Chevron

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Marketing Department
Phone 510 842 9500

October 22, 1993

Ms. Juliet Shin
Alameda County Health Care Services Agency
80 Swan Way, Room 200
Oakland, CA 94621

Re: Former Chevron Service Station #9-5630
997 Grant Avenue, San Lorenzo

Dear Ms. Shin:

Enclosed we are forwarding the Petition for Case Closure Report dated December 1, 1993, prepared by our consultant Geraghty & Miller, Inc. (GM) for the above referenced site. This report addresses in detail each item outlined in the Regional Water Quality Control Board's (RWQCB) memorandum dated February 26, 1992, titled "Format of Letter of Recommendations for UST Case Closure".

As per our conversation of October 21, 1993, the site meets all the criterion outlined by the RWQCB for case closure. We would appreciate your review and formal concurrence to the RWQCB of this closure recommendation. No further work is planned for this site. If you have any questions or comments, please do not hesitate to contact me at (510) 842- 9581.Chevron appreciates all your efforts in bringing this site to closure.

Sincerely,
CHEVRON U.S.A. PRODUCTS COMPANY

Nancy Vukelich
Site Assessment and Remediation Engineer

Enclosure

cc: Mr. Rich Hiett, RWQCB-Bay Area
Ms. B.C. Owen
File (9-5630-1)

Mr. Lawrence E. Cogan
Ware & Freidenrich
400 Hamilton Avenue
Palo Alto, CA 94301

December 1, 1993
Project No. RC0256.001

Ms. Nancy Vukelich
Chevron U.S.A. Products Company
2410 Camino Ramon
San Ramon, California 94583

SUBJECT: Site Data Summary in Association with Petition for Case Closure, Former Chevron Service Station #9-5630, 997 Grant Avenue, San Lorenzo, California 94580.

Dear Ms. Vukelich:

This letter provides a summary of background information regarding the Chevron U.S.A. Products Company (Chevron) site referenced above. The purpose of this letter is to provide the Alameda County Health Care Services Agency with information so that they can make a recommendation for case closure to the San Francisco Bay Regional Water Quality Control Board (RWQCB).

EXECUTIVE SUMMARY

- Three gasoline underground storage tanks (USTs), one waste-oil tank, and associated product piping and fuel islands were excavated and removed from the site during December 1990.

- The highest concentrations of total petroleum hydrocarbons as gasoline (TPH-G) detected were 6,000 milligrams per kilogram (mg/kg) in the soil beneath the fuel service islands and product piping, and 4,500 mg/kg in the soil collected from the UST excavation.

- Petroleum hydrocarbons were not detected in the soil collected from the waste-oil tank excavation. Only one volatile organic compound (VOC) (4-methyl-2-pentanone) was detected, at a concentration of 0.077 mg/kg.

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- Additional soil excavation was performed in the areas where petroleum hydrocarbons were detected during the UST, product piping, and fuel island removal. Soil was excavated vertically to groundwater and horizontally to the extent physically possible without undermining the public sidewalk at the site boundary. Excavation was continued until organic vapor meter photoionization detector (OVM) readings were less than 100 parts per million (ppm). Ten verification samples were collected from the sidewalls of the excavation. Concentrations of TPH-G exceeding 100 mg/kg were detected in only two samples (170 mg/kg and 270 mg/kg).

- Excavated soils were aerated until the concentration of TPH-G in all soils to be used for backfill material was less than 10 mg/kg. In all, 5,204 cubic yards (yd^3) of soil were excavated and aerated. Of that, 220 yd^3 were transported offsite for disposal. The remaining 4,984 yd^3 of excavated soil were used for backfill material. only 1380 yds^3 documented

- Five groundwater monitor wells have been installed. The depth to water ranges from 7 to 13 feet below ground surface (bgs). The direction of groundwater flow ranges from west to northwest.

- Historically, petroleum hydrocarbons have been detected intermittently in the on-site monitor wells. Since March 1993, petroleum hydrocarbons have not been detected in any of the monitor wells. Further, petroleum hydrocarbons have never been detected in the one off-site monitor well situated immediately downgradient of the site.

BACKGROUND

The site is a former Chevron service station at 997 Grant Avenue in southwestern Alameda County in the city of San Lorenzo on the northeast corner of the Grant and Washington Avenues intersection (Figure 1). The site is located in an area comprising residences and small businesses, and is currently an unpaved vacant lot. The former UST complex was located south of the service station building and consisted of two 10,000-gallon and one 6,000-gallon fiberglass USTs. The two 10,000-gallon tanks contained regular leaded and regular unleaded gasoline, and the 6,000-gallon tank contained supreme unleaded gasoline. A 1,000-gallon fiberglass waste-oil tank was located north of the northwest corner of the service station (Figure 2).

In September 1986, the USTs failed a pressure test due to leaks found in the vent lines. After the lines were replaced, the system was retested and the system tested tight. A tank pressure test performed in November 1989 indicated that the tanks tested tight (GeoStrategies, Inc. [GSI], February 8, 1991).

The four USTs were removed during December 1990. The leaded gasoline and waste oil USTs and fiberglass product lines had no visible holes or leaks. The regular unleaded gasoline UST had three large cracks and one pinhole on the bottom; the supreme unleaded gasoline UST had one small crack on the bottom. It is not known what damage might have occurred during tank removal (GSI, September 13, 1991).

PREVIOUS WORK AND INVESTIGATIVE METHODS

SITE ASSESSMENTS/TANK REMOVAL

In September 1986, the product tanks failed a pressure test due to leaks found in the vent lines. After the lines were replaced, the system was retested and results showed that the system tested tight. The most recent tank test performed in November 1989 indicated that the tanks tested tight (GSI, February 8, 1991). In November 1990, four 2-inch diameter on-site groundwater monitoring wells (C-1 through C-4) (Figure 2) were installed to assess the soil and groundwater conditions beneath the site. Monitor Well C-1 was installed in the area of the former waste-oil tank, Monitor Wells C-2 and C-3 were installed in the area of the former pump islands, and Monitor Well C-4 was installed in the area of the former USTs.

Soil and groundwater samples from Wells C-1 through C-4 were analyzed for TPH-G (United States Environmental Protection Agency [USEPA] Method 8015, modified) and benzene, toluene, ethylbenzene, and xylenes (BTEX) (USEPA Method 8022). Soil and groundwater samples from Well C-1 (adjacent to the waste-oil tank) were also analyzed for VOCs (USEPA Method 8240) and total oil and grease (TOG) (USEPA Method 503E). Laboratory results for TPH-G, BTEX, total oil and grease, and VOC analyses performed on soil samples from Well C-1 were all below method detection limits. The highest concentrations of TPH-G were reported in the soil samples collected from 10 feet bgs from Wells C-2, C-3, and C-4, at concentrations of 99 mg/kg, 140 mg/kg, and 890 mg/kg, respectively. Benzene was identified in soil samples collected at a depth of 10

feet bgs from Wells C-2, C-3, and C-4, at concentrations of 0.18 mg/kg, 0.20 mg/kg, and 2.8 mg/kg, respectively (GSI, February 8, 1991).

In December 1990, groundwater samples were collected from Monitor Wells C-1 through C-4. At that time, liquid-phase hydrocarbons (LPH) or sheens were not observed in any of the wells, and laboratory analytical results from that sampling event reported no detectable concentrations of TPH-G. Benzene was detected in Monitor Wells C-2, C-3, and C-4, at concentrations of 0.7 micrograms per liter (µg/L), 1 µg/L, and 4 µg/L, respectively. Benzene was not detected in the groundwater sample collected from Monitor Well C-1. Additionally, concentrations of VOCs and TOG were not detected in groundwater samples collected from Monitor Well C-1. The depth to groundwater was approximately 11 feet bgs and the direction of groundwater flow was towards the west (GSI, February 8, 1991).

In December 1990, all USTs and piping were removed. During the excavation, approximately 504 yd^3 were removed to a depth of approximately 11.5 feet bgs, which was the level of encountered groundwater. The excavated soil was stockpiled onsite. Tank removal and soil excavation activities were witnessed by representatives from the Eden Consolidated Fire Protection District and the Alameda County Health Services Agency. Five soil samples (CW-1B and CW-2 through CW-5) were collected from the waste-oil tank excavation (Figure 3). The soil samples were analyzed for TPH-G (USEPA Method 8015, modified), BTEX (USEPA Method 8020), TOG (USEPA Method 503E), and VOCs (USEPA Method 8240). TPH-G, BTEX, and TOG were not detected in these soil samples. The VOC 4-methyl-2-pentanone was detected in Soil Sample CW-2 at a concentration of 77 micrograms per kilogram (µg/kg) (GSI, September 13, 1991).

Trenches were excavated to expose and remove the underground product piping between the UST complex and the service islands. Soil samples CT-1 through CT-11 were collected from the piping trenches at a depth of approximately 3.5 feet below grade. Soil Sample CT-12 was collected under the location of Soil Sample CT-2 at a depth of 5.5 feet below grade. These soil samples were analyzed for TPH-G (USEPA Method 8015, modified) and BTEX (USEPA Method 8020). Concentrations of TPH-G in Soil Samples CT-1 through CT-12 ranged from 6,000 mg/kg to below laboratory method detection limits (GSI, September 13, 1991). Laboratory analytical results are presented in Table 3.

Soil Samples CX-1B, CX-4B, CX-5B, CX-7B, CX-9B, and CX-10B were collected approximately 11.5 feet bgs at the bottom of the UST excavation. Soil samples CX-2S, CX-3S, CX-6S, CX-8S, CX-11S, CX-12S, CX-13S, and CX-14S were collected along the sidewalls of the excavation at depths varying from 8 to 9.5 feet bgs (Figure 3). These soil samples were analyzed for TPH-G (USEPA Method 8015, modified) and BTEX (USEPA Method 8020). Concentrations of TPH-G in these soil samples ranged from 4,500 mg/kg to below laboratory method detection limits (GSI, September 13, 1991). Laboratory analytical results are presented in Table 3.

In February 1993, one additional groundwater monitor well (C-5) was installed to the northwest of the site to further delineate the lateral extent of dissolved hydrocarbons (Figure 2). Both soil and groundwater samples were collected and analyzed for TPH-G (USEPA Method 8015, modified) and BTEX (USEPA Method 8020). Concentrations of TPH-G and BTEX were not detected in the soil and groundwater samples collected from Well C-5 (Groundwater Technology, Inc. [GTI], March 19, 1993).

HYDROGEOLOGIC SETTING

REGIONAL HYDROGEOLOGY

The site lies on the west sloping surface of the San Francisco Bay Plain. The San Francisco Bay is approximately 1.6 miles southwest of the site. The nearest body of surface water, San Lorenzo Creek, is approximately 1,800 feet hydraulically crossgradient of the site and is a concrete-lined channel (Environmental Geosciences Engineering [EGE], May 12, 1992). No other surface streams are mapped in the vicinity of the site. The principal water-bearing unit is a sandy silt. The saturated thickness of the shallow semiconfined water-bearing unit is generally less than 10 feet thick (EGE, May 12, 1992). Historic groundwater depths have ranged between approximately 7 feet and 13 feet bgs.

SITE HYDROGEOLOGY

Attachment 1 presents the exploratory boring logs of Soil Borings C-1 through C-5 (GSI, February 8, 1991 and GTI, March 19, 1993). The site is underlain predominantly by clay, with interbedded silts, sandy silts, and silty sands to a total explored depth of 33.5 feet bgs. Depth to groundwater ranges from approximately 7 feet to 13 feet bgs.

Groundwater monitoring data are presented in Table 1. Wells C-1 through C-3 have been monitored and sampled since December 1990, and have been monitored and sampled quarterly since September 1991. Monitor Well C-4 was monitored in December 1990 and again in September 1991, and was destroyed during initial excavation activities in December 1991. Monitor Well C-5 has been monitored and sampled quarterly since February 1993. Laboratory analytical results are presented in Table 2. Groundwater elevation contours as measured on September 7, 1993, are presented in Figure 5. The most recent gradient calculated from depth-to-groundwater measurements collected on September 7, 1993, was 0.0056. The regional groundwater flow direction has generally been reported ranging from west-southwest to west-northwest, towards the San Francisco Bay. The direction of groundwater flow as measured on September 7, 1993, was towards the northwest (Sierra Environmental Services [SES], October 13, 1993).

BENEFICIAL USES OF WATER

To assess the existing beneficial uses of groundwater in the vicinity, a well survey was conducted on November 4, 1993, to identify wells located within a $^1/_2$-mile radius of the site. The well survey consisted producing a list of all active and inactive wells within a $^1/_2$-mile radius of the subject site that are on file at the Alameda County Flood Control District, Zone 7 (Zone 7). Additionally, Zone 7 produced a map of the locations of those wells (Figure 6). According to information provided by Zone 7, there are approximately 72 registered active wells located within a $^1/_2$-mile radius of the subject site. Of these, 35 are monitoring wells, 29 irrigation wells, 2 cathodic protection wells, 3 domestic wells, 1 is a test well, 1 an observation well, and 1 a pieziometer well.

REMEDIATION ACTIVITIES AND EFFECTIVENESS

In soil samples collected during the UST excavation, elevated concentrations of petroleum hydrocarbons were detected beneath the former tank complex and beneath one of the former pump islands located immediately west of the tank complex. An additional 4,700 yd^3 were excavated in February 1991 to remove soils containing these elevated concentrations (EGE, May 12, 1992). Soil excavation was limited vertically to groundwater and horizontally so as not to jeopardize existing sidewalk structures. Overexcavation of the soil was conducted at the site based on field observations and the results of screening the soil for organic vapor using an OVM. Overexcavation was continued until OVM readings were less than 100 parts per million (ppm). Verification soil

samples were then collected. Soil Samples CX-15S through CX-24S were collected from the sidewalls of the overexcavation (Figure 4). Concentrations of TPH-G in those soil samples ranged from 270 mg/kg to below laboratory method detection limits. Laboratory analytical results are presented in Table 3.

Following excavation, the soil was stockpiled and composite soil samples were collected and analyzed for TPH-G and BTEX. Upon receipt of the initial laboratory analytical results for the stockpiled soils, all soils with a TPH-G concentration of greater than 9 mg/kg (approximately 1,600 yd^3) were aerated onsite in compliance with Bay Area Air Quality Management District (BAAQMD) guidelines. Upon completion of the aeration process, soil samples were collected from each approximately 20 yd^3 of aerated soil. The samples were analyzed for TPH-G and BTEX. If the TPH-G concentration in the stockpiled soil was less than 10 mg/kg, then those soils were retained for use as backfill material. All other soils were reaerated to further reduce TPH-G concentrations, and then resampled. Approximately 220 yd^3 of soil were transported to the Browning Ferris Industries North Vasco Road Disposal Facility in Livermore, California. All remaining stockpiled soils with TPH-G concentrations less than 10 mg/kg (approximately 4,984 yd^3) were retained onsite for use as backfill material (GSI, September 13, 1991).

not mentioned in cited report

The excavation was initially backfilled with one foot of $1\frac{1}{2}$-inch drain rock. Filter fabric was placed on top of the drain rock. The stockpiled excavated and aerated soil (gravels, sands, and clays) were used to backfill the excavation. The backfill and compaction were performed by Golden West Environmental Services. In November 1991, Construction Material Testing, Inc. (CMT) personnel visited the site and performed soil density tests. Final testing found the soil to meet or exceed the specified density (CMT, December 18, 1991).

Geraghty & Miller appreciates the opportunity to be of service to Chevron. If you have any questions, please do not hesitate to contact the undersigned at (510) 233-3200.

Sincerely,
GERAGHTY & MILLER, INC.

Darryl B. Snow
Staff Geologist/Project Manager

for Gary W. Keyes
Principal Engineer/Associate
Richmond, California Office Manager

Enclosures:

	Table 1	Summary of Depth-to-Water Measurements
	Table 2	Summary of Groundwater Analytical Results
	Table 3	Soil Sample Laboratory Analytical Results
	Figure 1	Site Location Map
	Figure 2	Site Plan
	Figure 3	First Phase Excavation
	Figure 4	Second Phase Excavation
	Figure 5	Groundwater Elevation Contour Map September 7, 1993
	Figure 6	Well Survey Map
	Attachment 1	Copies of GSI and GTI Exploratory Boring Logs

REFERENCES

Construction Materials Testing. December 18, 1991. Results of Soil Compaction Testing, Former Chevron U.S.A. Products Company Service Station #9-5630, 997 Grant Avenue, San Lorenzo, California.

Environmental Geosciences Engineering. May 12, 1992. Results of Corrective Action and Feasibility Assessment, Former Chevron U.S.A. Products Company Service Station #9-5630, 997 Grant Avenue, San Lorenzo, California.

GeoStrategies Inc. February 8, 1991. Preliminary Site Assessment/Well Installation Report, Former Chevron U.S.A. Products Company Service Station #9-5630, 997 Grant Avenue, San Lorenzo, California.

———. September 13, 1991. Tank Removal Observation Report, Former Chevron U.S.A. Products Company Service Station #9-5630, 997 Grant Avenue, San Lorenzo, California.

Groundwater Technology, Inc. March 19, 1993. Additional Environmental Assessment Report, Former Chevron U.S.A. Products Company Service Station #9-5630, 997 Grant Avenue, San Lorenzo, California.

Sierra Environmental Services. October 13, 1993. Quarterly Groundwater Sampling Report, Former Chevron U.S.A. Products Company Service Station #9-5630, 997 Grant Avenue, San Lorenzo, California.

Table 1: Summary of Depth-to-Water Measurements
Former Chevron Service Station #9-5630
997 Grant Avenue, San Lorenzo, California

Well	Date	Depth to Water (a) (feet)	Product Thickness (b) (feet)	Top of Casing Elevation (c)	Top of Water Elevation
C-1	5-Dec-90	12.44	0	24.08 (d)	11.64
	6-Sep-91	13.20	0	23.88 (e)	10.68
	4-Dec-91	11.71	0		12.17
	2-Apr-92	9.43	0		14.45
	3-Jun-92	10.14	0		13.74
	2-Sep-92	11.79	0		12.09
	1-Dec-92	11.78	0		12.10
	23-Mar-93	7.94	0		15.94
	15-Jun-93	9.39	0		14.49
	7-Sep-93	10.72	0		13.16
C-2	5-Dec-90	11.30	0	22.69 (d)	11.39
	6-Sep-91	11.00	0	21.54 (e)	10.54
	4-Dec-91	9.38	0		12.16
	2-Apr-92	7.33	0		14.21
	3-Jun-92	8.99	0		12.55
	2-Sep-92	9.59	0		11.95
	1-Dec-92	9.58	0		11.96
	23-Mar-93	6.30	0		15.24
	15-Jun-93	7.27	0		14.27
	7-Sep-93	8.55	0		12.99
C-3	5-Dec-90	11.75	0	23.45 (d)	11.70
	6-Sep-91	11.62	0	22.40 (e)	10.78
	4-Dec-91	10.14	0		12.26
	2-Apr-92	8.07	0		14.33
	3-Jun-92	8.63	0		13.77
	2-Sep-92	10.30	0		12.10
	1-Dec-92	10.24	0		12.16
	23-Mar-93	6.83	0		15.57
	15-Jun-93	7.95	0		14.45
	7-Sep-93 (h)	NM	NM		NM
C-4	5-Dec-90	11.85	0	23.32 (d)	11.47
	6-Sep-91 (f)	NM	NM		NM

Project No. RC0256.001

Table 1: Summary of Depth-to-Water Measurements
Former Chevron Service Station #9-5630
997 Grant Avenue, San Lorenzo, California

Well	Date	Depth to Water (a) (feet)	Product Thickness (b) (feet)	Top of Casing Elevation (c)	Top of Water Elevation
C-5	16-Feb-93	6.64	0	22.01 (g)	15.37
	23-Mar-93	6.60	0		15.41
	15-Jun-93	8.10	0		13.91
	7-Sep-93	9.40	0		12.61

(a) Measured from top of PVC casing.
(b) Sierra Environmental Services product thicknesses were measured with an MMC flexi-dip interface probe.
(c) Top-of-casing elevations and well locations surveyed by KCA Engineers, Inc., San Francisco, California. Well elevations surveyed relative to City of San Francisco survey datum, which is 8.62 feet above U.S. Coastal Geodetic survey mean sea-level datum.
(d) Wellhead elevations taken from the Preliminary Site Assessment/Well Installation Report prepared by GeoStrategies, Inc., dated February 8, 1991.
(e) Top-of-casing elevations surveyed by Ron Miller, P.E. #15816, on April 2, 1992. Groundwater elevations prior to this date have been corrected using these survey data.
(f) Well was destroyed during tank removal and soil excavation operations.
(g) Top-of-casing elevation compiled from the Groundwater Technology Inc., report prepared for Chevron. Well construction details for C-5 not available for inclusion in this report.
(h) Well not located by SES personnel.

NM Not measured.

The Top of Water Elevation in the presence of liquid-phase hydrocarbons is calculated by (TOC-DTW)+((DTW-DTP) X 0.8).

Table 2: Summary of Groundwater Analytical Results
Former Chevron Service Station #9-5630
997 Grant Avenue, San Lorenzo, California.

Well	Date	TPH (a) (µg/L)	Benzene (b) (µg/L)	Toluene (b) (µg/L)	Ethylbenzene (b) (µg/L)	Xylenes (b) (µg/L)	Total Oil & Gas (c) (µg/L)
C-1	5-Dec-90 (d)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	<5,000
	6-Sep-91 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	4-Dec-91 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	2-Apr-92 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	<5,000
	3-Jun-92 (e)	ND(<50)	1.4	1.5	0.6	3.0	NA
	2-Sep-92 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	1-Dec-92 (e)	ND(<50)	0.6	3.5	0.7	3.4	NA
	23-Mar-93 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	15-Jun-93 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<1.5)	NA
	7-Sep-93 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<1.5)	NA
C-2	5-Dec-90 (d)	ND(<50)	0.7	ND(<0.5)	ND(<0.5)	0.5	NA
	6-Sep-91 (e)	ND(<50)	1.3	0.6	0.7	1.5	NA
	4-Dec-91 (g)	NA	NA	NA	NA	NA	NA
	2-Apr-92 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	3-Jun-92 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	2-Sep-92 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	1-Dec-92 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	23-Mar-93 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	15-Jun-93 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<1.5)	NA
	7-Sep-93 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<1.5)	NA
C-3	5-Dec-90 (d)	ND(<50)	1	0.7	ND(<0.5)	ND(<0.5)	NA
	6-Sep-91 (e)	1,100	150	0.6	51	1.9	NA
	4-Dec-91 (e)	89	ND(<0.5)	ND(<0.5)	0.7	0.6	NA
	2-Apr-92 (e)	60	2.1	1.3	1.1	3.2	NA
	3-Jun-92 (e)	180	3.0	1.4	0.6	1.5	NA
	2-Sep-92 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	0.9	NA
	1-Dec-92 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	23-Mar-93 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	15-Jun-93 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<1.5)	NA
	7-Sep-93 (i)	NA	NA	NA	NA	NA	NA
C-4	5-Dec-90 (d)	ND(<50)	4	2	0.7	3	NA
	6-Sep-91 (f)	NA	NA	NA	NA	NA	NA
C-5	16-Feb-93 (h)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	23-Mar-93 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	15-Jun-93 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<1.5)	NA
	7-Sep-93 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<1.5)	NA

Table 2: Summary of Groundwater Analytical Results
Former Chevron Service Station #9-5630
997 Grant Avenue, San Lorenzo, California.

Well	Date	TPH (a) (µg/L)	Benzene (b) (µg/L)	Toluene (b) (µg/L)	Ethylbenzene (b) (µg/L)	Xylenes (b) (µg/L)	Total Oil & Gas (c) (µg/L)
TB	5-Dec-90 (d)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	6-Sep-91 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	4-Dec-91 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	2-Apr-92 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	3-Jun-92 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	2-Sep-92 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	1-Dec-92 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	23-Mar-93 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	15-Jun-93 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<1.5)	NA
	7-Sep-93 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<1.5)	NA
BB	6-Sep-91 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	4-Dec-91 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	2-Apr-92 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	3-Jun-92 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	2-Sep-92 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	0.4	NA
	1-Dec-92 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	23-Mar-93 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA
	15-Jun-93 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<1.5)	NA
	7-Sep-93 (e)	ND(<50)	ND(<0.5)	ND(<0.5)	ND(<0.5)	ND(<1.5)	NA

(a) TPH = Total petroleum hydrocarbons as gasoline. Analyzed by USEPA Method 8015/5030, modified.
(b) Analyzed by USEPA Method 8020.
(c) Analyzed by USEPA Method 503E.
(d) Samples analyzed by Superior Analytical Laboratory of San Francisco, California.
(e) Samples analyzed by Superior Precision Analytical, Inc. of Martinez, California.
(f) Well was destroyed during tank removal and soil excavation operations.
(g) Well was obstructed and could not be sampled.
(h) Analytic laboratory information for this event not available for inclusion in this report.
(i) Well was not located by SES personnel.

NA	Not analyzed
TB	Trip blank
µg/L	Micrograms per liter
ND	Not detected (laboratory method detection limit)
TB	Trip Blank
BB	Bailer Blank

Project No. RC0256.001

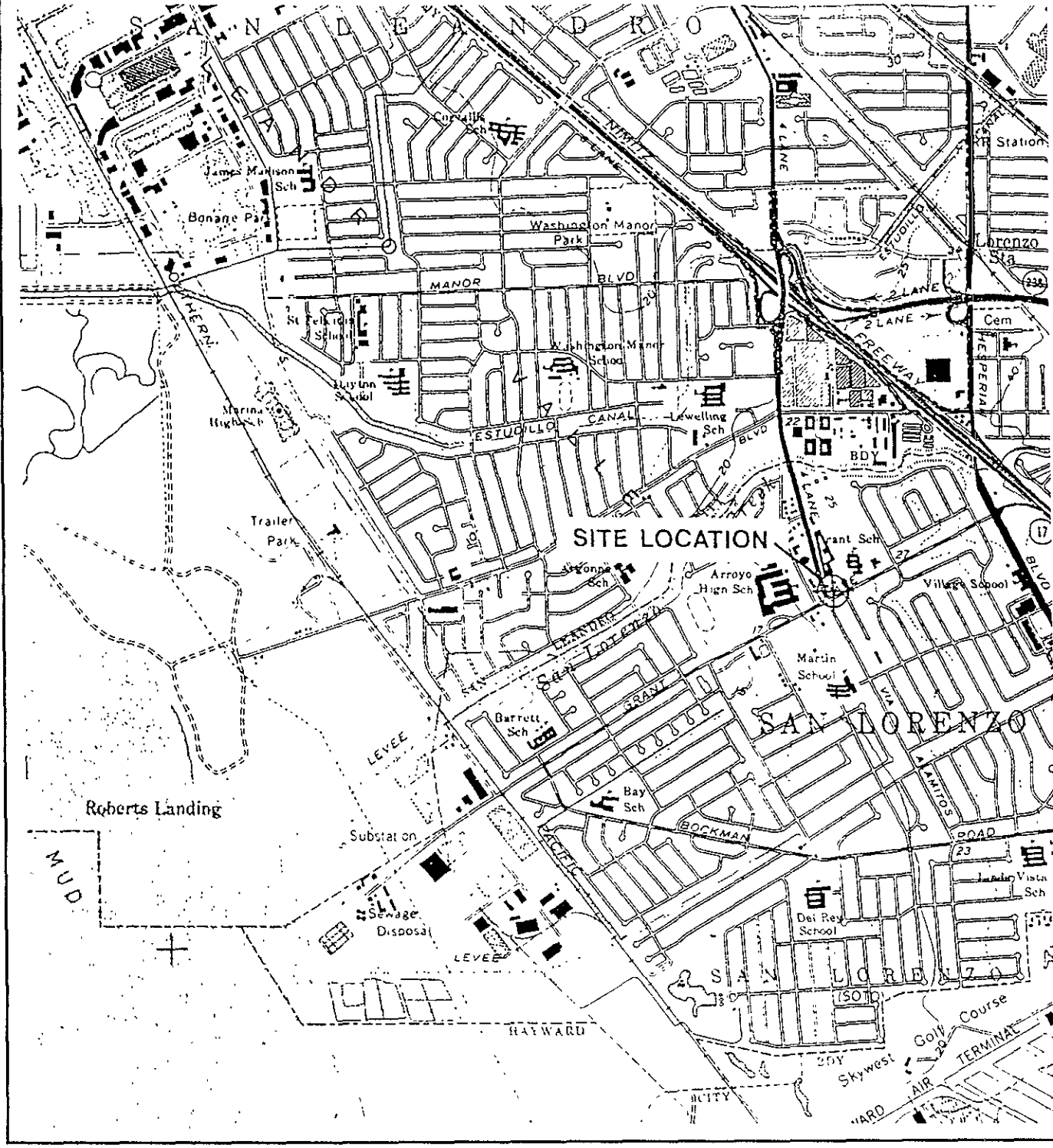
Table 3: Soil Sample Analytical Results
Former Chevron Service Station #9-5630
997 Grant Avenue, San Lorenzo, California.

Sample Number	Sample Depth (feet)	Sample Date	Analysis Date	TPH-G (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Xylenes (mg/kg)	Oil and Grease (mg/kg)
Product Piping Trenches/Pump Islands Samples									
CT-1	3.5	18-Dec-90	28-Dec-90	<1	<.005	<.005	<.005	0.009	----
CT-2	3.5	18-Dec-90	28-Dec-90	3,400	<0.5	1.7	12	80	----
CT-3	3.5	18-Dec-90	2-Jan-91	8	0.12	0.10	0.35	0.30	----
CT-4	3.5	18-Dec-90	28-Dec-90	8	0.11	0.069	0.26	0.15	----
CT-5	3.5	18-Dec-90	2-Jan-91	<1	0.010	<.005	<.005	0.017	----
CT-6	3.5	18-Dec-90	28-Dec-90	5	0.031	0.010	<.005	0.15	----
CT-7	3.5	18-Dec-90	28-Dec-90	2	<.005	0.006	0.007	0.030	----
CT-8	3.5	18-Dec-90	28-Dec-90	<1	<.005	<.005	<.005	0.005	----
CT-9	3.5	18-Dec-90	28-Dec-90	3	<.005	0.012	<.005	0.030	----
CT-10	3.5	18-Dec-90	28-Dec-90	13	0.029	0.010	0.29	0.61	----
CT-11	3.5	18-Dec-90	28-Dec-90	4	0.45	<.005	0.11	0.062	----
CT-12	5.5	15-Jan-91	24-Jan-91	6,000	0.500	17	56	400	----
Gasoline Tank Excavation Samples									
CX-1B	11.5	18-Dec-90	28-Dec-90	1,500	1.2	50	29	160	----
CX-2S	9.5	18-Dec-90	28-Dec-90	12	0.014	0.100	0.096	0.38	----
CX-3S	8.5	18-Dec-90	28-Dec-90	6	0.009	0.014	0.100	0.075	----
CX-4B	11.5	18-Dec-90	28-Dec-90	1,700	0.40	31	25	150	----
CX-5B	11.5	18-Dec-90	28-Dec-90	1,600	0.39	32	24	140	----
CX-6S	8.5	18-Dec-90	28-Dec-90	6	0.005	0.013	0.040	0.12	----
CX-7B	11.5	18-Dec-90	28-Dec-90	730	0.89	19	11	62	----
CX-8S	8.0	18-Dec-90	28-Dec-90	4,500	0.70	10	39	210	----

Table 3: **Soil Sample Analytical Results**
Former Chevron Service Station #9-5630
997 Grant Avenue, San Lorenzo, California.

Sample Number	Sample Depth (feet)	Sample Date	Analysis Date	TPH-G (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Xylenes (mg/kg)	Oil and Grease (mg/kg)
CX-9B	11.5	18-Dec-90	28-Dec-90	1,100	<0.3	9.9	15	80	----
CX-10B	11.5	18-Dec-90	28-Dec-90	54	0.026	0.23	0.38	1.6	----
CX-11S	8.0	18-Dec-90	28-Dec-90	780	0.35	11	11	65	----
CX-12S	8.5	18-Dec-90	28-Dec-90	220	0.17	0.070	7	0.30	----
CX-13S	8.5	18-Dec-90	28-Dec-90	1,900	0.45	16	28	160	----
CX-14S	9.0	18-Dec-90	29-Dec-90	680	<0.3	6	9.6	57	----
CX-15S	9.5	15-Feb-91	25-Feb-91	3	<.005	<.005	0.014	0.008	----
CX-16S	9.5	15-Feb-91	25-Feb-91	2	<.005	<.005	0.011	0.013	----
CX-17S	9.5	15-Feb-91	25-Feb-91	<1	0.056	<.005	<.005	0.011	----
CX-18S	9.5	15-Feb-91	25-Feb-91	2	0.008	<.005	0.019	0.006	----
CX-19S	9.5	15-Feb-91	25-Feb-91	46	<0.30	0.046	0.18	0.41	----
CX-20S	9.5	15-Feb-91	25-Feb-91	<1	<.005	<.005	<.005	<.005	----
CX-21S	9.5	15-Feb-91	25-Feb-91	170	0.037	0.075	2	4	----
CX-22S	9.5	15-Feb-91	25-Feb-91	54	0.024	0.038	0.25	0.83	----
CX-23S	9.5	15-Feb-91	25-Feb-91	270	0.011	0.093	3	9	----
CX-24S	8.5	26-Aug-91	30-Aug-91	5	<.005	0.049	0.012	0.015	----

TPH-G	Total petroleum hydrocarbons as gasoline	mg/kg	Milligrams per kilogram
CX	Excavation and overexcavation sample	CT	Trench sample
CW	Waste oil sample	S	Sidewall
B	Bottom		



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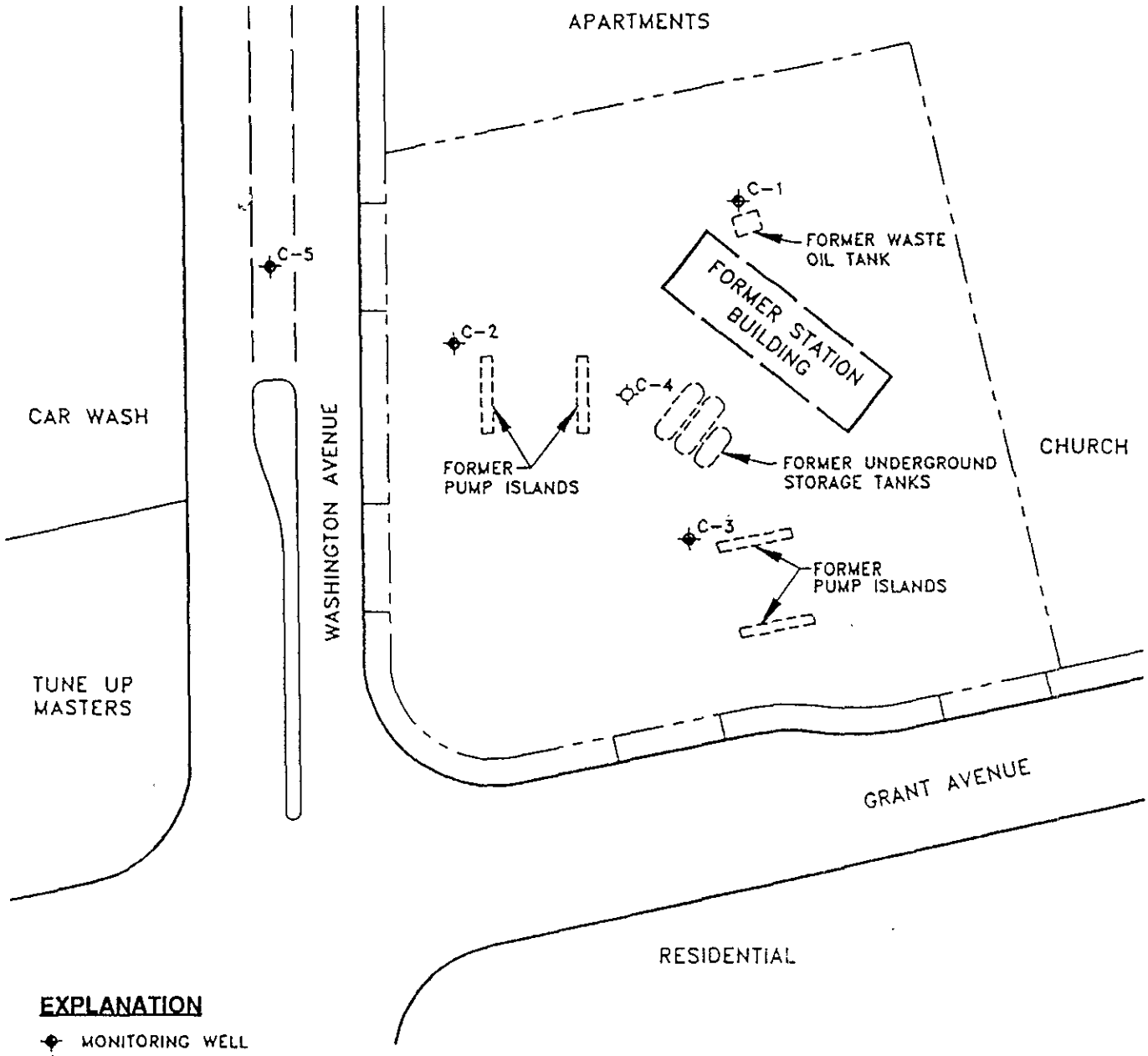
Environmental Services

Project No. RC0256.000

SITE LOCATION MAP
Former Chevron Service Station #9-5630
997 Grant Avenue
San Lorenzo, California

FIGURE
1



Reference: Groundwater Technology

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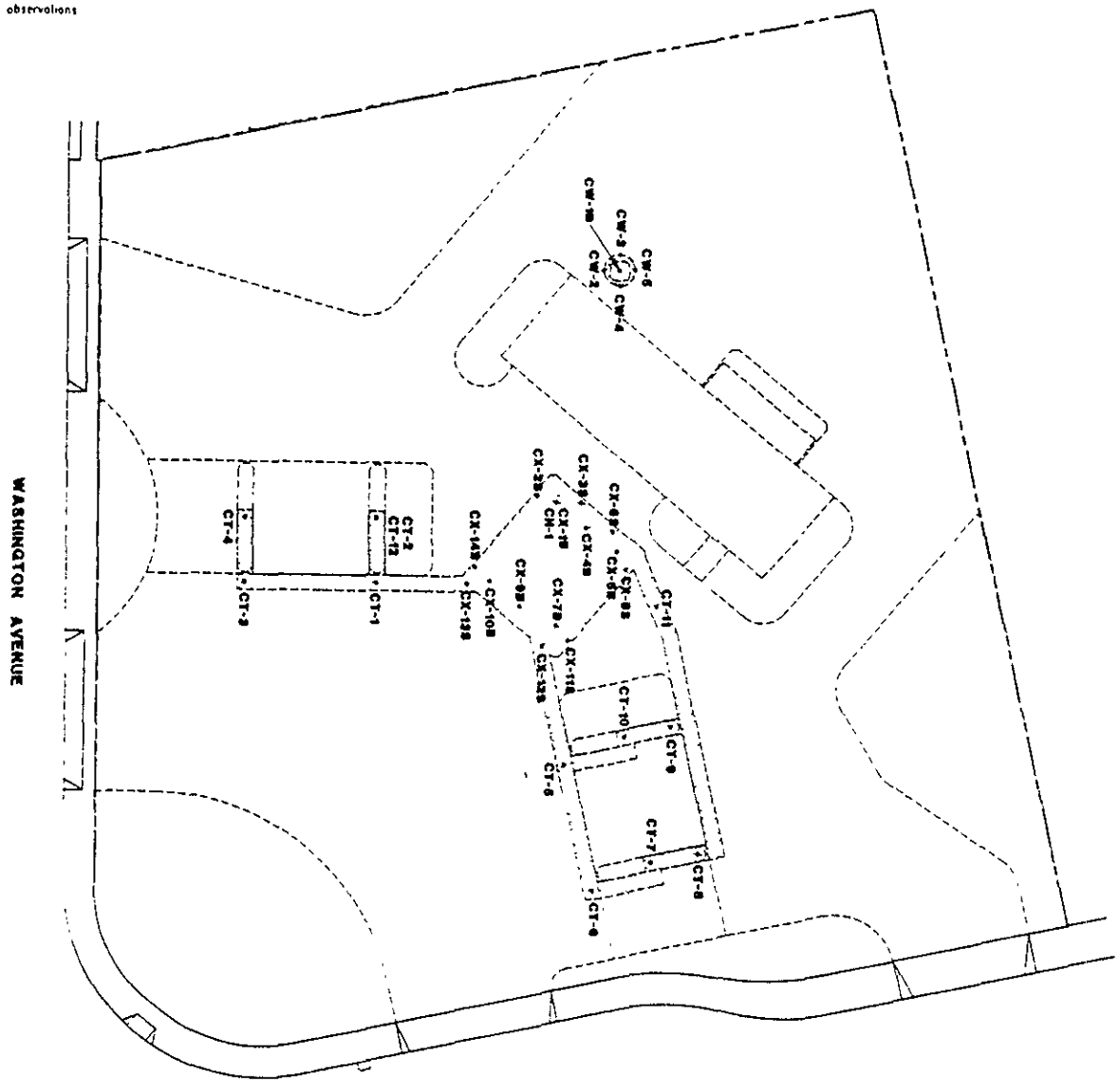
Project No. RC0256.000

SITE PLAN
Former Chevron Service Station #9-5630
997 Grant Avenue
San Lorenzo, California

FIGURE
2

Base Map Field observations



EXPLANATION

CN	Water sample
CX	Excavation sample
CT	Trench sample
CW	Waste oil sample
S	Sidewall
B	Bottom
	Excavated trench and pit area

0 30
Scale in Feet

N

Reference: Geostrategies Inc. 8/91

GERAGHTY & MILLER, INC.
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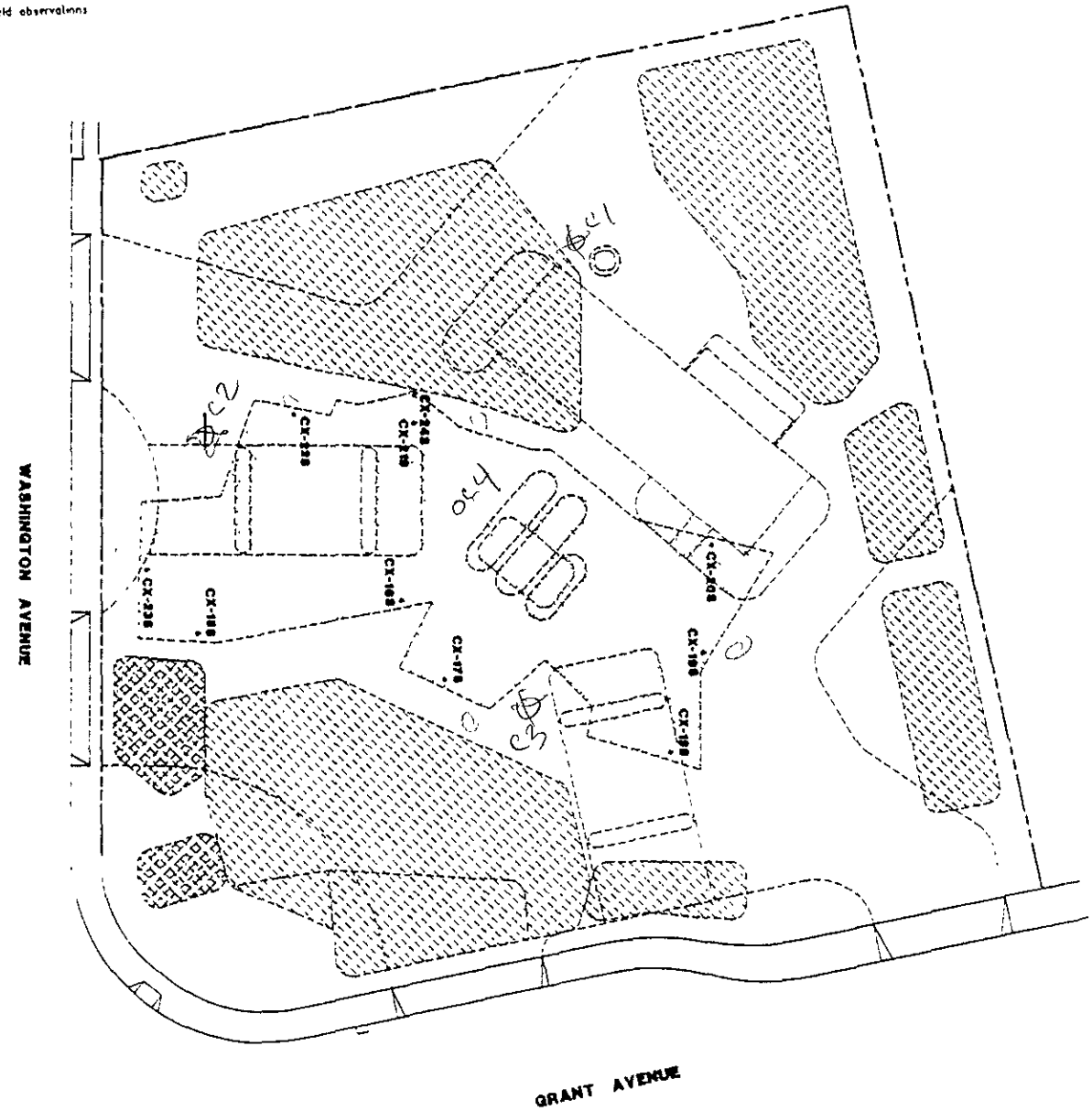
Project No. RC0256.000

FIRST PHASE EXCAVATION
Former Chevron Service Station #9-5630
997 Grant Avenue
San Lorenzo, California

FIGURE
3

Base Map Field observations



EXPLANATION

- CX — Soil Sample
- S — Sidewall
- Excavated area
- Soil Stockpile
- Soil removed from site

0 30
Scale in Feet

N

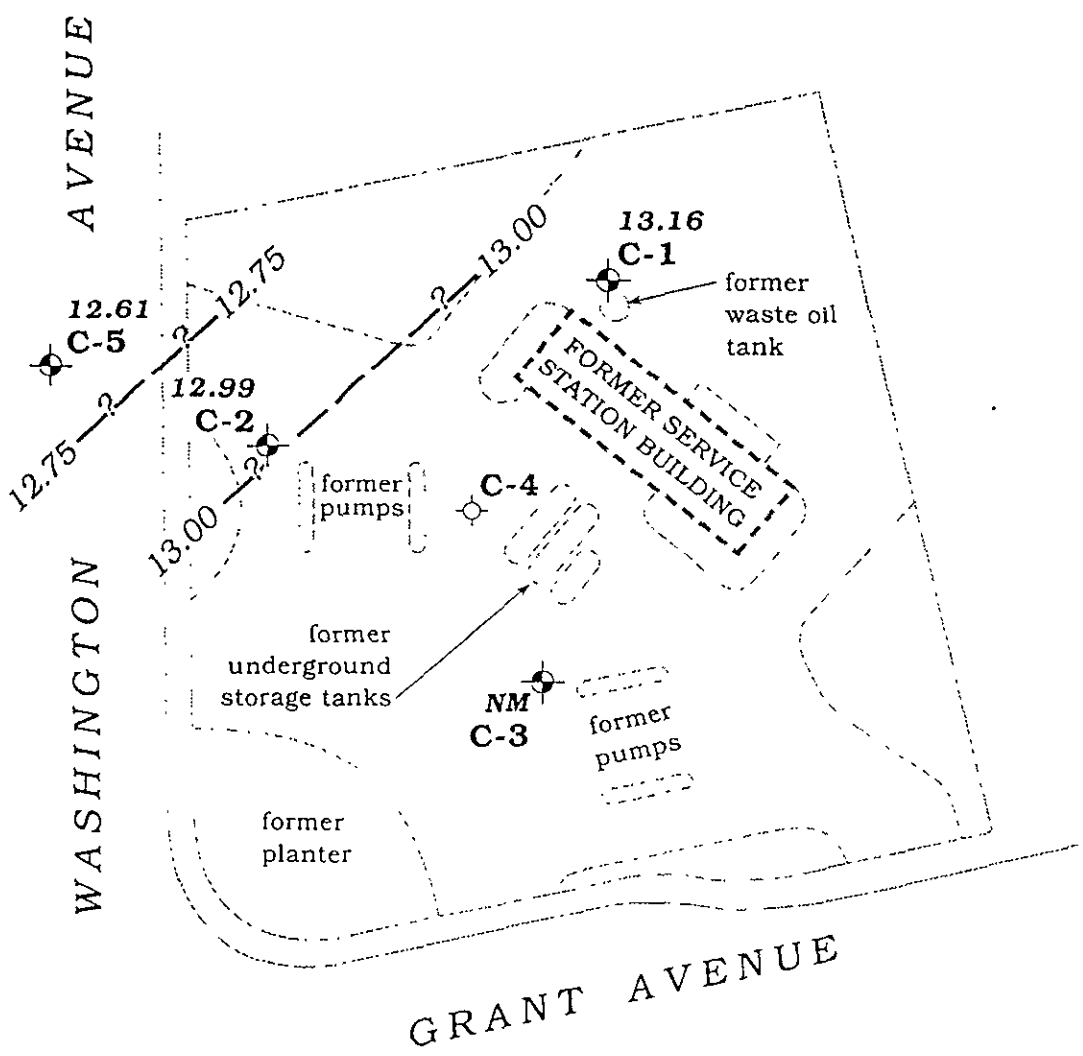
Reference: Geostrategies Inc. 8/91

GERAGHTY & MILLER, INC.
Environmental Services

Project No. RC0256.000

SECOND PHASE EXCAVATION
Former Chevron Service Station #9-5630
997 Grant Avenue
San Lorenzo, California

FIGURE
4



Approximate ground water flow direction

EXPLANATION

C-5	Monitoring well
C-4	Destroyed well
12.61	Ground water elevation, in feet
NM	Not measured
13.00	Ground water elevation contour, dashed where inferred, queried where uncertain

0 30 60 ft.

N

Reference: SIERRA

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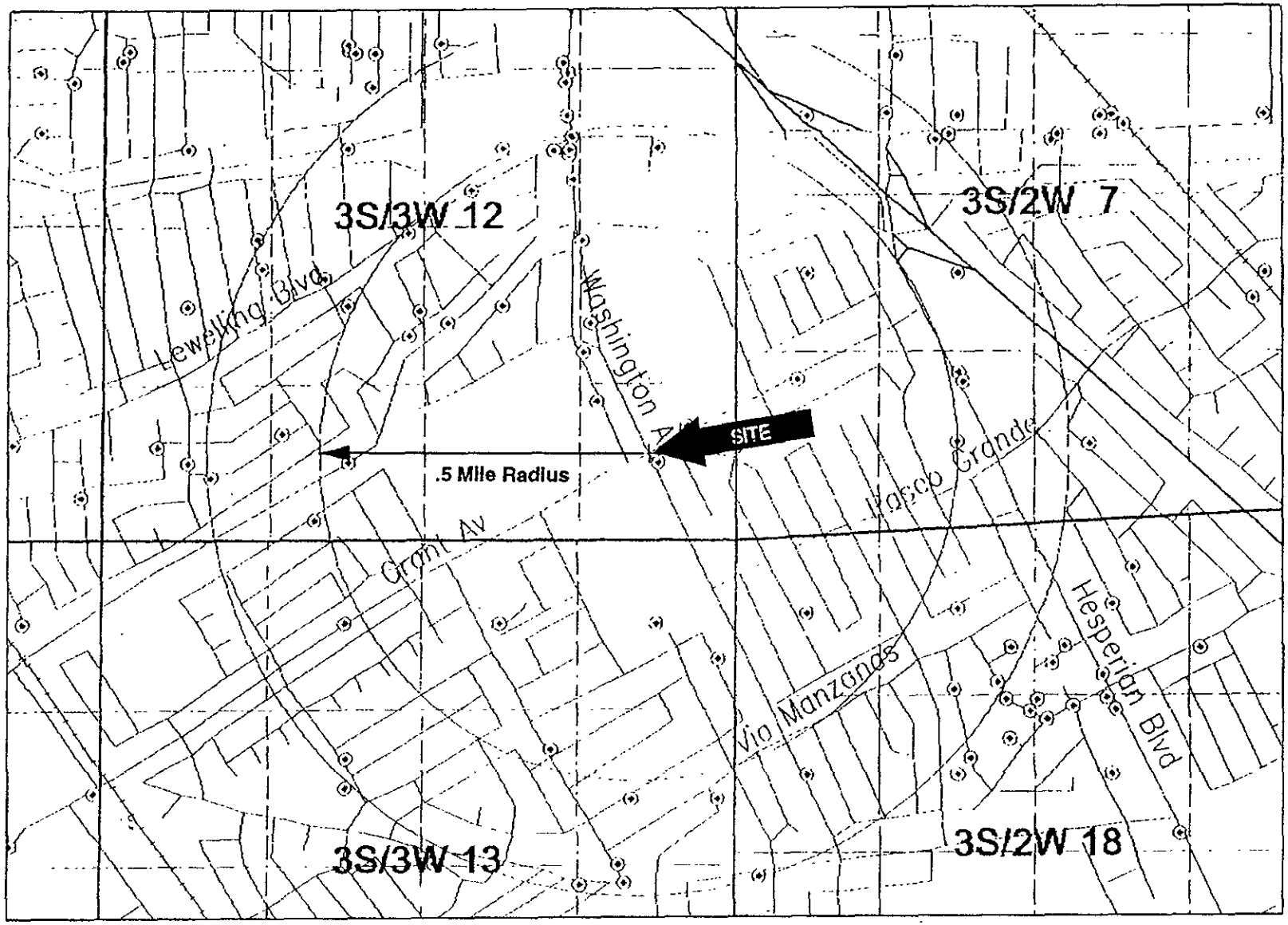
Project No. RC0256.000

GROUNDWATER ELEVATION CONTOUR MAP
SEPTEMBER 7, 1993
Former Chevron Service Station #9-5630
997 Grant Avenue
San Lorenzo, California

FIGURE
5



EXPLANATION

⊙ Approximate Location of Existing Well or Group of Wells.

Reference: Alameda County Flood Control District - Zone 7

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Project No. RC0256.000

WELL SURVEY MAP

.5 MILE RADIUS NOVEMBER 4, 1993

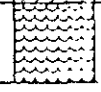
Former Chevron Service Station #9-5630
997 Grant Avenue
San Lorenzo, California

FIGURE

6

ATTACHMENT 1

COPIES OF GSI AND GTI EXPLORATORY BORING LOGS

MAJOR DIVISIONS					TYPICAL NAMES
COARSE-GRAINED SOILS MORE THAN HALF IS COARSER THAN NO. 200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW		WELL GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES
			GP		POORLY GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES
		GRAVELS WITH OVER 15% FINES	GM		SILTY GRAVELS, SILTY GRAVELS WITH SAND
			GC		CLAYEY GRAVELS, CLAYEY GRAVELS WITH SAND
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LITTLE OR NO FINES	SW		WELL GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES
			SP		POORLY GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES
		SANDS WITH OVER 15% FINES	SM		SILTY SANDS WITH OR WITHOUT GRAVEL
			SC		CLAYEY SANDS WITH OR WITHOUT GRAVEL
FINE-GRAINED SOILS MORE THAN HALF IS FINER THAN NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50% OR LESS		ML		INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTS WITH SANDS AND GRAVELS
			CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY CLAYS WITH SANDS AND GRAVELS, LEAN CLAYS
			OL		ORGANIC SILTS OR CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%		MH		INORGANIC SILTS, MICACEOUS OR DIATOMACIOUS, FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH		ORGANIC SILTS OR CLAYS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS			PT		PEAT AND OTHER HIGHLY ORGANIC SOILS

Perm	- Permeability
Consol	- Consolidation
LL	- Liquid Limit (%)
PI	- Plastic Index (%)
G_s	- Specific Gravity
MA	- Particle Size Analysis
2.5 YR 6/2	- Soil Color according to Munsell Soil Color Charts (1975 Edition)
5 GY 5/2	- GSA Rock Color Chart

- No Soil Sample Recoverd
- "Undisturbed" Sample
- Bulk or Classification Sample
- First Encountered Ground Water Level
- Piezometric Ground Water Level
- Sample drive hammer weight - 140 pounds falling 30 inches. Blows required to drive sampler 1 foot are indicated on the logs

GeoStrategies Inc.

Unified Soil Classification - ASTM D 2488-85 and Key to Test Data

Field location of boring:

(See Plate 2)

Project No.: 727801	Date: 11/12/90	Boring No: C-1	
Client: Chevron Service Station No. 5630			
Location: 997 Grant Avenue			
City: San Lorenzo, California		Sheet 1 of 2	
Logged by: KDM	Driller: Bayland		

Casing installation data:

Drilling method: Hollow Stem Auger

Hole diameter: 8-Inches

Top of Box Elevation: 24.08 Datum: MSL

Water Level	17.5'	12.44'
Time	15:45	17:32
Date	11/13/90	12/5/90

PID (ppm)	Blows/ft * or Pressure (psi)	Type of Sample	Sample Number	Depth (ft)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				0				
				1				PAVEMENT SECTION - 1.3 ft.
				2				SILTY CLAY (CL) - black (10YR 2/1), very stiff, damp, medium plasticity; 50% clay; 35% silt; 15% fine sand; trace fine gravel in cuttings.
				3				
				4				
	300		C-1-	5				SILTY SAND (SM) - dark grayish brown (10YR 4/2), medium dense, damp; 70% fine sand; 30% silt; trace worm burrows.
6.8	400	S&H	5.0					
	refusal			6				
				7				
				8				
				9				SILTY CLAY (CL/ML) - black (10YR 2/1), very stiff, damp, low plasticity; 60% clay; 45% silt; 5% fine sand; roots and rootholes; small white caliche concretions.
			C-1-	10				
1.5	18	S&H	10.5					
				11				
				12				
				13		▼		CLAY (CL) - light olive brown (2.5YR 5/4), stiff, moist; medium to high plasticity; 80% clay; 15% silt; 5% fine sand.
				14				
								ocasional small (<1 mm) black and red-brown rock fragments.
			C-1-	15				
1.5	10	S&H	15.5					
				16				
				17				
						▽		easier drilling at 17 feet.
				18				Water on sample rods at 17.5 feet.
				19				

Remarks: * Converted to equivalent Standard Penetration blows/ft.

GeoStrategies Inc.

Log of Boring

BORING NO. C-1

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
727801	Mcc: CE6 1351	11/90		

Field location of borng:

(See Plate 2)

Project No.: 727801	Date: 11/12/90	Borng No: C-1	
Client: Chevron Service Station No. 5630			
Location: 997 Grant Avenue			
City: San Lorenzo, California		Sheet 2 of 2	
Logged by: KDM	Driller: Bayland		

Casing installation data:

Drilling method: Hollow Stem Auger

Hole diameter: 8-Inches

Top of Box Elevation: Datum:

Water Level			
Time			
Date			

PID (ppm)	Blows/ft * or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				20				SANDY SILT (ML) - pale yellow (2.5Y 7/4), loose, moist, low plasticity; 70% silt; 20% fine sand; 10% nodules of saturated fine sand and white caliche.
			C-1-					
1.5	4	S&H	20.5	21				
				22				grades to:
				23				50% silt; 40% fine sand; 10% scattered small caliche nodules; rare harder fragments (1/4 inch diameter).
				24				
			C-1-	25				
1.5	8	S&H	25.5	26				
				27				Stiffer at 28 feet.
				28				CLAY (CL) - pale yellow brown (2.5Y 7/4), very stiff, damp, medium plasticity; 70% clay; 25% silt; 5% fine sand.
				29				
			C-1-	30				
1.5	15	S&H	30.0	31				CLAYEY SILT (ML/CL) - pale yellow brown (2.5Y 7/4), medium stiff, slightly damp, medium plasticity; 50% silt; 40% clay; 10% fine sand.
				32				
			C-1-	33				
N/A	8	SPT	33.5	34				Bottom of sample at 33.5 feet. Bottom of boring at 33.5 feet. 11/12/90
				35				
				36				
				37				
				38				
				39				

Remarks: N/A = Not Available

GSI GeoStrategies Inc.

Log of Boring

BORING NO C-1

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
727801	MCC: CE6 13511	11/90		

*Field location of boring: (See Plate 2)	Project No.: 727801	Date: 11/12/90		Boring No C-2
	Client: Chevron Service Station No. 5630			
	Location: 997 Grant Avenue			
	City: San Lorenzo, California			Sheet 1 of 2
	Logged by: KDM	Driller: Bayland		
	Casing installation data:			
Drilling method: Hollow Stem Auger				
Hole diameter: 8-inches	Top of Box Elevation: 22.69		Datum: MSL	
	Water Level: 18.7'	11.0'		11.30'
	Time: 16:00	15:50		17:00
	Date: 11/12/90	11/13/90		12/5/90

PID (ppm)	Blows/ft.* or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Description
				1	PAVEMENT SECTION - 1.3 ft. thick
				2	
				3	SANDY CLAY (CL) - black (2.5YR/), medium stiff, damp, medium plasticity; 50 % clay; 40% fine sand; 10% silt; trace worm burrows.
	150				
62	150	S&H	C-2-4.0	4	
	150				
				5	
				6	
				7	
				8	CLAYEY SAND (SC) - olive yellow (2.5YR 6/6), medium dense, damp; 50% medium sand; 30% clay; 10% coarse sand; 10% silt.
	250				
1274	250	S&H	C-2-9.0	9	
	250				
				10	
				11	
				12	
				13	
7.9	9	S&H	C-2-14.0	14	CLAY (CL) - gray (2.5 YR/4), stiff, damp, medium plasticity; 70% clay; 25% silt; 5% diseminated caliche (white to gray color), small rootholes; dark staining along vertical soil pores or burrows.
				15	
				16	
				17	CLAYEY SILT (ML/CL) - olive yellow (2.5Y 6/6), medium stiff, moist; 60% silt; 10% fine sand; 25% clay; 5% rock fragments; very small rootholes.
				18	
				19	
N/A	7	S&H	C-2-19.5	20	

Remarks: *Converted to equivalent Standard Penetration blow/ft.

GeoStrategies Inc.

Log of Boring

BORING NO C-2

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
727801	MCC: CEG 1351	11/90		

Field location of boring:

(See Plate 2)

Project No..	727801	Date: 11/12/90	Boring No: C-2
Client:	Chevron Service Station No. 5630		
Location:	997 Grant Avenue		
City:	San Lorenzo, California		Sheet 2 of 2
Logged by:	KDM	Driller: Bayland	

Casing installation data:

Drilling method: Hollow Stem Auger

Hole diameter: 8-inches

Top of Box Elevation: Datum:

Water Level				
Time				
Date				

PID (ppm)	Blows/ft.* or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				21				SANDY SILT (ML) - olive yellow (2.5Y 6/6), loose, saturated, small rootlets, trace caliche; 40% - 60% silt; 30% - 50% fine sand; 10% - 30% clay. Alternate sandy and silty beds, 1 to 2 inches thick.
				22				
				23				
50.3	7	S&H	C-2-24.0	24				
				25				
				26				
				27				
				28				harder drilling at 27.5 ft.
1.5	9	S&H	C-2-29.0	29				CLAY (CL) - olive yellow (2.5Y 6/6), stiff, moist, trace disemenated caliche; 60% clay; 30% silt; 10% fine sand.
				30				Bottom of Boring at 29.5 ft.
				31				Bottom of Sample at 29.5 ft.
				32				11/12/90
				33				
				34				
				35				
				36				
				37				
				38				
				39				
				40				

Remarks:

GSI GeoStrategies Inc.

Log of Boring

BORING NO C-2

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
727801	MCC: CEG 1351	11/90		

Field location of boring:

(See Plate 2)

Project No:	727801	Date: 11/12/90	Boring No: C-3
Client:	Chevron Service Station No. 5630		
Location:	997 Grant Avenue		Sheet 1 of 2
City:	San Lorenzo, California		
Logged by:	KDM	Driller: Bayland	

Casing installation data:

Drilling method: Hollow Stem Auger

Hole diameter: 8-inches

Top of Box Elevation: 23.45 Datum: MSL

Water Level	18.0'	11.5'		11.75'
Time	15:40	16:00		15.55
Date	11/12/90	11/13/90		12/5/90

PID (ppm)	Blows/ft* or Pressure	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				0				PAVEMENT SECTION 1.0 ft.
				1				
				2				SANDY CLAY (CL) - black (10YR 2/1), medium stiff, damp, low to medium plasticity.
				3				
				4				
	150			5				
	200							
78	200	S&H	C-3-5.5	6				SANDY SILT (ML) - black (10YR 2/1), medium stiff, damp, low to medium plasticity; 70% silt; 20% sand; 10% clay; discoloration from product.
				7				
				8				
				9				
				10				COLOR CHANGE to very dark grayish brown (2.5YR 3/2), damp, low plasticity; 70% silt; 25% sand; 5% clay.
750	13	S&H	C-3-10.5	11				
				12		▼		
				13				easy drilling at 12.5 ft.
				14				
				15				CLAY (CL) - dark grayish brown (10YR 4/2), stiff, saturated, medium to high plasticity; rootholes; 75% clay; 15% silt; 10% sand;
29	10	S&H	C-3-15.5	16				
				17				
				18		▽		Water on rods at 18.0 ft.
				19				

Remarks: * Converted to equivalent Standard Penetration blow/ft.

Log of Boring

BORING NO

C-3

GeoStrategies Inc.

JOB NUMBER	REVIEWED BY PG/CEG	DATE	REVISED DATE	REVISED DATE
727801	Mcc: CEG 1351	11/90		

Field location of boring: (See Plate 2)	Project No.: 727801	Date: 11/12/90	Boring No: C-3
	Client: Chevron Service Station No. 5630		
	Location: 997 Grant Avenue		
	City: San Lorenzo, California		Sheet 2 of 2
	Logged by: KDM	Driller: Bayland	
Drilling method: Hollow Stem Auger	Casing installation data:		
Hole diameter: 8-inches	Top of Box Elevation:	Datum:	
	Water Level / Time / Date		

PID (ppm)	Blows/ft.* or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				20				COLOR CHANGE to dark brown (10YR 3/13) at 19.0 ft., medium stiff; 80% clay; 10% silt; 10% fine sand; open burrows; rootholes.
6	6	S&H	C-3-20.5					
				21				
				22				
				23				Harder drilling at 23.5 ft.
				24				
			C-3-					COLOR CHANGE to light olive brown (2.5YR 5/4) at 24.0 ft.; damp.
3.5	9	S&H	25.5	25				
				26				
				27				Bottom of Boring at 27.0 ft.
				28				Bottom of Sample at 27.0 ft.
								1/12/90
				29				
				30				
				31				
				32				
				33				
				34				
				35				
				36				
				37				
				38				

Remarks:

GeoStrategies Inc.

Log of Boring

BORING NO C-3

JOB NUMBER	REVIEWED BY PG/CEG	DATE	REVISED DATE	REVISED DATE
727801	MCL: CE61351	11/90		

Field location of boring: (See Plate 2)	Project No. 727801	Date: 11/13/90	Boring No C-4
	Client: Chevron Service Station No. 5630		
	Location: 997 Grant Avenue		
	City: San Lorenzo, California		Sheet 1 of 2
	Logged by: KDM	Driller: Bayland	
Drilling method: Hollow Stem Auger	Casing installation data:		
Hole diameter: 8-inches	Top of Box Elevation: 23.32		Datum: MSL

Water Level	19.0'	14.0'	12.0'	11.85'
Time	14:30	15:00	16:05	16:36
Date	11/13/90	11/13/90	11/13/90	12/5/90

PID (ppm)	Blows/ft.* or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				0				PAVEMENT SECTION 1.0 ft.
				1				FILL - GRAVELLY SAND, dense, slightly damp
				2				
				3				
				4				
	200			5				SANDY CLAY (CL) - black (10YR 2/1), medium stiff,
	200							damp, low to medium plasticity; 60% clay; 20% silt; 20%
0	200	S&H	C-4-5.5					sand.
				6				
				7				
				8				
				9				
				10				
1994	14	S&H	C-4-10.5					COLOR CHANGE to olive brown (2.5Y 4/4) at 9.0 ft., stiff,
				11				damp, 50% clay; 25% silt; 25% sand; trace shell
				12		▼		fragments.
				13				
				14		▼		
				15				CLAY (CL) - grayish brown (2.5Y 4/2), medium stiff,
0	8	S&H	C-4-15.5					damp, medium to high plasticity; 70% clay; 25% silt; 5%
				16				sand; gray oxidation staining along small rootholes and
				17				soil pores
				18				
				19		▽		

Remarks: * Converted to equivalent Standard Penetration blows/ft

GeoStrategies Inc.

Log of Boring

BORING NO. C-4

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
727801	MCC : CEG 1351	11/90		

Field location of boring: (See Plate 2)	Project No.: 727801 Date: 11/13/90		Boring No. C-4
	Client: Chevron Service Station No. 5630		
	Location: 997 Grant Avenue		
	City: San Lorenzo, California		Sheet 2 of 2
	Logged by: KDM	Driller: Bayland	
Drilling method: Hollow Stem Auger	Casing installation data:		
Hole diameter: 8-inches	Top of Box Elevation:	Datum:	
	Water Level		
	Time		
	Date		

PID (ppm)	Blows/ft.* or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				20				CLAYEY SILT (ML) - light olive brown (2.5YR 5/4), medium stiff, damp, medium plasticity; 60% silt; 35% clay; 5% fine sand.
15.5	6	S&H	C-4-20.5					
				21				
				22				
				23				
				24				
				25				
7.9	7	S&H	C-4-25.5					
				26				
				27				
				28				
				29				
				30				
N/A	6	S&H	C-4-30.5					
				31				Bottom of Boring at 30.5 ft.
				32				Bottom of Sample at 30.5 ft. 11/13/90
				33				
				34				
				35				
				36				
				37				
				38				
				39				

Remarks:

GeoStrategies Inc.

Log of Boring

BORING NO. C-4

JOB NUMBER	REVIEWED BY PG/CEG	DATE	REVISED DATE	REVISED DATE
727801	MCC : CEG 1351	11/90		

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well C-5

Project Chev/997 Grant Avenue — Owner Chevron U.S.A. Products Co.
Location San Lorenzo, California — Project No. 02020 3451 — Date drilled 02/02/93
Surface Elev. 22.27 ft. — Total Hole Depth 20.5 ft. — Diameter 8 in.
Top of Casing 22.01 ft. — Water Level Initial 8.5 ft. — Static 02/16/93 15.37 ft.
Screen: Dia 2 in. — Length 15.0 ft. — Type/Size 0.020 in.
Casing: Dia 2 in. — Length 5.0 ft. — Type SCH 40 PVC
Filter Pack Material Lapis Lustre #3 — Rig/Core Type Mobile B-61/Split Spoon
Drilling Company Kvilhaug Well Drilling — Method Hollow Stem Auger — Permit # 92638
Driller Rod Furlow — Log By Chip Hurley
Checked By David Kleesattel — License No. RG# 5136

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						Asphalt over 6 inches of siltstone
2						
4		8.6	10 7 6			Brown silty CLAY (moist, stiff, about 75% clay, 25% silt)
6						
8						*Encountered groundwater at 9:30AM 02/02/93*
10		4.9	6 6 7		CL	Same as above (saturated)
12						
14						
16		4.9	22 22 17			Same as above (saturated)
18						
20			50			No recovery (saturated)
22						End of boring at 20.5 feet. Installed groundwater monitoring well.
24						