Delta
Environmental
Consultants, Inc.

3164 Gold Camp Drive
Suite 200
Rancho Cordova, California 95670-6021
916/638-2085
FAX: 916/638-8385

August 9, 2002

RO 38

Mr. Barney Chan
Alameda County Health Care Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-9335

Subject: *Work Plan for Hand Auger Soil Borings and Limited Overexcavation*
Former Chevron Service Station No. 9-4587
609 Oak Street
Oakland, California
Delta Project No. DG94-587

Mr. Chan:

Delta Environmental Consultants, Inc. (Delta) has been authorized by Chevron Products Company (Chevron) to prepare a work plan for the installation of five hand auger soil borings at the above-referenced site. The location of the site is presented on Figure 1, and a site map is included on Figure 2. This purpose of the work is to collect soil analytical data to pre-profile for limited excavation activities to be conducted at the site. This work was requested in a letter from Alameda County Health Care Services (ACHCS) dated November 28, 2001 attached as Enclosure A.

Site Description

The site was formerly operated as Chevron Service Station No. 9-4587 and is located at 609 Oak Street, Oakland, California. It was operated as a gasoline service station prior to the removal of the underground storage tanks (USTs) in 1994. Currently, the site is a vacant lot. Previous environmental work detected elevated levels of petroleum hydrocarbons in the vicinity of the former USTs and former pump islands. There are currently seven monitoring wells (C-1 through C-7) and one groundwater recovery well (CR-1) located at the site.

Background

In April 1982, IT Enviroscience installed two groundwater monitoring wells located adjacent to the UST basin. The wells were drilled in response to the discovery of a leak in one of the fiberglass USTs. Other than the notation of a gasoline odor at 7 feet below surface grade (bsg) in one boring, no evidence of gasoline impact during drilling activities was recorded.

During July 1983, Gettler-Ryan (GR) installed three observation wells. Liquid phase hydrocarbons were observed in well C-1 July 19, 1983.

In April 1987, after a product line leak was repaired, 1,300 milligrams per kilogram (mg/kg) total petroleum hydrocarbons as gasoline (TPHg) and 150 mg/kg benzene were reported in soil samples taken from 7 feet below product lines.

In December 1989, a quarterly monitoring and sampling program began. The initial sampling event reported free product in well C-1 and 16,000 micrograms per liter (µg/L) TPHg in C-2.

In September and October 1990, Geo-Strategies, Inc., installed three offsite, downgradient groundwater monitoring wells, C-4 through C-6 and one onsite recovery well CR-1. Low concentrations of benzene were detected in a soil sample collected from CR-1 at 15 feet bsg. Groundwater samples collected in October 1990, reported concentrations of TPHg ranging from 410 to 31,000 µg/L. Petroleum hydrocarbons were not detected in the three, offsite monitoring wells.

On September 22, 1992, Geraughty & Miller, Inc., submitted a groundwater remediation work plan, outlining installation and operation of a groundwater extraction and treatment system.

From December 1993 to January 1995, Geraughty & Miller, Inc., installed and operated a groundwater extraction and treatment system, treating 460,000 gallons of water. Initial influent groundwater concentrations were reported at 110,000 µg/L TPHg, with influent concentrations of 9,900 µg/L at the end of operations.

In October 1994, Touchstone Developments excavated and removed three USTs. No holes were observed in the USTs, but a hydrocarbon sheen was noted on water within the excavation. Product lines and dispensers were removed and a total of 300 cubic yards of soil was excavated, aerated and transported to a landfill. Soil samples taken from the sidewall of the tank excavation at 9-11 feet bsg, reported up to 3,700 mg/kg TPHg and up to 1,400 mg/kg TPHg beneath the dispensers.

In July 1995, Terra Vac installed wells for the dual vacuum extraction system. The well installation report indicated only one soil sample with TPHg and benzene above cleanup goals. From September 1995 to January 1996, Terra Vac operated a dual vacuum extraction and sparging system at the site. Initial hydrocarbon extraction rates up to 200 pounds per day declined to two pounds per day at the end of DVE operations. Air sparging continued after January 1996. In December 1995, Terra Vac drilled interim remediation borings. An interim boring installation report indicated that the samples from boring SP-7 met cleanup criteria, except for one from the saturated zone at 14.3 feet bsg containing 1.2 mg/kg benzene. The vapor extraction wells, air sparging wells and dual completion wells were properly abandoned between 1997 and 1998.

Copies of the soil sample analytical results from previous consultants are provided in Enclosure C.

Terra Vac performed a risk assessment for the site in August 1997 and submitted a *Risk Assessment and Threshold Limits* report, dated August 20, 1997. The risk assessment was performed using Groundwater Services, Inc. RBCA Tier 1/Tier 2 software (1995 version). A site-specific target level (SSTL) of 4.1 mg/kg benzene was derived for soil based on a commercial risk exposure of 1×10^{-5}. An SSTL of 720 µg/L benzene (on-site) was calculated for groundwater based on a residential risk exposure of 1×10^{-6}. Based on these findings, ACHCS issued a letter dated October 27, 1997 which stated that monitoring wells C-1, C-2, and CR-1 and off-site well C-5 must be monitored on a semi-annual basis for 2 years; and, if after 2 years the groundwater from the on-site wells contains less than 720 µg/L benzene, and groundwater from the off-site well has less than 100 µg/L benzene, the site could be re-evaluated for closure. Based on this finding, Chevron notified (Chevron letter, dated October 31, 1997) the property owners that ACHCS approved Terra Vac's Risk Management Plan and the site is developable for commercial use with the only requirement that the semi-annual sampling continue for 2 years.

In August 2001, Delta contacted Mr. Barney Chan at ACHCS to discuss the status of the closure evaluation on the site, since more than 2 years had elapsed and the benzene concentrations in groundwater were below the SSTLs calculated for the on-site and off-site wells. In October 2001, Mr. Chan with ACHCS contacted Delta and requested some additional site information (boring logs) to assist in his closure evaluation. Chevron received a letter from ACHCS dated November 28, 2001 stating that the highest benzene concentration in soil at the site, 23 ppm in HA-2, exceeded the acceptable human health risk for residential exposure to an indoor air exposure pathway and required either: a more specific risk assessment; a deed restriction; resampling to determine current contaminant levels or; remediate the affected area. In July 2002 Chevron authorized Delta to proceed with activities to remediate the affected area.

Scope of Work

Permitting and Underground Service Alert Notification

Prior to conducting field activities, Delta will notify the property owner of the impending activities at least two weeks in advance. Permits for the proposed hand auger borings will be obtained from the Alameda County Department of Public Works, if necessary. Upon approval of the permit applications, Delta will mark boring locations at the site for underground utility location and contact Underground Service Alert at least 48 hours prior to commencing field activities. Chevron, ACHCS and the property owner be notified at least 2 weeks in advance of performing any assessment or overexcavation.

Hand Auger Assessment / Pre-Profile for Disposal

Delta proposes to advance five hand auger soil borings at the locations shown on Figure 3 to further assess the lateral and vertical extent of benzene in soil in the vicinity of hand auger boring HA-2 prior to overexcavation. Four of the hand auger soil borings (HA-4 through HA-7) will be advanced to a depth of approximately 7.5 feet bsg. Hand auger boring HA-8 will be advanced to a depth of approximately 10 feet bsg.

A Delta geologist will classify the soil as it is encountered in the boring using the Unified Soil Classification System. Soil samples will be collected at 2.5, 5, and 7.5 feet bsg in each of the borings. In addition, a sample will be collected at 10 feet bsg from HA-8. Soil samples will be collected using the procedures described in Enclosure B. Soil samples will be field screened for the presence of organic vapors using a photoionization detector.

Two or three discrete soil samples from each boring will be submitted to Lancaster Laboratories in Lancaster, Pennsylvania for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) and methyl tertiary butyl ether (MTBE) using EPA Method 8021 and total petroleum hydrocarbons as gasoline range organics (TPH-GRO) using EPA Method 8015 Modified. In addition, the discrete samples will also be composited and analyzed for BTEX using EPA Method 8021, TPH-GRO using EPA Method 8015, and total lead by EPA Method 7241 in order to obtain pre-profile approval from the landfill for disposal.

Limited Overexcavation

Limited overexcavation activities will be conducted around soil sample location HA-2, which had a reported benzene concentration of 23 mg/kg at 5 feet bsg. The extent of the overexcavation will be based on laboratory results of the discrete soil samples. Based on the *Risk Assessment and Threshold Limits* report, submitted by Terra Vac, dated August 20, 1997, the maximum allowable benzene

concentration in soil is 4.1 mg/kg. Therefore, the only soil with benzene concentrations exceeding 4.1 mg/kg (SSTL for commercial exposure risk of 1 x 10^{-5}) within the proposed area of overexcavation will be excavated. The approximate maximum limits of the proposed overexcavation are 15 feet by 15 feet by 10 feet deep but may be reduced based on the hand auger assessment results. A total of up to 90 cubic yards of soil will be removed during overexcavation activities. The proposed limits of overexcavation are shown on Figure 3.

The overexcavated soil will be directly loaded into trucks onsite and hauled under manifest to an appropriately licensed disposal facility. Copies of the waste disposal manifests will be included in the results report.

Schedule

Upon approval of this work plan, Delta will submit permit applications to install the hand auger soil borings and obtain right-of-entry (ROE) from the property owner. Assuming there are no delays with permitting and ROE, Delta anticipates completing the hand auger assessment and overexcavation by September 2002. A report summarizing the results will be submitted to the appropriate agencies within 30 days following the completion of the field activities.

Remarks/Signatures

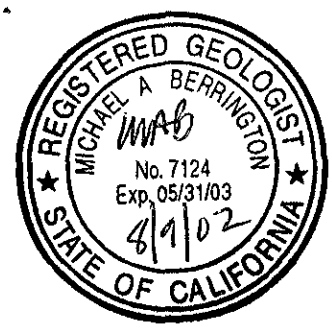
The interpretations contained in this document represent our professional opinions, and are based in part, on information supplied by the client. These opinions are based on currently available information and are arrived at in accordance with currently accepted hydrogeological and engineering practices at this time and location. Other than this, no warranty is implied or intended.

If you have any questions regarding this project, please contact Mike Berrington at (916) 536-2616.
Sincerely,

DELTA ENVIRONMENTAL CONSULTANTS, INC.

William Slowik
Staff Scientist

Michael A. Berrington, R.G.
Project Manager
California Registered Geologist No. 7124



WS (LRP001.9-4587)
Enclosures
cc: Ms. Karen Streich – Chevron Products Company
Mr. Chuck Headlee – San Francisco Bay Regional Water Quality Control Board
Mr. A. Guidotti, #1 Bates Boulevard, Orinda, CA 94563

GENERAL NOTES:
BASE MAP FROM U.S.G.S.
OAKLAND WEST, CA.
7.5 MINUTE TOPOGRAPHIC
PHOTOREVISED 1980

SCALE 1:24,000

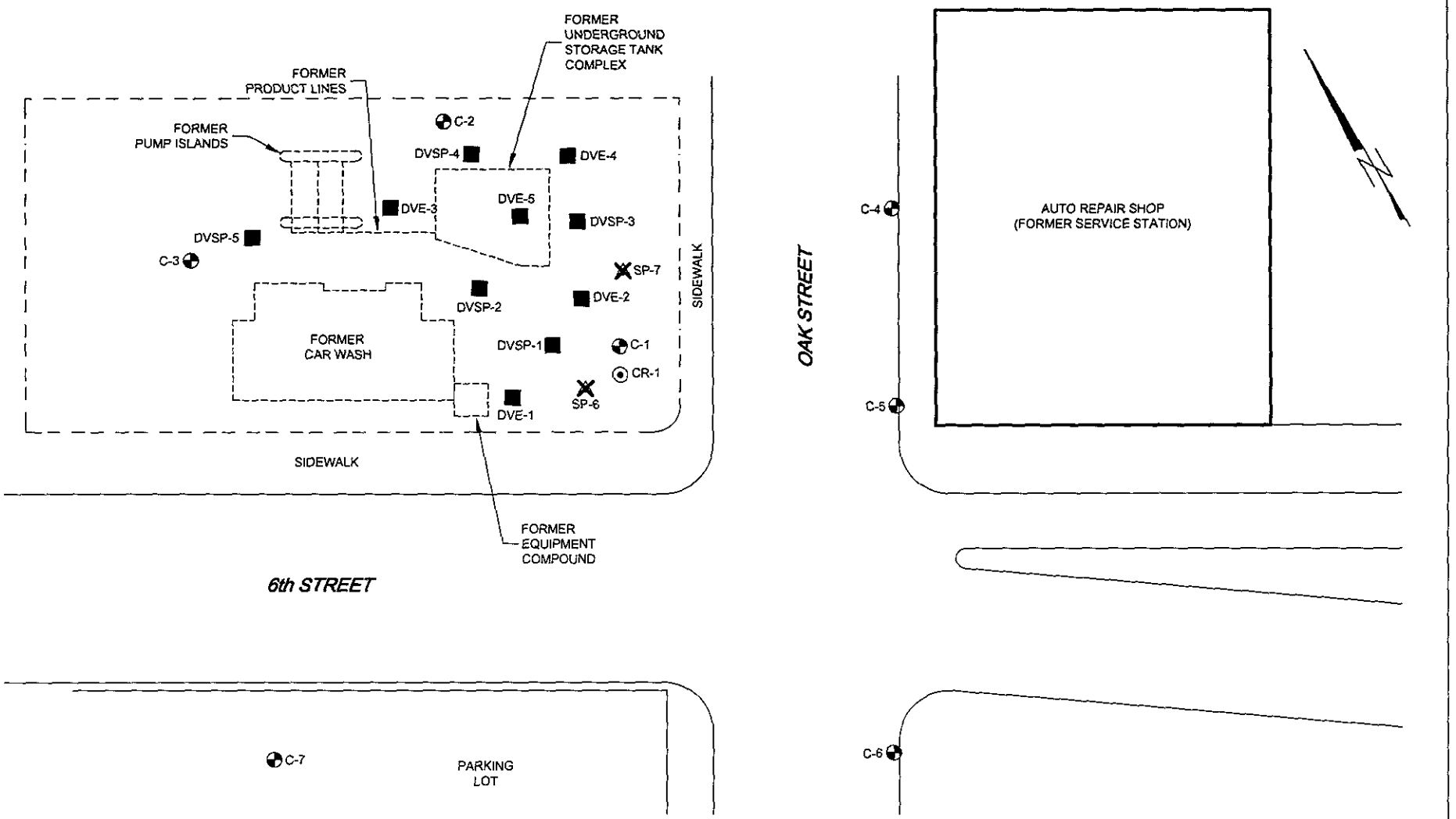
FIGURE 1

SITE LOCATION MAP

FORMER CHEVRON STATION NO. 9-4587
609 OAK STREET
OAKLAND, CA.

PROJECT NO DG94-587	DRAWN BY M.L 7/15/02
FILE NO DG94587A	PREPARED BY W.S.
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.



LEGEND.

- C-1 MONITORING WELL LOCATION
- DVE-1 ABANDONED VAPOR EXTRACTION WELL LOCATION
- SP-7 ABANDONED AIR SPARGE WELL LOCATION
- DVSP-1 ABANDONED DUAL COMPLETION WELL LOCATION

0 30 FT

APPROX. SCALE

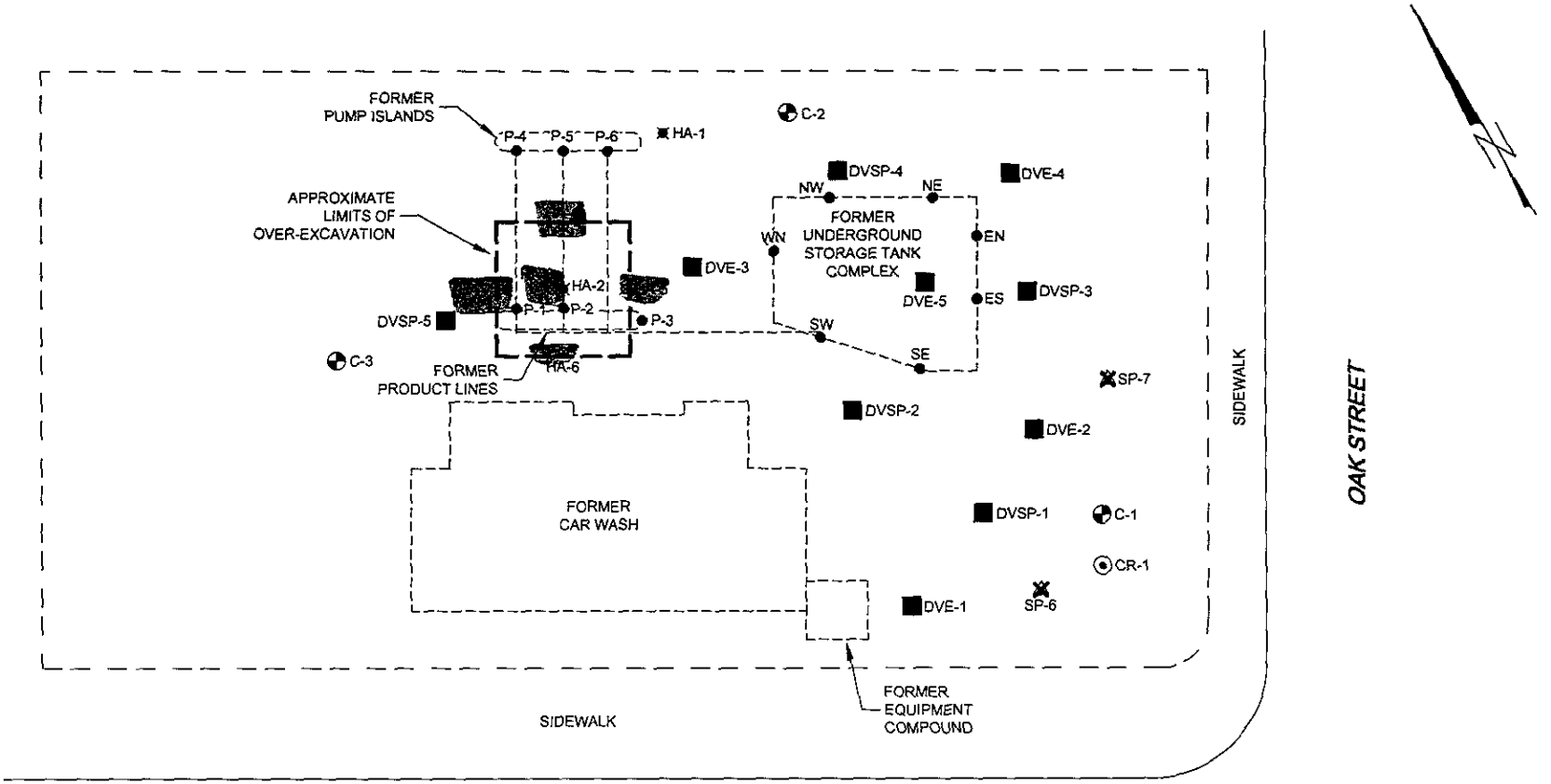
FIGURE 2

SITE MAP

FORMER CHEVRON STATION NO. 9-4587
609 OAK STREET
OAKLAND, CA.

PROJECT NO. DG94-587	DRAWN BY M L. 7/19/02
FILE NO. DG94587B	PREPARED BY W S.
REVISION NO. 2	REVIEWED BY

Delta Environmental Consultants, Inc.



LEGEND:

C-1	MONITORING WELL LOCATION
DVE-1	ABANDONED VAPOR EXTRACTION WELL LOCATION
SP-7	ABANDONED AIR SPARGE WELL LOCATION
DVSP-1	DUAL COMPLETION WELL LOCATION
P-1	SOIL SAMPLE LOCATION
HA-1	HAND AUGER SOIL BORING LOCATION
HA-4	PROPOSED HAND AUGER SOIL BORING LOCATION

0 20 FT

APPROX. SCALE

FIGURE 3

SOIL SAMPLE LOCATION MAP

FORMER CHEVRON STATION NO. 9-4587
609 OAK STREET
OAKLAND, CA.

PROJECT NO DG94-587	DRAWN BY M.L. 7/31/02
FILE NO DG94587B	PREPARED BY W.S
REVISION NO 2	REVIEWED BY

Delta Environmental Consultants, Inc.

ENCLOSURE A

Alameda County Health Care Services Letter
Dated November 28, 2001

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

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

November 28, 2001
StID 4037/RO0000038

Chevron Products Co.
Mr. Thomas Bauhs
P.O. Box 6004
San Ramon, CA 94583

Re: Former Chevron Service Station #9-4587, 609 Oak St., CA 94607

Dear Mr. Bauhs:

As you are aware, our office is considering the referenced site for case closure. However, based upon the highest residual soil benzene concentration at this site, 23 ppm in HA-2, additional action is required. This concentration exceeds the acceptable human health risk for residential exposure to an indoor air exposure scenario. In order to address this, please consider the following alternatives:

- You can perform a more site specific risk assessment,
- provide a deed restriction,
- resample this area to determine current contaminant levels or
- remediate the affected area.

Please have your consultant provide a proposal to address this residual contamination threat.

You may contact me at (510) 567-6765 should you have any questions.

Sincerely,

Barney M. Chan
Hazardous Materials Specialist

cc: B. Chan, files
Mr. M. Berrington, Delta Environmental Consultants, 3164 Gold Camp Drive, Suite 200, Rancho Cordova, CA 95670-6021

609OakSt

ENCLOSURE B

Field Methods and Procedures

1.0 METHODS AND PROCEDURES

1.1 Health and Safety Plan

Field work performed by Delta at the site is conducted according to guidelines established in a Site Health and Safety Plan (SHSP). The SHSP is a document which describes the hazards that may be encountered in the field and specifies protective equipment, work procedures, and emergency information. Directions to the nearest hospital emergency room and a map of the route to the hospital are also included. A copy of the SHSP is at the site and available for reference by appropriate parties during work at the site.

1.2 Locating Underground Utilities

Prior to commencement of work on-site, Delta researches the location of all underground utilities with the assistance of Underground Service Alert (USA). USA contacts the owners of the various utilities in the vicinity of the site to have the utility owners mark the locations of their underground utilities. Although scope of work includes the advancing of hand auger borings exclusively, additional caution will be taken to avoid contact with underground utilities.

1.3 Soil Sampling and Contamination Reduction

A Delta geologist will perform soil borings and soil sampling. The soil borings will be advanced using a manual hand. To avoid cross-contamination between boreholes, the cutting bit of the hand auger will be washed in a Liqui-Nox solution and rinsed thoroughly.

A brass tube measuring approximately 6 inches long and 2 inches in diameter will be placed in a core sampler. The core sampler is attached to a manual slide hammer, which will be used to advance the core sampler containing the brass tube into the native material. Once the core sampler has been advanced 6 inches, it is pulled from the boring and the brass tube containing the sample is removed from the core sampler. Upon recovery, the brass tube containing the sample will be sealed at both ends with Teflon, capped, and stored at approximately 4°C for transport to the laboratory. To reduce cross-contamination between samples, the core sampler will also be washed in the Liqui-Nox solution and rinsed between each boring.

1.4 Soil Classification

As the samples are obtained in the field, the geologist in accordance with the Unified Soil Classification System (USCS) will classify them. Representative portions of the samples will then be retained for further examination and for verification of the field classification.

1.5 Soil Sample Screening/hNu Portable Photoionization Detector Method

A portion of the soil collected from the borings will be placed in plastic bags. After the plastic bags containing soil have been brought to ambient temperature, the headspace vapors of the sample in the bag will be screened with a PID equipped with a 10.2 eV lamp. The sample corner of the bag will be opened and the detector probe immediately placed within the headspace. The highest observed reading will be recorded.

2.0 ANALYTICAL PROCEDURES

Soil samples submitted to the laboratory will be analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Method 8021, total petroleum hydrocarbons in the gasoline range (TPH as GRO) using the DHS LUFT Method, and (methyl tertiary butyl ether) MTBE using EPA Method 8021. Groundwater samples submitted to the laboratory will be analyzed for BTEX using EPA Method 8021, TPH as GRO using EPA Method 8015 Modified, and MTBE using EPA Method 8021.

3.0 QUALITY ASSURANCE PLAN

This section describes the field and analytical procedures to be followed throughout the investigation.

3.1 General Sample Collection and Handling Procedures

Proper collection and handling are essential to ensure the quality of a sample. Each sample will be collected in a suitable container, preserved correctly for the intended analysis, and stored prior to analysis for no longer than the maximum allowable holding time. Details on the procedures for collection and handling of soil samples used on this project can be found in Section 1.0 (Methods).

3.2 Sample Identification and Chain-of-Custody Procedures

Sample identification and chain-of-custody procedures ensure sample integrity and document sample possession from the time of collection to its ultimate disposal. Each sample container submitted for analysis will have a label affixed to identify the job number, sampler, date and time of sample collection, and a sample number unique to that sample. This information, in addition to a description of the sample, field measurements made, sampling methodology, names of on-site personnel, and any other pertinent field observations, will be recorded on the borehole log or in the field records. A California-certified laboratory will analyze samples.

A chain-of-custody form will be used to record possession of the sample from time of collection to its arrival at the laboratory. When the samples are shipped, the person in custody of them will relinquish the samples by signing the chain-of-custody form and noting the time. The sample-control officer at the laboratory will verify sample integrity and confirm that it was collected in the proper container, preserved correctly, and that there is an adequate volume for analysis.

If these conditions are met, the sample will be assigned a unique log number for identification throughout analysis and reporting. The log number will be recorded on the chain-of-custody form and in the legally-required log book maintained by the laboratory in the laboratory. The sample description, date received, client's name, and other relevant information will also be recorded.

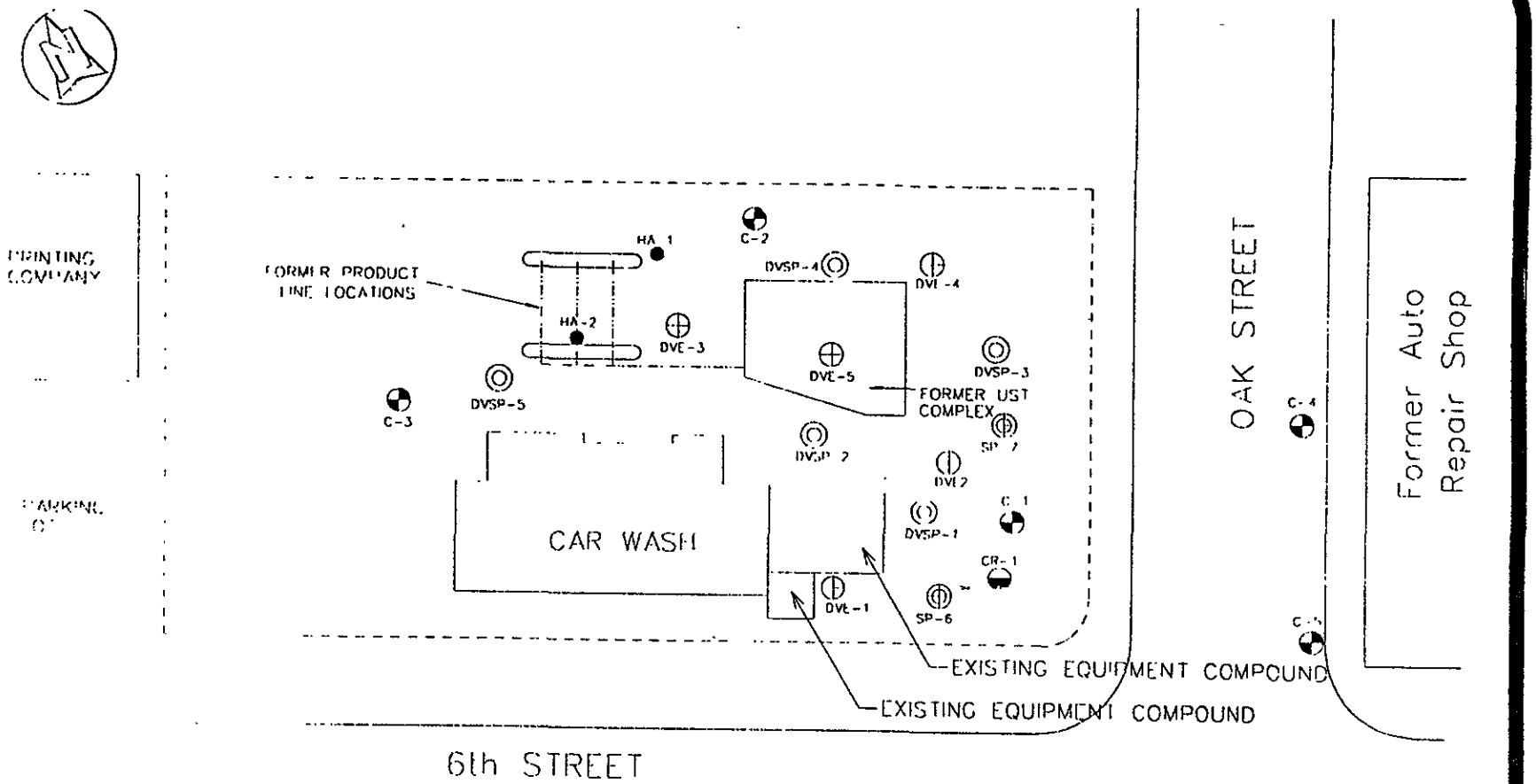
ENCLOSURE C

Previous Consultants Soil Sample Analytical Results

Table 1
Soil Sample Results, mg/kg
Chevron 9-4587, Oakland

Boring	Depth	Date	TPH-g	Benzene	Toluene	Ethylbenzene	Xylenes
87087T3#2&3	7	3/27/87	1300	150	430	na	270
C-4	10.5	9/19/90	<1	<0.05	<0.05	<0.05	<0.05
C-4	15.5	9/19/90	<1	<0.05	<0.05	<0.05	<0.05
C-5	10.5	9/19/90	<1	<0.05	<0.05	<0.05	<0.05
C-5	15.5	9/19/90	<1	<0.05	<0.05	<0.05	<0.05
C-6	9	9/19/90	<1	<0.05	<0.05	<0.05	<0.05
C-6	15	9/19/90	<1	<0.05	<0.05	<0.05	<0.05
*CR-1	5	9/19/90	<1	<0.05	<0.05	<0.05	<0.05
CR-1	10	9/19/90	<1	<0.05	<0.05	<0.05	<0.05
CR-1	15	9/19/90	<1	0.26	<0.05	<0.05	<0.05
C-7	9.5	1991	<1	<0.05	<0.05	<0.05	<0.05
C-7	15	1991	<1	<0.05	0.01	<0.05	<0.05
Tank pull							
SE	11.5	10/17/94	600	3.6	11	9	37
SW	9	10/17/94	18	0.093	0.16	0.36	1.2
ES	10	10/17/94	42	0.24	0.22	0.32	1.6
EN	11	10/17/94	2	0.27	0.12	0.023	0.12
NE	10.5	10/17/94	3700	27	200	69	400
NW	10.5	10/17/94	5	0.52	0.16	0.091	0.44
WN	10.5	10/17/94	40	0.2	0.12	0.8	2.4
P-1	3	10/17/94	1400	5	82	30	220
P-2	2.5	10/17/94	260	0.26	3	1.7	16
P-3	2.5	10/17/94	380	<0.1	15	5.9	39
P-4	2.5	10/17/94	410	0.36	4.4	2.3	33
P-5	2.5	10/17/94	<1	<0.005	<0.005	<0.005	<0.005
P-6	3	10/17/94	29	0.021	0.042	0.091	0.16
DVE-1	10.3	7/12/95	<1	0.31	0.098	0.025	0.12
DVE-2	14	7/11/95	7.6	1	0.032	0.43	1.3
DVE-3	10.2	7/10/95	<1	0.13	0.071	0.021	0.082
DVE-4	10.1	7/11/95	2.8	0.24	<0.005	0.1	0.16
DVE-5	18.8	7/11/95	5.6	0.045	0.055	0.26	1.3
DVSP1	15.5	7/11/95	8.5	4.2	<0.005	0.1	0.16
DVSP2	10.5	7/11/95	<1	0.066	<0.005	0.0096	<0.005
DVSP3	15.5	7/10/95	<1	0.012	0.0082	0.0074	0.045
*DVSP4	5.5	7/10/95	<1	<0.005	<0.005	<0.005	<0.005
DVSP5	10.5	7/12/95	700	15	8.3	25	140
SP6	9.7	12/20/95	11,000	160	1,300	300	1,600
SP6	14.7	12/20/95	4.4	0.81	0.22	0.24	0.56
*SP7	4.7	12/20/95	<1	<0.005	<0.005	<0.005	<0.005
SP7	9.3	12/20/95	1.2	<0.005	0.038	0.009	0.032
SP7	14.3	12/20/95	3.1	1.2	0.068	0.19	0.18
SP7	19.3	12/20/95	<1	<0.005	0.0086	<0.005	0.067
SP7	24.3	12/20/95	<1	<0.005	<0.005	<0.005	<0.005
*HA1-5	5	6/12/97	<1	<0.005	<0.005	<0.005	<0.005
*HA1-7	7	6/12/97	<1	<0.005	<0.005	<0.005	<0.005
*HA2-5	5	6/12/97	2800	23	210	60	330
*HA3-7	7	6/12/97	310	2.1	21	7.5	52

*samples used for RBCA



LEGEND

- Groundwater Monitoring Well
- Groundwater Recovery Well
- Enhancement Extraction Well
- Dual Completed Well
- Sparge Well
- FP Free Product

Extended Site Plan
Former Chevron Station 9-4587
609 Oak Street
Oakland, California

Project	30-0219	Drawn	RJT
Date	9/12/96	Revision	
Scale	1" = 30'	Checked	

TERRA VAC
1651 Alvarado Street
San Leandro, CA 94577
(510) 351-8900 Fax: -0221

Figure 3

TABLE 1

SOIL ANALYSES DATA

SAMPLE I.D..	SAMPLE DATE	ANALYZED DATE	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)
C-7-9.5	01-Feb-91	06-Feb-91	<1	<.005	<.005	<.005	<.005
C-7-15.0	01-Feb-91	06-Feb-91	<1	<.005	0.010	<.005	0.015

TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline
PPM = Parts Per Million

Note: 1. All data shown as <x are reported as not detected (ND).

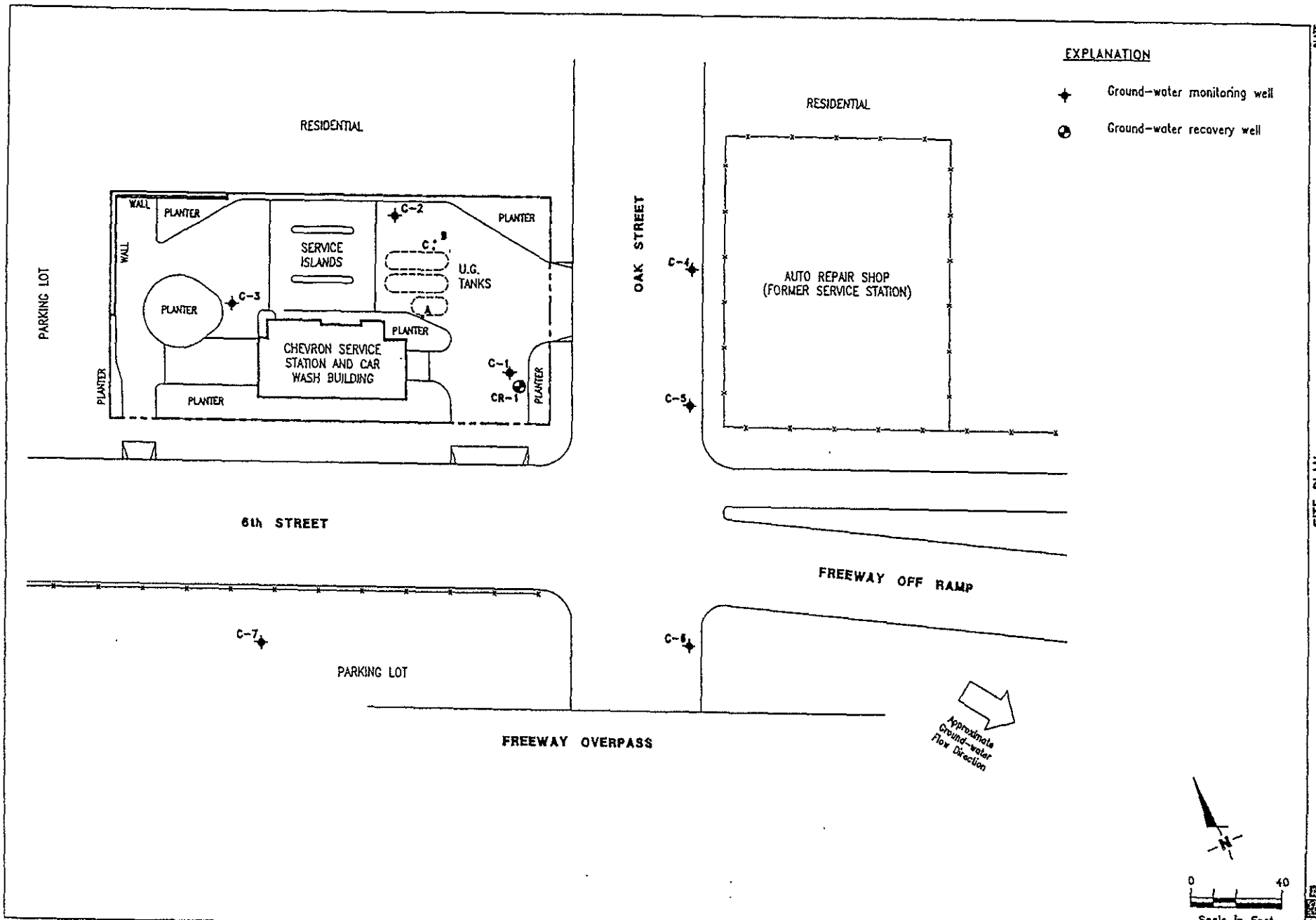

EXPLANATION
Ground-water monitoring well
Ground-water recovery well
RESIDENTIAL
RESIDENTIAL
PARKING LOT
OAK STREET
WALL
PLANTER
WALL
SERVICE ISLANDS
C-2
C-3
U.G. TANKS
PLANTER
PLANTER
CHEVRON SERVICE STATION AND CAR WASH BUILDING
C-1
CR-1
PLANTER
PLANTER
PLANTER
C-4
AUTO REPAIR SHOP (FORMER SERVICE STATION)
C-5
6th STREET
FREEWAY OFF RAMP
C-7
C-6
PARKING LOT
FREEWAY OVERPASS
Approximate Ground-water Flow Direction
N
0
40
Scale in Feet
PLATE 2
SITE PLAN
Chevron Service Station #4587
609 Oak Street
Oakland, California
GeoStrategies Inc.
DATE 2/91
REVISED DATE
REVIEWED BY
JOB NUMBER 71902

TABLE A
UST AND PRODUCT PIPING SAMPLING SUMMARY
CHEVRON STATION 9-4587

UST REMOVAL SAMPLING RESULTS

SAMPLE ID	DEPTH (ft.)	LAB	DATE	TPH - gasoline (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Xylene (ppm)	Total Lead (ppm)
SE	11	Superior	10/17/94	600	3.6	11	9.0	37	11
SW	9	Superior	10/17/94	18	0.093	0.16	0.36	1.2	10
ES	10	Superior	10/17/94	42	0.24	0.22	0.32	1.6	ND<2
EN	11	Superior	10/17/94	2	0.27	0.12	0.023	0.12	ND<2
NE	10.5	Superior	10/17/94	3700	27	200	69	400	ND<2
NW	10.5	Superior	10/17/94	5	0.52	0.16	0.091	0.44	13
WN	10.5	Superior	10/17/94	40	0.2	0.12	0.81	2.4	ND<2

PRODUCT PIPING REMOVAL SAMPLING RESULTS

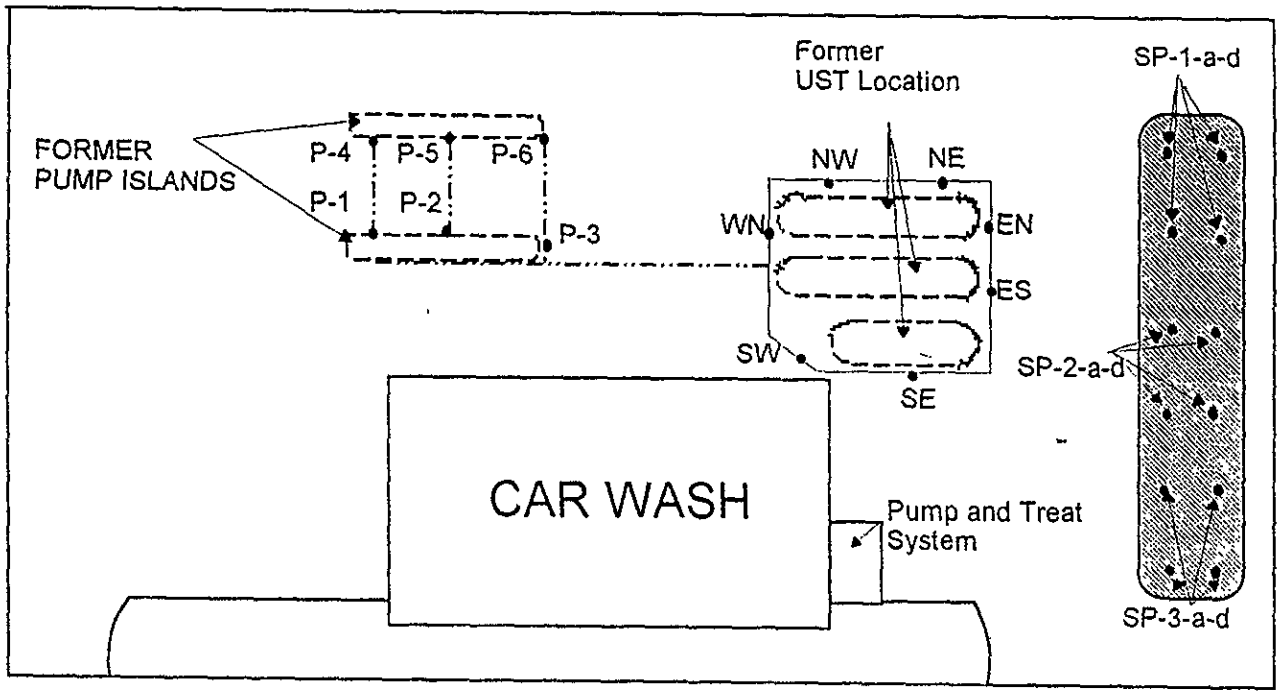
SAMPLE ID	DEPTH (ft.)	LAB	DATE	TPH - gasoline (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Xylene (ppm)	Total Lead (ppm)
P-1	3	Superior	10/17/94	1400	5	82	30	220	14
P-2	2.5	Superior	10/17/94	260	0.26	3	1.7	16	ND<2
P-3	2.5	Superior	10/17/94	380	ND<0.1	15	5.9	39	ND<2
P-4	2.5	Superior	10/17/94	410	0.36	4.4	2.3	33	12
P-5	2.5	Superior	10/17/94	ND<1	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<2
P-6	3	Superior	10/17/94	29	0.021	0.042	0.091	0.16	6

TPH-Gasoline = Total petroleum hydrocarbons calculated as gasoline
ND=Not detected at or above the laboratory detection limit

TABLE B
SOIL STOCKPILE SAMPLE RESULTS
CHEVRON STATION 9-4587

SAMPLE ID	LAB	DATE	TPH - gasoline (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Xylene (ppm)	Organic Lead (ppm)
SP-1-a-d	Superior	10/17/94	89	0.16	0.46	0.55	4.7	ND<2
SP-2-a-d	Superior	10/17/94	210	0.50	3.8	2.3	13	NA
SP-3-a-d	Superior	10/17/94	120	ND<0.025	0.10	0.50	2.8	NA
ASP-2-a-d	Superior	11/8/94	ND<1	ND<0.005	ND<0.005	ND<0.005	ND<0.005	NA
ASP-3-a-d	Superior	11/8/94	ND<1	ND<0.005	ND<0.005	ND<0.005	ND<0.005	NA

TPH-Gasoline = Total petroleum hydrocarbons calculated as gasoline
ND=Not detected at or above the laboratory detection limits
NA = Analysis not requested



OAK STREET

6th STREET

EXPLANATION

UST = *Underground Storage tank*

WX ● APPROXIMATE LOCATION OF EXCAVATION SOIL SAMPLE

STOCKPILE SOIL

FORMER UNDERGROUND STRUCTURE

FORMER PRODUCT PIPING LOCATION

N

0 5 10 15 20

Scale in feet

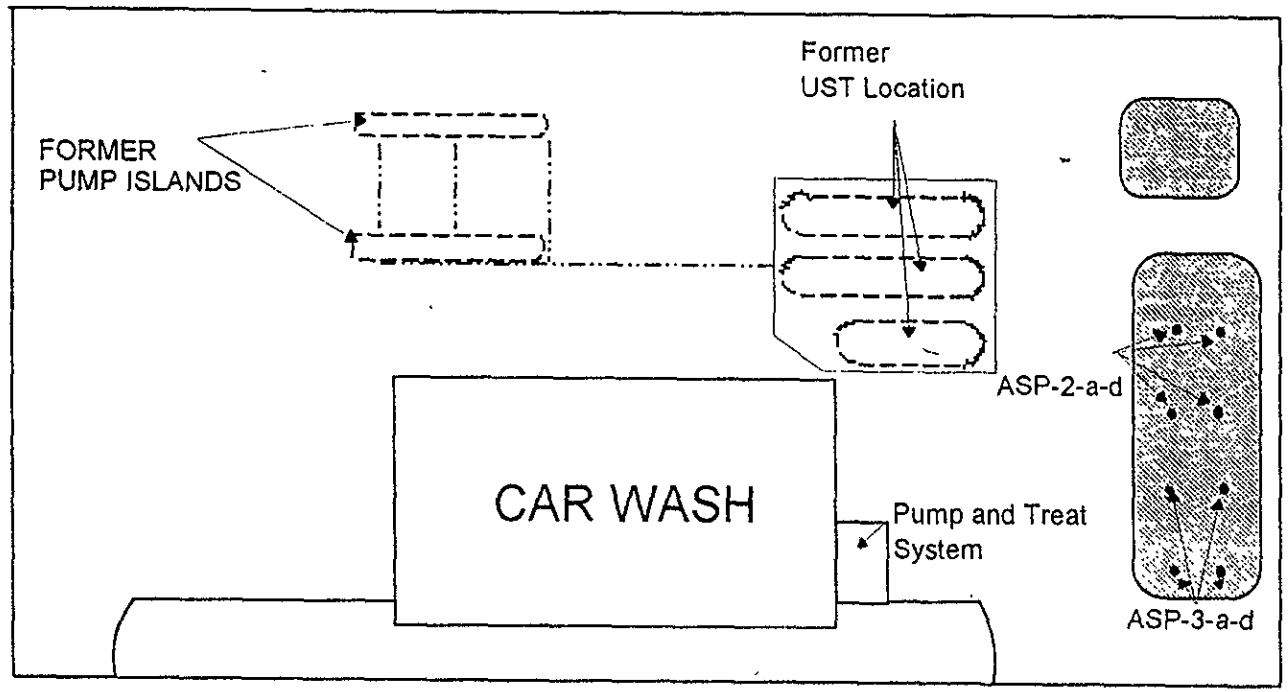
Touchstone Developments
Environmental Management

SAMPLE LOCATIONS

CHEVRON SERVICE STATION NO. 9-4587
609 OAK STREET
SAN JOSE, CALIFORNIA

FIGURE
2

PROJECT NO.	DRAWN BY:	DATE	BASE MAP:
4587-1	AMD	11/14/94	Groundwater Technology



OAK STREET

6th STREET

EXPLANATION

UST = Underground Storage tank

WX APPROXIMATE LOCATION OF EXCAVATION SOIL SAMPLE

STOCKPILE SOIL

FORMER UNDERGROUND STRUCTURE

FORMER PRODUCT PIPING LOCATION

0 5 10 15 20

Scale in feet

Touchstone Developments
Environmental Management

ADDITIONAL STOCKPILE SAMPLE LOCATIONS

CHEVRON SERVICE STATION NO. 9-4587
609 OAK STREET
SAN JOSE, CALIFORNIA

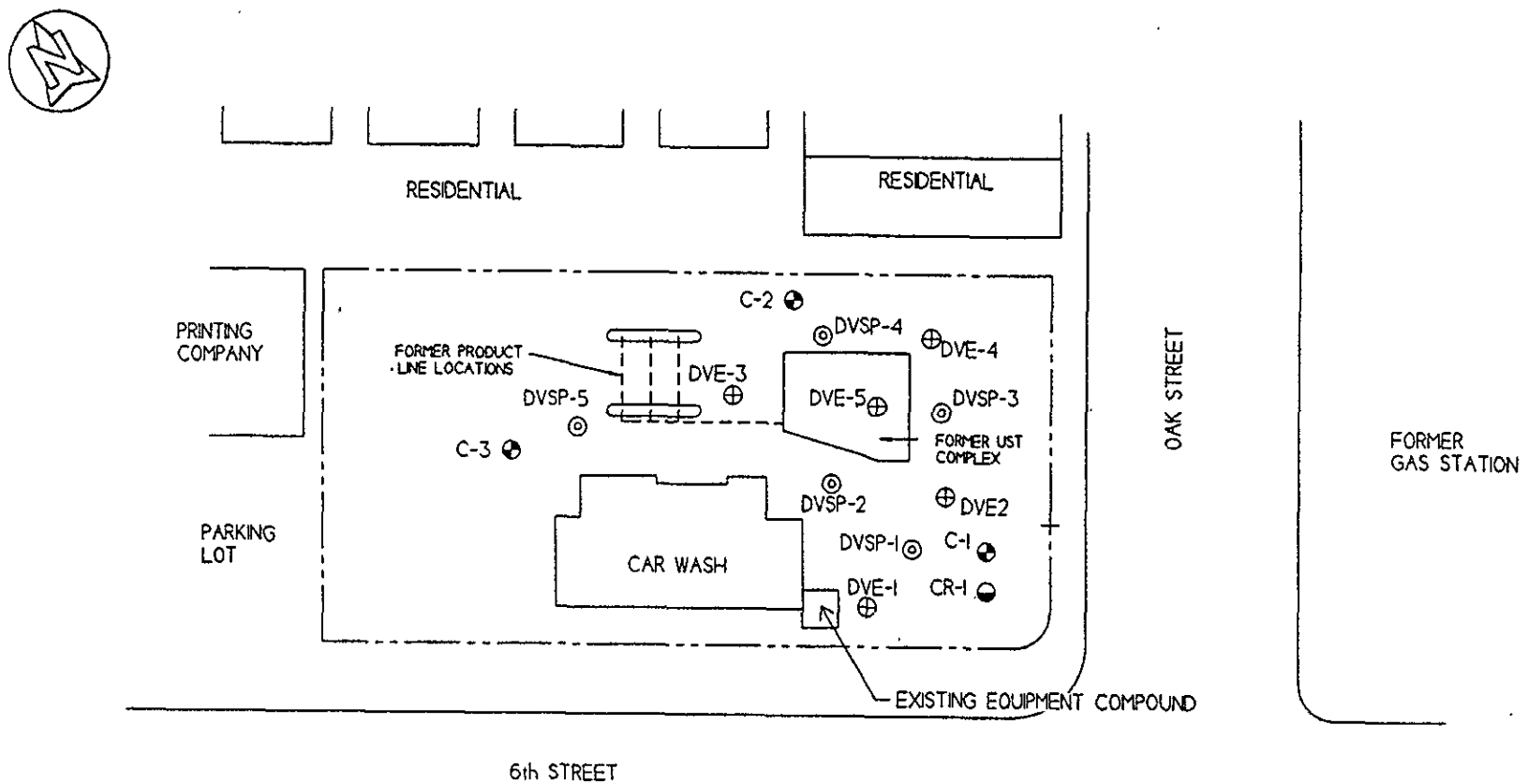
FIGURE
3

PROJECT NO.	DRAWN BY:	DATE	BASE MAP:
4587-1	AMD	11/14/94	Groundwater Technology

TABLE 1
SUMMARY OF ANALYTICAL RESULTS

Sample No.	TPH-g	Benzene	Toluene	Ethylbenzene	Xylene
DVE1-10.3	1.0	0.31	0.098	0.025	0.12
DVE2-14.0	7.6	1.0	0.032	0.43	1.3
DVE3-10.2	<1.0	0.13	0.071	0.021	0.082
DVE4-10.1	2.8	0.24	<0.0050	0.10	0.16
DVE5-18.8	5.6	0.045	0.055	0.26	1.3
DVSP1-15.5	8.5	4.2	<0.0050	0.47	0.069
DVSP2-10.5	<1.0	0.066	<0.0050	0.0096	<0.0050
DVSP3-15.5	<1.0	0.012	0.0082	0.0074	0.045
DVSP4-5.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
DVSP5-10.5	700	15	8.3	25	140

Analytical results in mg/kg (ppm).
< Value = None detected above the specified detection limit.
Analysis by Sequoia Analytical Laboratories of Walnut Creek on July 17 and 18, 1995



LEGEND

C-1	- Groundwater Monitoring Well
CR-1	- Groundwater Recovery Well
⊕	- Entrainment Extraction Well
◎	- Dual Completed Well

EXTENDED SITE MAP
Former Chevron Station 9-4587
609 Oak Street
Oakland, California

Project	30-0219	Drawn by	CMG
Date	8/18/95	Revision	
Scale	1" = 50'	Checked	

TERRA VAC
14798 Wicks Boulevard
San Leandro, CA 94577
(510) 351-8900 fax: -0221

Figure 1

Table 1. Soil Sample Analytical Results, Former Chevron Service Station #9-4587, 609 Oak Street, Oakland, California.

Sample ID	Date	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	HVOs
		<----------ppm---------->						
S1-3.5	02/27/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	ND
S2-3.5	02/27/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	ND
S3-3.5	02/27/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	ND
S4-5.0	02/27/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	ND
S5-7.0	02/27/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	ND
S6-7.0	02/27/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	ND
S7-7.0	02/27/98	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.025	ND

EXPLANATION:

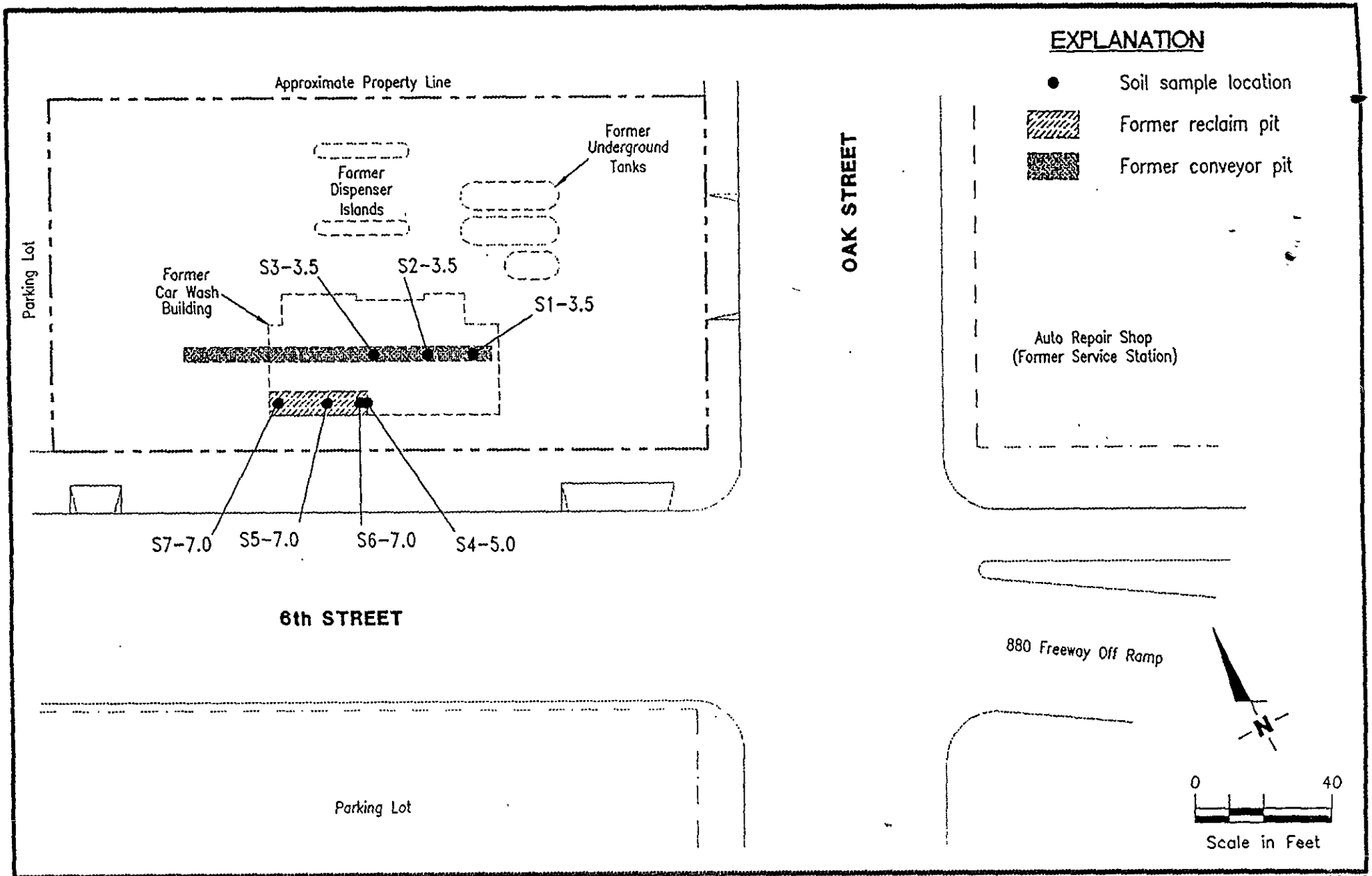
TPHg = Total Petroleum Hydrocarbons as gasoline
MTBE = Methyl tertiary-Butyl Ether
HVOs = Halogenated Volatile Organics
ppm = Parts per million
ND = Not detected

ANALYTICAL METHODS:

TPHg = EPA Method 8015Mod
Benzene, toluene, ethylbenzene, xylenes, MTBE = EPA Method 8020
HVOs = EPA 8010

ANALYTICAL LABORATORY:

Sequoia Analytical (ELAP #1210)



Gettler - Ryan Inc.

6747 Sierra Ct., Suite J
Dublin, CA 94568
(510) 551-7555

SOIL SAMPLE LOCATION MAP
Former Chevron Service Station No. 9-4587
609 Oak Street
Oakland, California

FIGURE
1

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
346428.01		March, 1998	