CAMBRIA

February 2, 2001

Mr. Lee Douglas
Douglas Parking
1721 Webster Street
Oakland, California 94612

Re: **Feasibility Testing and Feasibility Study Plan**
Douglas Parking
1721 Webster Street
Oakland, California

Dear Mr. Douglas:

Cambria Environmental Technology, Inc. (Cambria) is pleased to submit this plan for the feasibility testing, feasibility study preparation, and vapor monitoring specified in our workplan dated August 13, 1999. The workplan is intended to help achieve your ultimate project goal of case closure with the Alameda County Health Care Services Agency (ACHCSA). We are confident that after performing the proposed feasibility testing we can select the most cost-effective technique for remediating site groundwater to facilitate case closure. Our proposed project budget is presented as Attachment A. Please submit this project budget to the Cleanup Fund for cost pre-approval. Please also submit the written regulatory approval letter for the proposed feasibility test workplan to the Cleanup Fund (Attachment B).

FEASIBILITY TESTING

Feasibility testing is the next phase of work described in the approved August 13, 1999, *Remedial Evaluation and Revised Remedial Workplan*. Cambria has installed the remediation wells and some of the remediation piping from the well vaults to the garage entrance. On March 4, 2000, Cambria installed one co-axial soil vapor extraction (SVE)/air sparging (AS) well (SV-1/AS-1) and two additional AS wells (AS-2 and AS-3) adjacent to the former underground storage tanks (USTs)(Figure 1). Cambria installed the AS wells at 30-degree angles to minimize trenching. Underground piping was extended from the edge of the building to the diamond-plated remediation well vaults located in the Webster Street sidewalk. The 4-inch pvc conduit was installed at approximately 1 ft below ground surface (bgs), backfilled with sand and set in concrete flush to the sidewalk. The foundation pier (located near the south end of the garage entrance) prevented extending the conduit underground into the garage.

Oakland, CA
San Ramon, CA
Sonoma, CA

Cambria Environmental Technology, Inc.

1144 65th Street
Suite B
Oakland, CA 94608
Tel (510) 420-0700
Fax (510) 420-9170

Feasibility Test Objectives

The objective of the feasibility test is to:

- Assess the feasibility of SVE alone; ✓
- Assess the appropriateness and feasibility of air sparging and biosparging; also must have VE
- Measure hydrocarbon vapor concentrations in soil vapor to determine if aeration techniques such as air sparging or biosparging alone could remediate the site safely and more effectively than SVE;
- Estimate the mass of residual hydrocarbons in soil; and
- Facilitate selection of the most cost-effective remedial alternative.

In other words, by performing the SVE and AS test, the feasibility study can more thoroughly evaluate the cost effectiveness of the following remedial alternatives:

- Biosparging or air sparging;
- Soil vapor extraction; and
- Soil vapor extraction and air sparging.

Feasibility Test Scope of Work

To minimize cost, Cambria's plans to use the existing air compressor at the site and use aboveground conduits from the compressor to the property boundary.

Task 1-Feasibility Testing Prefield Coordination: Cambria will notify the Bay Area Air Quality Management District (BAAQMD), prepare a site health and safety plan, plan for the testing event, and prepare equipment and personnel for the feasibility testing.

Task 2-Conduit Installation and Compressor Testing: Cambria will complete the underground/aboveground conduit installation from the garage entrance to the air compressor. Cambria will attempt to restart the existing air compressor. If Cambria or an appliance technician cannot get the compressor to operate continuously, an alternative compressor will be procured (extra scope of work).

Task 3-Soil Vapor Extraction and Air Sparge Testing: To achieve the test objectives, Cambria proposes to perform a 4-hour SVE test on SV-1, and a 4-hour SVE/AS test using wells SV-1/AS-1, AS-2 and AS-3. The SVE/AS test will be conducted in one day using a 5 horsepower positive-displacement blower with granular activated carbon for emission control. Prior to testing Cambria will measure the dissolved oxygen in site wells (unless performed during the recent quarterly monitoring event). During the SVE and SVE/AS tests, Cambria will measure the applied vacuum, induced vapor flow rate, and the hydrocarbon concentrations in extracted soil vapor. Hydrocarbon concentrations in extracted soil vapor will be measured frequently in the field using an organic vapor analyzer. Tedlar bag samples will be collected at the beginning (30 seconds after test start), just before sparging, approximately 15 minutes after sparging begins, and at the end of the test. The bag samples will be submitted to a state-certified analytic laboratory for hydrocarbon analysis. This sampling and analysis protocol is also designed to determine the maximum hydrocarbon concentrations in soil vapor and to monitor the hydrocarbon trend over the test duration. To estimate the zone of vacuum influence, Cambria will measure the vacuum/pressure regime in nearby site wells before, during, and after the test. Also during the air sparging, Cambria will measure the air injection flow rates and pressure.

Biosparging is not a good candidate for site

Task 4-Three Month Biosparge Testing: Cambria proposes a three-month biosparging test, during which dissolved oxygen and hydrocarbon vapors will be monitored in nearby site wells. During startup of the biosparge/biovent system, Cambria plans to inject air at a flow rate of approximately 2 standard cubic feet per minute (scfm) into each AS well. To monitor for vapor-phase hydrocarbon migration, Cambria will analyze vapor concentrations in existing site monitoring wells MW-2 and MW-3 and in the vadose zone monitoring well (SV-1). Cambria will test for vapor migration before and after startup on the first day of testing, and one week after startup. Cambria will inspect the system monthly thereafter (includes a total of six visits). If the hydrocarbon vapor concentrations exceed 2,000 ppmv, Cambria would decrease the air injection rate. Dissolved hydrocarbon concentrations will be evaluated during the routine groundwater monitoring.

Task 5-Feasibility Test Reporting: Upon completing the feasibility testing, Cambria will prepare a feasibility test report and feasibility study. The report will include tabulated test data, the achieved hydrocarbon removal rates, the estimated vacuum influence area for SVE, and will recommend the most cost-effective remedial approach for the site. Dissolved oxygen and dissolved hydrocarbon concentrations will be the primary indicators of the remedial effectiveness.

CLOSING

Cambria will begin feasibility testing upon pre-approval from the UST Cleanup Fund for implementation of the remedial workplan. Cambria appreciates the opportunity to provide environmental consulting services to Douglas Parking. Please call John Riggi at (510) 420-3340 if you have any questions.

Sincerely,

Cambria Environmental Technology, Inc.

John A. Riggi
Project Geologist

Bob Clark-Riddell, PE
Principal Engineer

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Attachments:

Figure 1- Well Location Map

Attachment A - Proposed Project Budget
Attachment B - ACHCSA Regulatory Acceptance Letter

cc: Mr. Larry Seto, ACHCSA, Environmental Health Services
1131 Harbor Bay Parkway Suite 250, Alameda, California 94502-6577

Mr. Leroy Griffin, City of Oakland, 1605 Martin Luther King,
Oakland, California 94612

Mr. Hari Patel, USTCF, P.O. Box 944212
Sacramento, California 94244-2120

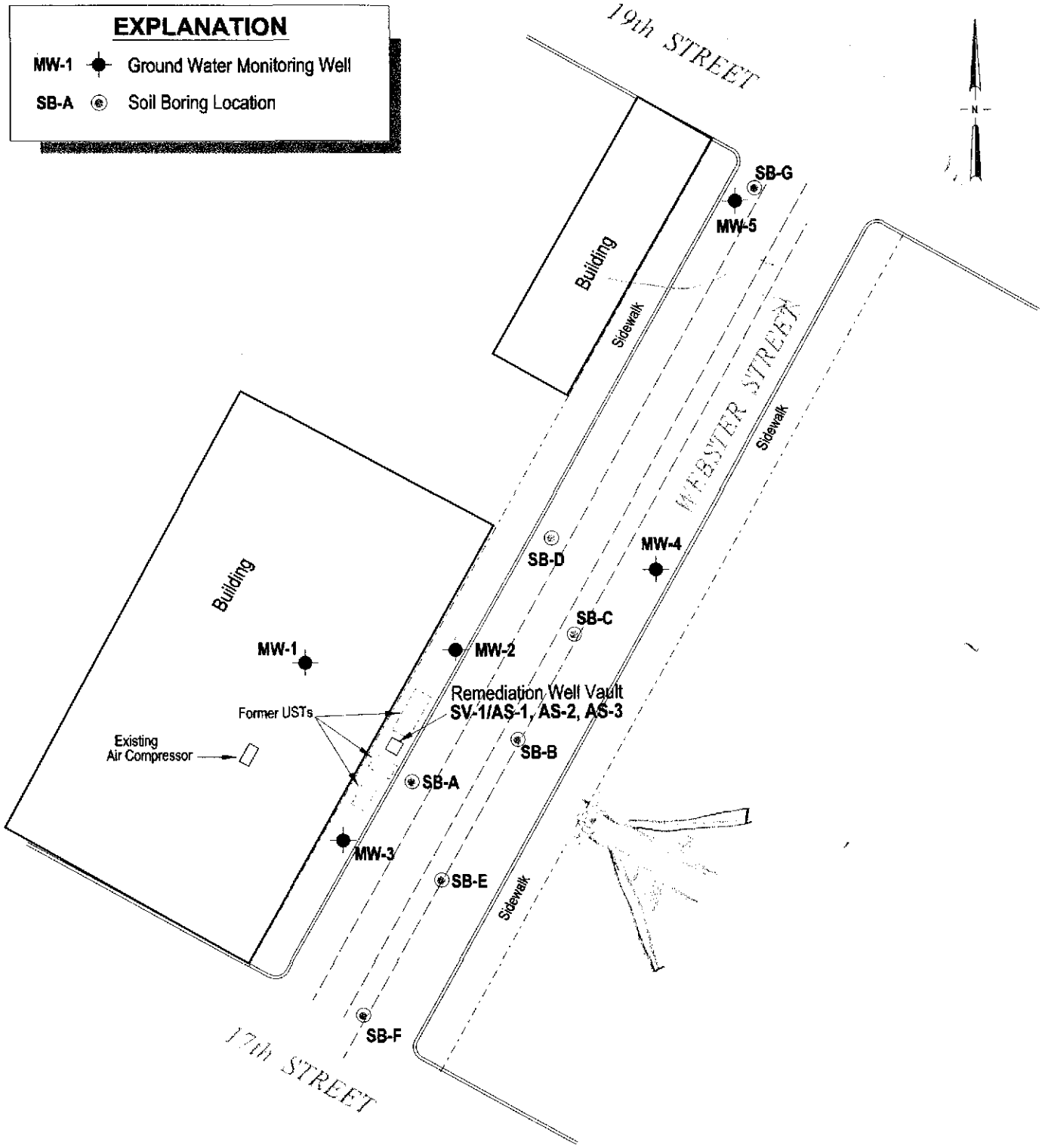

FIGURE
1

H:\SB-2004\DOUGLAS\FIGURES\WELL-LOC.DWG

Douglas Parking Facility

1721 Webster Street
Oakland, California

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Well Location Map

ATTACHMENT A

Proposed Project Budget

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COST ESTIMATE

Feasibility Testing and Feasibility Study Proposal

Client: Douglas Parking **Job No.:** 580-0197

Site: 1721 Webster Street, Oakland, California

Scope of Work

Prepare for feasibility testing at the site referenced above. Notify the BAAQMD of feasibility testing. Coordinate equipment and subcontractors. Prepare a site health and safety plan. Complete the underground/aboveground conduit piping installation. Conduct an eight-hour soil vapor extraction test and combined soil vapor extraction/air sparging test. Visit site after startup, after first day, first week, and monthly thereafter to inspect the system (6 visits). Perform a three month biosparge test. Submit vapor samples for TPHg and BTEX analyses. Dissolved hydrocarbon concentrations will be evaluated during routine groundwater monitoring. Review findings and prepare a feasibility and feasibility test report.

Cost break down

Labor/Personnel

Task 1: Feasibility Testing Prefield Coordination

Project Geologist	8	$	80	$	640	
Staff Engineer	4	$	65	$	260	
Environmental Technician	4	$	55	$	220	
		Task total:				**$ 1,120**

Task 2 Conduit Installation and Compressor Testing

Project Geologist	2	$	80	$	160	
Remediation Technician	24	$	55	$	1,320	
Conduit Piping/Materials	1	$	450	$	450	
Outside Expenses						
Concrete Sawcutting	1	$	350	$	350	
Outside Expense Mark-up:			15%		52.50	
Subtotal Outside Expenses:						**$ 403**
		Task total:				**$ 2,333**

Task 3 Soil Vapor Extraction and Air Sparge Testing

Project Geologist	4	$	80	$	320	
Remediation Technician	16	$	55	$	880	
		Subtotal:				**$ 1,200**

Feasibility Testing and Feasibility Study Proposal

Client: **Douglas Parking** **Job No.:** 580-0197

Site: 1721 Webster Street, Oakland, California

Direct Expenses	Units		$/unit		Cost		
SVE Blower and Testing Kit		1	$ 300	$	300		
Dissolved Oxygen Meter		1	$ 40	$	40		
Tedlar Bags		4	$ 6	$	24		
Vacuum Gauges		1	$ 10	$	10		
Air Velocity Meter		1	$ 20	$	20		
FID		1	$ 100	$	100		
Misc. Field Supplies		1	$ 25	$	25		
Specialized Vehicle Mileage		15	$ 0	$	6		
			Subtotal Expenses:			**$**	**525**

Outside Expenses					
Vapor Analyses TPHg/BTEX/MTBE	4	$ 45	$	180	
Granular Activated Carbon and Disposal	2	$ 500	$	1,000	
Outside Expense Mark-up:		15%		177.00	
Subtotal Outside Expenses:					**$ 1,357**
		Task total:			**$ 3,082**

Task 4 Three Month Biosparge Testing

Principal Engineer	2	$ 110	$	220
Project Geologist	12	$ 80	$	960
Remediation Technician (6 visits)	36	$ 55	$	1,980
				$ 3,160

Direct Expenses	Units		$/unit		Cost		
DO Meter		1	$ 40	$	10		
Air Velocity Meter		3	$ 20	$	20		
Vapor Sampling Assembly		3	$ 50	$	50		
FID		3	$ 100	$	100		
Misc. Field Supplies		3	$ 25	$	25		
Specialized Vehicle Mileage		36	$ 0.40	$	16		
			Subtotal Expenses:			**$**	**221**
			Task total:				**$3,381**

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COST ESTIMATE

Feasibility Testing and Feasibility Study Proposal

Client: Douglas Parking **Job No.:** 580-0197

Site: 1721 Webster Street, Oakland, California

Task 5 Feasibility Test Reporting and Feasibility Study

Principal Engineer	2	$	110	$	220	
Project Geologist	16	$	80	$	1,280	
Staff Engineer	8	$	65	$	520	
Draftsperson/Autocad	4	$	55	$	220	
				Task total:		**$ 2,240**

Project total: **$ 12,156**

Work performed under this estimate will be governed by all terms and conditions of the existing contract with the client and/or the Cambria Schedule of Charges and Conditions.

Estimate Prepared By: John Riggi Date: _____

Cambria Authorization: _____

Client Authorization:

Person: _____ Date: _____

Signature: _____

Authorized Budget: _____

ATTACHMENT B

ACHCSA Regulatory Acceptance Letter

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
(510) 337-9335 (FAX)

September 16, 1999

Mr. Lee Douglas
Douglas Parking
1721 Webster Street
Oakland, CA 94612

RE: 1721 Webster Street, Oakland, CA 94612

Dear Mr. Douglas:

I have reviewed your Remedial Evaluation and Revised Remedial Workplan dated August 13, 1999 that was prepared by Cambria Environmental. It is acceptable.

If you have any questions, please contact me at (510) 567-6774.

Sincerely,

Larry Seto
Sr. Hazardous Materials Specialist

Cc: Leroy Griffin, City of Oakland, 1603 Martin Luther King, Oakland, CA 94612
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