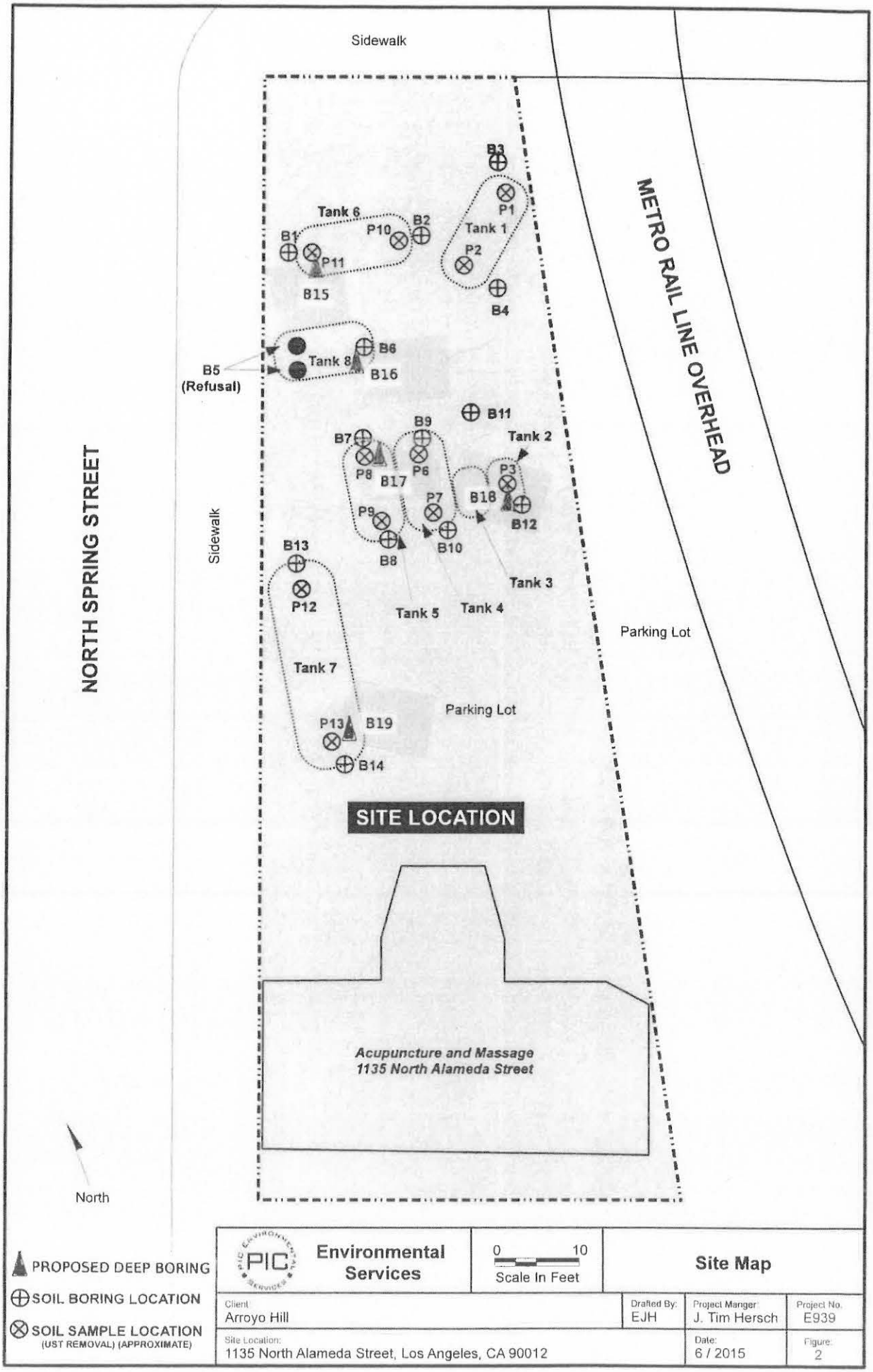
Routing Index:

Comments: Hello, I am with the Los Angeles regional water quality control board and we are a currently conducting groundwater contamination summaries and we are preparing this site for closure and because of this we need to verify property ownership and contact information.

Thank you

PIC ENVIRONMENTAL SERVICES PIC	**Environmental Services**	0 2000 Scale In Feet	**Site Location Map Topographic Map**

Client: Arroyo Hill	Drafted By: EJH	Project Manger: J. Tim Hersch	Project No: E939
Site Location: 1135 North Alameda Street, Los Angeles, CA 90012		Date: 6 / 2015	Figure: 1


Sidewalk
METRO RAIL LINE OVERHEAD
NORTH SPRING STREET
Sidewalk
Parking Lot
Parking Lot
B3
P1
Tank 1
P2
B4
Tank 6
B2
P10
B1
P11
B15
B5
(Refusal)
Tank 8
B6
B16
B11
B9
B7
P8
B17
P6
Tank 2
P3
B18
B12
P7
P9
B8
B10
B13
P12
Tank 5
Tank 4
Tank 3
Tank 7
P13
B19
B14
SITE LOCATION
Acupuncture and Massage
1135 North Alameda Street
North
PROPOSED DEEP BORING
SOIL BORING LOCATION
SOIL SAMPLE LOCATION
(UST REMOVAL) (APPROXIMATE)
PIC
Environmental Services
0
10
Scale In Feet
Site Map
Client:
Arroyo Hill
Drafted By:
EJH
Project Manger:
J. Tim Hersch
Project No.
E939
Site Location:
1135 North Alameda Street, Los Angeles, CA 90012
Date:
6 / 2015
Figure:
2

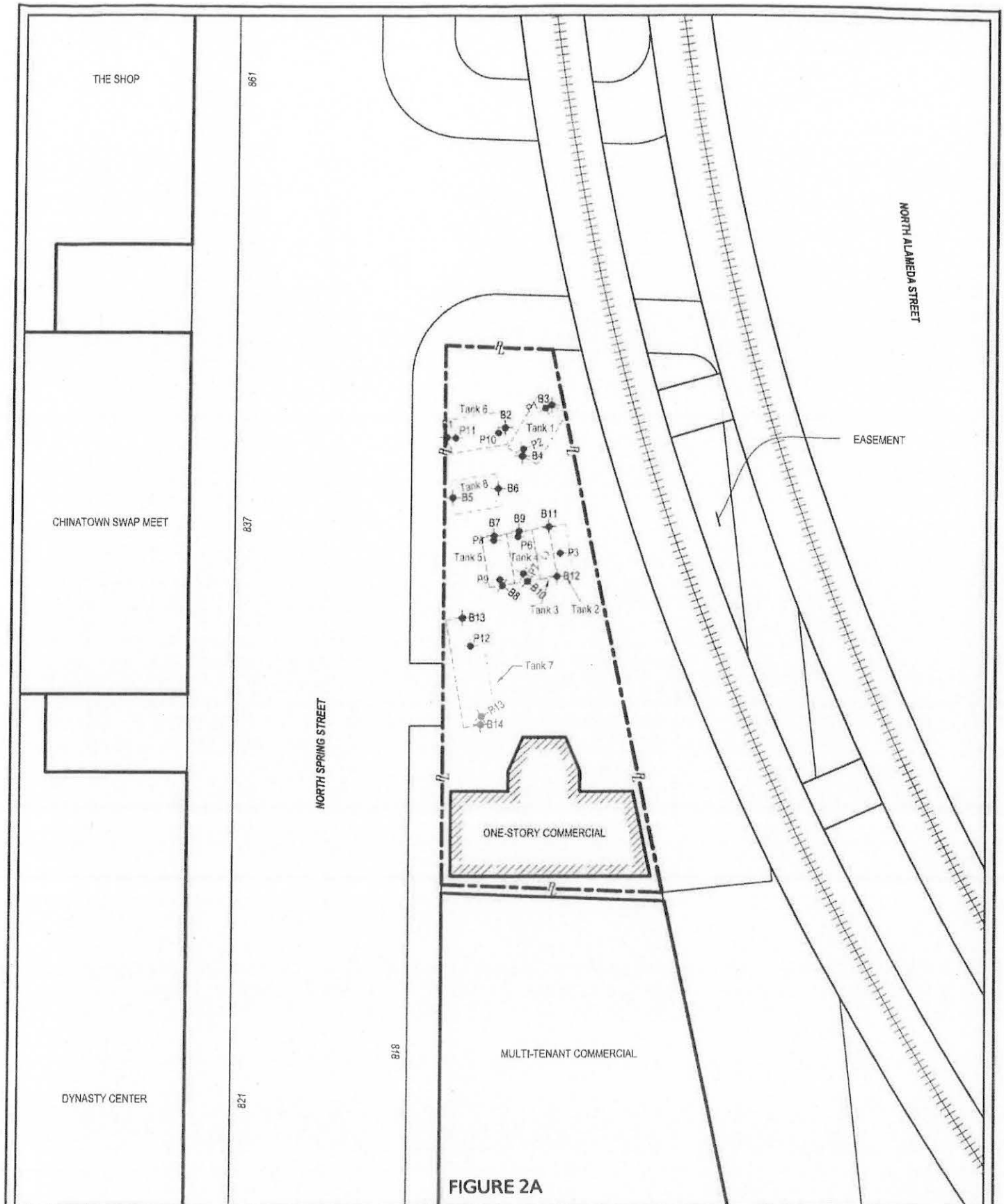


FIGURE 2A

LEGEND

- SUBJECT PROPERTY
- SITE STRUCTURE
- ELEVATED RAILWAY
- APPROXIMATE LOCATION OF ABANDONED UST (1988)
- APPROXIMATE LOCATION OF FORMER GASOLINE UST (1963)
- P13 — APPROXIMATE LOCATION OF FORMER SOIL SAMPLING LOCATIONS
- B10 — PROPOSED BORING LOCATION

FIGURE 2	PLOT PLAN SHOWING PROPOSED BORING LOCATIONS
ADDRESS:	1135 NORTH ALAMEDA STREET LOS ANGELES, CALIFORNIA 90012
SOURCE:	ANDERSEN ENVIRONMENTAL
PROJECT NO.:	1406-1170
DRAWN BY:	JOHN ESCALONA
CHECKED BY:	MICHAEL MAGLIONE
DATE:	07/23/2014

ANDERSEN ENVIRONMENTAL

APPROX. SCALE: 1"= 30'

0' 15' 30'

TABLE I
LABORATORY RESULTS
1988 – 2015

Boring ID	Date	Depth feet	Total Petroleum (TPH) EPA 8015/418.1 ppm	Total Volatiles EPA 8260B ppm	Organic Lead DOHS ppm
P1	4/1/88	13	ND	-	ND
P2	4/1/88	13	ND	-	ND
P3	4/1/88	9	85	-	-
P6	4/1/88	10	ND	-	ND
P7	4/1/88	10	ND	-	ND
P8	4/1/88	10	420	-	-
P9	4/1/88	10	ND	-	-
P10	4/1/88	13	250	-	-
P11	4/1/88	13	100	-	-
P12	4/1/88	13	300	-	-
P13	4/1/88	13	2	-	-
B1	6/1/15	10	All = ND	All = ND	-
B1	6/1/15	15	All = ND	All = ND	-
B1	6/1/15	20	Gas = 390 Diesel/Oil = ND	Benzene = 0.83 Toluene = 14 Ethyl Benzene = 19 Xylenes = 79 Naphthalene = 2.7 All Others = 55.73	-
B2	6/1/15	10	All = ND	All = ND	-
B2	6/1/15	15	All = ND	All = ND	-
B3	6/1/15	10	All = ND	All = ND	-
B3	6/1/15	15	Gas = 1.3 Diesel/Oil = ND	Benzene = 0.025 Toluene = ND Ethyl Benzene = 0.04 Xylenes = 0.058 All Others = ND	-
B4	6/1/15	10	All = ND	All = ND	-
B4	6/1/15	15	All = ND	All = ND	-
B6	6/1/15	10	Gas = 3.8 Diesel = 670 Oil = ND	Benzene = ND Toluene = ND Ethyl Benzene = 0.027 Xylenes = 0.036 Naphthalene = 0.83 All Others = 0.635	-
B6	6/1/15	15	Gas = 220 Diesel = 430 Oil = ND	Benzene = 0.67 Toluene = 3.0 Ethyl Benzene = 2.3 Xylenes = 15.3 Naphthalene = 3.3 All Others = 10.75	-
B7	6/1/15	10	Gas = ND Diesel = 200 Oil = ND	All = ND	-
B7	6/1/15	20	Gas = 390 Diesel/Oil = ND	Benzene = 3.4 Toluene = 29 Ethyl Benzene = 7.4 Xylenes = 45 Naphthalene = 1.0 All Others = 18.44	-
B8	6/1/15	10	All = ND	All = ND	-
B8	6/1/15	15	Gas = 0.24 Diesel/Oil = ND	All = ND	-
B9	6/1/15	10	All = ND	All = ND	-

TABLE I
LABORATORY RESULTS
1988 – 2015

Boring ID	Date	Depth feet	Total Petroleum (TPH) EPA 8015/418.1 ppm	Total Volatiles EPA 8260B ppm	Organic Lead DOHS ppm
B9	6/1/15	15	Gas = 3.1 Diesel/Oil = ND	Benzene = ND Toluene = ND Ethyl Benzene = ND Xylenes = 0.095 Naphthalene = 0.12 All Others = 0.445	-
B10	6/1/15	10	Gas = 0.29 Diesel/Oil = ND	All = ND	-
B10	6/1/15	15	Gas = 0.34 Diesel/Oil = ND	All = ND	-
B11	6/1/15	10	All = ND	All = ND	-
B11	6/1/15	15	All = ND	All = ND	-
B12	6/1/15	10	All = ND	All = ND	-
B12	6/1/15	15	Gas = 0.86 Diesel/Oil = ND	All = ND	-
B12	6/1/15	20	Gas = 800 Diesel = 400 Oil = ND	Benzene = 3.0 Toluene = 60 Ethyl Benzene = 36 Xylenes = 181 Naphthalene = 5.2 All Others = 130.2	-
B13	6/1/15	10	All = ND	All = ND	-
B13	6/1/15	15	Gas = 0.60 Diesel/Oil = ND	All = ND	-
B14	6/1/15	10	All = ND	All = ND	-
B14	6/1/15	15	All = ND	All = ND	-
B14	6/1/15	20	Gas = 100 Diesel/Oil = ND	Benzene = ND Toluene = 1.6 Ethyl Benzene = 3.4 Xylenes = 11.7 Naphthalene = 2.1 All Others = 18.5	-
Note:	ND = None Detected - = Not Analyzed All results expressed as mg/kg=ppmillion				

CAL TECH Environmental Laboratories

6814 Rosecrans Avenue, Paramount, CA 90723-3146
Telephone: (562) 272-2700 Fax: (562) 272-2789

ANALYTICAL RESULTS*

CTEL Project No: CT165-1506007
Client Name: PIC Environmental Services
2619 Sierra Way
La Verne, CA 91750
Phone:(909) 593-2427
Fax: (909) 593-2105
Attention: J. Tim Hersch

Project ID: E939
Project Name: Arroyo Hill

Date Sampled: 06/01/15 @ 09:00 am
Date Received: 06/01/15 @ 13:50 pm
Date Analyzed: 06/02/15 – 06/05/15
Matrix: Soil

Laboratory ID:	1506-007-2	1506-007-3	1506-007-4	**Method**	**Units:**	**Detection**
Client Sample ID:	B1-10'	B1-15'	B1-20'			**Limit**
Dilution	1	1	100			
Dichlorodifluoromethane	ND	ND	ND	EPA 8260B	mg/Kg	0.005
Chloromethane	ND	ND	ND	EPA 8260B	mg/Kg	0.005
Vinyl Chloride	ND	ND	ND	EPA 8260B	mg/Kg	0.005
Bromomethane	ND	ND	ND	EPA 8260B	mg/Kg	0.005
Chloroethane	ND	ND	ND	EPA 8260B	mg/Kg	0.005
Trichlorofluoromethane	ND	ND	ND	EPA 8260B	mg/Kg	0.005
Iodomethane	ND	ND	ND	EPA 8260B	mg/Kg	0.005
Acetone	ND	ND	ND	EPA 8260B	mg/Kg	0.005
1,1-Dichloroethene	ND	ND	ND	EPA 8260B	mg/Kg	0.005
t-Butyl Alcohol (TBA)	ND	ND	ND	EPA 8260B	mg/Kg	0.02
Methylene Chloride	ND	ND	ND	EPA 8260B	mg/Kg	0.02
Freon 113	ND	ND	ND	EPA 8260B	mg/Kg	0.01
Carbon disulfide	ND	ND	ND	EPA 8260B	mg/Kg	0.005
Trans,1,2-Dichloroethene	ND	ND	ND	EPA 8260B	mg/Kg	0.005
Methyl-tert-butyl-ether(MtBE)	ND	ND	ND	EPA 8260B	mg/Kg	0.002
1,1-Dichloroethane	ND	ND	ND	EPA 8260B	mg/Kg	0.005
Vinyl acetate	ND	ND	ND	EPA 8260B	mg/Kg	0.005
Diisopropyl Ether (DIPE)	ND	ND	ND	EPA 8260B	mg/Kg	0.002
Methyl Ethyl Ketone	ND	ND	ND	EPA 8260B	mg/Kg	0.01
Cis,1,2-Dichloroethene	ND	ND	ND	EPA 8260B	mg/Kg	0.005
Bromochloromethane	ND	ND	ND	EPA 8260B	mg/Kg	0.005
Chloroform	ND	ND	ND	EPA 8260B	mg/Kg	0.005
2,2-Dichloropropane	ND	ND	ND	EPA 8260B	mg/Kg	0.005
Ethyl-t-butyl ether (ETBE)	ND	ND	ND	EPA 8260B	mg/Kg	0.002
1,1,1-Trichloroethane	ND	ND	ND	EPA 8260B	mg/Kg	0.005
1,2-Dichloroethane	ND	ND	ND	EPA 8260B	mg/Kg	0.005
1,1-Dichloropropene	ND	ND	ND	EPA 8260B	mg/Kg	0.005
Carbon Tetrachloride	ND	ND	ND	EPA 8260B	mg/Kg	0.005
Benzene	ND	ND	0.83	EPA 8260B	mg/Kg	0.001
t-Amyl Methyl Ether (TAM)	ND	ND	ND	EPA 8260B	mg/Kg	0.002
1,2-Dichloropropane	ND	ND	ND	EPA 8260B	mg/Kg	0.005
Trichloroethene	ND	ND	ND	EPA 8260B	mg/Kg	0.005
Dibromomethane	ND	ND	ND	EPA 8260B	mg/Kg	0.005
Bromodichloromethane	ND	ND	ND	EPA 8260B	mg/Kg	0.005
2-Chloroethylvinylether	ND	ND	ND	EPA 8260B	mg/Kg	0.005
Cis, 1,3-Dichloropropene	ND	ND	ND	EPA 8260B	mg/Kg	0.005
4-Methyl-2-pentanone(MI)	ND	ND	ND	EPA 8260B	mg/Kg	0.01
Trans,1,3-Dichloropropene	ND	ND	ND	EPA 8260B	mg/Kg	0.005
Toluene	ND	ND	14	EPA 8260B	mg/Kg	0.001
1,1,2-Trichloroethane	ND	ND	ND	EPA 8260B	mg/Kg	0.005