

**From:** [Socha, Betty](#)  
**To:** [Koepke, Cynthia L - DNR](#)  
**Cc:** [Langdon, Robert](#)  
**Subject:** Vapor Mitigation System Revised Change Order #8  
**Date:** Wednesday, February 26, 2020 6:18:06 PM  
**Attachments:** [Figure 1 Site Map with Proposed Horizontal Vapor System.pdf](#)  
[Revised Change Order 8 SCS Cost Spreadsheet v0.0.xlsx](#)  
[Revised Change Order 8 DERF Cost Spreadsheet v0.0.xls](#)

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Cindy, we are providing this revised DERF Change Order 8 for mitigation of the Dream Bikes unit. Our original Change Order 8 assumed installation of a vertical sub-slab depressurization system, similar to a radon system. Based on further inspection of the Dream Bikes unit and meetings with the owner, we are proposing installation of a horizontal sub-slab depressurization system which would be installed within a single trench through the floor slab. The approximate layout of the system is shown on the attached figure. The trench would run the length of the unit as shown on the attached sketch. While this system is more costly than the vertical system, it will take less time to install the piping, should be more effective, and will likely be less disruptive to existing and future tenants.

The proposed horizontal system installation includes the following tasks:

- Coordinate/attend site meetings with owner and mitigation contractors.
- Develop scope and cost estimate.
- Design testing including sub-slab vacuum/vapor screening, inspection of floors, utility locating, and soil sampling for waste characterization prior to construction.
- Constructing temporary wood ramp at back entrance of building to move equipment and supplies.
- Moving tenant's materials to expose work areas.
- Cutting out a 2 foot wide section of floor slab over a length of approximately 100 feet running down approximate center of the unit.
- Excavating 1 foot wide trench through soil to a depth of approximately 14 inches below the bottom of the floor slab.
- Installing sub-slab vent lines (approximately 2 inch) in trench and backfill trench with stone.
- Sealing top of trench with vapor barrier and resurfacing with concrete.
- Stubbing up vent lines at back of building interior, installing valves and reducing to single line to be extended out the back wall of building.
- Running exterior vent line to roof and connect it to a single blower.
- Connecting power.
- Commissioning of system.
- Preparing OMM Plan and Construction Report
- Disposal of concrete and approximately 8 tons of soil (assumed hazardous requiring treatment prior to disposal).

We've attached a revised SCS cost estimate and DERF linking spreadsheet to address the change in scope. We are working with Alexander to arrange access for the design testing and associated work to be done on Monday – March 2<sup>nd</sup>. With that start date for design work we would (tentatively) install the system about March 15-18<sup>th</sup>. (Contractor estimates 4 days to do the installation).

Please let us know your comments and questions.  
Thank you,

**Betty J. Socha, PhD, PG**

Senior Project Manager/Hydrogeologist

**SCS ENGINEERS**

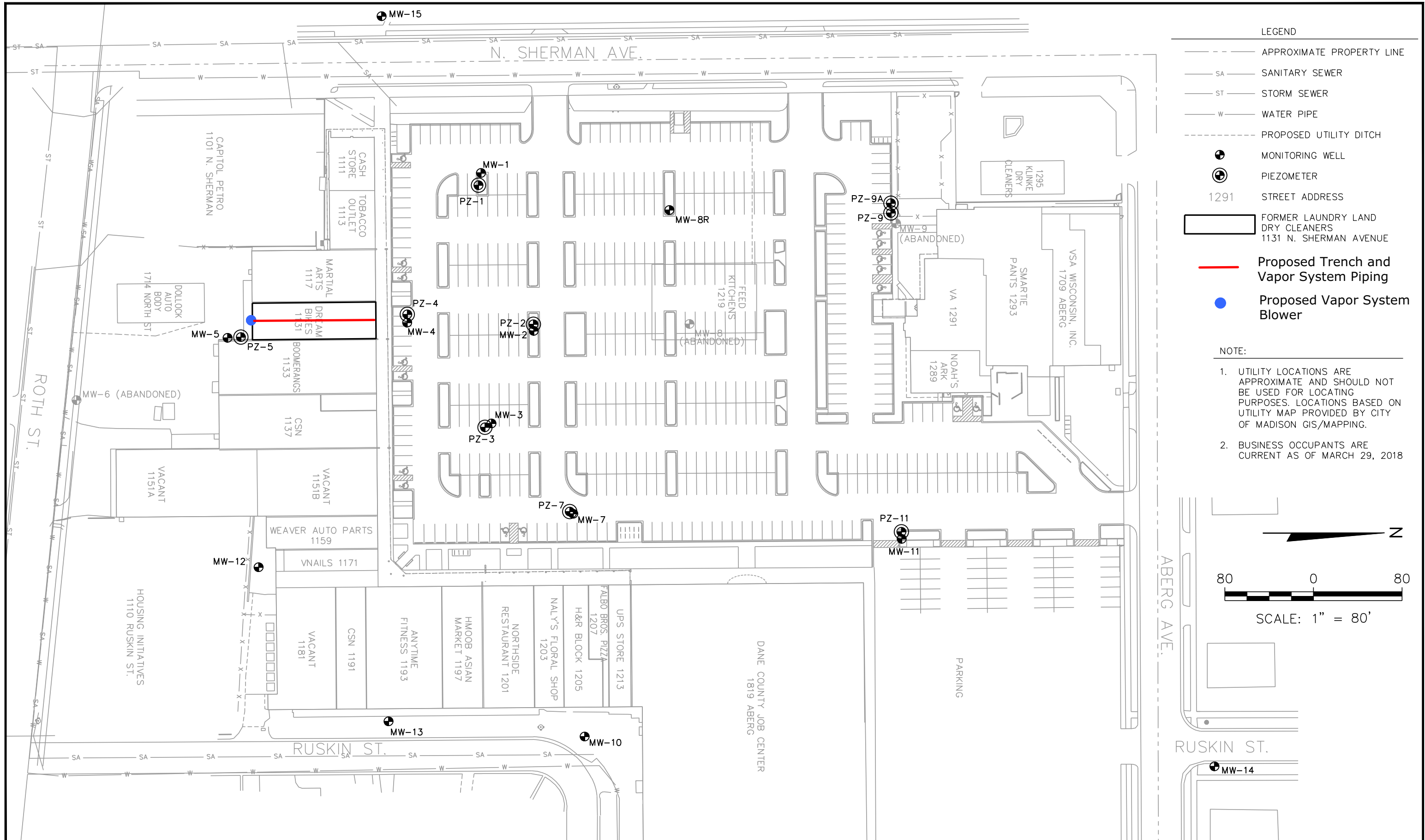
2830 Dairy Drive

Madison, WI 53718

608.224.2830

Direct: 608.216.7331

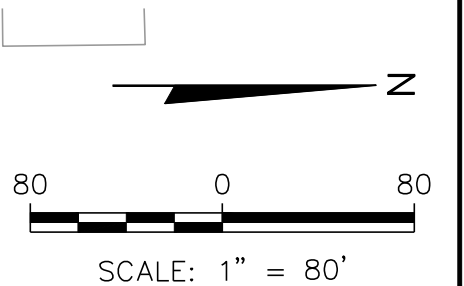
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LEGEND

- APPROXIMATE PROPERTY LINE
- SA SANITARY SEWER
- ST STORM SEWER
- W WATER PIPE
- - - - PROPOSED UTILITY DITCH
- ⊕ MONITORING WELL
- ⊕ PIEZOMETER
- 1291 STREET ADDRESS
- FORMER LAUNDRY LAND  
DRY CLEANERS  
1131 N. SHERMAN AVENUE
- Proposed Trench and Vapor System Piping
- Proposed Vapor System Blower

- NOTE:
1. UTILITY LOCATIONS ARE APPROXIMATE AND SHOULD NOT BE USED FOR LOCATING PURPOSES. LOCATIONS BASED ON UTILITY MAP PROVIDED BY CITY OF MADISON GIS/MAPPING.
  2. BUSINESS OCCUPANTS ARE CURRENT AS OF MARCH 29, 2018



PROJECT NO. 25211374.50	DRAWN BY: BJM	<b>SCS ENGINEERS</b> 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	CLIENT NORTHGATE PARTNERSHIP 7625 BONETTI ROAD DANE, WI 53529	SITE NORTHGATE SHOPPING CENTER 1127 NORTH SHERMAN AVE. MADISON, WI	FIGURE 1
DRAWN: 08/25/16	CHECKED BY: BS				
REVISED: 06/28/18	APPROVED BY:				

Site Name: Former Laundry Land  
 BRRTS #: 02-13-552183  
 Type of Action: Remedial Action / Interim Action

Dry Cleaner Environmental Response Program  
 Reimbursement Cost Detail Linking Spreadsheet Form 4400-214D (R 08/12)

TASKS	BUDGET										Total Approved Budget	Previous Claims (if applicable)	Total Invoiced Costs	Budget Remaining Use (-) to indicate cost over-run	% Task Complete, Remarks
	Bid / Budgeted Amount	07/31/09 Change In Scope	07/30/10 CO #1	06/15/12 CO #2	08/03/12 CO #3 Interim	11/30/12 CO #4 RA	08/03/14 (1) CO #5	9/19/2017 CO #6	2/26/2020 Revised CO #8						
<b>Consultant Costs</b>															
Investigation	\$ 3,045.00	\$ (1,090.50)				\$ 3,976.00					\$ 5,930.50	\$ 1,954.50	\$ 5,275.50	\$ (1,299.50)	100% Complete
SVE Pilot Test	\$ 8,790.00										\$ 8,790.00	\$ 8,735.80	\$ -	\$ 54.20	100% Complete
SVE System	\$ 11,074.00										\$ 11,074.00	\$ 1,227.45	\$ -	\$ 9,846.55	Need to be determined by vapor mitigation system performance
SVE O&M (includes yr 2 \$7,265)	\$ 12,850.00										\$ 12,850.00	\$ -	\$ -	\$ 12,850.00	Need to be determined by vapor mitigation system performance
GW Injection Pilot	\$ 11,232.00	\$ 2,866.50	\$ 4,984.00								\$ 19,062.50	\$ 23,565.76	\$ -	\$ (4,503.26)	100% Complete
GW Injections	\$ 9,980.00					\$ 9,121.00	\$ 10,000.00				\$ 29,101.00	\$ 12,491.15	\$ 17,274.24	\$ (664.39)	100% Complete
GW Injections O&M (includes yr 2 \$33,052)	\$ 39,576.00			\$ 5,740.00							\$ 52,476.00	\$ 24,260.02	\$ 19,567.41	\$ 8,648.57	100% Complete
Reports	\$ 10,775.00			\$ 5,604.00		\$ 320.00		\$ 7,160.00			\$ 16,699.00	\$ 7,354.75	\$ 3,246.55	\$ 6,097.70	80% Complete, remaining for closure reporting
Interim Workplan					\$ 2,469.00						\$ 2,469.00	\$ 2,469.00	\$ -	\$ 1.00	100% Complete
Interim Utilities Investigation/re-Survey Site					\$ 1,496.00						\$ 1,496.00	\$ 1,474.50	\$ -	\$ 21.50	100% Complete
Interim Shorefront Geoprobe Soil Inv.					\$ 1,631.00						\$ 1,631.00	\$ 383.50	\$ 912.00	\$ 335.50	100% Complete
Interim 15 Addit. Vapor Samples (Indoor)					\$ 6,067.00		\$ 2,997.00				\$ 9,064.00	\$ 6,473.85	\$ 3,965.45	\$ (978.30)	100% Complete
Interim 5 Addit. Monitoring Wells					\$ 6,632.00						\$ 6,632.00	\$ 2,099.50	\$ 4,719.70	\$ (178.20)	100% Complete
Interim 1 bedrock Piezometer					\$ 4,030.00		\$ 6,868.00				\$ 10,898.00	\$ 10,898.00	\$ -	\$ -	100% Complete
Interim Reporting/Change Orders					\$ 4,648.00						\$ 4,648.00	\$ 1,514.00	\$ 4,840.00	\$ 134.00	100% Complete
Interim SI Report								\$ 1,840.00			\$ 1,840.00	\$ -	\$ 1,840.00	\$ -	100% Complete
Interim Vacuum Connectivity Testing								\$ 12,720.00			\$ 12,720.00	\$ -	\$ 4,059.90	\$ 4,059.90	30% Complete
Interim Vacuum Connectivity System								\$ 4,030.00			\$ 4,030.00	\$ -	\$ 4,480.50	\$ (450.50)	100% Complete
1131 N. Sherman Vapor Mitigation System											\$ 21,695.00	\$ -	\$ -	\$ 21,695.00	0% Complete
Constant Cost Total	\$ 107,322.00	\$ 1,778.00	\$ 4,984.00	\$ 11,344.00	\$ 26,973.00	\$ 13,417.00	\$ 19,865.00	\$ 25,780.00	\$ 21,695.00	\$ 21,695.00	\$ 233,106.00	\$ 104,891.78	\$ 72,541.45	\$ 55,672.77	
<b>Sub-Contractor Costs</b>															
Laboratory	\$ 21,208.00	\$ (738.00)	\$ 3,316.00	\$ 4,320.00				\$ 1,200.00			\$ 29,306.00	\$ 15,918.00	\$ 10,918.00	\$ 2,470.00	Laboratory cost for proposed annual groundwater sampling round
Drilling	\$ 52,800.75	\$ (1,038.00)									\$ 51,762.75	\$ 48,795.00	\$ -	\$ 2,967.75	100% Complete
Remedial System	\$ 3,500.00		\$ 220.00								\$ 3,720.00	\$ -	\$ -	\$ 3,720.00	100% Complete
Trenching/Sidewalk Repair/borings basement	\$ 7,000.00										\$ 7,000.00	\$ -	\$ -	\$ 7,000.00	Reserved for potential SVE system if needed
Electrician	\$ 600.00										\$ 600.00	\$ -	\$ -	\$ 600.00	Reserved for potential SVE system if needed
Injection Materials (whey/sodium bromide/soda ash, etc.)	\$ 14,840.00							\$ (10,000.00)			\$ 4,840.00	\$ 2,103.64	\$ 1,016.17	\$ 1,720.19	100% Complete
Waste Disposal	\$ 1,380.00			\$ 25.00							\$ 1,414.00	\$ 1,404.76	\$ -	\$ 9.24	100% Complete
Private Utility Locate	\$ 218.25								\$ 500.00		\$ 718.25	\$ 218.25	\$ -	\$ 500.00	100% Complete
Interim Laboratory					\$ 6,000.00		\$ 1,900.00		\$ 465.00		\$ 8,365.00	\$ 3,477.00	\$ 4,214.40	\$ 673.60	100% Complete
Interim Drilling					\$ 28,309.00		\$ 867.00				\$ 29,176.00	\$ 18,846.00	\$ 8,967.00	\$ 4,363.00	100% Complete
Interim Waste Disposal					\$ 4,400.00				\$ 11,935.00		\$ 16,335.00	\$ 2,359.92	\$ 331.37	\$ 13,643.71	100% Complete
Interim Private Utility Locate/Roto Rooter					\$ 1,000.00						\$ 1,000.00	\$ 309.00	\$ 432.00	\$ 259.00	100% Complete
Interim Vacuum Connectivity Testing								\$ 3,300.00			\$ 3,300.00	\$ -	\$ 2,275.00	\$ 1,025.00	60% Complete
Interim Vapor Mitigation System Contractor									\$ 25,000.00		\$ 25,000.00	\$ -	\$ -	\$ 25,000.00	100% Complete
Sub-Contractor Cost Total	\$ 101,556.00	\$ (1,778.00)	\$ 3,536.00	\$ 4,345.00	\$ 39,709.00	\$ -	\$ (7,233.00)	\$ 4,500.00	\$ 37,900.00	\$ 37,900.00	\$ 182,537.00	\$ 93,431.57	\$ 25,153.94	\$ 63,951.49	
<b>DERP ELIGIBLE SUB-TOTALS</b>	<b>\$ 208,878.00</b>	<b>\$ -</b>	<b>\$ 8,500.00</b>	<b>\$ 15,689.00</b>	<b>\$ 66,682.00</b>	<b>\$ 13,417.00</b>	<b>\$ 12,632.00</b>	<b>\$ 30,280.00</b>	<b>\$ 59,595.00</b>	<b>\$ 59,595.00</b>	<b>\$ 415,643.00</b>	<b>\$ 198,323.35</b>	<b>\$ 97,696.39</b>	<b>\$ 119,624.26</b>	

Non-DERP															
Subcontractor Markups														\$ 13.94	
Mileage/misc.														\$ 784.41	
Claim														\$ 4,320.00	
Non-DERP Cost Total														\$ 5,118.35	
<b>INVOICE GRAND TOTAL</b>														<b>\$ 198,323.35</b>	<b>\$ 102,813.74</b>

**Cost Estimate - SCS Engineers**  
**Revised DERF Change Order # 8, Laundry Land**  
**SCS Project No. 25211374.51**

Task Description	Project Director \$194	Senior Project Manager \$158	Project Professional \$112	Field Professional \$102	Sr. Designer/ CAD Tech \$97	Admin Asst \$70	Total Hours	Subtotal	Exp	Subs	Total
<b>1.0 Prepare Scope and Cost Estimate for Change Order # 8</b>											
Review file and correspondence		3					3	\$474			\$474
Acquire mitigation bid		2					2	\$316			\$316
Develop scope and cost estimate	2	8			1	3	14	\$1,959			\$1,959
							0	\$0			\$0
<b>Subtotal</b>	<b>2</b>	<b>13</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>19</b>	<b>\$2,749</b>	<b>\$0</b>	<b>\$0</b>	<b>\$2,749</b>
<b>2.0 Vapor Mitigation System</b>											\$0
Project coordination and access coordination		16	2	2			20	\$2,956			\$2,956
Meet with owner and mitigation contractor/inspect unit		4	1	8		1	14	\$1,630			\$1,630
Coordinate private utility locate		1		2			3	\$362		\$500	\$862
Inspect floors		1		1			2	\$260			\$260
Sub-slab vapor screening/waste profile sampling (8 locations)		1		4			5	\$566			\$566
Pilot test		1		4			5	\$566			\$566
VMS Installation documentation		4	2	16			22	\$2,488			\$2,488
Expenses							0	\$0	\$910		\$910
Laboratory contractor							0	\$0		\$465	\$465
Waste disposal contractor (7 tons)							0	\$0		\$11,935	\$11,935
Blower testing and installation (Radonaway HS5000 or equivalent)		1		4			5	\$566	\$2,000		\$2,566
VMS Contractor							0	\$0		\$25,000	\$25,000
							0	\$0			\$0
<b>Subtotal</b>	<b>0</b>	<b>29</b>	<b>5</b>	<b>41</b>	<b>0</b>	<b>1</b>	<b>76</b>	<b>\$9,394</b>	<b>\$2,910</b>	<b>\$37,900</b>	<b>\$50,204</b>
<b>3.0 Vapor Mitigation System Commissioning</b>											\$0
Project coordination		2	1				3	\$428			\$428
Install sub-slab vacuum observation points		1		2			3	\$362			\$362
Perform two rounds of pressure field extension testing		4		6			10	\$1,244			\$1,244
Expenses							0	\$0	\$350		\$350
							0	\$0			\$0
<b>Subtotal</b>	<b>0</b>	<b>7</b>	<b>1</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>16</b>	<b>\$2,034</b>	<b>\$350</b>	<b>\$0</b>	<b>\$2,384</b>
<b>4.0 Reporting</b>											\$0
Operation, Monitoring, and Maintenance Plan	1	2	10			2	15	\$1,770			\$1,770
VMS Construction Report	1	3	15			2	21	\$2,488			\$2,488
							0	\$0			\$0
<b>Subtotal</b>	<b>2</b>	<b>5</b>	<b>25</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>36</b>	<b>\$4,258</b>	<b>\$0</b>	<b>\$0</b>	<b>\$4,258</b>
<b>Total</b>	<b>4</b>	<b>54</b>	<b>31</b>	<b>49</b>	<b>1</b>	<b>8</b>	<b>147</b>	<b>\$18,435</b>	<b>\$3,260</b>	<b>\$37,900</b>	<b>\$59,595</b>

##

\$59,595

Instructions: Enter sample quantities at the highlighted fields.  
The rest of the math is done by the spreadsheet.

Project Number:   
Project Name:

Description of Work: 2.0 Vapor Mitigation System

**Total Estimated Analytical Costs:**

Parameter	Soil Samples	Soil Dup	Methanol Fld Blank	Cost \$	Soil Subtotal	GW Samples	Water Dup	Trip Blank	Rinsate Blank	Cost \$	Water Subtotal
8 RCRA Metals (SPLP)				\$145	\$0						\$0
8 RCRA Metals (TCLP)				\$145	\$0						\$0
8 RCRA Metals (total)				\$75	\$0					\$75	\$0
Alkalinity					\$0					\$12	\$0
Arsenic, Cadmium, Chromium, Lead				\$40	\$0					\$40	\$0
Barium				\$10	\$0					\$10	\$0
Benzene					\$0						\$0
BETX (1500/1501)					\$0						\$0
BETX (5035/8260) w/kit				\$35	\$0					\$35	\$0
BETX (5035/8021) w/kit				\$35	\$0					\$35	\$0
BETX (IL ASTM 5035)				\$45	\$0					\$45	\$0
BETX + MTBE (5035/8021) w/kit				\$35	\$0					\$35	\$0
BETX + MTBE (5035/8260) w/kit				\$35	\$0					\$35	\$0
BOD, Total					\$0					\$20	\$0
Boron					\$0					\$10	\$0
CBOD					\$0					\$20	\$0
Chromium, hexavalent				\$45	\$0					\$20	\$0
Chloride					\$0					\$12	\$0
COD				\$20	\$0					\$20	\$0
Cyanide					\$0					\$20	\$0
DRO				\$31	\$0					\$31	\$0
Ethane and Ethene (water)					\$0					\$40	\$0
Flash Point				\$25	\$0						\$0
Flow Controller					\$0						\$0
Fluoride				\$15	\$0					\$15	\$0
Formaldehyde				\$175	\$0					\$175	\$0
FOC (soil)				\$32	\$0						\$0
Glycols				\$70	\$0					\$70	\$0
Grain Size - Dry Sieve				\$55	\$0						\$0
Grain Size - Hydrometer				\$78	\$0						\$0
GRO				\$25	\$0					\$25	\$0
GRO/PVOC				\$27	\$0					\$27	\$0
GRO/PVOC + 1,2-DCA				\$35	\$0					\$60	\$0
GRO/PVOC + Naphthalene				\$27	\$0					\$35	\$0
Hardness					\$0					\$10	\$0
Iron				\$10	\$0					\$10	\$0
Lead				\$10	\$0					\$10	\$0
LUST PP w/kit				\$643	\$0					\$643	\$0
Manganese				\$10	\$0					\$10	\$0
Mercury				\$25	\$0					\$25	\$0

Instructions: Enter sample quantities at the highlighted fields.  
The rest of the math is done by the spreadsheet.

Project Number:   
Project Name:

Description of Work: 2.0 Vapor Mitigation System

**Total Estimated Analytical Costs:**

Parameter	Soil Samples	Soil Dup	Methanol Fld Blank	Cost \$	Soil Subtotal	GW Samples	Water Dup	Trip Blank	Rinsate Blank	Cost \$	Water Subtotal
Methane					\$0					\$40	\$0
Molybdenum, total				\$10	\$0						\$0
Nickel				\$10	\$0						\$0
Nitrogen, Ammonia				\$20	\$0					\$20	\$0
NO3+NO2 as N				\$20	\$0					\$20	\$0
Oil & Grease				\$45	\$0					\$45	\$0
Organic Matter, percent				\$30	\$0						\$0
PAH				\$65	\$0					\$65	\$0
Paint Filter				\$12	\$0						\$0
PCBs				\$65	\$0					\$65	\$0
Pesticides				\$100	\$0					\$100	\$0
pH				\$10	\$0					\$10	\$0
Phosphorus				\$18	\$0					\$20	\$0
PNA (high levels)				\$65	\$0					\$65	\$0
PNA (lower levels)				\$100	\$0					\$100	\$0
Protocol B (WMgmt)				\$840	\$0						\$0
PVOC				\$25	\$0					\$25	\$0
PVOC + 1,2-DCA				\$35	\$0					\$35	\$0
PVOC + Naphthalene				\$27	\$0					\$27	\$0
RCRA Metals				\$75	\$0						\$0
Selenium				\$10	\$0						\$0
Sieve & Hydrometer				\$78	\$0						\$0
Sieve Analysis				\$55	\$0						\$0
Silver				\$10	\$0						\$0
Soil Bulk Density				\$30	\$0						\$0
Soil Particle Density				\$35	\$0						\$0
Solids, Total %				\$12	\$0						\$0
Solids, Total Dissolved					\$0					\$12	\$0
Solids, Total Suspended				\$12	\$0					\$12	\$0
SPLP prep				\$50	\$0					\$50	\$0
Sulfate				\$12	\$0					\$12	\$0
SVOC				\$175	\$0					\$175	\$0
TCLP Metals				\$145	\$0						\$0
TCLP SVOCs				\$170	\$0						\$0
TCLP VOC Prep (1311)				\$50	\$0					\$50	\$0
TCLP VOCs	1			\$170	\$170						\$0
TKN				\$20	\$0					\$20	\$0
TOC				\$50	\$0					\$20	\$0
VOC - Illinois ASTM 5035				\$69	\$0					\$69	\$0
VOC (5035/8021) w/kit				\$100	\$0						\$0
VOC (5035/8260) w/kit				\$69	\$0					\$69	\$0
VOC (Compounds)					\$0						\$0
VOC, SDWA					\$0					\$107	\$0
VOC, TO-15					\$0						\$0

Instructions: Enter sample quantities at the highlighted fields.  
 The rest of the math is done by the spreadsheet.

Project Number:   
 Project Name:

Description of Work: 2.0 Vapor Mitigation System

**Total Estimated Analytical Costs:**

Parameter	Soil Samples	Soil Dup	Methanol Fld Blank	Cost \$	Soil Subtotal	GW Samples	Water Dup	Trip Blank	Rinsate Blank	Cost \$	Water Subtotal
VOC, Total	4		1	\$59	\$295					\$59	\$0
<b>Totals</b>	5	0	1		\$465	0	0	0	0		\$0

**Total     \$465**



## DERF Eligible Equipment Rental and Expenses Cost Estimating Worksheet

PROJECT/PROPOSAL NAME: Revised DERF Change Order # 8, Laundry Land  
Task: 2.0 Vapor Mitigation System  
PREPARED BY:  
DATE:

Description	Estimated Quantity	Unit	Unit Cost	Estimated Cost
<b>GROUNDWATER MONITORING</b>				
Bentonite, chipped		Bag	\$12.00	\$0.00
Brass well locks		Each	\$12.00	\$0.00
Dedicated bailers		Each	\$42.00	\$0.00
Disposable bailers		Each	\$15.00	\$0.00
Dissolved oxygen meter		Day	\$40.00	\$0.00
Dissolved oxygen test kit		Day	\$25.00	\$0.00
Dissolved oxygen tubes		Each	\$5.00	\$0.00
Field filtering apparatus		Day	\$22.00	\$0.00
Field filters		Each	\$16.00	\$0.00
Flush-mount well cover		Each	\$125.00	\$0.00
Ice	1	Bag	\$7.00	\$7.00
Oil/water interface probe		Day	\$70.00	\$0.00
Petroleum product interface probe		Day	\$70.00	\$0.00
pH, conductivity, temp, TDS meter		Day each	\$20.00	\$0.00
Pressure transducer and data logger		Day	\$125.00	\$0.00
Water level indicator		Day	\$30.00	\$0.00
Well caps		Each	\$18.25	\$0.00
YSI meter		Day	\$30.00	\$0.00
<b>PUMPS</b>				
2" gas engine pump		Day	\$45.00	\$0.00
Bladder pump controller		Day	\$50.00	\$0.00
Explosion proof pump		Day	\$100.00	\$0.00
Peristaltic pump		Day	\$30.00	\$0.00
Submersible pump		Day	\$100.00	\$0.00
Sump pump		Day	\$15.00	\$0.00
Well development pump		Day	\$30.00	\$0.00
<b>PPE &amp; AIR/GAS MONITORING</b>				
Air monitoring detector tubes		Each	\$15.00	\$0.00
Carbon monoxide meter		Day	\$20.00	\$0.00
Four gas meter		Day	\$65.00	\$0.00
Landfill gas meter		Day	\$100.00	\$0.00
Level D PPE	4	Day	\$5.00	\$20.00
Modified Level D PPE		Day	\$15.00	\$0.00
Personal air sampling pump		Day	\$30.00	\$0.00
Respirator cartridges		Pair	\$25.00	\$0.00
Tyvek suit		Each	\$20.00	\$0.00
<b>SOIL SAMPLING AND TESTING</b>				
Concrete air/slump		Each	\$30.00	\$0.00
Rotohammer	1	Day	\$70.00	\$70.00
Concrete cylinder mold		Each	\$3.00	\$0.00
Concrete core machine	1	Day	\$100.00	\$100.00
Photoionization detector (PID) rental	3	Day	\$75.00	\$225.00
Flameionization detector (FID) rental		Day	\$85.00	\$0.00
Hand auger kit		Day	\$30.00	\$0.00
Nuclear density guage		Day	\$125.00	\$0.00
Sampling conduit		10' section	\$4.00	\$0.00
Soil scale		Day	\$25.00	\$0.00
Vapor pin	8	Each	\$60.00	\$480.00
Vapor sampling kit		Day	\$25.00	\$0.00
<b>SURVEYING</b>				
3/4-inch Irons		Each	\$4.00	\$0.00
GPS unit/total station		Hour	\$20.00	\$0.00
GPS site mapping unit		Day	\$50.00	\$0.00
Level/laser level		Hour	\$5.00	\$0.00
Marking paint		Each	\$5.00	\$0.00
Survey chasers		Each	\$0.30	\$0.00
Survey hubs		Each	\$0.60	\$0.00

## DERF Eligible Equipment Rental and Expenses Cost Estimating Worksheet

PROJECT/PROPOSAL NAME: Revised DERF Change Order # 8, Laundry Land  
 Task: 2.0 Vapor Mitigation System  
 PREPARED BY:  
 DATE:

Description	Estimated Quantity	Unit	Unit Cost	Estimated Cost
Survey lath		Each	\$0.75	\$0.00
<b>MISCELLANEOUS</b>				
55-gallon drums	0	Each	\$55.00	\$0.00
Air compressor		Day	\$40.00	\$0.00
Air sparge pilot test set-up		Day	\$250.00	\$0.00
Boat, 14-foot		Day	\$50.00	\$0.00
Boom trailer		Day	\$250.00	\$0.00
Concrete	1	Bag	\$10.00	\$10.00
Curlex blanket		Each	\$65.00	\$0.00
Curlex staples		Box	\$10.00	\$0.00
Cut-off saw		Day	\$50.00	\$0.00
Digital camera		Day	\$10.00	\$0.00
Dump trailer		Day	\$175.00	\$0.00
Hard boom (10")		Foot	\$1.80	\$0.00
HEPA vacuum		Day	\$40.00	\$0.00
Liquid ring pilot test set-up		Day	\$125.00	\$0.00
Metal detector		Day	\$35.00	\$0.00
Oil absorbent boom (5" x 10')		Each	\$70.00	\$0.00
Oil absorbent boom (8" x 10')		Each	\$90.00	\$0.00
Oil absorbent Pad		Each	\$0.75	\$0.00
Oil dry absorbent		Bag	\$8.00	\$0.00
Orange safety fence		Roll	\$40.00	\$0.00
Overpack drum		Each	\$180.00	\$0.00
Plastic sheeting		Roll	\$55.00	\$0.00
Portable generator		Day	\$45.00	\$0.00
Power auger setup		Day	\$75.00	\$0.00
Power tools, small		Day	\$20.00	\$0.00
Spill response trailer		Day	\$200.00	\$0.00
SVE pilot test setup		Day	\$250.00	\$0.00
T-Posts		Each	\$4.00	\$0.00
Utility trailer		Day	\$40.00	\$0.00
Water storage tank		Day	\$75.00	\$0.00
Water treatment		Gallons	\$0.20	\$0.00
				\$0.00
Meals		Meal	\$10.00	\$0.00
Mileage		Miles	\$0.51	\$0.00
Motel		Day		\$0.00
<b>TOTAL FIELD EQUIPMENT AND EXPENSES (Rounded to Nearest \$10)</b>				<b>\$910.00</b>

**If no treatment required**

	Unit	Quantity	Rate	Cost
Rolloff box (25 cy) mob/delivery	Lump	1	\$1,500	\$1,500
Haul rate	Lump	1	\$4,500	\$4,500
Liner	Lump	1	\$50	\$50
10x or less	Ton	8	\$80	\$640
Fuel/environmental	10%			<u>\$669</u>
				<b>\$7,359</b>

**If treatment required**

	Unit	Quantity	Rate	Cost
Rolloff box (25 cy) mob/delivery	Lump	1	\$1,500	\$1,500
Haul rate	Lump	1	\$4,500	\$4,500
Liner	Lump	1	\$50	\$50
Chemox Treatment	Ton	8	\$600	\$4,800
Fuel/environmental	10%			<u>\$1,085</u>
				<b>\$11,935</b>

Notes

Cost/Ton

8 ton minimum

\$919.88

8 ton minimum

\$1,491.88

**DERF Eligible Equipment Rental and Expenses  
Cost Estimating Worksheet**

PROJECT/PROPOSAL NAME: Revised DERF Change Order # 8, Laundry Land  
 Task: 3.0 Vapor Mitigation System Commissioning  
 PREPARED BY:  
 DATE:

Description	Estimated Quantity	Unit	Unit Cost	Estimated Cost
<b>GROUNDWATER MONITORING</b>				
Bentonite, chipped		Bag	\$12.00	\$0.00
Brass well locks		Each	\$12.00	\$0.00
Dedicated bailers		Each	\$42.00	\$0.00
Disposable bailers		Each	\$15.00	\$0.00
Dissolved oxygen meter		Day	\$40.00	\$0.00
Dissolved oxygen test kit		Day	\$25.00	\$0.00
Dissolved oxygen tubes		Each	\$5.00	\$0.00
Field filtering apparatus		Day	\$22.00	\$0.00
Field filters		Each	\$16.00	\$0.00
Flush-mount well cover		Each	\$125.00	\$0.00
Ice		Bag	\$7.00	\$0.00
Oil/water interface probe		Day	\$70.00	\$0.00
Petroleum product interface probe		Day	\$70.00	\$0.00
pH, conductivity, temp, TDS meter		Day each	\$20.00	\$0.00
Pressure transducer and data logger		Day	\$125.00	\$0.00
Water level indicator		Day	\$30.00	\$0.00
Well caps		Each	\$18.25	\$0.00
YSI meter		Day	\$30.00	\$0.00
<b>PUMPS</b>				
2" gas engine pump		Day	\$45.00	\$0.00
Bladder pump controller		Day	\$50.00	\$0.00
Explosion proof pump		Day	\$100.00	\$0.00
Peristaltic pump		Day	\$30.00	\$0.00
Submersible pump		Day	\$100.00	\$0.00
Sump pump		Day	\$15.00	\$0.00
Well development pump	1	Day	\$30.00	\$30.00
<b>PPE &amp; AIR/GAS MONITORING</b>				
Air monitoring detector tubes		Each	\$15.00	\$0.00
Carbon monoxide meter		Day	\$20.00	\$0.00
Four gas meter		Day	\$65.00	\$0.00
Landfill gas meter		Day	\$100.00	\$0.00
Level D PPE	2	Day	\$5.00	\$10.00
Modified Level D PPE		Day	\$15.00	\$0.00
Personal air sampling pump		Day	\$30.00	\$0.00
Respirator cartridges		Pair	\$25.00	\$0.00
Tyvek suit		Each	\$20.00	\$0.00
<b>SOIL SAMPLING AND TESTING</b>				
Concrete air/slump		Each	\$30.00	\$0.00
Rotomhammer	1	Day	\$70.00	\$70.00
Concrete cylinder mold		Each	\$3.00	\$0.00
Photoionization detector (PID) rental		Day	\$75.00	\$0.00
Flameionization detector (FID) rental		Day	\$85.00	\$0.00
Hand auger kit		Day	\$30.00	\$0.00
Nuclear density guage		Day	\$125.00	\$0.00
Sampling conduit		10' section	\$4.00	\$0.00
Soil scale		Day	\$25.00	\$0.00
Vapor pin	4	Each	\$60.00	\$240.00
Vapor sampling kit		Day	\$25.00	\$0.00
<b>SURVEYING</b>				
3/4-inch Irons		Each	\$4.00	\$0.00
GPS unit/total station		Hour	\$20.00	\$0.00
GPS site mapping unit		Day	\$50.00	\$0.00
Level/laser level		Hour	\$5.00	\$0.00
Marking paint		Each	\$5.00	\$0.00
Survey chasers		Each	\$0.30	\$0.00
Survey hubs		Each	\$0.60	\$0.00
Survey lath		Each	\$0.75	\$0.00
<b>MISCELLANEOUS</b>				
55-gallon drums		Each	\$55.00	\$0.00
Air compressor		Day	\$40.00	\$0.00
Air sparge pilot test set-up		Day	\$250.00	\$0.00
Boat, 14-foot		Day	\$50.00	\$0.00
Boom trailer		Day	\$250.00	\$0.00
Concrete		Bag	\$10.00	\$0.00
Curlex blanket		Each	\$65.00	\$0.00
Curlex staples		Box	\$10.00	\$0.00
Cut-off saw		Day	\$50.00	\$0.00

**DERF Eligible Equipment Rental and Expenses  
Cost Estimating Worksheet**

PROJECT/PROPOSAL NAME: Revised DERF Change Order # 8, Laundry Land  
 Task: 3.0 Vapor Mitigation System Commissioning  
 PREPARED BY:  
 DATE:

Description	Estimated Quantity	Unit	Unit Cost	Estimated Cost
Digital camera		Day	\$10.00	\$0.00
Dump trailer		Day	\$175.00	\$0.00
Hard boom (10")		Foot	\$1.80	\$0.00
HEPA vacuum		Day	\$40.00	\$0.00
Liquid ring pilot test set-up		Day	\$125.00	\$0.00
Metal detector		Day	\$35.00	\$0.00
Oil absorbent boom (5" x 10')		Each	\$70.00	\$0.00
Oil absorbent boom (8" x 10')		Each	\$90.00	\$0.00
Oil absorbent Pad		Each	\$0.75	\$0.00
Oil dry absorbent		Bag	\$8.00	\$0.00
Orange safety fence		Roll	\$40.00	\$0.00
Overpack drum		Each	\$180.00	\$0.00
Plastic sheeting		Roll	\$55.00	\$0.00
Portable generator		Day	\$45.00	\$0.00
Power auger setup		Day	\$75.00	\$0.00
Power tools, small		Day	\$20.00	\$0.00
Spill response trailer		Day	\$200.00	\$0.00
SVE pilot test setup		Day	\$250.00	\$0.00
T-Posts		Each	\$4.00	\$0.00
Utility trailer		Day	\$40.00	\$0.00
Water storage tank		Day	\$75.00	\$0.00
Water treatment		Gallons	\$0.20	\$0.00
				\$0.00
Meals		Meal	\$10.00	\$0.00
Mileage		Miles	\$0.51	\$0.00
Motel		Day		\$0.00
<b>TOTAL FIELD EQUIPMENT AND EXPENSES (Rounded to Nearest \$10)</b>				<b>\$350.00</b>