METROVATION

December 12, 2017

Mr. Jonathan Sanders
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

Re: Sub-Slab Venting Installation and Floor Sealing Work Plan
Terradev Jefferson Property – 645 4th Street, Oakland CA
Fuel Leak Case RO0003001

Dear Mr. Sanders,

Attached please find the Sub-Slab Venting Installation and Floor Sealing Work Plan prepared by our consultant, APEX (formerly SGI), for the above referenced location. I declare under penalty of perjury that to the best of my knowledge the information/recommendations contained in the attached report is/are true.

Most sincerely,

Sara May

Cc Greg McIver, APEX

Attachment

580 SECOND ST, SUITE 260, OAKLAND CA 94607 TELEPHONE (510) 839-4000 FAX (510) 839-4025

Apex Companies, LLC
256 Buena Vista Street, Suite 200 • Grass Valley, CA 95945
P: (530) 272-4200 • F: (530) 272-4211

December 12, 2017

Mr. Jonathan Sanders
Alameda County Environmental Health
Local Oversight Program
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Subject: Sub-Slab Venting Installation and Floor Sealing Work Plan
Terradev Jefferson LLC Property, 645 4th Street, Oakland, California

Dear Mr. Sanders:

This *Sub-Slab Venting Installation and Floor Sealing Work Plan* (Work Plan) has been prepared by Apex Companies, LLC (Apex) on behalf of Metrovation, LLC (Metrovation) for the property located at 645 4th Street in Oakland, California (Site, Figure 1) for the Alameda County Environmental Health Department (ACEHD). The proposed scope of work is intended as a proactive approach to mitigate potential migration of sub-slab vapors to indoor air and will be completed during a building occupancy transition period in November/December 2017. The following Work Plan details activities associated with the proposed installation of the sub-slab venting system (SSVS) and floor sealant.

Background

The Site is situated southwest of the intersection of 4th Street and Martin Luther King Jr. Way in Oakland, California. The Site consist of a single story commercial building bordered closely on the sides and rear by other commercial building in a commercial/industrial neighborhood along the San Francisco Bay-Margin. One single-walled steel 1,000-gallon underground storage tank (UST) was discovered beneath the sidewalk immediately adjacent to the front of the building during renovation activities in 2006 (Figure 2). The UST was abandoned in place on September 5, 2006.

Subsurface investigation activities associated with the former UST began in 2009. To date, a total of 15 soil borings have been completed (B-1 through B-6, CB-1, CB-2, SB-7 through SB-13), nine passive vapor points (S-1 through S-9), three extraction wells (DPE-1 through DPE-3) and five sub-slab soil vapor points (VP-1 through VP-5). Two individual indoor air sampling events have been completed within interior spaces associated with 645 4th Street and 380 MLK Jr. Way. Boring locations are shown on Figure 2. Investigations detected petroleum hydrocarbon compounds in proximity to the abandoned UST. Specific chemical of potential concern (COPCs) identified include: total petroleum hydrocarbons as diesel (TPHd) and gasoline (TPHg), benzene, toluene, ethylbenzene and xylene

(BTEX), methyl tert butyl ether (MtBE), tert butyl alcohol (TBA), 1,2-dichloroethane (1,2-DCA), 1,2-dibromoethane (EDB) and naphthalene. Historical sampling results are included in Attachment A.

Remediation activities have included two separate high-vacuum dual-phase extraction (DPE) events completed in September/October 2010 and July 2012. DPE operations were completed near the abandoned in place former UST. The two remediation events yielded a removal of approximately 340 to 423 pounds of petroleum hydrocarbons.

Historical investigation result tables are included in Attachment A and sample locations are illustrated on Figure 2. A review of the indoor air results indicate benzene was detected above commercial/industrial environmental screening levels (ESLs) for indoor air (0.42 micrograms per cubic meter (µg/m^3)) in samples collected from indoor air and outdoor air (ambient) during the December 2015 sampling event. During the March 2016 sampling event, benzene was detected at one sample location above the ESL at a concentration of 0.74 µg/m^3, which is below the maximum concentration detected in the December 2015 ambient samples (1.2 µg/m^3) and above the maximum concentration detected in the March 2016 ambient samples (0.32 µg/m^3). Air sample results indicate indoor air concentrations are generally consistent with ambient air concentrations and therefore ambient air within the area of the Site is contributing in petroleum hydrocarbon detections in indoor air samples.

As a proactive approach to mitigate potential future vapor intrusion risk, Metrovation is using the occupancy transition period as an opportunity to install a SSVS and floor sealant at the Site. Apex does not recommend performance monitoring and sampling or implementation of an operations and maintenance plan associated with the passive ventilation system. Additional indoor air sampling, site investigation, and/or remediation activities will be completed as needed to achieve site closure status and documented under separate cover. Details of proposed SSVS and floor sealant are presented in the following sections.

Pre-field Activities

The activities summarized below will be completed prior to any vapor mitigation activities:

- Apex will notify underground service alert (USA) to locate potential subsurface utilities;
- Design drawings will be prepared to support procurement of City of Oakland building permits if necessary.
- The Bay Area Air Quality Management District (BAAQMD) will be notified of the passive sub-slab venting system and a permit will be acquired if necessary; and
- A Site-specific health and safety plan (HASP) will be prepared to comply with federal OSHA regulations (29 CFR, Section 1910.120). All Apex personnel and subcontractors associated with the project will be required to be familiar and comply with all provisions outlined in the HASP.

Sub-Slab Venting Activities

A layout of the proposed SSVS is illustrated on Figure 3 and construction details are provided on Figure 4. The SSVS is designed to target detections of petroleum hydrocarbons that exceed the ESL in soil vapor and sub-slab samples near the center and western portion of the Site building, and near the former UST. Conveyance piping will consist of approximately three 20-foot sections of 4-inch single walled Advanced Drainage System (ADS) perforated pipe wrapped with non-woven geotextile fabric. Piping will be completed by removing existing concrete slab and excavating a trench to a depth of approximately one-foot below grade. Upon completion, approximately 2-inches of aggregate base will be placed at the bottom of the trench, followed by ADS pipe which will then be covered by an additional 2-inches of aggregate base. The remaining four inches will be finished with reinforced concrete to match surface conditions. Conveyance piping will be routed to a ventilation point equipped with a roof ventilator. Additional or alternative ventilation points may be added based on construction of existing concrete slab encountered during installation and future interior wall locations.

Floor Sealant

Tenant improvement specifications permitting, following the completion of the SSVS, Apex will contract with a qualified contractor to apply an impermeable floor sealant on the 645 4th Street property. The floor sealant will consist of Retro-Coat™ vapor intrusion coating or similar product that is designed to be installed above existing concrete slabs and mitigate vapor intrusion. Specifications on the Retro-Coat™ product are included in Attachment B. Application of the floor sealant will be completed consistent with the manufacturer's suggested installation process. The general procedures to seal the floor include the following:

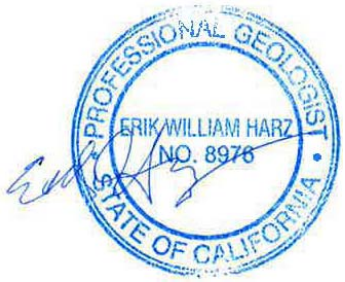
- Remove any loose material from the floor surface to bare concrete;
- Seal cracks with applicable sealing gel;
- Application of primer; and
- Application of sealing coat (two coats).

Project Reporting and Schedule

Field activities will be presented in a letter entitled *Sub-Slab Installation and Floor Sealing Report.* Apex plans to commence work immediately following the approval of the Work Plan by ACEHD. Apex estimates installation activities will take approximately one month to complete once required permits are approved and a Report will be submitted within six weeks of the completion of installation activities.

Please feel free to call the undersigned at Apex's Grass Valley office at (530) 272-4200, if you have any questions or comments.

Sincerely,



Erik Harz, P.G.
Project Geologist

Greg McIver
Principal Scientist

Figures:

1 – Site Location Map
2 – Site Plan
3 – Historical Soil Vapor and Sub-Slab Concentrations and Proposed SSVS
4 – Passive Ventilation System Construction Details

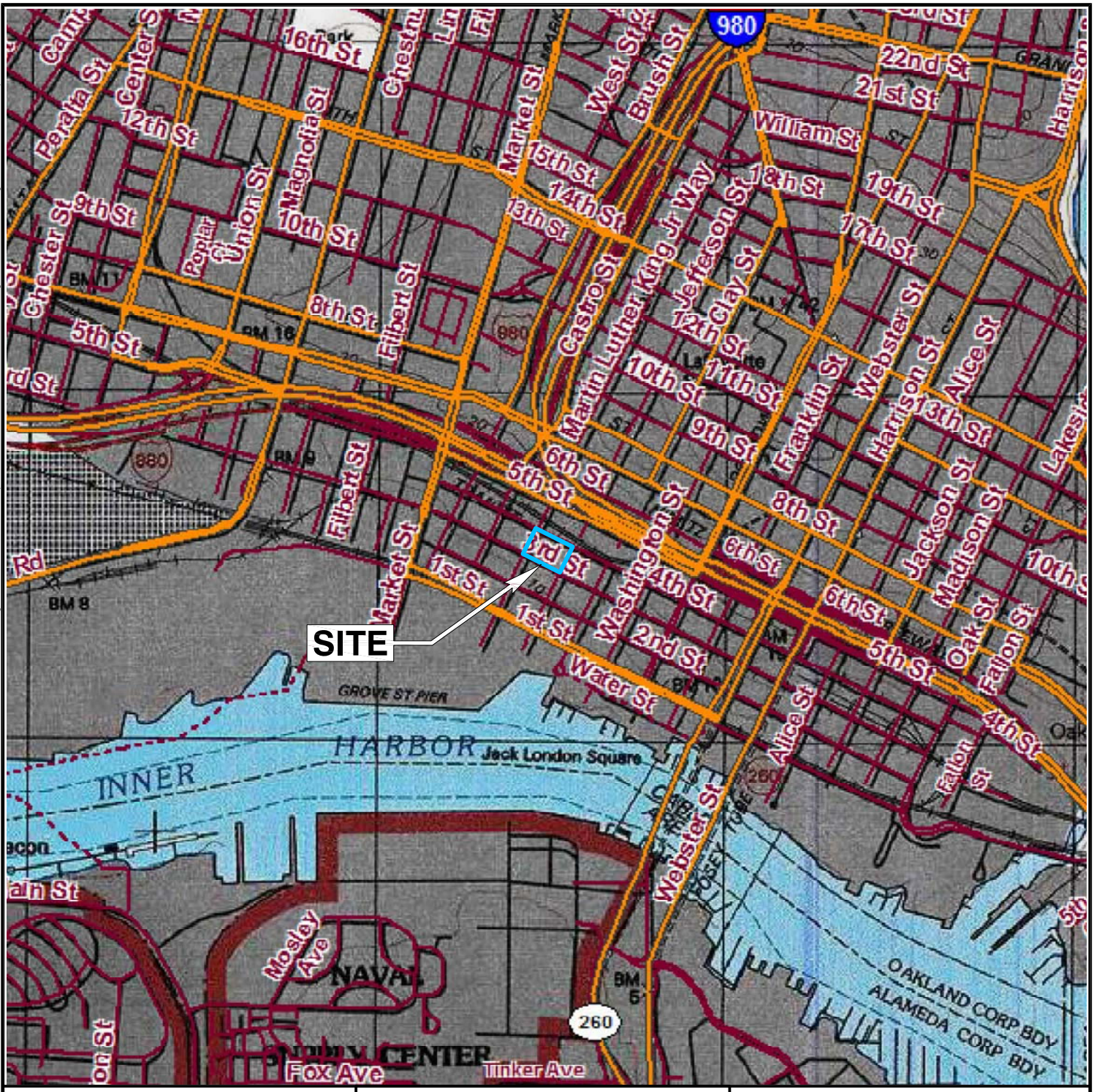
Attachments:

A – Historical Data
B – Retro-Coat™ Specifications

APEX

FIGURES

C:\Drawing Files\The Source Group\Terradev 093-Terra-001\Sub-Slab Mitigation Work Plan\Fig 1, Site Location Map - 10/26/2017



LEGEND

Site Location

REFERENCE LOCATION

Map Source:
USGS 7.5 Minute
Topographic Quadrangle Map,
Oakland West, CA - 1993, Photorevised 1997

SITE LOCATION MAP

TERRADEV
645 4th STREET
OAKLAND, CALIFORNIA

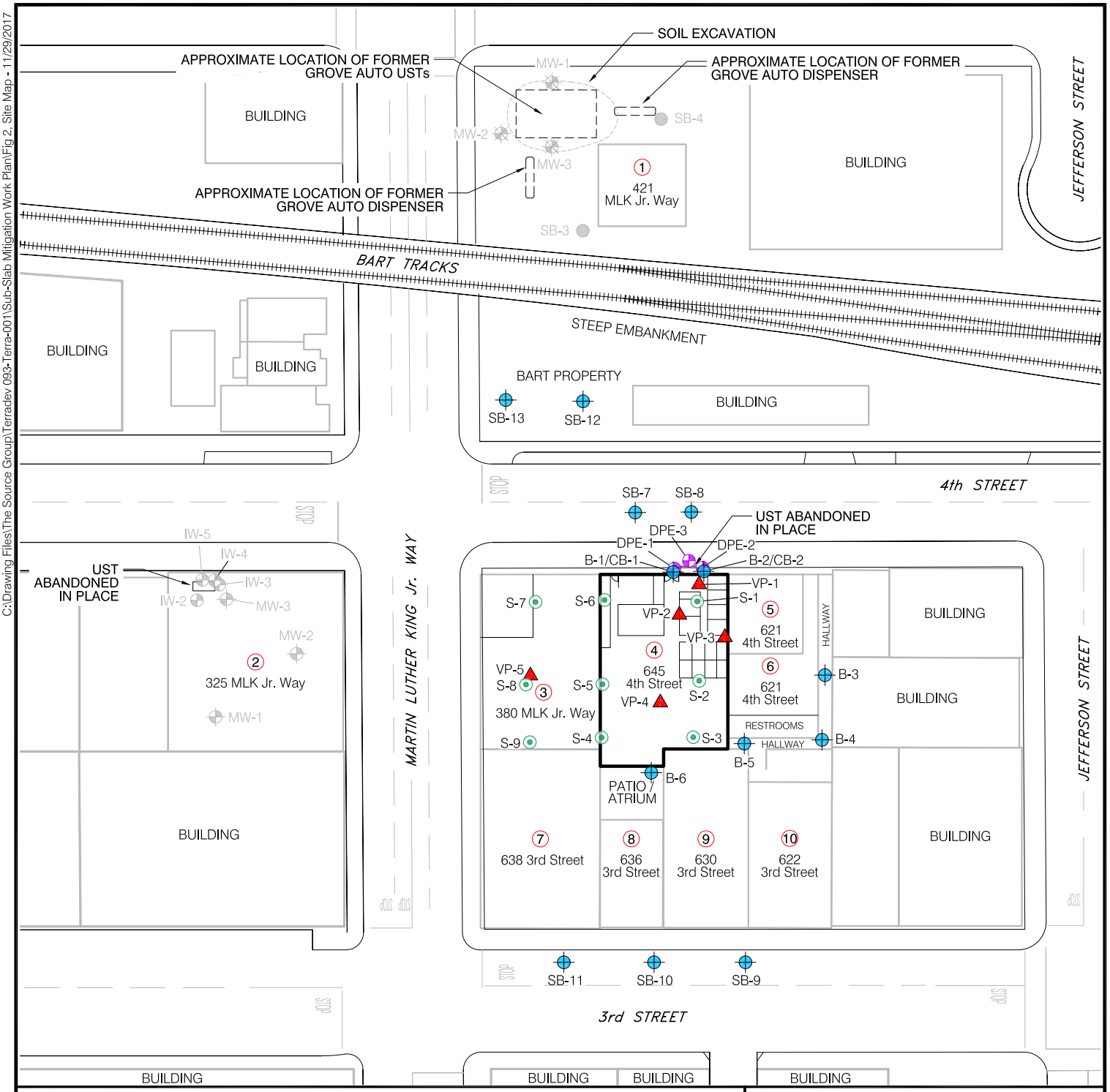
PROJECT NO.	DATE	DRAWN BY:	APP. BY:
093-Terra-001	10/26/2017	CM	GM

0 0.25 0.50
APPROXIMATE SCALE IN MILES

APEX
256 BUENA VISTA STREET SUITE 200
GRASS VALLEY, CALIFORNIA 95945

N

FIGURE 1



LEGEND

- B-6 — Soil Boring Location
- DPE-1 — Dual Phase Extraction Well Location
- VP-1 — Sub-Slab Soil Vapor Point Location
- S-1 — Passive Sampling Location
- Property Boundary
- MW-1 — Monitoring Well Location
- MW-1 — Destroyed Monitoring Well Location
- IW-2 — Project Well Location
- SB-3 — Soil Boring Location

1. Grove Auto Repair
   424 MLK Jr. Way
   (Case RO0000582)
   Existing Building
2. Allen Property
   325 MLK Jr. Way
   (CaseRO0002930)
3. Oakland Children's Hospital Early Childhood Mental Health Program
   380 MLK Jr. Way
4. Oakland Children's Hospital Early Childhood Mental Health Program
   645 4th Street
5. Waypoint
   (Nautical Charts & Books)
   621 4th Street
6. Urban Legend Cellars
   (Micro Vintner)
   621 4th Street
7. Oakland Children's Hospital Early Childhood Mental Health Program
   638 3rd Street
8. Former 3rd Street Hydroponics
   636 3rd Street
9. Oakland Metro Opera House
   630 3rd Street
10. 622 3rd Street

SITE MAP

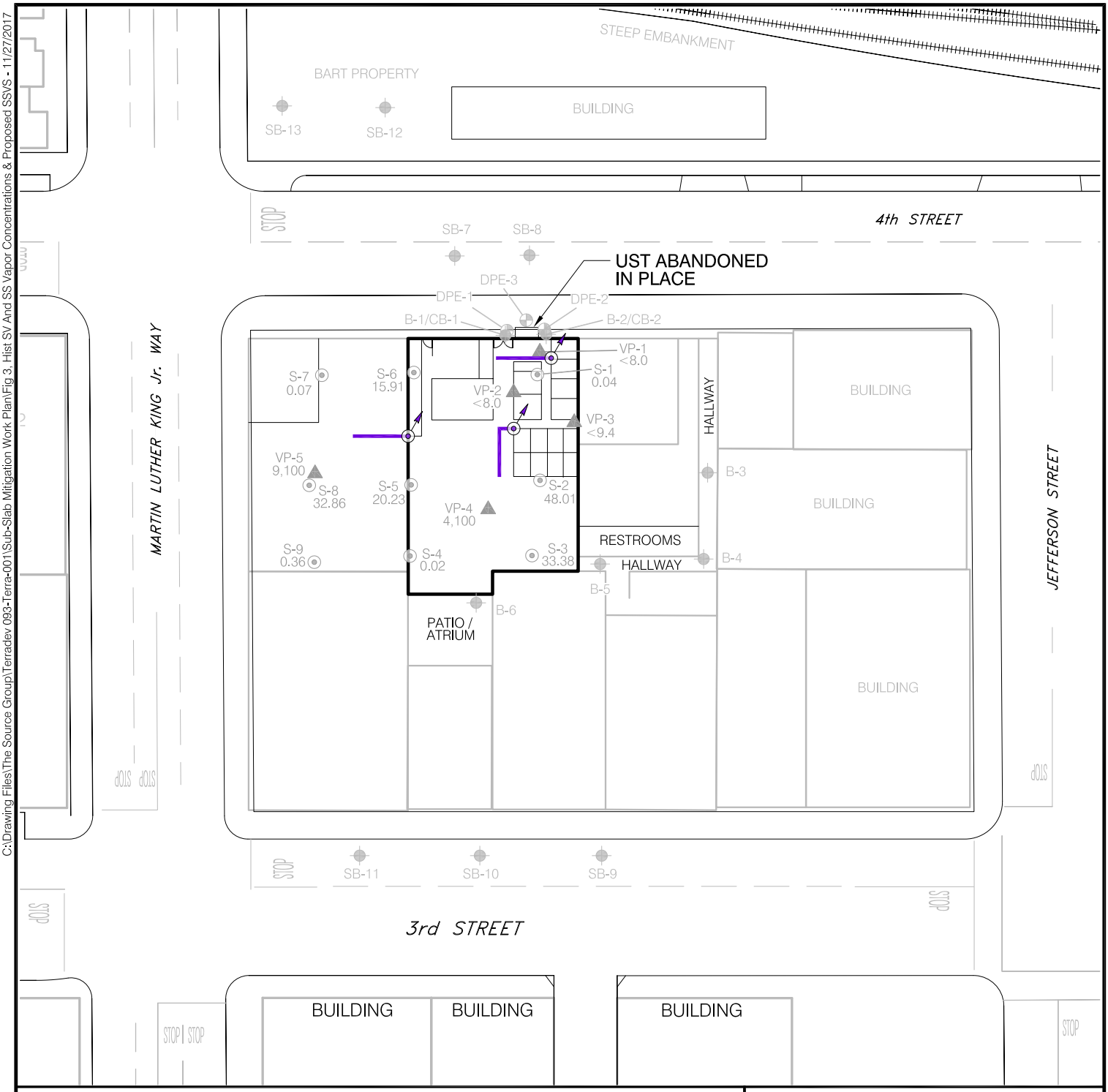
TERRADEV JEFFERSON LLC PROPERTY
645 4th STREET
OAKLAND, CALIFORNIA

PROJECT NO.:	DATE:	DRAWN BY:	APP. BY:
093-Terra-001	11/29/2017	CM	GM

0 80 160
APPROXIMATE SCALE IN FEET

APEX
256 BUENA VISTA STREET SUITE 200
GRASS VALLEY, CALIFORNIA 95945

FIGURE 2



C:\Drawing Files\The Source Group\Terradev 093-Terra-001\Sub-Slab Mitigation Work Plan\Fig 3, Hist SV And SS Vapor Concentrations & Proposed SSVS - 11/27/2017

LEGEND

- Proposed Sub-Slab Vent Piping
- Proposed Vent to Atmosphere Location
- B-6 — Soil Boring Location
- DPE-1 — Dual Phase Extraction Well Location
- VP-1 <9.4 — Sub-Slab Soil Vapor Point Location - Benzene Concentration in $\mu g/m^3$ - (3/12/16)
- S-1 0.36 — Passive Sampling Location - Benzene Concentration in μg - (2/14/15)
- Property Boundary

Note
μg - micrograms
m^3 - cubic meters

Base Map Sources:
- Google Earth, Image Date 03/11/2017

HISTORICAL SOIL VAPOR AND SUB-SLAB VAPOR CONCENTRATIONS AND PROPOSED SSVS

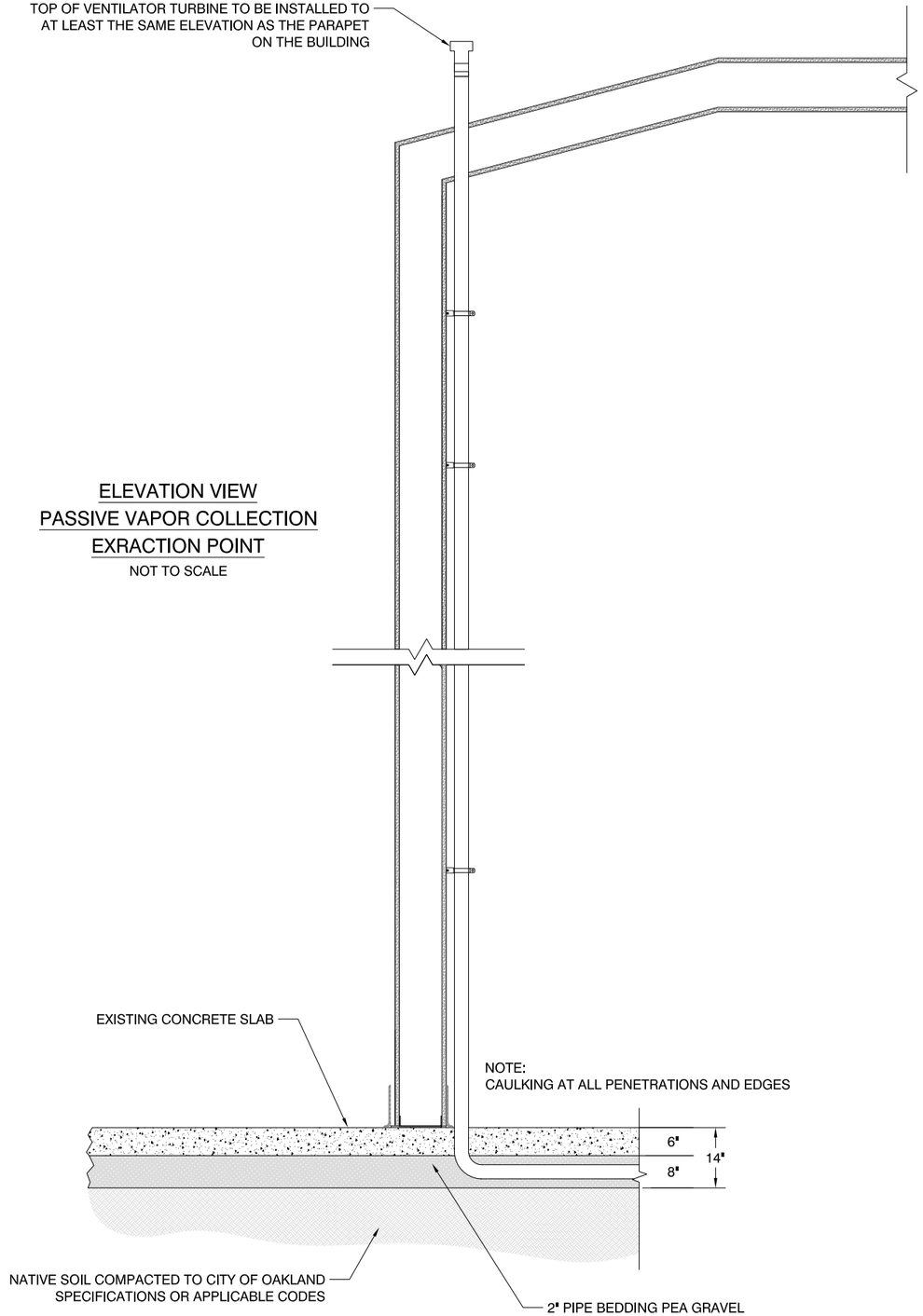
TERRADEV JEFFERSON LLC PROPERTY
645 4th STREET
OAKLAND, CALIFORNIA

PROJECT NO.:	DATE:	DRAWN BY:	APP. BY:
093-Terra-001	11/27/2017	CM	GM

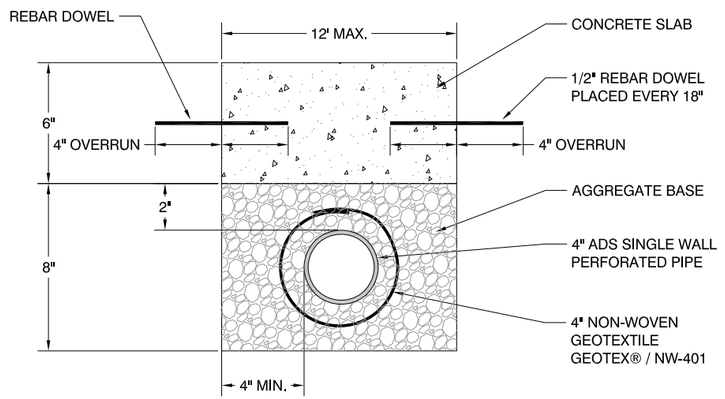
0 60 120
APPROXIMATE SCALE IN FEET

APEX
256 BUENA VISTA STREET SUITE 200
GRASS VALLEY, CALIFORNIA 95945

FIGURE 3



ELEVATION VIEW
PASSIVE VAPOR COLLECTION
EXRACTION POINT
NOT TO SCALE



BUILDING 4" VAPOR COLLECTION
TRENCH DETAIL - ELEVATION VIEW
NOT TO SCALE

CONSTRUCTION NOTES

1. ADS N-12 WT HEADER PIPE TO BE JOINED TOGETHER USING WATER TIGHT BELL-BELL COUPLERS.
2. ADS SINGLE WALL PERFORATED PIPE TO BE JOINED TOGETHER (IF APPLICABLE) USING FERNCO™. 1056 OR SPLIT COUPLER.
3. ADS N-12 WT HEADER PIPE TO BE JOINED TO ADS SINGLE WALL PERFORATED PIPE USING FERNCO™ 1056 OR SPLIT COUPLER.
4. ADS N-12 WT HEADER PIPE TO BE JOINED TO ABSPIPE RISER USING FERNCO™1056 COUPLER.
5. ADS N-12 WT AND ADS SINGLE WALL PIPE TO BE INSTALLED PER ASTM D2321.
6. ANY CHANGES TO THE GAS VENTING SYSTEM SHALL BE APPROVED BY APEX PRIOR TO CONSTRUCTION.
7. ALL JOINTS SHALL BE CONSTRUCTED IN SUCH A MANNER AS TO MAINTAIN SMOOTH ALIGNMENT OF THE INSIDE BARREL OF THE PIPE.
8. VENT RISER AND ROOF LEVEL CONVEYANCE PIPING TO BE CONNECTED USING LOW VOC SOLVENT.
9. REBAR DOWELS WILL BE PLACED EVERY 8-INCHES INTO EXISTING CONCRETE FOUNDATION AT A DEPTH OF 4-INCHES ON EITHER SIDE OF THE TRENCH.

PASSIVE VENTILATION SYSTEM CONSTRUCTION DETAILS
TERRADEV JEFFERSON LLC PROPERTY
645 4th STREET
OAKLAND, CALIFORNIA

PROJECT NO.	DATE	DRAWN BY:	APP. BY:
093-Terra-001	12/2017	CM	GM

APEX
256 BUENA VISTA STREET SUITE 200
GRASS VALLEY, CALIFORNIA 95945

FIGURE
4

ATTACHMENT A

HISTORICAL DATA

TABLE 2
Soil Sample Analytical Data
Terradev Jefferson, LLC Property
645 4th Street
Oakland, CA

Sample ID	Depth (ft bgs)	Sample Date	TPHd (mg/kg)	TPHd w/SGCU (mg/kg)	TPHg (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)	DIPE, ETBE, TAMI (mg/kg)	1,2-DCA (mg/kg)	EDB (mg/kg)	Napht. (mg/kg)
UST Removal Samples															
8795-EX-W-9'	9	8/23/06	<120	---	**10,000**	**130**	**1,000**	**230**	**1,200**	<12	<100	all<12	---	---	---
8795-EX-E-9'	9	8/23/06	<25	---	**920**	**6.8**	**55**	**18**	**110**	<1.2	<10	all<1.2	---	---	---
Investigation Samples															
DPE-1-7.5	7.5	9/20/10	**810^**	---	**6,500**	**14**	**320**	**180**	**980**	<0.50	<2.5	---	<0.50	**0.50**	---
DPE-1-12	12	9/20/10	**260^**	---	**2,300**	**26**	**160**	**45**	**240**	**0.71**	<1.5	---	<0.30	<0.30	---
DPE-1-15	15	9/20/10	**92^**	---	**770**	**10**	**53**	**15**	**80**	**0.39**	<0.50	---	**0.11**	<0.090	---
DPE-2-6	6	9/20/10	**15**	---	**1.2**	<0.0050	**0.0054**	<0.0050	**0.021**	<0.0050	<0.0050	---	<0.0050	<0.0050	---
DPE-2-11	11	9/20/10	**1,200^**	---	**160,000**	**1,400**	**10,000**	**3,300**	**19,000**	<0.25	<1.5	---	<0.25	**1.8**	---
DPE-2-15	15	9/20/10	**66^**	---	**430**	**3.8**	**25**	**8.3**	**47**	<0.50	<2.5	---	<0.050	<0.50	---
DPE-3-7	7	9/20/10	**260^**	---	**860**	**2.1**	**37**	**19**	**100**	<0.10	<0.50	---	<0.10	<0.10	---
DPE-3-10	10	9/20/10	**800^**	---	**8,900**	**78**	**580**	**180**	**980**	<0.25	<1.5	---	<0.25	**0.82**	---
CB-1-7.5	7.5	2/18/13	**1.2***	---	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---	---	<0.0050	<0.0050	---
CB-1-9	9	2/18/13	**110^**	---	**1,200**	**2.8**	**55**	**27**	**150**	<0.25	---	---	<0.25	<0.25	---
CB-1-12	12	2/18/13	**880^**	---	**14,000**	**100**	**850**	**180**	**1,400**	**0.53**	---	---	<0.25	**0.86**	---
CB-1-15	15	2/18/13	**89^**	---	**1,000**	**8.4**	**62**	**15**	**100**	<0.050	---	---	<0.050	<0.050	---
CB-2-9	9	2/18/13	**120^**	---	**840**	**0.44**	**17**	**20**	**110**	<0.15	---	---	<0.15	<0.15	---
CB-2-11	11	2/18/13	**110^**	---	**2,700**	**23**	**160**	**48**	**260**	<0.40	---	---	<0.40	<0.40	---
CB-2-15	15	2/18/13	**45^**	---	**380**	**3.9**	**18**	**6.6**	**34**	<0.050	---	---	<0.050	<0.050	---
B-6-6'	6.5	1/11/14	**340^**	**350^**	**1,700**	**0.13**	**8.0**	**12**	**91**	<0.050	<0.25	---	<0.050	<0.050	---
B-6-10.5'	10.5	1/11/14	**280^**	**280^**	**1,500**	**4.1**	**48**	**26**	**130**	<0.25	<1.5	---	<0.25	<0.25	---
SB7-8.5/9	8.5-9	12/29/14	**1.2^**	---	**4.0**	**0.16**	**0.50**	**0.081**	**0.50**	<0.0050	<0.0050	---	<0.0050	**0.0070**	**0.043**
SB7-10.5/11	10.5-11	12/29/14	**1,400^**	---	**19,000**	**150**	**1,100**	**330**	**1,800**	<0.25	<1.5	---	<0.25	**2.5**	**99**
SB7-12.5/13	12.5-13	12/29/14	**310^**	---	**3,600**	**29**	**200**	**59**	**330**	<0.090	<1.5	---	<0.090	**0.46**	**23**
SB-8-8.5/9	8.5-9	12/29/14	**750^**	---	**6,600**	**30**	**290**	**120**	**580**	<0.25	<1.5	---	<0.25	**0.38**	**38**
SB-8 11.5/12	11.5-12	12/29/14	**170^**	---	**1,400**	**6.4**	**54**	**22**	**130**	<0.25	<1.5	---	<0.25	<0.25	**10**
SB-8 14.5	14.5	12/29/14	<1.0	---	<1.0	**0.026**	**0.060**	**0.011**	**0.065**	<0.0050	<0.0050	---	<0.0050	<0.0050	<0.0050
SB-9-13	13	4/20/16	---	**9.5***	<0.994	<0.0050	<0.0050	<0.0050	<0.0099	<0.0050	<0.0050	---	<0.0050	<0.0050	<0.0050
SB-9-14	14	4/20/16	---	**16.3***	<0.994	<0.0050	<0.0050	<0.0050	<0.0099	<0.0050	<0.0050	---	<0.0050	<0.0050	<0.0050
SB-10-13	13	4/20/16	---	**20.0***	<0.982	<0.0050	<0.0050	<0.0050	<0.0098	<0.0050	<0.0050	---	<0.0050	<0.0050	<0.0050
SB-10-14	14	4/20/16	---	**12.8***	<0.984	<0.0050	<0.0050	<0.0050	<0.0098	<0.0050	<0.0050	---	<0.0050	<0.0050	<0.0050
SB-11-13	13	4/20/16	---	**13.8***	<0.992	<0.0050	<0.0050	<0.0050	<0.0099	<0.0050	<0.0050	---	<0.0050	<0.0050	<0.0050
SB-11-14	14	4/20/16	---	**12.8***	<0.998	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	---	<0.0050	<0.0050	<0.0050
SB-12-9	9	4/20/16	---	**5.5***	<0.998	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	---	<0.0050	<0.0050	<0.0050
SB-12-12	12	4/20/16	---	**14.9***	<0.982	<0.0049	<0.0049	<0.0049	<0.0098	<0.0049	<0.0049	---	<0.0049	<0.0049	<0.0049
SB-13-10.5	10.5	4/20/16	---	**11.6***	<0.992	<0.0050	<0.0050	<0.0050	<0.0099	<0.0050	<0.0050	---	<0.0050	<0.0050	<0.0050
SB-13-13	13	4/20/16	---	**14.6***	<0.998	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	---	<0.0050	<0.0050	<0.0050

Notes:

ft bgs	feet below ground surface
mg/kg	milligrams per kilogram
TPHd	total petroleum hydrocarbons as diesel by EPA Method 8015M or 8015B, w/SCGCU = analysis performed after silica-gel clean-up.
TPHg	total petroleum hydrocarbons as gasoline by EPA Method 8260B
BTEX	benzene, toluene, ethylbenzene, and xylenes by EPA Method 8260B
MTBE, TBA, ETBE, DIPE, TAME	methyl tert-butyl ether, tert-butanol, ethyl tert-butyl ether, di-isopropyl ether, tert-amyl methyl ether by EPA Method 8260B,
1,2-DCA, EDB	1,2-dichloroethane, 1,2-dibromoethane by EPA Method 8260B.
µg/L	Micrograms per liter.
<###	Not detected at or above the indicated reporting limit.
^	Laboratory Flag: Hydrocarbons are lower-boiling than typical Diesel Fuel
*	Laboratory Flag: Hydrocarbons are higher-boiling than typical Diesel Fuel
---	Data not available, not monitored, or not sampled

TABLE 3
Groundwater Analytical Data
Terradev Jefferson, LLC Property
645 4th Street
Oakland, CA

Sample ID	Sample Date	TOC (ft MSL)	DTW (ft)	LNAPL (ft)	GWE (ft MSL)	TPHd (µg/L)	TPHd w/SGCU (µg/L)	TPHg (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	TBA (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Napht. (µg/L)
Grab Groundwater Samples																	
B-1-GW*	7/10/09	--	~9.5	--	--	**5,300**	--	**78,000**	**15,000**	**13,000**	**1,700**	**10,500**	**570**	--	--	--	--
B-2-GW*	7/10/09	--	~9.5	--	--	**2,300**	--	**60,000**	**13,000**	**13,000**	**890**	**4,800**	**120**	--	--	--	--
B-3	1/10/14	--	~12	--	--	**58#**	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	--
B-4	1/10/14	--	~12	--	--	**67#**	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	--
B-5	1/10/14	--	~12	--	--	**110#**	<50	**110**	**1.2**	**1.4**	**0.65**	**4.5**	**2.7**	**200**	**43**	<0.50	--
B-6 (2)	1/11/14	--	~11	--	--	**5,200^**	**360^**	**84,000**	**1,800**	**7,600**	**2,400**	**12,000**	**5,100**	**180J**	**110**	<20	--
SB-7	12/29/14	--	~9	--	--	**60,000^**	--	**250,000**	**15,000**	**34,000**	**4,000**	**20,000**	<40	<200	**130**	**240**	**1,000**
SB-8	12/29/14	--	~9	--	--	**16,000^**	--	**180,000**	**9,100**	**22,000**	**3,000**	**16,000**	<40	<200	**130**	**140**	**1,200**
SB-9	4/20/16	--	~12.5	--	--	--	<48	<50	<0.50	<0.50	<0.50	<1.5	<0.50	<5.0	<0.50	<0.50	<0.50
SB-10	4/20/16	--	~12.5	--	--	--	<49	<50	<0.50	<0.50	<0.50	<1.5	<0.50	<5.0	<0.50	<0.50	<0.50
SB-11	4/20/16	--	~12	--	--	--	<49	**182**	<0.50	<0.50	<0.50	<1.5	**81.5**	<5.0	<0.50	**332**	<0.50
SB-12	4/20/16	--	~11.2	--	--	--	<50	**61.8**	**0.58**	**4.0**	**1.3**	**7.5**	<0.50	<5.0	<0.50	<0.50	**0.86**
Monitoring Well Data																	
DPE-1	9/22/10	15.81	9.21	0.00	6.60	<4,000 (1)	--	**120,000**	**25,000**	**18,000**	**3,300**	**17,000**	**320**	**320**	**620**	<40	--
Screen	9/28-10/3/10	15.81	--	--	--	5-day HVDPE Remedial Event											
~8' - 15'	10/18/10	15.81	9.26	sheen	6.55	<4,000 (1)	--	**97,000**	**15,000**	**20,000**	**1,600**	**11,000**	**490**	**270**	**390**	<40	--
	1/20/11	15.81	8.56	sheen	7.25	<3,000 (1)	--	**83,000**	**12,000**	**16,000**	**2,000**	**11,000**	**270**	<200	**220**	<40	--
	7/6/12	15.81	8.85	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--
	7/9-7/24/12	15.81	--	--	--	15-day HVDPE Remedial Event											
	8/12/12	15.81	9.03	0.00	6.78	<2,000 (1)	--	**71,000**	**7,500**	**9,800**	**1,000**	**6,500**	**280**	**89**	**190**	<15	--
	2/11/13	15.81	8.74	0.00	7.07	<3,000 (1)	--	**81,000**	**9,400**	**14,000**	**1,800**	**10,000**	**240**	**110**	**210**	<15	--
	1/10/14	15.81	9.84	0.00	5.97	**1,600^**	**56^**	**98,000**	**14,000**	**13,000**	**2,100**	**12,000**	**270**	**200**	**270**	<25	--
DPE-2	9/22/10	16.01	9.44	0.00	6.57	<4,000 (1)	--	**110,000**	**21,000**	**18,000**	**3,100**	**14,000**	**200**	**260**	**540**	**110**	--
Screen	9/28-10/3/10	16.01	--	--	--	5-day HVDPE Remedial Event											
~8' - 15'	10/18/10	16.01	9.48	sheen	6.53	<5,000 (1)	--	**84,000**	**11,000**	**16,000**	**1,600**	**9,200**	**77**	<200	**220**	**77**	--
	1/20/11	16.01	8.77	sheen	7.24	<5,000 (1)	--	**94,000**	**12,000**	**19,000**	**2,500**	**13,000**	**64**	<200	**220**	**88**	--
	7/6/12	16.01	9.06	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--
	7/9-7/24/12	16.01	--	--	--	15-day HVDPE Remedial Event											
	8/12/12	16.01	9.27	0.00	6.74	<2,000 (1)	--	**70,000**	**9,900**	**16,000**	**1,700**	**9,600**	**54**	<200	**160**	**56**	--
	2/11/13	16.01	8.95	0.00	7.06	<4,000 (1)	--	**60,000**	**7,300**	**9,500**	**1,400**	**7,000**	**34**	<90	**120**	<20	--
	1/10/14	16.01	10.08	0.00	5.93	**2,800^**	<50	**100,000**	**17,000**	**15,000**	**2,400**	**11,000**	**120**	**100**	**220**	**27**	--
DPE-3	9/22/10	15.87	9.43	0.00	6.44	insufficient water column for sampling (i.e. <0.5-ft)											
Screen	9/28-10/3/10	15.87	--	--	--	5-day HVDPE Remedial Event											
~6' - 10'	10/18/10	15.87	9.35	0.00	6.52	insufficient water column for sampling (i.e. <0.5-ft)											
	1/20/11	15.87	8.51	**0.13**	7.36	no groundwater sample collected, LNAPL present.											
	7/6/12	15.87	8.65	0.00	--												
	7/9-7/24/12	15.87	--	--	--	15-day HVDPE Remedial Event											
	8/12/12	15.87	9.02	sheen	6.85	<200,000 (1)	--	**190,000**	**1,400**	**7,800**	**3,700**	**29,000**	**27**	**120**	**40**	**130**	--
	2/11/13	15.87	8.34	sheen	7.53	<40,000 (1)	--	**130,000**	**4,700**	**9,000**	**1,900**	**25,000**	<40	<200	**54**	**80**	--
	1/10/14	15.87	Dry	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:

Screen	Well screen depth interval.
TOC	Top of casing relative to feet above mean sea level (ft MSL) (ref NAVD88).
DTW	Depth to water (for borings DTW shows "depth to water" and "depth to bottom of boring")
LNAPL	Light non-aqueous phase liquid petroleum, "sheen" is an immeasurable thickness (i.e. <0.01-ft)
GWE	Groundwater Elevation (TOC-DTW) in ft MSL. (This does not account for LNAPL thickness, if present).
TPHd	Total petroleum hydrocarbons as diesel by EPA Method 8015M, *8015B. SGCU = Silica-gel cleanup prior to analysis.
TPHg	Total petroleum hydrocarbons as gasoline by EPA Method 8260B, *8015B.
BTEX	Benzene, toluene, ethylbenzene, and xylenes by EPA Method 8260B, *8021B.
	Note: total xylenes equal the sum of sepearate isomers reported for the 7/09 samples.
MTBE	Methyl tert-butyl ether by EPA Method 8260B, * 8021B.
TBA	Tert-butanol by EPA Method 8260B.
1,2-DCA, EDB	1,2-dichloroethane, 1,2-dibromoethane by EPA Method 8260B.
µg/L	Micrograms per liter.
<###	Not detected at or above the indicated reporting limit.
---	Data not available, not monitored, or not sampled
^	Laboratory Flag: Hydrocarbons are lower-boiling than typical Diesel Fuel
#	Laboratory Flag: Discrete peaks in Diesel range, atypical for Diesel Fuel
J	Laboratory Flag: TBA concentration may be biased slightly high due to conversion of a small fraction of MTBE to TBA during water sample analysis.
(1)	Method detection limit increased due to ineterference from gasoline range hydrocarbons
(2)	Repeat analysis by Method 8260B yielded inconsistent results. The concentrations appear to vary between bottles. The highest valid result is reported.

TABLE 4
Passive Soil Gas Sample Analytical Data
Terradev Jefferson, LLC Property
645 Fourth Street
Oakland, CA

Sample ID	Sample Depth (ft bgs)	Install Date	Retrieval Date	TPH (µg)	DRPH (µg)	GRPH (µg)	B (µg)	T (µg)	E (µg)	X (µg)	MTBE (µg)	1,2-DCA (µg)	Napht. (µg)
S-1	~2 - 3	2/7/15	2/14/15	13.33	2.90	10.86	0.04	0.03	0.02	0.17	0.25	0.13	0.20
S-2	~2 - 3	2/7/15	2/14/15	273.77	59.21	223.55	48.01	209.52	123.77	505.33	<0.02	3.97	35.44
S-3	~2 - 3	2/7/15	2/14/15	183.36	72.98	115.01	33.38	127.13	113.16	367.48	<0.02	2.35	37.35
S-4	~2 - 3	2/7/15	2/14/15	1.00	<0.50	0.66	0.02	0.02	<0.02	0.18	<0.02	2.35	<0.50
S-5	~2 - 3	2/7/15	2/14/15	220.53	107.91	117.33	20.23	90.58	24.79	369.71	<0.02	2.01	30.63
S-6	~2 - 3	2/7/15	2/14/15	169.75	54.69	119.88	15.94	29.38	31.45	337.65	<0.02	0.90	2.45
S-7	~2 - 3	2/7/15	2/14/15	1.03	0.74	<0.50	0.07	0.15	0.06	0.59	<0.02	<0.02	<0.50
S-8	~2 - 3	2/7/15	2/14/15	245.41	106.20	145.04	32.86	103.45	76.32	421.35	<0.02	2.53	36.09
S-9	~2 - 3	2/7/15	2/14/15	<0.50	<0.50	<0.50	0.36	0.36	0.03	0.16	<0.02	0.02	<0.50

Notes:

ft bgs	feet below ground surface
µg	micrograms
TPH	Total petroleum hydrocarbons by SPG-WI-0292
DRPH	Diesel range petroleum hydrocarbons by SPG-WI-0292
GRPH	Gasoline range petroleum hydrocarbons by SPG-WI-0292
BTEX	benzene, toluene, ethylbenzene, and xylenes by SPG-WI-0292
MTBE	methyl tert-butyl ether by SPG-WI-0292
1,2-DCA	1,2-dichloroethane by SPG-WI-0292
Naphthalene	Naphthalene by SPG-WI-0292
<###	Not detected at or above the indicated reporting limit.

Table 5
SUB-SLAB VAPOR SAMPLE ANALYTICAL DATA
Terradev Jefferson LLC Property
645 4th St.
Oakland, CA

			Consituent Concentrations									Soil Gas Concentrations			Tracer Gas			Sample Can Vacuum	
Sample I.D.	Sample Date	sample container	TPHg (µg/m³)	B (µg/m³)	T (µg/m³)	E (µg/m³)	X (µg/m³)	MTBE (µg/m³)	Naphthalene (µg/m³)	1,2-DCA (µg/m³)	EDB (µg/m³)	O_2 (%)	CO_2 (%)	CH_4 (%)	In Shroud He - Avg (%)	In Sample He (%)	Leak Percent^ Leak (%)	End of Sampling ("Hg)	Arrival at Lab ("Hg)
VP-1	6/16/12	1-L	1,300	38	120	21	138	7.3	<0.09	<0.14	<0.050	15	0.096	<0.008	22.2	2.4	10.8%	~8	~6
	9/22/12	1-L	<330	<8.0	<9.4	<11	<22	<9.0	<13	<10	<3.8	19	0.78	<0.008	20.0	0.19	1.0%	~5	~6
	1/25/14	1-L	<330	<8.0	<9.4	<11	<22	<9.0	<13	<10	<3.8	14	4.7	<0.008	5.7	0.023	0.40%	~5	~5
	12/5/15	1-L	<330	<8.0	<9.4	<11	<22	<9.0	<13	<10	<3.8	11	2.6	<0.008	8.0	<0.003	<0.04%	~5	~1
	3/12/16	1-L	<330	<8.0	<9.4	<11	<22	<9.0	<13	<10	<3.8	13	2.4	<0.009	10.0	0.009	0.09%	~5	~4
VP-2	6/16/12	1-L	1,200	66	25	2.6	8.2	<6.3	<0.090	<0.14	<0.050	11	1.3	<0.009	13.8	<0.003	<0.02%	~8	~7
	9/22/12	1-L	<330	<8.0	<9.4	<11	<22	<9.0	<13	<10	<3.8	14	4.0	<0.008	19.0	<0.003	<0.02%	~7	~6
	1/25/14	1-L	<330	<8.0	<9.4	<11	<22	<9.0	<13	<10	<3.8	12	7.4	<0.008	6.6	<0.003	<0.05%	~5	~5
	12/5/15	1-L	<330	<8.0	<9.4	<11	<22	<9.0	<13	<10	<3.8	5.2	4.2	<0.010	8.3	<0.003	<0.04%	~5	~2
	3/12/16	1-L	<330	<8.0	<9.4	<11	<22	<9.0	<13	<10	<3.8	9.3	6.8	<0.010	9.6	0.009	0.09%	~5	~4
VP-3	6/16/12	1-L	960	16	19	2.9	20	<5.8	<0.08	<0.13	<0.050	16	0.029	<0.008	23.6	2.6	11%	~5	~5
	9/22/12	1-L	<330	<8.0	<9.4	<11	<22	<9.0	<13	<10	<3.8	20	0.46	<0.008	15.7	0.036	0.23%	~5	~6
	1/25/14	1-L	<330	<8.0	<9.4	<11	<22	<9.0	<13	<10	<3.8	19	1.5	<0.008	6.6	0.012	0.18%	~5	~1
VP-4	9/6/15	1-L	5,600,000	<58,000	<69,000	<79,000	600,000	<66,000	<95,000	<74,000	<140,000	7.5	0.37	<0.009	6.5	0.004	0.06%	~5	~2
	12/5/15	1-L	2,000,000	<1,100	<1,300	<1,500	55,000	<1,200	<1,800	<1,400	<530	17	2.9	<0.007	8.2	<0.003	<0.04%	~5	~3
	3/12/16	1-L	10,000,000	4,100	6,500	<1,700	22,400	<1,400	<2,000	<1,600	<590	0.82	13	0.055	8.7	0.28	3.2%	~5	~4
VP-5	9/6/15	1-L	5,000,000	180,000	140,000	110,000	1,390,000	<54,000	<78,000	<60,000	<110,000	2.7	3.3	<0.007	7.0	<0.003	<0.04%	~5	~3
	12/5/15	1-L	8,200,000	170,000	180,000	150,000	1,310,000	<12,000	<18,000	<14,000	<5,300	1.9	13	0.008	8.2	<0.003	<0.04%	~5	~1
	3/12/16	1-L	780,000	9,100	6,500	3,700	208,000	<1,300	<1,900	<1,400	<550	15	1.6	<0.007	8.9	0.13	1.5%	~5	~2

Subslab Soil Gas Sceening Levels Calculated as: Screening level (subslab soil gas) = Screening level (indoor air) / 0.05

ESLs Residential Indoor Air divided by 0.05	*2,000*	*1.9*	*6,200*	*22*	*2,000*	*220*	*1.7*	*2.2*	*0.094*
ESLs Comm/Indus Indoor Air divided by 0.05	*2,000*	*8.4*	*26,000*	*98*	*8,800*	*940*	*7.2*	*9.4*	*0.40*

Indoor Air Screening Levels

ESLs Residential Indoor Air	*100*	*0.097*	*310*	*1.1*	*100*	*11*	*0.083*	*0.11*	*0.0047*
ESLs Comm/Indus Indoor Air	*100*	*0.42*	*1,300*	*4.9*	*440*	*47*	*0.36*	*0.47*	*0.020*

Notes:

TPHg	Total Petroluem Hydrocarbons as gasoline by EPA Method TO-15
BTEX, MTBE	Benzene, Toluene, Ethylbenzene, and Total Xylenes, Methyl tert-Butyl Ether by EPA Method TO-15(M) GC/MS (note: Xylene number shown in table is the sum of xylene isomers reported by lab)
Naphthalene	Naphthalene by EPA Method TO-15
1,2-DCA, EDB	1,2-dichloroethane, 1,2-dibromoethane by EPA Method TO-15
O_2, CO_2, CH_4, He	Oxygen, Carbon Dioxide, Methane, and Helium by modified ASTM D-1946
µg/m³	Micrograms per cubic meter
<#.##	Compound not detected at or above the reported laboratory detection limit
ESLs	Environmental Screening Levels for Indoor Air in Commercial/Industrial or Residential setting (SFBRWQCB 2016)
Tracer Gas in Shroud	Concentration range of tracer gas in shroud recorded during sample collection. Average = (Max + Min) / 2
Tracer Gas in Sample	Concentration of tracer gas in sample as detected by lab analysis.
Tracer Gas Leak into Sample	If helium was detected in the sample, the concentration measured in the sample was divided by the average concentration in the shroud (and multiplied by 100 to convert to percent).
	^ a leak of less than 5% is considered acceptable for data evaluation.
	Shaded samples indicate a tracer gas leak of more than 5%.

Table 6
AIR SAMPLE ANALYTICAL DATA
Terradev Jefferson LLC Property
645 4th St.
Oakland, CA

				Consituent Concentrations									Sample Can Vacuum	
Sample I.D.	Sample Date	Sample Duration	sample container	TPHg ($\mu g/m^3$)	B ($\mu g/m^3$)	T ($\mu g/m^3$)	E ($\mu g/m^3$)	X ($\mu g/m^3$)	MTBE ($\mu g/m^3$)	Naphthalene ($\mu g/m^3$)	1,2-DCA ($\mu g/m^3$)	EDB ($\mu g/m^3$)	End of Sampling ("Hg)	Arrival at Lab ("Hg)
Indoor Air Samples														
645 4th	12/5/15	8 hrs	6-L	36	1.8	5.4	1.2	5.4	<3.6	<0.05	<0.08	<0.03	~2.5	~1
	3/12/16	8 hrs	6-L	<9.8	0.74	<3.8	<0.87	<8.6	<3.6	<0.05	<0.08	<0.03	~0	~0
380 MLK	12/5/15	8 hrs	6-L	17	2.0	5.4	1.2	4.9	<3.6	<0.05	<0.08	<0.03	~0	~0
	3/12/16	8 hrs	6-L	<9.8	0.42	<3.8	<0.87	<8.6	<3.6	<0.05	<0.08	<0.03	~4	~2
638 3rd	12/5/15	8 hrs	6-L	<9.8	1.2	<3.8	<0.87	<8.6	<3.6	<0.05	<0.08	<0.03	~5	~3
	3/12/16	8 hrs	6-L	<9.8	0.36	<3.8	<0.87	<8.6	<3.6	<0.05	<0.08	<0.03	~5	~2
Outdoor Air Samples														
R-1	12/5/15	8 hrs	6-L	<9.8	0.78	<3.8	<0.87	<8.6	<3.6	<0.05	<0.08	<0.03	~5	~2
	3/12/16	8 hrs	6-L	<9.8	0.31	<3.8	<0.87	<8.6	<3.6	<0.05	<0.08	<0.03	~1	~0
R-2	12/5/15	8 hrs	6-L	<9.8	1.2	<3.8	<0.87	<8.6	<3.6	<0.05	<0.08	<0.03	~4.5	~1
	3/12/16	8 hrs	6-L	<9.8	0.32	<3.8	<0.87	<8.6	<3.6	<0.05	<0.08	<0.03	~3.25	~0

Indoor Air Screening Levels

ESLs Residential Indoor Air	*100*	*0.097*	*310*	*1.1*	*100*	*11*	*0.083*	*0.11*	*0.0047*
ESLs Comm/Indus Indoor Air	*100*	*0.42*	*1,300*	*4.9*	*440*	*47*	*0.36*	*0.47*	*0.020*

Notes:

TPHg	Total Petroluem Hydrocarbons as gasoline by EPA Method TO-15
BTEX, MTBE	Benzene, Toluene, Ethylbenzene, and Total Xylenes, Methyl tert-Butyl Ether by EPA Method TO-15(M) GC/MS (note: Xylene number shown in table is the sum of xylene isomers reported by lab)
Naphthalene	Naphthalene by EPA Method TO-15
1,2-DCA, EDB	1,2-dichloroethane, 1,2-dibromoethane by EPA Method TO-15
$\mu g/m^3$	Micrograms per cubic meter
<#.##	Compound not detected at or above the reported laboratory detection limit
ESLs	Environmental Screening Levels for Indoor Air in Commercial/Industrial or Residential setting (SFBRWQCB 2016)

ATTACHMENT B

RETRO-COAT™ SPECIFICATIONS

Retro-Coat™

Vapor Intrusion Coating

Vapor Intrusion Coating System **for Existing Structures**

Product Description

The Retro-Coat™ Vapor Intrusion Coating System is a complete product line that consists of chemically resistant materials to properly protect existing structures from the threat of contaminant vapor intrusion without the need for additional concrete protection. Developed by the R&D team of Land Science®, the Retro-Coat system has been subjected to rigorous testing procedures to prove its ability to combat the most aggressive chemical vapors. The main component of the Retro-Coat system is the Retro-Coat coating which is a two part, odorless, no VOC, 100% solids coating.

Retro-Coat finishes to a high gloss, easy-to-clean surface that is impervious to vapor and moisture transmission. Available in a variety of colors, Retro-Coat can be applied on damp as well as dry concrete, concrete masonry units, tile, brick and metal. For enhanced slip resistance, a suitable aggregate can be added. In addition, other additives or materials can be utilized to achieve a desired performance or aesthetic look.

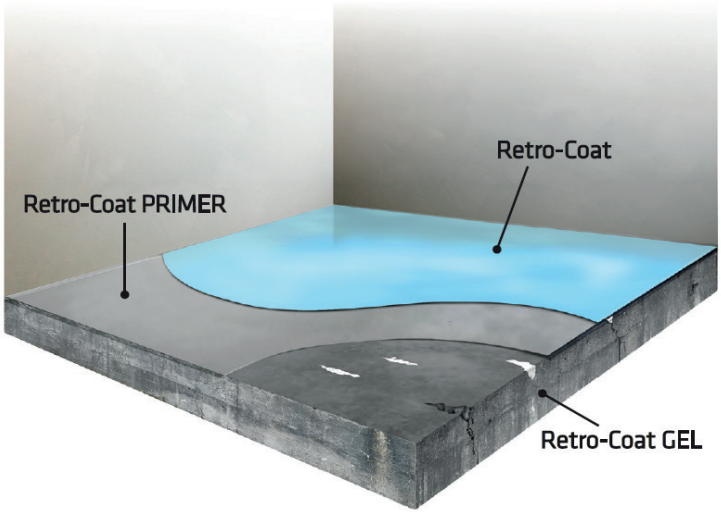
Typical Application

Retro-Coat is suitable as a barrier to block contaminated vapors from entering existing structures. Particular uses include coating the horizontal surfaces of existing structures where contamination under, or adjacent to, a structure can potentially migrate inside the structure and create a vapor encroachment condition. This condition is most commonly found when the existing structure was operated as a dry cleaner, gas station, manufacturing facility or located in close proximity to any structure where carcinogenic chemicals were utilized.

A typical application consists of a minimum 20 mil thick system; consisting of two 10 mil coats of Retro-Coat at 160 SF/gallon per coat and is recommended along with a 6 mil coat of Retro-Coat PRIMER. The typical 20 mil application can withstand forklift traffic, other machinery and even act as secondary containment. However, if Retro-Coat is exposed to harsh conditions over a longer period of time and/or used for a unique application, please consult with a LST representative to discuss options and a recommended approach.

Retro-Coat Advantages

Retro-Coat™
Vapor Intrusion Coating



- Our R&D team developed all of the Retro-Coat system components specifically for vapor intrusion protection in existing structures
- Retro-Coat is resistant to both TCE and PCE, the vast majority of coatings cringe at such aggressive chemicals
- Retro-Coat is a wearing surface, meaning no additional concrete protection is necessary
- No odor and fast cure time reduce building downtime
- Carpet, tile, linoleum or other floor coverings can be applied directly over Retro-Coat, if desired
- Eliminates the need to remove the existing slab and when combined with *in situ* treatment, lowers overall remediation cost
- Retro-Coat can increase the performance of an existing active sub-slab depressurization system
- Retro-Coat can aid in the retiring of existing active systems
- Available and installed by Land Science certified contractors

Installation

Particular care must be taken to follow those instructions precisely to assure proper installation. These instructions pertain to a standard 20 mil application; please contact us if the desired application is different.

1. New concrete should be allowed to cure a minimum of 28 days and/or be checked with a rubber mat or plastic sheet to ensure adequate curing time has occurred.
2. All surfaces to be covered should be power washed, shot blasted, acid etched, scarified or sanded to present a clean, sound substrate to which to bond to. The prepared surface should have a ph of 7.
3. Any bugholes and cracks wider than 1/8" should be filled with Retro-Coat PREP and allowed to dry before coating. More severely damaged concrete or other special conditions will require the proper Retro-Coat product.
4. When installing the standard 20 mil application of Retro-Coat, apply a 6 mil coat of Retro-Coat PRIMER and allow to dry prior to applying the initial coat of Retro-Coat. Priming may not be necessary when Retro-Coat is applied to a thickness greater than 20 mils. On new concrete or old concrete with an open porosity and on wood surfaces apply Retro-Coat PRIMER and allow to dry.
5. The two Retro-Coat ingredients should be mixed in the prescribed ratios, using a low speed "jiffy-style" mixer, (maximum 750 rpm). Mix Part A for about 1 minute then, add Part B and mix until uniform in color and consistency (at least one additional minute.)
6. Do not mix less than the prescribed amount of any ingredient or add any solvent to the mix.
7. Apply the mixed Retro-Coat material with a short nap roller, a squeegee or a brush. Apply approximately 160 SF per gallon per coat to achieve 10 mils of coating.
8. Apply a second coat while the first coat is still tacky if using spike shoes or dry enough to walk on, but before 7 hours at 75°F. If the first coat has set and is no longer tacky then the first coat should be sanded before recoating.
9. A suitable aggregate may be broadcast onto the surface after backrolling to provide more anti-slip profile to the finished surface. It is advisable to test various types and sizes of aggregate to achieve the desired finished profile.

Product Specification

The specified area shall receive an application of Retro-Coat as manufactured by Land Science. The material shall be installed by precisely following the manufacturer's published recommendations pertaining to surface preparation, mixing and application. The material shall be a low odor, two part, solvent free 100% solids, high gloss flexibilized system with good resilience to resist thermal and mechanical shock. It should be able to be roller applied at a minimum of 10 mils thickness per coat on vertical surfaces without sagging (at ambient conditions). The system must adhere to damp as well as dry concrete, wood, metal tile, terrazzo and sound existing epoxy and urethane coatings. It shall have tensile elongation of at least 6.0% when tested under ASTM-638. Its bond strength to quarry tile shall exceed 1000 psi when tested with an Elcometer pull test. Its hardness shall not exceed 83, as measured on the Shore D scale. The system shall be unaffected by oils and greases and shall withstand chemical attack for at least 72 hours against 98% sulfuric, 50% hydrofluoric acid, glacial acetic acid and acrylonitrile.

Precautions

1. This is a fast reacting product; immediately pour onto floor after mixing and spread with notched squeegee. Recoat window without sanding at 70°F: 8 hours
2. A severe skin and eye irritant; check MSDS before use
3. Do not apply below 50°F

Note: Failure to follow the above instruction, unless expressly authorized by a Land Science Representative, will void our material warranty.

Chemical Resistance

Retro-Coat™ is considered chemically resistant to neat concentrated acids, caustics and solvents. For permeation or diffusion coefficients please contact Land Science.

Physical Properties

Tensile Strength (ASTM D-638) : 9800 psi

Tensile Elongation (D-638) : 6.0%

Flexural Strength (D-790) : 7035 psi

Hardness, Shore D (D-2240) : 83

Gardner Impact Strength (D-2794) : 80 in. lbs.

Bond Strength to Quarry Tile : >1000 psi

Vapor Transmission Rate (E-96) : .027 perms

Water Absorption (D-570) : 0.2% in 24hrs.

Taber Abrasion (D-1044) : 86 mg loss.

60° Gloss : 100

Physical Characteristics

Density, lbs/gal.	Mixing Ratios	By Volume	By Weight	
Pt. A : 11.0	Pt. A : Pt. B	2:1	2.3:1	
Pt. B : 8.9				
A&B Mixed : 9.3	**Curing Times @**	**50° F**	**77°F**	**90°F**
Viscosity @ 77°F, cps	Pot Life	35 min.	30 min.	20 min.
Pt. A : 18,400	Working Times	20 min.	20 min.	15 min.
Pt. B : 500	Hard, Foot Traffic	14 hrs.	7 hrs.	3 ½ hrs.
A&B Mixed : 4800	Maximum hardness and chemical resistance are achieved after 7 days at 77°F			

Color Availability

Standard colors: beige, black, blue, dark gray, green, gray, red, white, yellow

Shelf Life: 1 Year at 77°F in unopened containers

Packaging and Coverage Rates (for 20 mil coverage)

4 Gallon Kit : 320 SF

20 Gallon Kit : 1600 SF

100 Gallon Kit : 8,000 SF

World Class Clients

Environmental consultants, engineers, and real estate professionals trust Land Science to produce results knowing our expertise and industry knowledge has been proven time and again at the job site. Our world class clients include leaders in the food, banking, government, and housing industries.

Get Started Today

To recieve a custom vapor intrusion solution, please call **949.481.8118** or email **info@landsciencetech.com**

One of our Technical Solutions Managers will review your project details and provide you with a customized vapor intrusion solution designed to achieve your goals.

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