SOURCE
ENVIRONMENTAL SCIENCES, INC.
AIR ✯ WATER ✯ WASTE CONSULTANTS

4100 WESTHEIMER, SUITE 106
HOUSTON, TEXAS 77027-4427
source@source-environmental.com
Phone: (713) 621-4474
Fax: (713) 621-4588

SOIL REMEDIATION COST ANALYSIS
4922 GRIGGS ROAD
HOUSTON, HARRIS COUNTY, TEXAS

Prepared for
Hall Law Firm
530 Lovett Blvd.
Houston, Texas 77006

Prepared by
Source Environmental Sciences, Inc.
4100 Westheimer, Suite 106
Houston, Texas 77027

July 27, 2010

EST. 1984

www.source-environmental.com

BBB MEMBER

9856564

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4922 GRIGGS ROAD
HOUSTON, HARRIS COUNTY, TEXAS

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Background

The subject property is approximately 9.96 acres located at 4922 Griggs Road, Houston, Harris County, Texas 77021. The Site currently consists of Joy Tabernacle Church and undeveloped land, previously a mobile home park. The mobile home park existed on the Site from the 1960's through the 1980's. A church building, an activity building, a parking lot, and a storage shed presently are located on the subject property. The south portion of the property consists of undeveloped land. A Phase I Environmental Site Assessment as performed on March 3, 2009 and findings were documented in a report entitled "Phase I Environmental Site Assessment" dated March 19, 2009. A Limited Phase II Environmental Site Assessment was performed on May 13, 2009 and findings were documented in a report entitled "Limited Phase II Environmental Site Assessment" dated June 4, 2009.

The Phase I ESA revealed no evidence of recognized environmental conditions in connection with the property. A Phase II Limited Environmental Site Assessment was performed to evaluate subsurface soil and groundwater at the referenced Site and to determine potential impacts of TPH, RCRA, Metals, and VOCs to the subject property.

Soil and Groundwater Sampling

Soil sampling during the Phase II Limited ESA conducted on June 4, 2010 consisted of installation of three soil borings. Analytical results indicated concentrations of lead and trichloroethene were above TCEQ Action Levels in soil boring SB1-2 (2-5) at a depth interval of 2-5 feet and in soil boring SB2-2(2-5), at a depth interval of 2-5 feet.

Groundwater sampling during the Phase II Limited ESA consisted of the installation of three temporary monitoring wells at the same locations of the soil borings. Groundwater samples were obtained from TMW-1 (SB1), TMW-2 (SB2), and TMW-3 (SB-3). Groundwater samples from boring TMW-1 indicated concentrations of tetrachlorethene, cis-1,2-dichloroethane (total); TMW-2 (SB-2) had concentrations of 1,2,- dibromo-3-chloropropane, tetrachloroethene, trichloroethene, cis-1,2- dichloroethane, and 1,2-dichloroethane (Total) that exceeded TCEQ TRRP Tier 1 levels. No groundwater concentrations of any COC's in groundwater sampling from TMW-3 exceeded TRRP Tier 1 PCLs. Analytical results for TPH and VOC's were below TCEQ Action Levels.

Source Environmental Sciences was contracted by Hall Law Firm to perform additional soil and groundwater sampling for analysis of the previously identified COCs. On March 31, 2010, Source Environmental performed additional soil sampling in selected areas in the vicinity of TMW-1 and TMW-2. Soil samples were collected at distances of 25, 30, and 60 feet to the north, east, south, and west of TMW-1 and TMW-2 at depth intervals of 2-5 feet and 6-10 feet. These soil samples were analyzed for PCE, TCE, methylene chloride, as well as various VOC's and SVOC's.

Analytical Results

Analytical results indicated the TRRP Tier 1 Residential Soil PCL for PCE was exceeded in the following samples: TMW1N25-6-10, TMW1S30-6-10, TMW1N60-6-10, TMW2N30-2-5, TMW2N30-6-10, TMW2A-6-10, TMW2W30-2-5, TMW2W30-6-10, TMW2S30-2-5, and TMW2S30-6-10. The following samples had detections of PCE: TMW1A-6-10, TMW1N30-2-5, TMW1N30-6-10, TMW1E30-6-10, TMW1S30-2-5, TMW2N60-2-5, TMW2S60-6-10, TMW2E30-2-5, and TMW2E30-6-10. Results further indicated TCE detections in the following samples: TMW1E30-6-10 and TMW2S30-2-5. Also, cis-1,2-dichloroethene was detected in sample TMW1E30-2-5.

Analytical results from soil samples collected on June 3, 2010 indicated Tier 1 PCL exceedances for PCE in the following samples: TMW5-5, TMW5-10, and TMW5-25. There were no exceedances of TCE in any sample. Results indicated detections of PCE inTMW6-5 and of TCE in TMW5-5 and TMW5-10. Also, cis-1, 2-dichloroethene was detected in TMW-5-10.

Groundwater samples were collected from TMW-4A, TMW-5A, and TMW-6A on June 4, 2010. Analytical results indicated Tier 1 PCL exceedances for PCE in samples from all three locations. TCE was detected in a sample from TMW4-A and exceeded the Tier 1 PCL in samples from TMW5-A and TMW6-A. Also, cis-1, 2-dichloroethene was detected in TWW5-A and TMW6-A.

Potential Source Areas

There are no known sources of the identified Constituents of Concern on the property located at 4922 Griggs Road and no documented solvent storage has been part of the history of the Site. Advance Cleaners, a dry cleaner formerly located to the north of the Site at 5771 Cullen, Houston, Texas and CES Environmental, located to the west of the Site at 5056 Griggs Road, Houston are potential sources areas of the tetrachloroethylene (perchloroethylene or PCE) and trichloroethene. Advance Cleaners was a full-service dry cleaning service that reportedly experienced sewer drainage issues during its existence. CES is registered with the Texas Commission on Environmental Quality as an industrial solid waste processing and storage facility. CES reportedly manages a variety of non-hazardous industrial solid wastes including inorganic and organic liquids, solids, and sludges.

Areal Extent and Depth of Observed Impact

The analytical data from the soil sampling events indicate Tier 1 PCL exceedances of PCE in TMW-1, TMW-2, TMW-5, and TMW-6 at various depths. Because the most Tier 1 PCL exceedances were recorded for PCE, it was chosen to be "representative" of the extent of soil impacts for the Site as a whole. The concentrations of PCE at each sampling location were averaged across all soil depth intervals at which PCE was detected or exceeded the Tier 1 PCL. These values were contoured as shown in Attachment A. The maximum depth of a PCE exceedance was 25 feet in TMW5-25; therefore, a depth of 25 feet was used as a maximum to

calculate the impacted volume of soils at the site.

Soil Remediation Cost Analysis

The costs for soil excavation, removal and disposal, and backfilling were calculated by determining the areal extent of the PCE Tier 1 PCL exceedance (PCLE) zone shown in Attachment A. Two PCLE zones were identified and labeled on the map as the North PCLE Zone and South PCLE Zone. The areal extent of the PCLE zones and the maximum depth of impacted soil were used to calculate the volume of soil required to be removed and backfilled to achieve clean-up. Costs to perform the work were provided by two independent vendor companies in Houston, Texas: USA Environment, L.P. and Columbia Environmental Service, Inc. Attachment B presents the vendor-supplied cost estimates.

The assumptions made in this soil remediation cost analysis are as follows: the source of the COC's is no longer active; the extent of contamination has been fully assessed; PCE soil concentrations are representative of the contamination at the Site; the maximum depth of impacted soil is 25 feet; and once the impacted soil is removed, groundwater will remediate as a result of natural attenuation processes.

Attachment C presents the Soil Remediation Cost Analysis. For the purposes of the calculations it was assumed that it would take 3 days to remove the soil and 3 days to backfill, compact, and restore the area to the pre-excavation condition. The area identified as North PCLE Zone was calculated to be 89,000 cubic yards of soil to be removed and backfilled. The area identified as the South PCLE Zone was calculated to be 35,300 cubic yards to be removed and backfilled.

Cost calculations in the Soil Remediation Cost Analysis table in Attachment C are based on costs supplied by two vendors. The costs reported are for complete soil removal and backfilling with "clean" soils, depending on whether the soil is managed as a Class 1 non-hazardous waste or a Class 2 non-hazardous waste.

SUMMARY

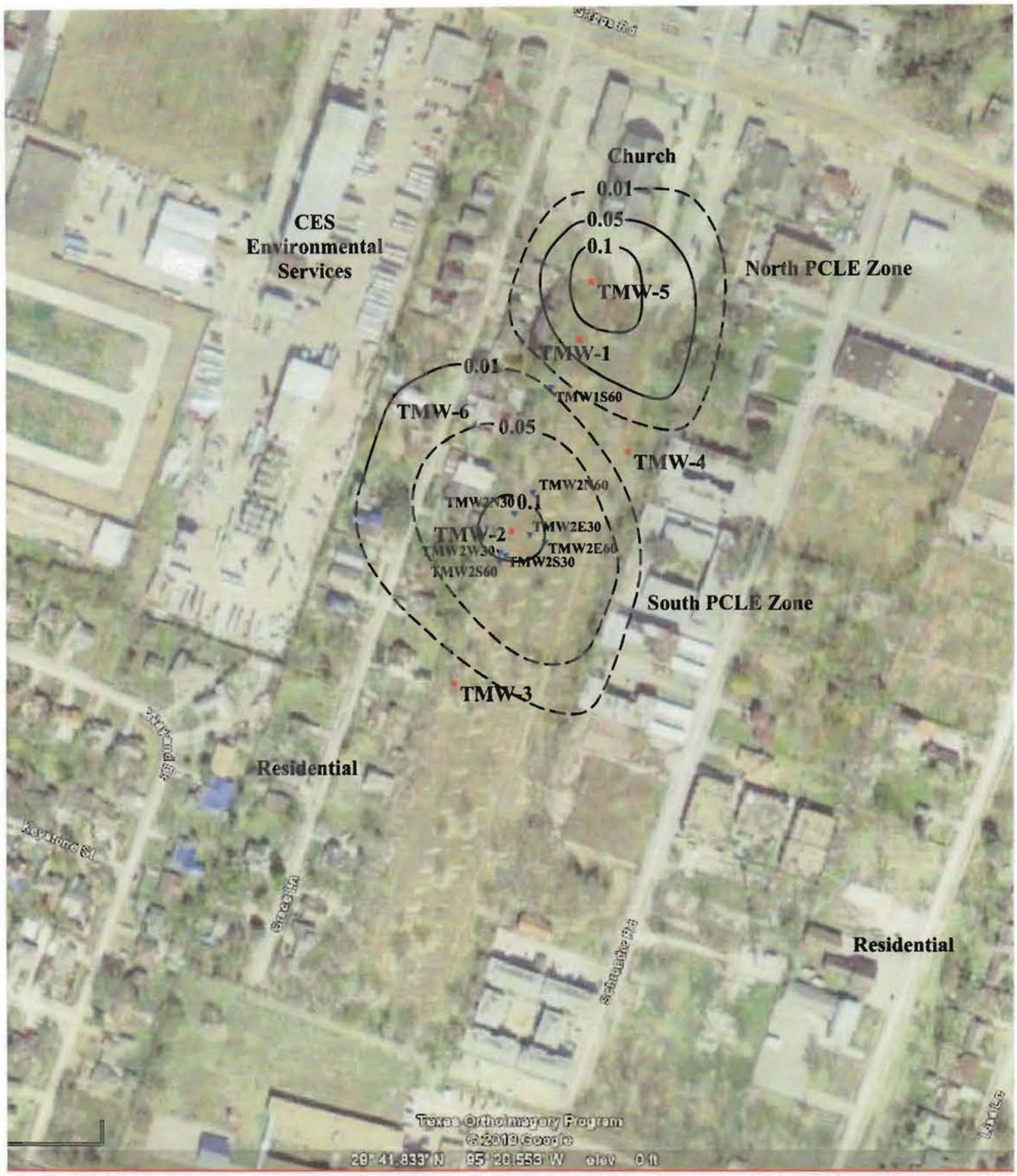
- Based on soil analytical data collected during 3 individual sampling events, perchloroethylene and trichloroethylene are COCs at the 4904 Griggs Road Site.

- The impacted area is in the northern portion of the site, and is estimated to include an approximated maximum volume of 120,000 cubic yards.

- The cost to remove the soils and backfill the excavation with "clean" soil is estimated to be an approximated maximum of $12,700,000 if the soil is managed as a Class 1 non-hazardous waste.

- The cost to remove the soils and backfill the excavation with "clean" soil is estimated to be an approximated minimum of $3,500,000, if the impacted soil is managed as a Class 2 non-hazardous waste.

Attachment A
Soil Removal Area



SCALE (ft)
0 50 100 150 200 250 300

PCE Concentrations = mg/kg
PCE Tier 1 PCL = 0.05 mg/kg

PCE Soil Isoconcentration Map
4922 Griggs Road
Houston, Harris County, Texas
July 2010

SOURCE
ENVIRONMENTAL SCIENCES

Attachment B
Vendor Cost Estimates

USA Environment, LP
P.O. Box 87687
Houston, Texas 77287
Phone 713.425.6901 Fax 713.425.6956

COST PROPOSAL

Roll-off Box for Excavation, Transportation and Disposal of Class I Non Hazardous Soil

CUSTOMER INFORMATION	
Name:	Source Environmental Services
Address:	4100 Westheimer, Ste. 106
City:	Houston, TX 77027
Contact:	George Chandlee, (713) 621-4474

SITE LOCATION	
Name:	
Address:	Along the South Loop near the Medical Center
City:	Houston
Contact:	

DESCRIPTION	UNIT	QTY	RATE	TOTAL
Backhoe/Operator to Excavate soil and place into Water-Tight Roll-off Box or Boxes (Includes Backhoe, Operator, Crew truck, and Mob/Demob of Equipment)	Day	1	$1,350.00	$1,350.00
Box Delivery (20 yard Water Tight with Tarp)	Each	1	$150.00	$150.00
Box Liner, Each	Each	1	$30.00	$30.00
Transportation to the Coastal Plains Landfill in Alvin, Texas	Each	1	$375.00	$300.00
Disposal of Waste as Class I (Per CY) – Quantity is estimated	Yard	15	$55.00	$770.00
Box Rent (Number of Days is estimated)	Day	10	$10.00	$100.00
Box Washout *	Each	1	$225.00	$225.00
Return Box to Vendor	Each	1	$150.00	$150.00
Backfill Soil (60/40 Select Fill, Includes delivery and compaction with onsite backhoe)	CY	20	$12.00	$240.00
Grass Seed, If Requested	LS	1	$150.00	$150.00
Total Estimated Cost				3,465.00
Date: July 14, 2010				
Sales Rep: Siobhan LeRoy				
Prepared By: Siobhan LeRoy			TOTAL	

ASSUMPTIONS/CLARIFICATIONS:

- All work will be billed in accordance with the quoted unit rates.
- Laboratory analytical results to be provided by Client. Lab test, if required, per box (Full TCLP, No Herbicides or Pesticides) would be $650.00 each.
- Assumes waste will be accepted at the targeted disposal facility
- *Box Washout charge is estimated, actual cost is cost plus 15%.

Should you have any questions, please contact Siobhan LeRoy at (713) 425-6901.

USA Environment, LP
P.O. Box 87687
Houston, Texas 77287
Phone 713.425.6901 Fax 713.425.6956

COST PROPOSAL

Roll-off Box for Excavation, Transportation and Disposal of Class 2 Non Hazardous Soil

CUSTOMER INFORMATION	
Name:	Source Environmental Services
Address:	4100 Westheimer, Ste. 106
City:	Houston, TX 77027
Contact:	George Chandlee, (713) 621-4474

SITE LOCATION	
Name:	
Address:	Along the South Loop near the Medical Center
City:	Houston
Contact:	

DESCRIPTION	UNIT	QTY	RATE	TOTAL
Backhoe/Operator to Excavate soil and place into Water-Tight Roll-off Box (Daily Rate Includes Backhoe, Operator, Crew truck, and Mob/Demob of Equipment)	Day	1	$1,350.00	$1,350.00
Box Delivery (20 yard Water Tight with Tarp)	Each	1	$150.00	$150.00
Box Liner, Each	Each	1	$30.00	$30.00
Transportation to the McCarty Rd. Landfill in Houston (Class 2)	Load	1	$300.00	$300.00
Disposal of Waste as Class 2 (Per CY) – Quantity is estimated	Yard	15	$14.00	$210.00
Box Rent (Number of Days is estimated)	Day	10	$10.00	$100.00
Box Washout *	Each	1	$225.00	$225.00
Return Box to Vendor	Each	1	$150.00	$150.00
Backfill Soil (60/40 Select Fill, Includes delivery and compaction with onsite backhoe)	CY	20	$12.00	$240.00
Grass Seed, If Requested	1	LS	$150.00	$150.00
Total Estimated Cost				$2,515.00
			TOTAL	

Date:	July 13, 2010
Sales Rep:	Siobhan LeRoy
Prepared By:	Siobhan LeRoy

ASSUMPTIONS/CLARIFICATIONS:

- All work will be billed in accordance with the quoted unit rates.
- Laboratory analytical results to be provided by Client. Lab test, if required, per box (Full TCLP plus TPH, No Pesticides or Herbicides) would be $700.00 each.
- Assumes waste will be accepted at the targeted disposal facility
- Box Washout charge is estimated, actual cost is cost plus 15%.

Should you have any questions, please contact Siobhan LeRoy at (713) 425-6901.

COLUMBIA ENVIRONMENTAL SERVICES, INC.

7/14/2010 Fax: 713-621-4588

George Chandlee
Source Environmental Sciences, Inc.
4100 Westheimer, Suite 106
Houston, TX 77027

Reference: Quotation of Services Provided by Columbia Environmental Services, Inc. (CESI) Located in Houston, Texas for Hall Law

Dear George:

Thank you for giving Columbia Environmental Services, Inc. (CESI) and myself the opportunity to be of service to Source Environmental Sciences, Inc.. Pursuant to our conversations, below please find the above referenced quotation including:

1. Profiling of material for treatment/ disposal or recycling
2. Assistance in the procurement of TNRCC Waste Codes
3. Preparation of material for shipment
4. Completion of Texas Waste Shipment Manifests and Land Disposal Restriction (LDR) Forms
5. Preparation of shipment labels
6. Final treatment/disposal or recycling and related field work

Mob./Demob.	$1000.00/event
Personnel and Equipment to Excavate and Load Out	$1300.00/day
Personnel and Equipment for Backfilling and Compacting	$1500.00/day
Transportation (18 CY loads)	$150.00/load
Class 1	$31.00/CY
Class 2	$10.00/CY
Backfill	$10.00/CY

George, thank you again for allowing me to be of service to Source Environmental Sciences, Inc. We appreciate the opportunity to provide you with this proposal. The above pricing is valid for thirty (30) days. Please contact me at 281-740-6607 if you have any questions or if you need further information.

Sincerely,

Tony Maag
Senior Account Manager

13222 Reeveston, Houston, Texas 77039
Office: 713.868.4845 Facsimile: 281.442.1117

Attachment C
Soil Remediation Cost Analysis

Soil Remediation
Cost Analysis

Vendor	Description	Unit Cost	Qty	Unit	Site	Cost
USA Environmental	**Class 1 Non-hazardous waste**					
	Soil Excavation (Backhoe Mob/Demob)	1350	1	day	3	$4,050
	Soil Disposal (Class 1 Waste)	55	1	cu yd	121707	$4,897,164
	Box delivery, liner	180	1	ea	6761	$1,217,070
	Waste transportation and delivery	375	18	cu yd	6761	$2,535,562
	Box rental	10	1	day	6761	$67,615
	Box cleanout and return	375	1	ea	6761	$2,535,562
	Post excavation backfill	12	1	cu yd	121707	$1,460,484
		Estimated Remediation Cost				**$12,717,507**

Vendor	Description	Unit Cost	Qty	Unit	Site	Cost
Columbia Environmental Services	**Class 1 Non-hazardous waste**					
	Soil Excavation (Backhoe Mob/Demob)	1000	1	day	3	$3,000
	Personnel, Equip, etc. to excavate	1300	1	day	3	$3,900
	Personnel, Equip, compacting	1500	1	day	3	$4,500
	Transportation	150	18	load	4947	$741,995
	Disposal (Class 1 Waste)	31	1	cu yd	89039	$2,760,220
	Backfill	10	1	cu yd	89039	$890,394
		Estimated Remediation Cost				**$4,404,008**

Prepared for Hall Law Firm
Prepared by Source Environmental Sciences, Inc.
July 19, 2010

Soil Remediation
Cost Analysis

Vendor	Description	Unit Cost	Qty	Unit	Site	Cost
USA Environmental	**Class 2 Non-hazardous waste**					
	Soil Excavation (Backhoe Mob/Demob)	1350	1	day	3	$4,050
	Soil Disposal (Class 2 waste)	14	1	cu yd	121707	$1,703,898
	Box delivery, liner	180	1	cu yd	121707	$1,217,070
	Waste transportation and delivery	300	1	ea	6761	$2,028,450
	Box rental	10	1	day	6761	$67,615
	Box cleanout and return	375	1	ea	6761	$2,535,562
	Post excavation backfill	12	1	ea	121707	$1,460,484
					Estimated Remediation Cost	**$9,017,128**

Vendor	Description	Unit Cost	Qty	Unit	Site	Cost
Columbia Environmental Services	**Class 2 Non-hazardous waste**					
	Soil Excavation (Backhoe Mob/Demob)	1000	1	event	3	$3,000
	Personnel, Equip, etc. to excavate	1300	1	day	3	$3,900
	Personnel, Equip, compacting	1500	1	day	3	$4,500
	Transportation	150	18	cu yd	6761	$1,014,225
	Disposal (Class 2 Waste)	10	1	cu yd	121707	$1,217,070
	Backfill	10	1	cu yd	121707	$1,217,070
					Estimated Remediation Cost	**$3,459,764**

Prepared for Hall Law Firm
Prepared by Source Environmental Sciences, Inc.
July 19, 2010