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Woodward-Clyde Consultants

April 14, 1989
8810220A

City of Livermore
Redevelopment Agency
1052 South Livermore Avenue
Livermore, CA 94550

Attention: Ms. Karen Majors
Redevelopment Coordinator

Subject: Proposal for Phase III Site Exploration
Groundwater Monitoring Well Installation
Railroad Avenue Property
Livermore, California

Ladies and Gentlemen:

We are pleased to submit the attached proposal for Phase III Site Exploration at the Railroad Avenue Property. The purpose of this exploration is to further explore the depth of petroleum contamination found in soil at 187 North "L" Street (Arrow Rentals Site), and to explore the groundwater for evidence of possible petroleum contamination. Analysis of soil samples from exploratory boring No. B-1, located at a former underground gasoline storage tank location at 187 North "L" Street, detected 170 parts per million (ppm) total petroleum hydrocarbons (TPH) as gasoline at 20 feet and 220 ppm TPH at 25 feet, the limit of the boring.

Because of the potential for petroleum contamination extending downward to the groundwater beneath the site, we propose to install three groundwater monitoring wells at the site. The proposed well installation will also include soil sampling below a depth of 25' at the location of boring B-1 to see if petroleum contamination extends to the depth of groundwater. The anticipated depth of groundwater is between 50 to 60 feet, based upon discussions with the Alameda County Flood Control and Water Conservation District, Zone 7.

If petroleum contamination is found in the groundwater at the site the California Regional Water Quality Control Board (RWQCB) may require cleanup at this site. If soil contamination exceeds allowable concentrations according to the RWQCB guidelines, cleanup and remediation of contaminated soil may also be required. Therefore, it is important for the City to know the extent of possible contamination prior to entering into purchase agreements for this property.

Our proposed scope of work is attached as Addendum No. 3 to our contract with the City of Livermore. If you are in agreement with this proposal please sign and return the attached Addendum No. 3, and initial the attachments. Please call if you have any questions.

Sincerely,

WOODWARD-CLYDE CONSULTANTS

Albert P. Ridley
Senior Consultant

Ulrich Luscher, Ph.D., P.E., G.E.
Senior Managing Principal

APR:tt

8810220A/TGT

WCC'S SERVICES

ADDENDUM NO. 3

In accordance with the Agreement for Professional Services between City of Livermore (hereinafter "Client"), and Woodward-Clyde Consultants (hereinafter "WCC"), dated October 19, 1988, this Addendum describes the Scope of Services, Estimated Time Schedule, Estimated Charges, and Payment Conditions for WCC's services on the Project known as:

Phase III Site Exploration

Client Authorized Representative: _____

Address: 1052 S. Livermore Avenue
Livermore, CA 94550

Telephone No: (415) 449-4020

WCC Authorized Representative: Ulrich Luscher

Address: 500 - 12th Street, Suite 100
Oakland, CA 94607-4014

Telephone No: (415) 893-3600

SCOPE OF SERVICES. The Scope of Services shall be described on separate pages attached to this Addendum and initialed by the Authorized Representatives.

ESTIMATED TIME SCHEDULE. The Estimated Time Schedule shall be set forth on a separate page attached to this Addendum and initialed by the Authorized Representatives. Because of the uncertainties inherent in the services contemplated hereunder, time schedules are only estimated schedules which are subject to revision unless specifically described as otherwise herein.

ESTIMATED CHARGES AND PAYMENT CONDITIONS. WCC charges shall be on a "time and materials" basis and shall be in accordance with WCC's Schedule of Fees and Charges in effect at the time the services are performed. WCC's current Schedule of Fees and Charges shall be attached to this Addendum and initialed by the Authorized Representatives.

TERMS AND CONDITIONS. The terms and conditions of the Agreement referenced above shall apply to this Addendum except to the extent expressly modified by this Addendum. In the event of any such modification, the modification shall be set forth on pages attached to this Addendum and signed on the last page by the Authorized Representatives; the Article of the Agreement to be modified shall be specifically referenced in the modification, and the modification shall be precisely described.

Acceptance of the terms of this Addendum is acknowledged by the following signatures of the Authorized Representatives.

APPROVAL AND ACCEPTANCE:

CLIENT	**WCC**
_____	
Signature	**Signature**
_____	Ulrich Luscher
Typed Name	**Typed Name**
_____	Senior Managing Principal Waste Management
Title	**Title**
_____	4/14/89
Date of Signature	**Date of Signature**

ADDENDUM NO. 3

PHASE III SCOPE OF WORK AND ESTIMATED COSTS
CITY OF LIVERMORE, RAILROAD AVENUE PROPERTY

The proposed Phase III site exploration is intended to gather additional site specific environmental data to assist in the environmental assessment of the subject property. The proposed Phase III work includes exploratory borings, soil sampling, installation of ground water monitoring wells, ground water sampling, laboratory analyses of soil and groundwater samples, and preparation of a report summarizing the findings. The scope of work is described below.

SCOPE OF WORK

Task 1 - Exploratory Borings and Groundwater Monitoring Wells

Prior to drilling on the site, Woodward-Clyde Consultants (WCC) will review and modify the existing health and safety plan for the drilling well installation, and sampling activities on the site. The health and safety plan will consider potential exposure to hazardous materials and provide recommendations for the use of personal protection equipment and clothing to be worn on-site.

We propose to drill three exploratory borings at the 187 North "L" Street site and convert them to groundwater monitoring wells. These borings will be drilled to depths of 50-60 feet or to the depth of groundwater, whichever is less. One of these borings will be located near our boring B-1 on the 187 North "L" Street site. Two additional borings will be drilled west of boring B-1 and will also be converted to monitoring wells. The locations of these two wells will be located either on the 187 North "L" Street site or on the property adjoining the site to the west. The locations of borings will be adjusted to minimize impact on the Arrow Rentals activities.

The exploratory borings will be drilled using hollow stem auger drilling methods. Soil samples will be collected from the boring near our previous boring B-1 from depths beginning at 25 feet and at 5 foot depth intervals to the maximum depth of the boring, using a drive sampler. Soil samples will be collected from the two additional boring at 5 foot depth intervals beginning at 5 feet using drive samplers and continuing to the maximum depth of the boring. Samples will be retained in clean brass liners.

The ends of the sample liners will be capped with plastic end caps. They will be labeled, placed in an ice-chest and transported to a state approved commercial analytical laboratory. Chain-of-custody procedures will be used for sample transportation. A WCC geologist will observe the drilling and soil sampling, and will prepare a log of each boring showing the location of samples and soils encountered. Augers and sampling equipment will be cleaned prior to use to reduce the potential for cross-contamination. At the completion of the soil borings, each boring will be backfilled with a cement-bentonite slurry.

Soil cuttings from drilling activities will be placed in 55 gallon barrels and stored temporarily on site. Following a review of the results of laboratory tests of soil samples, we will provide recommendations for proper disposal of the soil cuttings.

Each of the three borings will be converted to a groundwater monitoring well. The wells will be constructed by placing 2-inch diameter PVC well casing in the boring. The screened section of casing will be placed so that it extends from about 5 feet below to about 5 feet above the ground water level. A clean sand will be placed in the annulus around the screened section to provide a filter pack. Bentonite pellets will be placed above the sand as a seal to separate the sand from the cement-bentonite seal that will extend to the surface.

A locking well cover will be placed over the top of each well. Each well will be developed by pumping or bailing to remove sediment from the well. Groundwater parameters such as temperature, pH, and conductivity will be measured during well development waste from the wells will be placed in barrels and stored temporarily on-site for later disposal.

Task 2 - Groundwater Sampling

Two groundwater sample will be collected from each well using a clear bailer. The sampled water will be inspected for evidence of floating petroleum product. The stabilized groundwater levels will be measured at each well to evaluate the groundwater gradient.

The groundwater samples will be placed in clean containers provided by the analytical laboratory. The sample containers will be labeled and placed in a cooler with ice and transported to the analytical laboratory using chain-of-custody procedures.

Task 3 - Laboratory Analysis

Soil samples from the three exploratory borings will be analyzed for total petroleum hydrocarbons (TPH) and benzene, toluene, ethylbenzene and xylene (BTEX), using EPA Method 8015 modified. It is estimated that about 27 soil samples will be analyzed for TPH as diesel.

Three groundwater samples will be analysed for TPH as gasoline, BTEX (EPA 8015), and for TPH as diesel (EPA 8015). Three groundwater samples will be analysed for purgeable priority pollutants using EPA Method 624.

Task 4 - Assessment and Report

The results of tasks 1, 2, 3 and 4 will be assessed and a report will be prepared summarizing the findings. The report will contain a discussion of the extent of petroleum contamination of soil on the site and evidence of petroleum contamination of groundwater beneath the site.

The report will contain a plan showing well locations. The report will contain a discussion of our assessment of the extent of soil contamination at the 187 North "L" Street site, and the possible impacts of soil or groundwater contamination on the planned site development. The report will contain logs of wells, laboratory test results, field records, and supporting data.

ESTIMATED COST AND SCHEDULE

We estimate that the costs for the Phase III scope of work will be about $37,000. A detailed cost estimate is included in Table 1.

The groundwater monitoring well installation can begin about one week following authorization to proceed depending upon availability of drilling equipment. The well installation and development will require about 6 days. Groundwater sampling will require another 2 to 3 days. Laboratory tests will require about two additional weeks for completion. A draft report will be available about one to two weeks following the receipt of written laboratory test results by WCC. The report can be prepared in final form in about one week following receipt of your comments.

Table 1
ESTIMATED COSTS
PHASE II SITE EXPLORATION
RAILROAD AVENUE PROPERTY

TASK NO.	DESCRIPTION	ESTIMATED COST WCC	OUTSIDE
1.	Exploratory Borings	$ 5,350	$13,000
2.	Groundwater Sampling	2,650	1,500 (surveying)
3.	Laboratory Analysis		4,500
4.	Assessment and Report	10,000	
	Subtotals	$18,000	$19,000
	TOTAL	$37,000*	

*Note: The cost of disposal of possible contaminated soil or water from the exploratory borings is not included in the cost estimate. Assuming about 6 barrels of soil and 6 barrels of water with petroleum contamination would need to be removed to a waste management facility, the cost could be about $2,000 to $2,500. The need for disposal of contaminated soil and the costs cannot be estimated until laboratory test results are available.

___ Client Initials