



ENVIRONMENTAL  
REGISTRATION

95 JUN -9 PM 2:18

**CET Environmental  
Services, Inc.**

5845 Doyle Street, Suite 104  
Emeryville, California 94608  
Telephone: (510) 652-7001  
Fax: (510) 652-7002

June 7, 1995

Ms. Amy Leech  
Hazardous Materials Specialist  
Department of Environmental Health  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, 2nd Floor  
Alameda, CA 94502-6577

**Subject: Workplan Addendum  
186 East Lewelling Boulevard  
San Lorenzo, California  
(CET Project No. 3669)**

Dear Ms. Leech:

CET Environmental Services, Inc. (CET) is pleased to submit this Addendum to the CET Workplan (dated February 27, 1995) for the subject property and vicinity. CET is submitting this workplan in accordance with the Alameda County Health Care Services Agency (ACHCSA) letter dated March 14, 1995 from Amy Leech to Mr. & Mrs. Graffenstatte (the former owners of the subject property) and Ms. Wai Yee Wong Young (current owner of the subject property).

The following nine points are quoted from the ACHCSA letter, each point is then followed by CET's comments:

"Please be reminded that in order to qualify for reimbursement from the State Trust Fund, you must obtain three bids for the work proposed in the approved work plan." ✓

CET personnel spoke with a representative of the State Trust Fund. CET understands that, apparently, three bids are required at a minimum for the investigative phase and the remediation phase. If additional investigation/remediation beyond the three bid scope is performed, the bidding process need not be repeated at the discretion of the State Trust Fund. CET has informed Ms. Young, who is presently addressing this matter with the State Trust Fund.

"Prior to submitting an addendum to the work plan as requested below, please submit a report of the recent quarterly ground water monitoring event. The quarterly report is due to this office by March 17, 1995."

The CET Report, *First Quarter 1995 Groundwater Monitoring Report* (dated April 12, 1995), was submitted to the ACHCSA on Wednesday, April 12, 1995. CET had previously informed the ACHCSA that CET could not meet a March 17, 1995 report date. ✓



"Per my conversations with Karel Detterman of CET on March 6 and 10, 1995, this office is not clear on the rationale for collecting soil and groundwater samples in close proximity to monitoring wells MW2 and MW3 and within the former tank pit, since soil and groundwater samples were previously collected from these areas. Please submit justification for these data points and/or a revision of Plate 2."

*Call Sam...  
do for the...  
best...  
New piping trench(es)*

A revised Plate 2 is provided in Attachment A. The proposed location immediately north of the former gasoline tank excavation has been eliminated. Due to the lack of quantitative data regarding the concentrations of contaminants in the former gasoline tank excavation, pump island, and associated piping areas, CET believes these are useful data points. The data point in the southeast corner of the subject property is meant to help define up-gradient concentrations of contaminants, if any. The direction of groundwater flow below the subject property ranges from northwest to southwest, therefore a sampling location was added south of the subject property to cover the likely range of groundwater flow directions. The final sampling locations may be modified based on field conditions and ACHCSA recommendations.

"Soil samples were not collected from the pipe trench location (s), and our records indicate that the product piping between the tank pit and the pump island was never removed. If the product piping is, in fact, still in place, the work plan should propose the removal of the product piping and the sampling of soil along the pipe trench. If the product piping was removed, submit documentation/manifests for disposal of the product piping and soil sampling results of the pipe trench."

In accordance with a May 25, 1995 telephone conversation between CET personnel and Kristin Hardy of SEMCO, a field log dated September 4, 1990 records that all piping was removed. SEMCO is the contractor who did the tank and pipe removal work. Copies of SEMCO's field records are enclosed.

"The work plan indicated that if off-site access was not possible, then the proposed downgradient investigations would remain within the property boundaries of the subject site. Per Article 11 Title 23 California Code of Regulations, you are required to define the extent and severity of the ground water contaminant plume emanating from this site. Since ground water samples collected in July 1994 from monitoring well MW-1, located adjacent to the northern property boundary, revealed elevated concentrations of TPHg and BTEX, investigations downgradient of that well, i.e. 16663 Ashland Avenue, must be pursued. Should your attempt fail to gain access to adjoining properties, then this office will assist you in your efforts."

CET plans to pursue an off-site investigation.

"Screen placement for the monitoring wells should range from 10 feet below to 5 feet above the water table."



Groundwater monitoring well MW1 is screened from 12 to 22 feet below the ground surface (bgs); well MW2 is screened from 13 to 23 feet bgs, and MW3 is screened from 13 to 23 feet bgs. Groundwater was first encountered, during drilling, at approximately 18 feet bgs in MW1, 20 feet bgs in MW2, and 21 feet bgs in MW3. The equilibrated depth to groundwater ranges from approximately 14 to 18 feet bgs in well MW1; approximately 14 to 17 feet bgs in MW2, and from approximately 15 to 17 feet bgs in MW3. Based on these observed water depths, the existing well screens intercept the free surface of groundwater.

A layer of dark gray, stiff to hard, high plasticity clay was encountered at approximately 21 feet bgs in MW1; at 21 feet bgs in MW2, and at 21 feet bgs in MW3. This clay layer is a minimum of 2.5 feet in thickness, and acts as a natural barrier (aquiclude) against the downward movement of groundwater and any associated contaminants from the shallow water bearing zone. CET will not take the responsibility of penetrating this clay layer and potentially contaminating deeper aquifers. If the ACHCSA would like any future monitoring wells to be installed at greater depths, or screened higher, CET requests written specifications from the ACHCSA.

"Per Title 23, Article 4, Section 2649d (8) of the California Code of Regulations, '72 or more hours following well construction, all ground water monitoring wells shall be adequately developed and equilibrium shall be established prior to any water sampling'. Additionally, please be reminded to wait a minimum of 24 hours after development of the wells before sampling."

CET will follow the required waiting periods between well construction and development, and between well development and the first sampling event.

"Subsequent to the installation of monitoring wells, these wells must be surveyed to an established benchmark, with an accuracy of 0.01 foot. Quarterly ground water monitoring and reporting will be required until this site qualifies for closure."

Monitoring wells MW1, MW2, and MW3 were surveyed, by a California licensed surveyor, to an established benchmark relative to mean sea level (MSL) to a minimum accuracy of 0.01 foot. Any future wells installed under the supervision of CET will be surveyed in the same manner; these procedures are standard CET practice. CET has been contracted by the property owner to perform four (4) quarters of groundwater monitoring and reporting (inclusive of the last quarter monitored).

"Submit a proposed time schedule for implementing this project. A report documenting the work must be submitted within 45 days after the completion of field activities at the site."

A proposed time schedule is presented in Attachment B. CET will submit a report documenting field work when all field work has been completed.



Ms. Amy Leech  
Alameda County Health Care Services Agency

June 7, 1995  
Page 4

Please do not hesitate to contact us if you have any questions or comments regarding the contents of this Addendum.

Sincerely,

**CET ENVIRONMENTAL SERVICES, INC.**

Benjamin Berman  
Staff Scientist

Grover S. Buhr, R.G.  
Registered Geologist No. 5596

Aaron N. Stessman  
Project Manager

BB/GSB/ANS:jk

Attachments

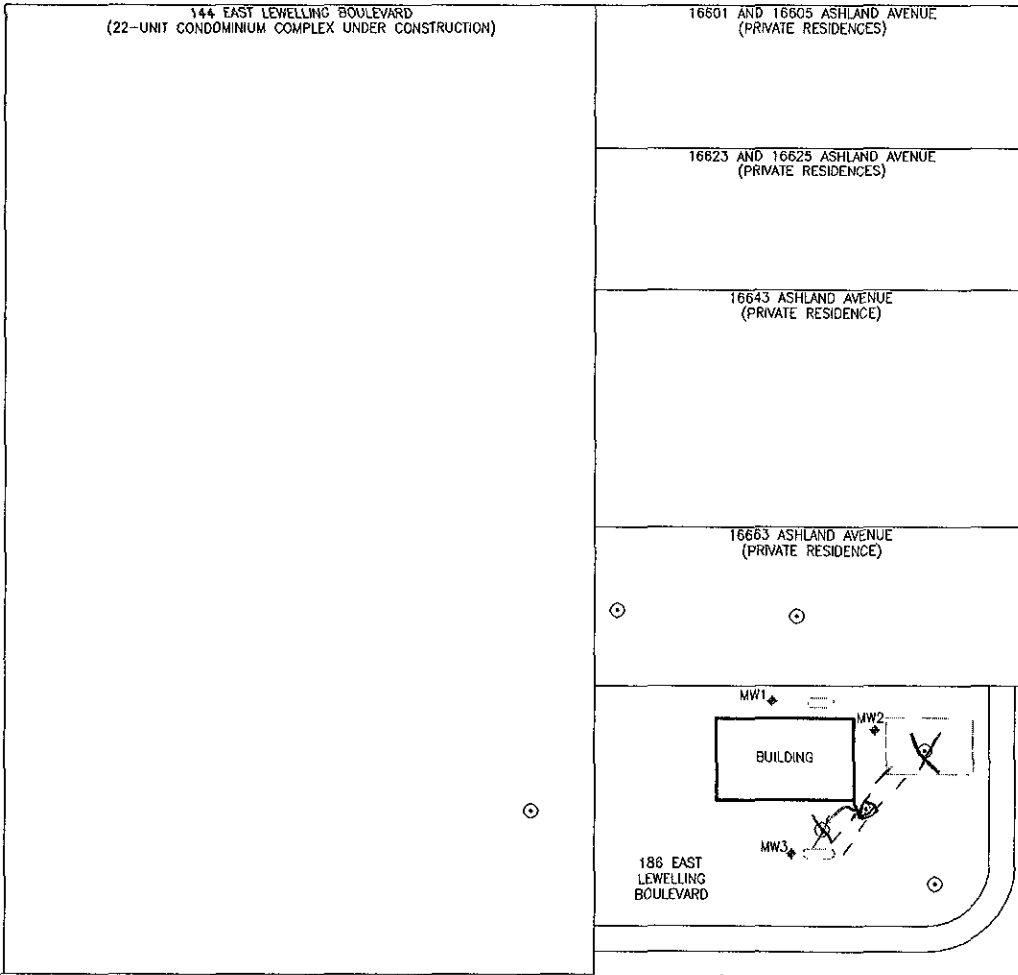
cc: Ms. Wai Yee Young, c/o Ms. Eva Young



## Schedule for Completion of Workplan

<u>Task</u>	<u>Proposed Completion Date</u>
Obtain legal access for off-site drilling and sampling locations	June 30, 1995
Drill and Sample Exploratory boreholes	July 15, 1995
Receive soil sample analysis from laboratory	August 4, 1995
Install and sample additional groundwater monitoring wells (offsite)	August 18, 1995
Receive groundwater sample analysis from laboratory	September 18, 1995
Compile report of findings summarizing the investigation	September 30, 1995

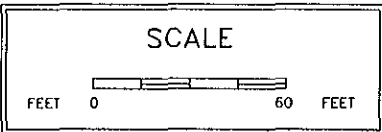
SAN LORENZO HIGH SCHOOL



ASHLAND AVENUE

EAST LEWELLING BOULEVARD

165, 173, 175, 177, AND 181 EAST LEWELLING BOULEVARD (PRIVATE RESIDENCES)



**LEGEND**

- ◆ GROUNDWATER MONITORING WELL LOCATION
- ⊙ PROPOSED SOIL BORING LOCATION



**CET Environmental Services, Inc.**

SITE VICINITY PLAN PROPOSED SOIL BORING LOCATION 186 E. LEWELLING BLVD SAN LORENZO, CALIFORNIA					PLATE  2
JOB NUMBER 3602	DATE 01/95	DRAWING OFFSITE	BY LONG	REVISED 05/11/95	

JOB NAME <b>M-B REALTY</b>	JOB NUMBER <b>90-0724</b>
LOCATION <b>186 E. LEWELLING RD SAN CARLOS</b>	DATE <b>9-4</b>
	PHONE

# MATERIAL & LABOR RECORD

JOB DESCRIPTION <b>PREP 24-K oil 350 WASTE OIL</b>	DAY WORK <input type="checkbox"/>
	CONTRACT <input type="checkbox"/>
	OTHER <input type="checkbox"/>

QTY	MATERIAL	ITEM/PART NUMBER	UNIT PRICE	AMOUNT	DESCRIPTION OF WORK COMPLETED
					① LAY OUT TANKS & TAKE MEASUREMENTS
					② CUT ASPHALT & REMOVE LOAD ON #30
					③ REMOVE CONCRETE & LOAD ON #30
					④ EXCAVATE WASTE OIL, RINSE REMOVE & REMOVE ALL LINES
					⑤ Pump Residue Product, Triple Rinse (Ready)
					⑥ REMOVE PUMP DEPENDORS, DISCONNECT ELECTRICAL COMPLETELY
					⑦ EXCAVATE 4X TANKS, REMOVE ALL PIPING
					⑧ TRIPLE RINSE, Pump Dry, Purge (Ready)
					⑨ DUMP DEBRIS, CONCRETE/ASPHALT AT MOD. YARD
					RINSE BARRELS AT SITE (2) (Amount)

UNIT NUMBER	WORK MEMBERS / TIME (ON SITE)	MISCELLANEOUS EXPENSES		TOTAL MATERIALS	TOTAL LABOR	MISC. EXPENSES
		DESCRIPTION	AMOUNT			
#80 & #13	Ricky (8:30-6:30)					
#9 & #9	JAMES (8:30-6:30)	Dehard Supply	27.95			
#65A #3	JAMIE (8:30-6:30)					

TOTAL P.03

SIGNATURE OF APPROVING AUTHORITY

05-25-1995 04:30PM FROM SENCO TO 15106527002 P.03

JOB NAME <b>MB REALTY</b>	JOB NUMBER <b>90 0724</b>
LOCATION <b>176 E Lowellia</b>	DATE <b>9-8</b>
<b>SAN LORENZO</b>	PHONE

# MATERIAL & LABOR RECORD

JOB DESCRIPTION <b>PULL 2-4K L-1-350</b>	DAY WORK <input type="checkbox"/>
	CONTRACT <input type="checkbox"/>
	OTHER <input type="checkbox"/>

**PULL TIME 9:00**

QTY	MATERIAL	ITEM/PART NUMBER	UNIT PRICE	AMOUNT	DESCRIPTION OF WORK COMPLETED
300 #	Dry ICE				① FILL 2 Dry Ice Tanks
3	TANK MANIFEST	(BTR 98)			② PULL TANKS 3 load out on Manifest (4)
25 X 25	6mil Poly				③ LOAD PIPING OUT ON MANIFEST
1 Lbm	3/8" PEA GRAVEL	15 yds	21.00	700 - Technot # 5182028	④ TAKE SOIL SAMPLES 1x10, 4 at 4K at 15'
1 Lbm	3/8" PEA GRAVEL	8 yds			⑤ BACK FILL loose with Contaminated Soil
1 Lbm	SAND FILL (CLEANUP)	15 yds			⑥ Poly LINER PLACE
2 Lbm	SAND FILL (CLEANUP)	8 yds			⑦ BACK FILL with Imported Rock Material
1	PEA GRAVEL (CLEANUP)	5 yds/10 yds			⑧ TOP WITH SAND FILL FROM (JOB CLEANUP)
5	BRASS SAMPLE TUBES (ADD)				⑨ REMOVE Island, Light, Piping, BACK FILL with SAND
					⑩ LOAD DISPENSERS, LIGHT, EXCESS CONCRETE DEBRIS ON 98
					⑪

RINSE BARRELS AT SITE **(2)** (AMOUNT)

UNIT NUMBER	WORK MEMBERS / TIME
#10 ITB	Rocky (9:00 - 2:00)
#9 IT	JAMES (7:00 - 7:00)
#3 USA	JAMIE (7:00 - 2:00)
#8	CLUCH (7:00 - ?)

MISCELLANEOUS EXPENSES		TOTAL MATERIALS	TOTAL LABOR	MISC. EXPENSES
DESCRIPTION	AMOUNT			

SIGNATURE OF APPROVING AUTHORITY

05-25-1995 04:29PM FROM SENC0 TO 15106527002 P.02





**CET Environmental Services, Inc.**

5845 Doyle Street, Suite 104  
Emeryville, California 94608  
Telephone: (510) 652-7001  
Fax: (510) 652-7002

February 27, 1995

Ms. Amy Leech  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, Rm. 250  
Alameda, CA 94502-6577

ENVIRONMENTAL  
PROTECTION  
95 FEB 28 PM 2:33

**Subject: Work Plan for Delineation of Extent of Petroleum Hydrocarbons at  
186 East Lewelling Boulevard, San Lorenzo, California  
CET Project No. 3669**

Dear Ms. Leech:

CET Environmental Services, Inc. (CET) submits this work plan in accordance with the Alameda County Health Care Services Agency (ACHCSA) letters dated August 16, 1994 and January 31, 1995, from Ms. Juliet Shin and Ms. Amy Leech, respectively, to Mr. and Mrs. Graffenstatte (the former owners of the subject property) and Ms. Wai Yee Wong Young, the current property owner. The purpose of this Work Plan is to continue delineation of the extent of petroleum hydrocarbons in the soil and groundwater at the above-referenced site. This work plan was written in accordance with the regulatory protocol of the Regional Water Quality Control Board - San Francisco Bay Region (RWQCB). A site location map is shown on Plate 1 and site specific features are shown on Plate 2, Attachment A.

The three existing site wells will be monitored and sampled and the direction of groundwater flow will be determined prior to the commencement of additional investigation.

To continue delineation of the extent of petroleum hydrocarbons in the soil and groundwater at the site, CET proposes to install up to seven shallow soil borings both on-and off site (Plate 2, Attachment A). Three borings will be placed adjacent to the potential source areas, namely, the former gasoline underground storage tanks (USTs) and the pump island. If warranted, excavation of petroleum hydrocarbon impacted soils from the source areas may be recommended as a reasonable method to effectively decrease the concentrations of petroleum hydrocarbons present in the groundwater of the three site wells. One boring will be placed in the southeast corner of the property, in the up gradient direction of groundwater flow relative to the location of the potential source areas. Three borings will be placed off site, in the inferred down gradient direction of the potential source areas. If off-site access cannot be obtained, the off site soil borings will be moved on-site to locations as close to the property line as possible.

OK ↓

Handwritten notes: → W. Yee Wong, ACHCSA, BTEX, etc.

-No-

Soil and grab groundwater samples will be collected from each soil boring and analyzed for total petroleum hydrocarbons as gasoline (TPH-G) and benzene, toluene, ethyl benzene, and total xylenes (BTEX).

OK

Based on the soil and grab groundwater analytical results, up to three monitoring wells will be installed on or off site. Two wells will be located immediately adjacent to two of the off site



down gradient soil borings. The placement of the wells will attempt to delineate a down gradient "zero line" or zone of groundwater not impacted by petroleum hydrocarbon concentrations. For the purpose of monitoring the quality of groundwater flowing towards the site, a monitoring well may be installed in the southeast corner of the property, in the up gradient direction of groundwater flow relative to the location of the potential source areas.

*good!*

*well line*  
Upon installation, the monitoring wells will be surveyed, developed, and groundwater samples will be collected for analysis, and a report of findings will be prepared.

## INTRODUCTION

The subject site is located approximately 0.25 miles south of Interstate 238 and approximately 0.5 miles east of Interstate 880. A site location map is shown on Plate 1 and site specific features are shown on Plate 2, Attachment A. The subject property contains one building currently occupied by the New Performance auto repair shop.

On September 5, 1990, three underground storage tanks were removed from the subject site located at 186 East Lewelling Boulevard, San Lorenzo, California. The removed USTs included two (2) gasoline tanks of 4,000-gallon capacity each, and one (1) waste oil tank of 350-gallon capacity. Four soil samples were collected from beneath the two gasoline USTs, and one soil sample was collected from beneath the removed waste oil tank. The laboratory analytical results indicated that the soil samples collected from beneath the removed gasoline USTs contained elevated levels of gasoline and aromatic compounds.

CET installed three groundwater monitoring wells and conducted one round of monitoring and sampling in June 1994. Elevated concentrations of TPH-G and BTEX were detected in soil and groundwater samples associated with the monitoring wells. The highest concentrations of TPH-G and BTEX analytes were found in the soil boring for monitoring well MW3 located near the former fuel pump island. The samples associated with monitoring well MW2, located near the former gasoline tanks, also contained significant concentrations of TPH-G and BTEX analytes.

The results of a file search of nearby fuel leak cases conducted at the offices of the ACHCSA on February 23, 1994 suggested that the direction of groundwater flow in the vicinity of the subject property ranged from northwest, to west, to southwest. According to groundwater measurements obtained on June 23, 1994 during the monitoring and sampling event, the direction of groundwater flow was calculated to be towards the north. Due to the incorrect placement of the north arrow on all of the Plates in CET's Well Installation Report dated July 26, 1994, the stated direction of groundwater flow to the north was found to be in error. The direction of groundwater flow in June 1994 was to the northwest and a revised "Groundwater Elevations & Contours Map", Plate 3, Attachment A is included with this work plan.



## **SCOPE OF WORK**

### **Task 1 - Preparation of Health and Safety Plan**

A site-specific Health and Safety Plan, pertaining to the tasks presented below, is presented in Attachment B. The site-specific Health and Safety Plan will satisfy the requirements of 40 Code of Federal Regulations (CFR) 1920.

### **Task 2 - Perform Four Quarterly Groundwater Monitoring Events Including Quarterly Reporting**

CET will perform four groundwater sampling events. Sampling and monitoring activities include sounding each well for the depth to groundwater, checking each well for the presence of free product or sheen, measuring product thickness, if present, purging a minimum of four well volumes from each well using a positive displacement pump and/or bailer, and collecting water samples from each well. The groundwater samples will be submitted to the certified analytical laboratory for TPH-G and BTEX by United States Environmental Protection Agency (EPA) methods 8015/8020.

A report will be prepared for each monitoring event. Each report will present the laboratory test reports, sample collection records, chain of custody records, a groundwater elevation contour map, and a site plan showing constituent concentrations for that quarterly event.

### **Task 3 - Soil Boring Installation and Soil Sample Collection**

CET will notify Underground Service Alert (USA) and review utility plans, if available, for the subject site and/or off-site locations (Plate 2, Attachment A) prior to initiating drilling activities. If warranted, CET will retain a private underground utility locating service to clear the proposed drilling locations. The final soil boring locations will be determined by the accessibility of each proposed location point. Proposed location points which are obstructed by buildings or other objects will be moved to the nearest accessible location.

Precision Sampling, Inc. (PSI), a California-licensed C-57 contractor based in San Rafael, California will be contracted to perform the drilling, soil and grab groundwater sample collection activities. PSI uses portable, hydraulically-driven soil coring systems to obtain soil and groundwater samples for lithologic description and laboratory analysis. The PSI XD-1 is a limited access rig mounted on a 4-wheel drive vehicle. Enviro-Core sampling rods will be advanced with vibrators, a hydraulic hammer, or pushed into the ground to collect continuous



soil cores. Two nested sampling rods will be advanced simultaneously: small diameter inner sampling rods are used to obtain and retrieve continuous soil cores, while larger diameter (2 3/8 inch OD) outer rods served as temporary drive casing.

The boreholes will be backfilled by the driller the same day with neat cement grout after completion of sampling activities. The soils derived from drilling will be containerized in 5-gallon pails which will be left on site. The rinse water derived from decontamination of sampling equipment will be containerized in a 55-gallon drum, which will be left on-site.

### ***Soil Sampling Procedures***

As the rods are advanced, soil will be driven into a 1 5/8-inch diameter, 3-foot long sample barrel that is attached to the end of the inner rods. Soil samples will be collected in 1 1/2-inch diameter by 6-inch long stainless steel tubes inside the sample barrel as both rods are advanced. After being driven 3-feet, the inner rods will be removed from the borehole with a hydraulic winch. The stainless steel sleeves containing the soil samples will be removed from the drive sampler, and retained for laboratory analysis and/or used for lithologic identification. After adding new stainless steel sleeves, the drive sampler and inner rods will be lowered back into the borehole to the previous depth, an additional 3-foot section of rods are attached, and the process will be repeated until the desired depth is reached.

The use of exterior rods prevents sloughing of the formation while the interior rods are withdrawn from the borehole to ensure that soil samples are retrieved from the desired depth interval. All subsurface equipment, including drive samplers and sample rods, will be cleaned with a high-pressure hot water washer between boreholes. Drive samplers and tubes will be pre-cleaned prior to use and cleaned between each use. Cleaning will be accomplished by scrubbing each item in a solution of potable water and trisodium phosphate or Alconox, followed by two deionized water rinses.

In accordance with the *Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites* dated August 10, 1990 (herein referred to as the Tri-Regional Guidelines), soil samples are required to be obtained from the soil borings at five-foot intervals and at depths where changes in lithology are noted to a maximum depth of 50 feet below ground surface (bgs). All soil samples will be screened for aromatic petroleum hydrocarbons using a portable photoionization detector (PID). Soil samples indicating the presence of petroleum hydrocarbons obtained from above the water table (vadose zone) and at the soil/groundwater interface will be retained for chemical analysis. The borings will be logged according to the Unified Soil Classification System (USCS) under the supervision of a California Registered Geologist (R.G.).

A maximum of three soil samples, from each borehole, will be analyzed for TPH-G and BTEX by EPA Test Methods 5030/8015 and 8020, respectively. Soil samples will be handled in accordance with CET's chain of custody protocols. All samples will be placed in an ice chest



containing ice immediately following collection. Chain-of-custody documentation will accompany the samples to a DHS certified hazardous materials testing laboratory for analysis on a normal 10-day turn-around-time.

#### **Task 4 - Drilling and Monitoring Well Installations**

##### ***Drilling***

A California-licensed C-57 drilling contractor will be retained to provide drilling services. A truck mounted, hollow-stem auger drilling rig will be utilized for the installation of the monitoring wells. Soil cuttings will be placed on and covered with visqueen plastic sheeting or contained in DOT 17H 55 gallon drums, as appropriate. All subsurface equipment will be decontaminated prior to and between each use. Decontamination will be accomplished by steam cleaning or by scrubbing in a solution of Alconox and potable water followed by two purified water rinses. All decontamination rinseate water will be contained in DOT 17H 55 gallon drums. All soil and groundwater generated from drilling and sampling activities will be temporarily stored at the subject property pending the receipt of laboratory analytical results which will be used to determine the type of disposal required.

##### ***Soil Sample Collection***

Soil samples will not be obtained during the proposed off-site well installation because the samples from the adjacent soil borings will be representative of the condition of the soil in the borings for the wells.

##### ***Monitoring Well Installation***

CET will complete application documentation and obtain necessary permits from the Alameda County Flood Control & Water Conservation District (Zone 7) to install a maximum of three, two-inch diameter groundwater monitoring wells at the subject property.

The monitoring wells will be constructed in accordance with the protocol presented in Attachment C. The monitoring wells will be screened within the first significant water bearing zone, which is believed to occur between 18 and 21 feet below grade, and extend approximately 10 feet into the water bearing zone.

#### **Task 5 - Monitoring Well Development, Survey, and Groundwater Sample Collection**

The newly constructed monitoring wells will be developed by CET field personnel not less than 24 hours following installation, and will be sampled not less than 24 hours following development. All well installation and development protocols will be in accordance with



ACHCSA and RWQCB guidelines. The elevations of the top of the well casings (TOC) will be determined relative to mean sea level (msl) by a California licensed surveyor.

*good*

**Task 6 - Laboratory Sample Analysis**

*10/10/95 10:00 AM*

Groundwater samples will be collected in accordance with the protocol presented in Attachment C. The groundwater samples will be analyzed for TPH-G and BTEX by EPA Test Methods 5030/8015 and 602, respectively. All samples will be placed in an ice chest containing ice immediately following collection. Chain-of-custody documentation will accompany the samples to a California Department of Health Services (DHS) certified hazardous materials testing laboratory for analysis in a standard turn around time of 10 working days.

**Task 7 - Data Evaluation and Report Preparation**

CET will evaluate the laboratory analytical and hydrogeologic data, and will prepare a report which presents the findings of the soil and groundwater screening and sampling activities. The report will include a summary of well installation activities, groundwater and soil sample collection activities, certified laboratory analytical reports, and conclusions regarding the extent of contamination, if present, and additional site characterization, if required.

The report will include a tabulated summary of analytical results, a site plan showing contours of water elevation and estimated direction of groundwater flow, and a site plan showing the extent of groundwater contamination, if any, based on existing data. Additionally, the report will include copies of sample collection records, borehole logs, and chain of custody documentation. The report will be signed by a California R.G. The report will be prepared in a format suitable for submission to the ACHCSA and other regulatory agencies.

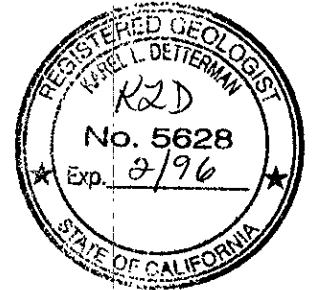
Please do not hesitate to contact us if you have any questions or comments regarding the contents of this work plan.

Sincerely,

**CET ENVIRONMENTAL SERVICES, INC.**

*B. Berman*  
Benjamin Berman  
Staff Scientist

*Karel Detterman*  
Karel L. Detterman, R.G.  
Senior Geologist/Project Manager



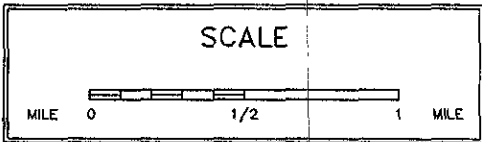
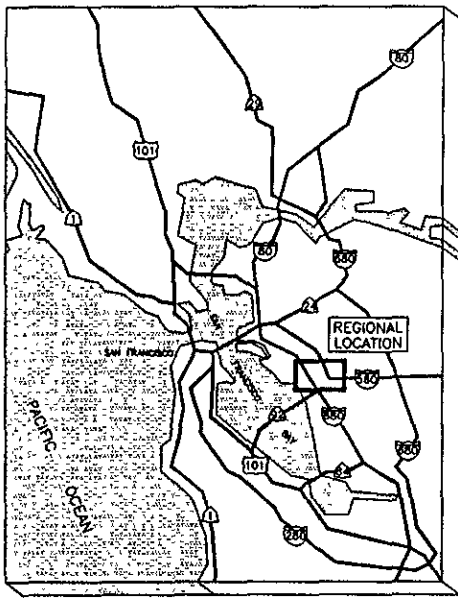
Enclosures: Attachments A-C

cc: Ms. Wai Yee Young, c/o Ms. Eva Young

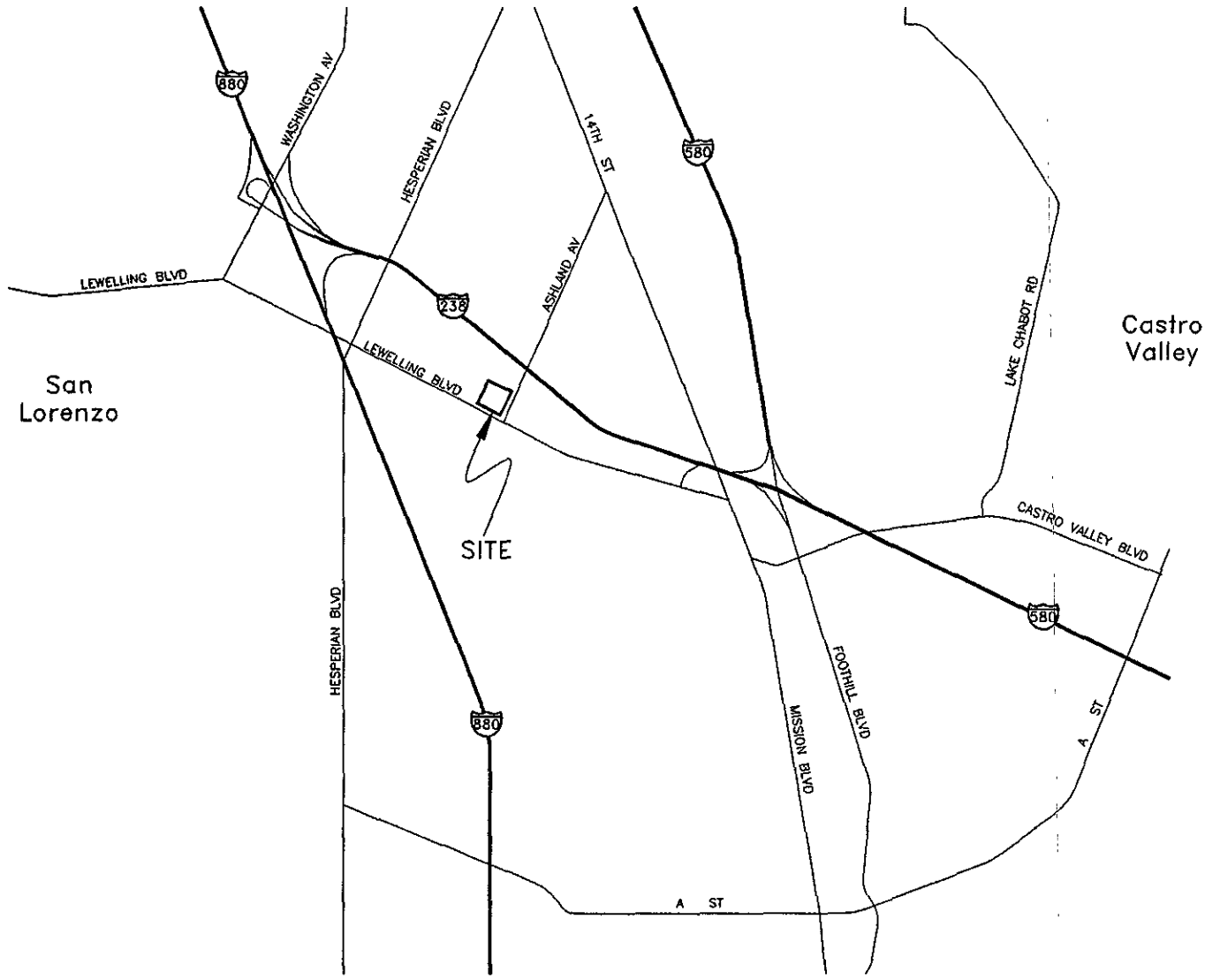


## *ATTACHMENT A*

---



San Leandro



San Lorenzo

Castro Valley



CET Environmental Services, Inc.

SITE LOCATION

186 E. LEWELLING BLVD  
SAN LORENZO, CALIFORNIA

PLATE

1

JOB NUMBER	DATE	DRAWING	BY	REVISED
3602	01/95	LOC	LONG	01/31



SAN LORENZO HIGH SCHOOL

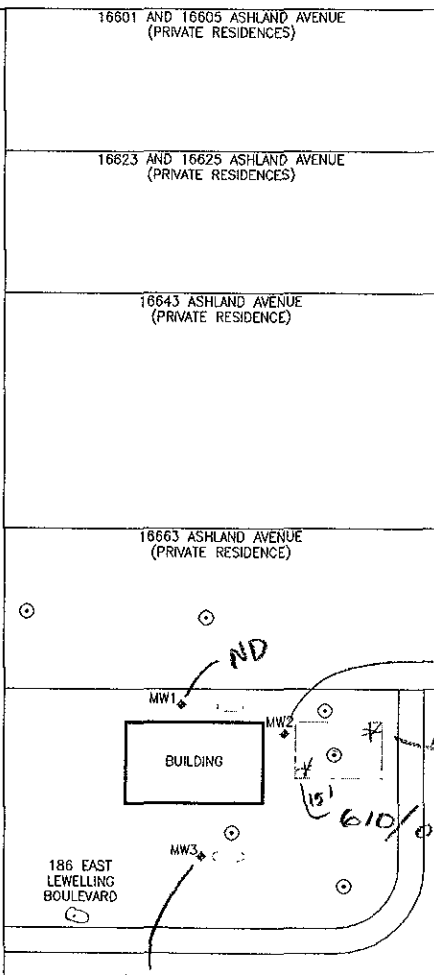
ASHLAND AVENUE

144 EAST LEWELLING BOULEVARD  
(22-UNIT CONDOMINIUM COMPLEX UNDER CONSTRUCTION)

~ 215'

\*Original S/S closing tank pvt

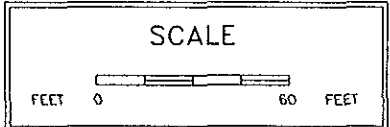
- Soil Analysis taken  
7/14/94 TPH 8ppm/Benzene ppb



9.5' 4.2/5.1  
14.5' 120/ND  
19.5' 110/ND

EAST LEWELLING BOULEVARD

165, 173, 175, 177, AND 181 EAST LEWELLING BOULEVARD  
(PRIVATE RESIDENCES)



**LEGEND**

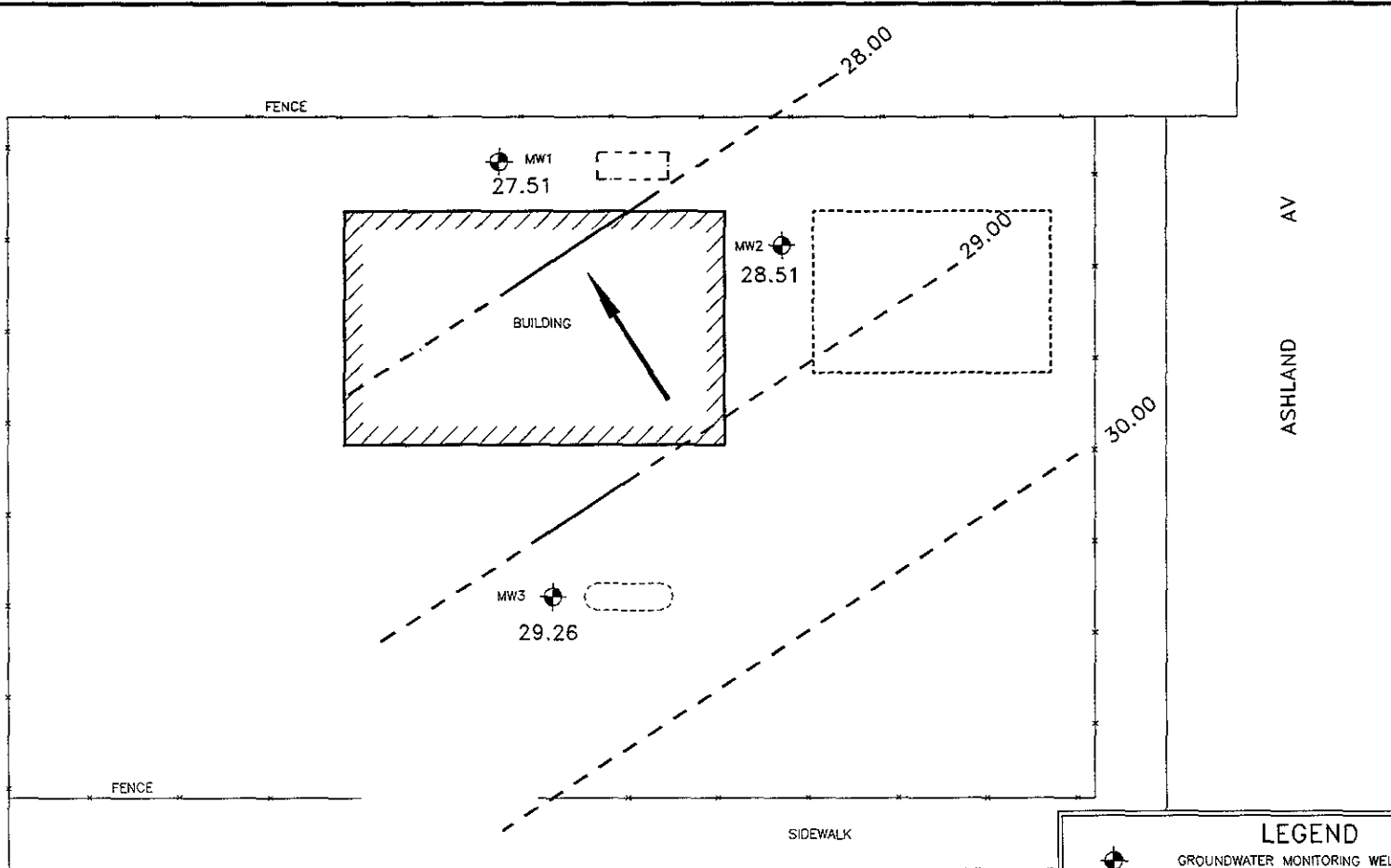
- ◆ GROUNDWATER MONITORING WELL LOCATION
- ⊙ PROPOSED SOIL BORING LOCATION



CET Environmental  
Services, Inc.

SITE VICINITY PLAN					PLATE
PROPOSED SOIL BORING LOCATION					
186 E. LEWELLING BLVD SAN LORENZO, CALIFORNIA					
JOB NUMBER	DATE	DRAWING	BY	REVISED	2
3602	01/95	OFFSITE	LONG	02/23	

*Handwritten signature*



**LEGEND**

- GROUNDWATER MONITORING WELL LOCATION
- FORMER TANK EXCAVATION-GASOLINE (APPROXIMATE)
- FORMER TANK EXCAVATION-WASTE OIL (APPROXIMATE)
- FORMER FUEL PUMP ISLAND (APPROXIMATE)
- LINE OF EQUAL GROUNDWATER ELEVATION (FEET)  
INTERVAL = 1 FT  
(DASHED WHERE INFERRED)
- DIRECTION OF GROUNDWATER FLOW

**SCALE**

FEET 0 20 FEET

← LEWELLING BLVD →

**CET Environmental Services, Inc.**

<b>GROUNDWATER ELEVATIONS &amp; CONTOURS</b>					<b>PLATE</b>  3
06/23/94					
GRAFFENSTATTE PROPERTY					REVISED
186 E. LEWELLING BLVD					
SAN LORENZO, CALIFORNIA					
<b>JOB NUMBER</b>	<b>DATE</b>	<b>DRAWING</b>	<b>BY</b>	<b>REVISED</b>	
3602	06/94	H20	A WONG	2/17	



***ATTACHMENT B***

---



**SITE SAFETY PLAN  
CET ENVIRONMENTAL SERVICES, INC.**

**A. GENERAL INFORMATION**

**Site:** Currently occupied by New Performance (auto repair shop)

**Location:** 186 East Lewelling Blvd., San Lorenzo, California (and adjacent properties)

**Plan Prepared By:** Benjamin Berman                      **Date:** February 15, 1995  
Site Safety Manager

**Objective:** To secure work area from unauthorized personnel, to prevent equipment accidents, to provide for emergency response (if required, to protect onsite personnel from potential health and safety hazards.

**Proposed Date of Investigation:** March/April 1995

**Background Review:**      Complete:      Preliminary: X

Documentation/Summary:

Overall Hazard:                      Serious:                      Moderate:  
Low: X                                      Unknown:

**B. SITE/WASTE CHARACTERISTICS**

**Waste Type(s):**                      Liquid: X      Solid: X      Sludge:                      Gas: X  
(Groundwater and/or soil with possible residual gasoline or BTEX compounds)

**Characteristic(s):**                      Corrosive:                      Ignitable: X                      Radioactive:

Volatile: X                      Toxic: Reactive:                      Unknown:                      Other(name):

**Facility Description:**                      New Performance (auto repair shop)

**Principal Disposal Method (type and location):** Groundwater, rinsate and soil, will be treated onsite or transported to a Class I, II, or III landfill in accordance with sample analytical results.

**Unusual Features:** None Known



Status:      Active: X      Inactive:      Unknown:

History (agency action, complaints, injuries, etc.): None known.

### C. HAZARD EVALUATION

Parameter:	<u>TLV</u> (ppm)	<u>IDLH</u> (ppm)	<u>HEALTH</u> skin/eyes/ingestion/inhalation			
Benzene	<u>1</u>	<u>3,000</u>	—	—	—	<u>x</u>
Gasoline	<u>50</u>	—	—	—	—	<u>x</u>

**Special Precautions and Comments:** No smoking, eating or drinking in the work area. Respirators (halfmask air purifying w/organic vapor cartridge) must be worn when the downwind concentration of benzene is more than or equal to 10 ppm (PEL); or when volatile hydrocarbon concentrations as indicated by a field PID equal 100 ppm (instantaneous spike) or greater.

### D. SITE SAFETY WORK PLAN

**Perimeter Establishment:** Map/Sketch Attached: X (Plate SP-1)

**Site Secured:** Subject property has security fence with locking gates

**Perimeter Identified:**

**Zone(s) of Contamination Identified:** To be determined during Gore-Sorber screening survey and drilling, and will be based on soil and groundwater sample-analytical results

**Personal Protection:**

**Level of Protection:** A \_\_\_ B \_\_\_ C \_\_\_ D X

**Modifications:** Level C (includes half-mask air purifying respirators with organic vapor cartridge and dust prefilters) at discretion of site safety officer and/or per criteria outlined below (surveillance equipment).

**Surveillance Equipment & Materials:**

**Instrument:** Hnu PID      **Action Level:** Instantaneous spike of 100 ppm or more

**Site Entry Procedures:** Permission of onsite, authorized personnel. Level D personnel protective equipment (with Level C standby).



**Decontamination Procedures:**

Personnel: Wash hands with soap and water after leaving the work zone.

Equipment: Steam clean or scrub in a solution of Alconox and potable water, followed by two water rinses.

**First Aid (type of equipment available):** Standard first aid kit available in company vehicles.

**Work Limitations (time of day, weather, heat/cold stress):** Daylight hours only, work will stop during periods of heavy rainfall or strong winds.

**Investigation-Derived Material Disposal:** See "Principal Disposal Method", above.

**Team Composition:**

<u>Team Member</u>	<u>Responsibility</u>
Karel L. Detterman	Project Manager
Benjamin Berman	Project Scientist/Safety Manager

**E. EMERGENCY INFORMATION**

**Local Resources:**

Ambulance: 911  
Hospital Emergency Room: (510) 889-5015 (Eden Medical Center)  
Poison Control Center: 1-800-523-2222

Police: 911  
Fire Department: 911  
Explosives Unit: 911  
Agency Contact:  
National Response Center (NAC)  
Toxic Chemical and Oil Spills: 1-800-424-8802

**Site Resources:**

Water Supply: Onsite  
Telephone: Onsite  
Radio: In company vehicle  
Other: N/A



**Emergency Contacts:**

Name: Karel L. Detterman

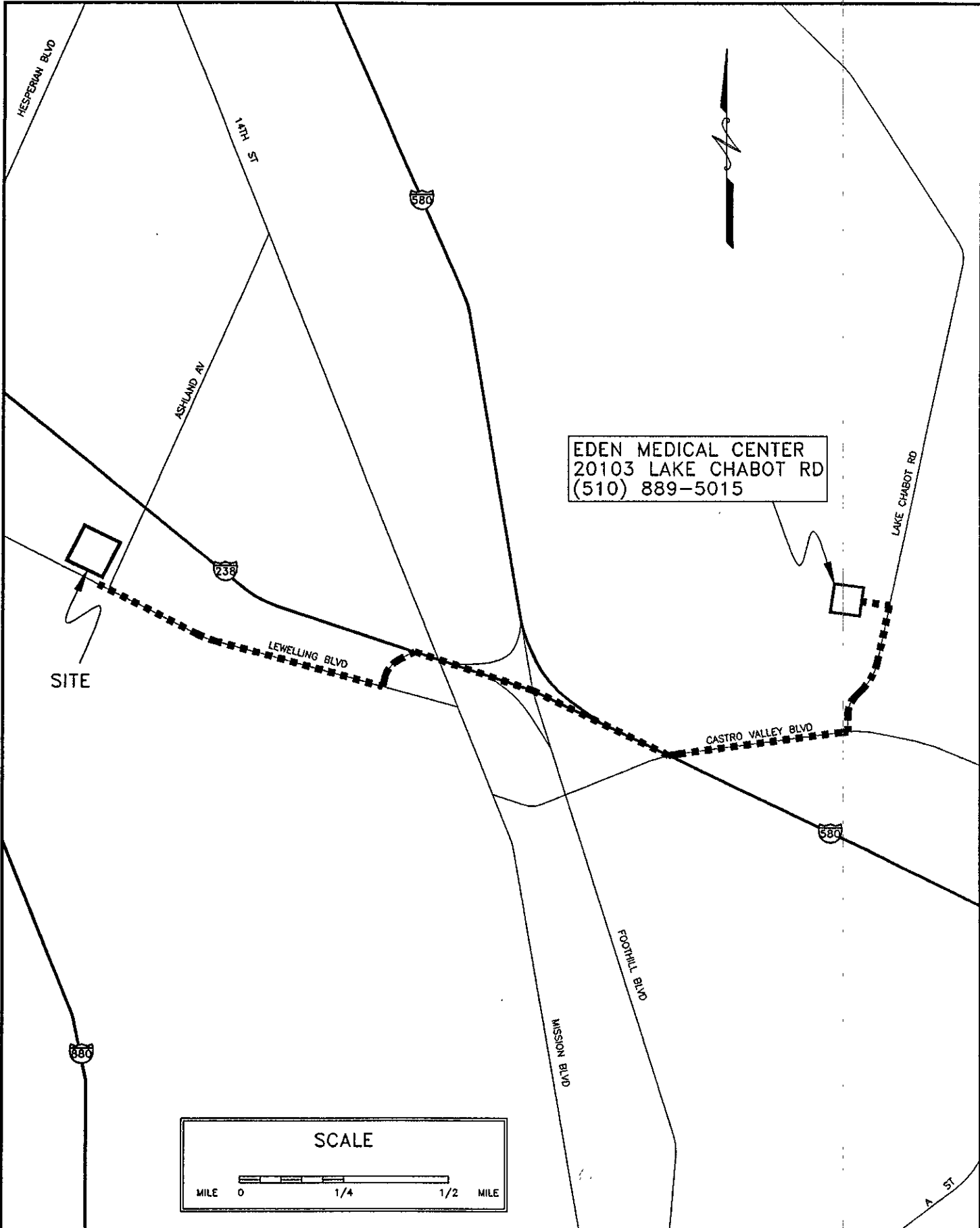
Phone: 1-510-652-7001

CET Environmental Services, Inc.

**Emergency Routes:**

To Hospital:

East on Lewelling Blvd. to Interstate 238/580 Eastbound (from Mission Blvd. on ramp), exit Castro Valley Blvd. east, to Lake Chabot Road - North, left turn into Eden Medical Center at 20103 Lake Chabot Road, in Castro Valley, (510) 889-5015, approximately 2.5 miles from the project site (see attached route map on Plate SP-1).



CET Environmental  
Services, Inc.

HOSPITAL ROUTE MAP

from Subject Property at  
186 E. LEWELLING BLVD  
SAN LORENZO, CALIFORNIA

PLATE

SP-1

JOB NUMBER	DATE	DRAWING	BY	REVISED
3669	02/95	HOSPITAL	LONG	02/02





*ATTACHMENT C*

---



## **DRILLING PROCEDURES & GROUNDWATER MONITORING WELL CONSTRUCTION/DESIGN**

### **DRILLING AND SAMPLING PROCEDURES**

All borings for well construction were drilled using eight-inch diameter or larger hollow stem auger equipment. A California Registered Geologist or Professional Engineer directed or supervised the collection of undisturbed samples of the soils encountered and the preparation of detailed logs for each boring.

Soil sampling was conducted using a modified California split-spoon sampler, a standard penetration sampler, or a five-foot continuous sampler. Samples were retained in two-inch to three-inch diameter, six-inch long, clean brass or stainless steel tubes. The samples were retained for verification of soil classification and for chemical laboratory analytical testing, as appropriate. Teflon sheeting was placed between the soil sample and the cap, and the cap was sealed with PVC tape.

Where access limitations did not allow drilling with truck mounted equipment, either a trailer mounted drilling rig, portable power driven, or manually operated soil sampling equipment was utilized. If soil samples were to be retained for analysis, they were collected in clean brass tubes fitted within a thin walled drive sampler. The soil samples were capped and sealed as described above.

All down hole sampling, drilling, and well construction equipment and materials, including augers, casing, and screens were steam cleaned prior to their initial use. The sampling equipment was cleaned prior to their initial use. The sampling equipment was cleaned prior to each assembly by washing with a solution of Alconox and potable water, rinsing with purified water, and allowing to air dry. The auger flights, drill bit, and sampler were steam cleaned at each boring location.

### **MONITORING WELL CONSTRUCTION**

Monitoring wells were constructed in accordance with applicable local water district or California Department of Water Resources guidelines. The specific completion details for each well were determined in the field at the time of drilling by a California Registered Geologist or Professional Engineer experienced in groundwater monitoring system design and installation.

Monitoring wells consist of two or four-inch diameter, Schedule 40 PVC casing and screens with flush, threaded joints. No PVC glue was used. The screened sections are machine slotted with either 0.010-inch (0.255 mm) or 0.020-inch (0.51 mm) openings. The smaller slot size was used where the wells are screened within fine-grained sandy soils, and the larger slots were used where coarse sand or gravels are encountered. The slotted sections were fitted with a slip-on cap and placed opposite the water-bearing strata in the boring. The blank pipe was connected to the perforated pipe and extends to just below the ground surface.

The annulus between the side of the borehole and the slotted section was filled with a clean sand pack to variable depths, but not less than one or two feet above the perforated pipe. The annulus was packed with either Lonestar No. 1/20 (where 0.010-inch slotted pipe is used) or No. 3 (where 0.020-inch slotted pipe is used), or equivalent, washed sand filter material. The gradation of the filter material is summarized below:



U.S. Sieve No.	Opening (mm)	Percent Passing (No. 3)	Percent Passing (No. 1/20)
6	3.35	100	
8	2.36	99 - 100	
12	1.70	62 - 78	
16	1.18	15 - 33	100
20	0.85	0 - 8	90 - 100
30	0.60	0 - 4	14 - 40
40	0.425		0 - 5

A seal of bentonite pellets approximately 0.5 to 1.0 foot thick was placed above the sand pack to reduce the risk of grout penetration into the sand. The bentonite pellets were hydrated with purified water to form a tight plug. A cement/bentonite grout was placed above the bentonite plug to a depth of approximately 0.5 to 2.0 feet below the ground surface. The grout was pumped into the boreholes using a tremie pipe when it was required by local guidelines or regulations. A flush mounted traffic box or aboveground security enclosure was set in concrete above the cement/bentonite mixture.

At most sites in sedimentary formations, it is not practical to "rationally design" a filter pack based on sieve analyses. From experience, Lonestar No. 1/20 or No. 3 washed sand as a filter material was selected for use in wells. The 0.010-inch and 0.020-inch slot sizes were selected to retain 100 percent of the filter material.

The completed wells were enclosed in a traffic rated enclosure placed flush with grade or in an above-ground metal enclosure, and were fitted with a locking cap. Well head elevations were determined by a level survey, and well coordinates were determined by a traverse survey. The level/traverse survey was referenced to a bench mark or known or assigned elevation, and known coordinates. Once water levels stabilized, water levels in all wells were measured.

Soil cuttings generated during drilling were stored in 55-gallon drums or wrapped in plastic sheeting, and water generated during well development and sampling was retained in secured 55-gallon drums until chemical analytical data from samples were received.

### MONITORING WELL DEVELOPMENT

After the wells had been completed, they were developed by pumping and surging to clean and stabilize the soils around the screens. A manually operated, positive displacement surge pump and teflon bailer, surge block, and/or centrifugal pump was used for development. A minimum of 10 well casing volumes of water was removed during development; however, development continued until turbidity or sediment content had stabilized. All development equipment was steam cleaned or triple rinsed in a solution of purified water and Alconox prior to its initial use in each well. A well development record was maintained which included 1) a description of development water characteristics at frequent intervals, 2) the quantity of water removed during development.

*They want to see what the water level is in the well. It should be in the log.*