



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

REMEDIAL ACTION COMPLETION CERTIFICATION

**STID 4233 - 15510 Usher Street, San Lorenzo CA94580
(1-45 and 2-6K gallons tanks removed on 1/3/1991)**

January 18, 2000

Ms. Karen Langmaid
San Lorenzo Unified School District
15510 Usher Street
San Lorenzo CA 94580

Dear Ms. Langmaid:

This letter confirms the completion of site investigation and remedial action for the underground storage tank formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tank are greatly appreciated.

Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, no further action related to the underground tank release is required.

This notice is issued pursuant to a regulation contained in Title 23, Section 2721(e) of the California Code of Regulations.

Please contact our office if you have any questions regarding this matter.

Sincerely,

Mee Ling Tung, Director

C: Ariu Levi, Chief Hazardous/Household Hazardous Waste Division
Chuck Headlee, RWQCB
Dave Deaner, SWRCB
Files-AG

CASE CLOSURE SUMMARY
Leaking Underground Fuel Storage Tank Program

I. AGENCY INFORMATION

Date: August 13, 1999

Agency name: **Alameda County-HazMat**
City/State/Zip: **Alameda, CA 94502**
Responsible staff person: **Juliet Shin**

Address: **1131 Harbor Bay Pkwy**
Phone: **(510) 567-6700**
Title: **Hazardous Materials Spec.**

II. CASE INFORMATION

Site facility name: **Arroyo School**
Site facility address: **15701 Lorenzo Avenue, San Lorenzo, CA 94580**
RB LUSTIS Case No: **N/A** Local Case No./LOP Case No.: **4233**
URF filing date: **02/27/91** SWEEPS No: **N/A**

<u>Responsible Parties:</u>	<u>Addresses:</u>	<u>Phone Numbers:</u>
San Lorenzo Unified School District Contact: Karen Langmaid	15510 Usher Street San Lorenzo, CA 94580	(510)317-4834

<u>Tank No:</u>	<u>Size in gal.:</u>	<u>Contents:</u>	<u>Closed in-place or removed?:</u>	<u>Date:</u>
1	45	gasoline	removed	01/03/91
2	6,000	diesel	removed	01/03/91

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and type of release: **The 6,000-gallon diesel tank was rusted and corroded with a ¼-inch leaking seam.**

Site characterization complete? **YES**

Date approved by oversight agency: **09/12/99**

Monitoring Wells installed? **YES** Number: **Four**

Proper screened interval? **Based on all the boring logs, it appears that the groundwater aquifer may be semi-confined. The records on first-encountered groundwater, as opposed to equilibrated groundwater, are very poor. Wells MW-1 through MW-3 screen from 15- to 25-feet bgs, and Well MW-4 screens from 9- to 24-feet bgs. However, groundwater depths have been noted to be roughly between 9- to 12-feet bgs. Regardless of whether the aquifer is semi-confined, it appears that Well MW-4, which is located downgradient of the former diesel UST, would be screening properly in either case.**

11/13/99 11:03 AM
11/13/99 11:03 AM
11/13/99 11:03 AM

Highest GW depth below ground surface: **9.22 feet below ground surface (bgs) from Well MW-2**

Lowest depth: **25-feet bgs from Boring SB-1G**

Flow direction: **west/southwest**

Most sensitive current use: **The site is used for a school. Also, according to Alameda County's MapInfo Database, there is an EBMUD municipal well located roughly 1,000-feet downgradient of the site.**

Are drinking water wells affected? **No.** Aquifer name: **Unknown**

Is surface water affected? **No** Nearest affected SW name: **There appears to be no surface waters within 1,000-feet of the site. The nearest surface water body appears to be San Lorenzo Creek, located roughly 1,300-feet downgradient of the site.**

Off-site beneficial use impacts (addresses/locations):

Report(s) on file? **YES** Where is report(s) filed? **Alameda County
1131 Harbor Bay Pkwy
Alameda, CA 94502**

Treatment and Disposal of Affected Material:

<u>Material</u>	<u>Amount (include units)</u>	<u>Action (Treatment or Disposal w/destination)</u>	<u>Date</u>
Tanks	one 45-gallon gas tank; One 6,000-gallon diesel tank	Hauled off site to: Erickson, Inc. 255 Parr Blvd., Richmond, CA (Manifest#89917579)	01/02/91
Diesel	30 gallons	Hauled off site to: Refineries Services 13331 No. Highway 33, Patterson,CA (Manifest#89917572)	12/01/90
Rinsate	800 gallons	Hauled off site to: Gibson Oil/Pilot Petroleum 475 Sea Port Blvd., Redwood City,CA (Manifest#89917588)	01/25/91
Soil	Unknown amount (resulting from the tank excavations)	Taken to school district property in 1991 and aerated. The fate of this aerated soil is unknown.	January 1991

Maximum Documented Contaminant Concentrations - - Before and After Cleanup

Contaminant	Soil (ppm)		Water (ppb)	
	Before	After	Before	After ⁵
TPH (Gas)	ND	NA	NA	ND
TPH (Diesel)	1,720 ²	1,600 ⁴	300	130
TOG	5,685 ²		ND	ND ⁶
Benzene	ND		0.7	ND
Toluene	0.12 ¹		13	ND
Ethylbenzene	ND		1.9	ND
Total Xylenes	0.33 ¹		1.7	ND
MTBE	NA	ND ³	NA	ND

ND = Not Detected

NA = Not Analyzed

- 1- Samples collected from the diesel UST during the tank removal in 1991.
- 2- Sample collected from the borings drilled at the site in January 1991.
- 3- Samples collected from boring SB-1G in June 1999.
- 4- Samples collected from boring SB-2A in June 1999.
- 5- Groundwater samples collected in June 1999.
- 6- Groundwater samples collected between 1991 and 1993 were all NonDetect for TOG.

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? **YES**

Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? **YES**

Does corrective action protect public health for current land use? **YES**

Site management requirements: **A site safety plan must be prepared for construction workers in the event excavation/trenching is proposed in the vicinity of residual soil contamination.**

Should corrective action be reviewed if land use changes? **NO**

Number of Monitoring Wells Remaining: **Four**

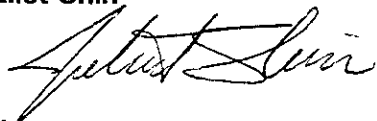
Monitoring wells Decommissioned: **None**

List enforcement actions taken: **None**

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: **Juliet Shin**

Title: **Haz Mat Specialist**


Signature: 

Date: *09/02/99*

Reviewed by

Name: **Eva Chu**

Title: **Haz Mat Specialist**

Signature: 

Date: *8/16/99*

Name: **Thomas Peacock**

Title: **Supervisor**

Signature: 

Date: *9-1-99*

VI. RWQCB NOTIFICATION

Date Submitted to RB:

RB Response:

RWQCB Staff Name: **Chuck Headlee**

Title: **AEG**

Signature: 

Date: *9/15/99*

VII. ADDITIONAL COMMENTS, DATA, ETC.

One 45-gallon gasoline underground storage tank (UST) and one 6,000-gallon diesel UST were removed from the site on January 03, 1991.

The 6,000-gallon diesel UST had been used to store diesel fuel for heating and hot water service at the school. The tank had been unused since natural gas was introduced to the school sometime in the 1960s. The diesel UST was located within an asphalt paved area between the boiler room and maintenance part of the school building and some portable classrooms (refer to attached figure).

The diesel UST was noted to be rusted and corroded, with a ¼-inch leaking seam. The bottom of the diesel tank pit was measured to be about 10-feet below ground surface (bgs). A concrete pad was located at the bottom of the tank pit, which was used as a tank foundation or tie-down. No groundwater was noted in the tank pit. Two soil samples, Samples 01 and 02, were collected from the west end of the excavation from 10- and 11-feet bgs. One soil sample, Sample 03, was collected from the east end of the excavation from 11-feet bgs. These soil samples were analyzed for Total Petroleum Hydrocarbons as diesel (TPHd), Total Oil and Grease (TOG), and benzene, toluene, ethylbenzene, and total xylenes (BTEX). Analysis of these samples identified up to 2,000 parts per million (ppm) TOG, 300ppm TPHd, 0.12ppm toluene, and 0.33ppm total xylenes. No other contaminants were identified above detection limits.

The 45-gallon UST was used to provide fuel for an auxiliary generator in case of power loss. This tank was located within the courtyard area adjacent to the parking lot (refer to attached figure).

During the tank removal, the gas UST was noted to be rusted with no holes. The tank bottom was measured to be roughly 2.5-feet bgs. No groundwater was observed in the tank pit. Four soil samples, Samples 01 through 04, were collected from below the gas UST. Samples 01 and 02 were collected from the tank backfill material at about 2.5- to 3.5-feet bgs. Samples 03 and 04 were collected from the native soil at about 4- and 5-feet bgs. These samples were analyzed for TPHd, TPH as gasoline (TPHg), and Total Lead. Low levels of lead below protective threshold values were identified, and no other contaminants were identified above detection limits.

In January 1991, Borings 1 through 16 were drilled at the site to further characterize the extent of soil contamination observed in the diesel UST pit (refer to attached figure). Borings 14, 15, and 16 were converted into monitoring wells MW-1 through MW-3. Three soil samples were collected from each boring at 5-, 10- and 15-feet bgs from above the water table, and analyzed for TPHd, BTEX, and TOG. Analysis of these soil samples identified up to 1,720ppm TPHd, 5,685ppm TOG, 0.25ppm toluene, and 1.9ppm total xylenes. No other contaminants were identified above detection limits.

On August 10, 1992, four additional borings, Borings B14 through B17, were drilled at the site to further delineate the extent of soil contamination in the vicinity of the former diesel UST (refer to attached figure). Boring B17 was converted into Well MW-4. Soil samples were collected from Borings B14 through B16 at 5-, 10-, and 15-feet bgs; and soil samples were collected from MW-4 at 15- and 20-feet bgs. These soil samples were analyzed for TPHd, TOG, and BTEX. Analysis of these samples identified up to 210ppm TPHd, 975ppm TOG, 0.47ppm toluene, and 0.008ppm total xylenes. No other contaminants were identified above detection limits.

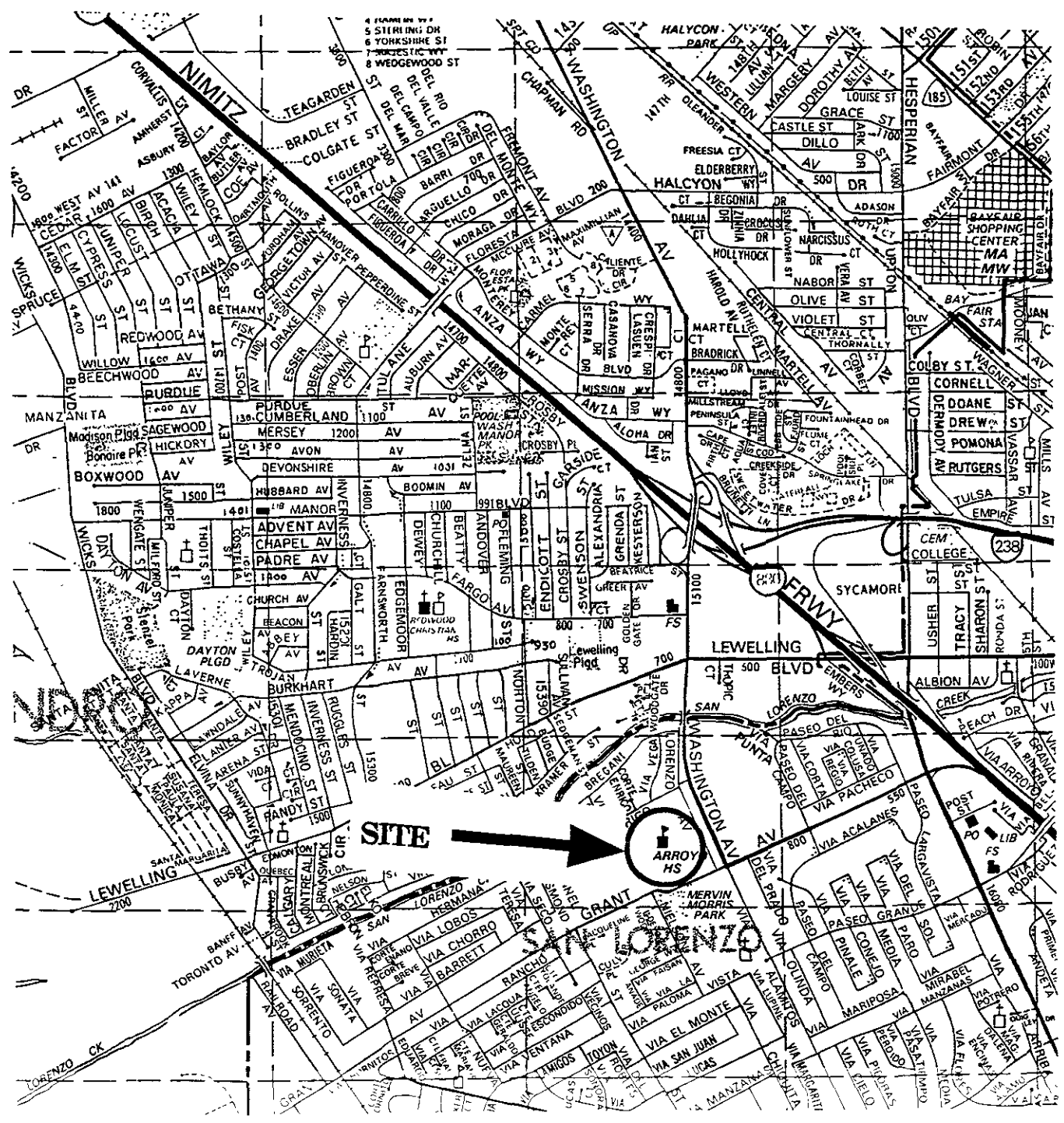
Groundwater samples were collected on a quarterly basis from the four on-site monitoring wells and analyzed for TPHd, TOG, and BTEX, up until March 1993 (refer to tables). On June 02, 1999, after six years of no groundwater monitoring, the four wells were purged of three casing volumes of water and sampled. These samples were analyzed for TPHd, TPHg, BTEX, and Methyl Tertiary Butyl Ether (MTBE). Only TPHd at 130ppb was identified from Well MW-4. No other contaminants were identified above detection limits. The groundwater flow direction was measured to be towards the west/southwest with a gradient of 0.006 feet/foot.

In addition to the groundwater monitoring, two borings, Borings SB-2A and SB-1G, were drilled at the site on June 29, 1999. Boring SB-2A was drilled adjacent to former Boring SB-2, where the highest levels of diesel-contaminated soil had formerly been identified at 10-feet bgs. Soil samples were collected from Boring SB-2A at 5- and 10-feet bgs, and analyzed for TPHd and Poly Nuclear Aromatics (PNAs) using EPA Methods GCFID 5030/8015 and 8270. Analysis of these soil samples identified 1,600ppm TPHd in the soil sample collected from 10-feet bgs. No PNAs were identified in either of the two soil samples.

Boring SB-1G was drilled within the footprint of the former 45-gallon gasoline UST. One soil sample was collected from this boring from native sand at 23.5-feet bgs. Additionally, groundwater was encountered at 25-feet bgs, and one "grab" groundwater sample was collected. These samples were analyzed for TPHg, BTEX, and MTBE. No contaminants were identified above detection limits in either the soil or groundwater sample collected from this boring. No odor was observed in the samples.

This office is recommending this site for closure based on the following rationale:

- Although elevated levels of TPHd and TOG have been identified in the soil beneath the site, concentrations appear to attenuate significantly with distance from the former diesel UST. The most elevated concentrations were observed within 20 feet of the former UST, while concentrations 40 feet from the former UST are roughly $\frac{1}{4}$ of the level found within 20 feet of the former UST.
- Groundwater samples collected from the site from 1991 to 1993, as well as the groundwater samples collected in June 1999, identified very low levels of TPHd, and very low to NonDetect levels of TOG and BTEX. Additionally, no MTBE was identified in the most recent sampling event.
- Benzene, the primary constituent of concern in TPHg, has never been identified in any soil samples.
- No PNAs, which are the primary constituents of concern in TPHd, were not identified in the soil.
- Although the groundwater sample collected recently from Boring SB-1G may have been collected from a deeper sand aquifer than that being monitored by the existing on-site monitoring wells, no odor was noted in the soil samples collected from this boring.



L & W Environmental Services, Inc.

2111 Jennings Street
San Francisco, California

Site Plan

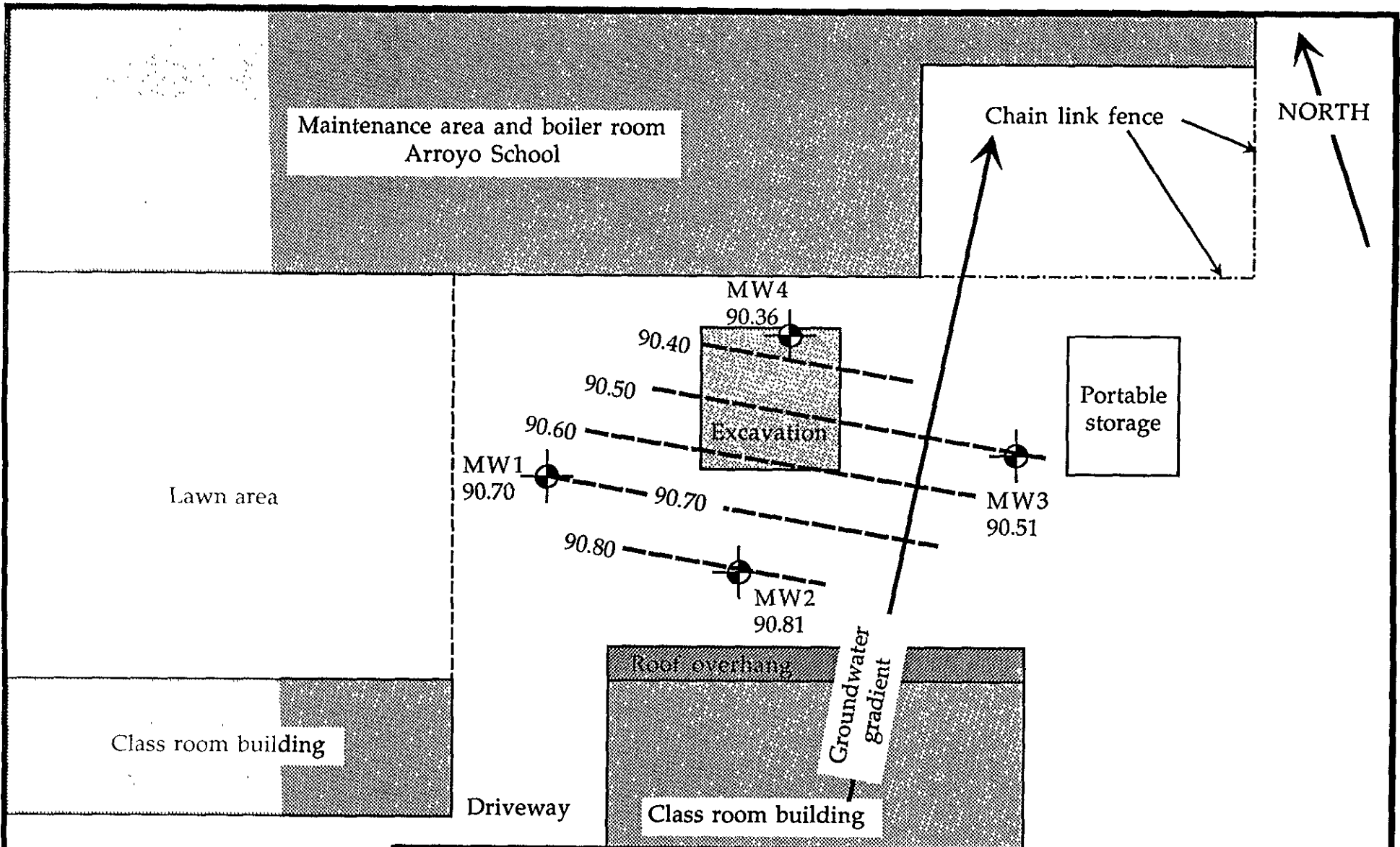
Arroyo High School
San Lorenzo, California

Project Number: 5186

Drawn by: JNC

Date: January 1990

Figure Number: 1



⊕ Location of monitoring well

- - - Contours of equal groundwater surface elevation

L & W Environmental Services, Inc.
2111 Jennings Street
San Francisco, California

Groundwater Gradient
03/23/93
Arroyo School
San Lorenzo, California

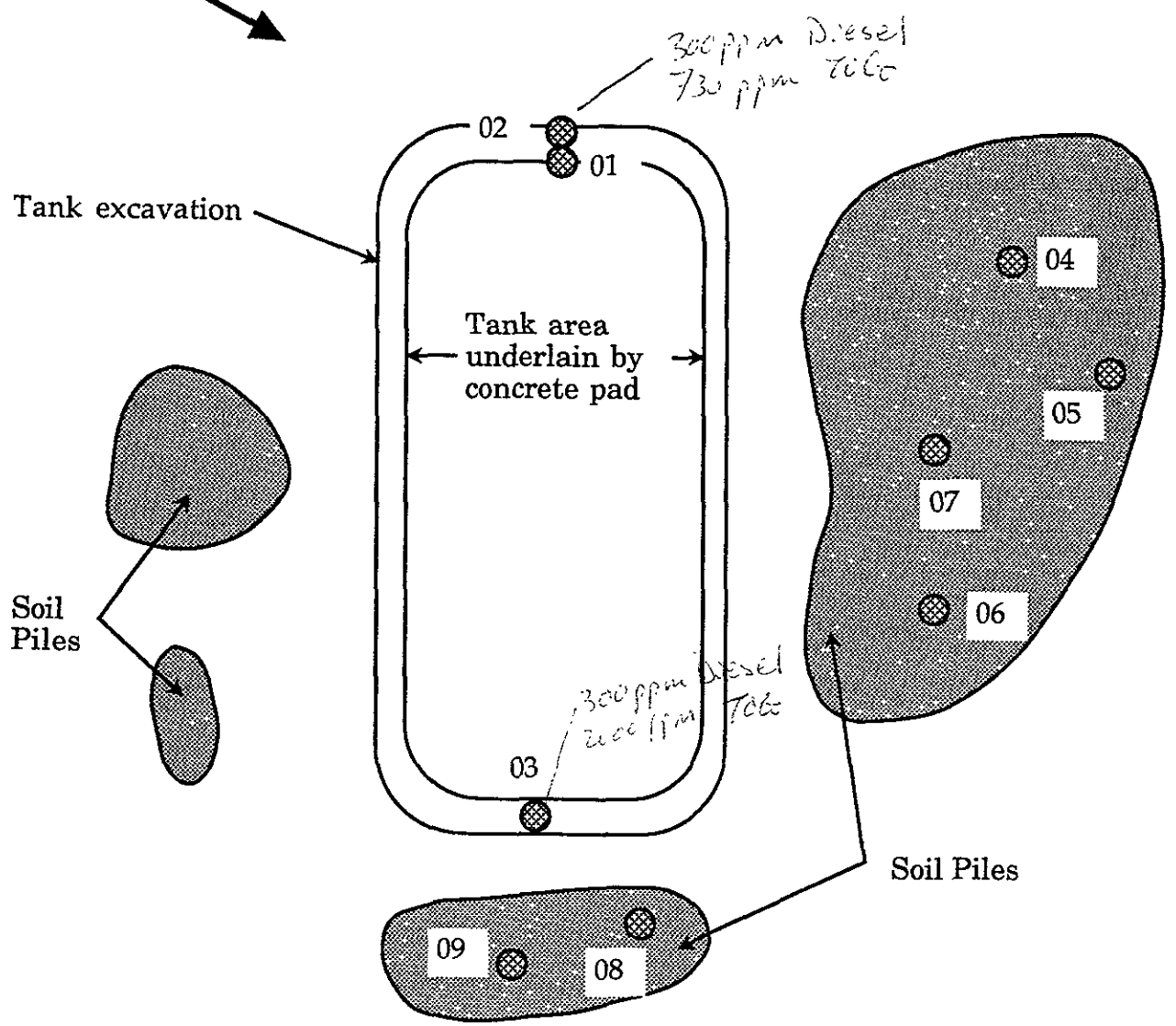
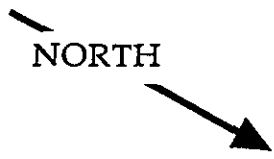
Project Number: 5186

By: SA

Scale: 1"= 20'

May, 1993

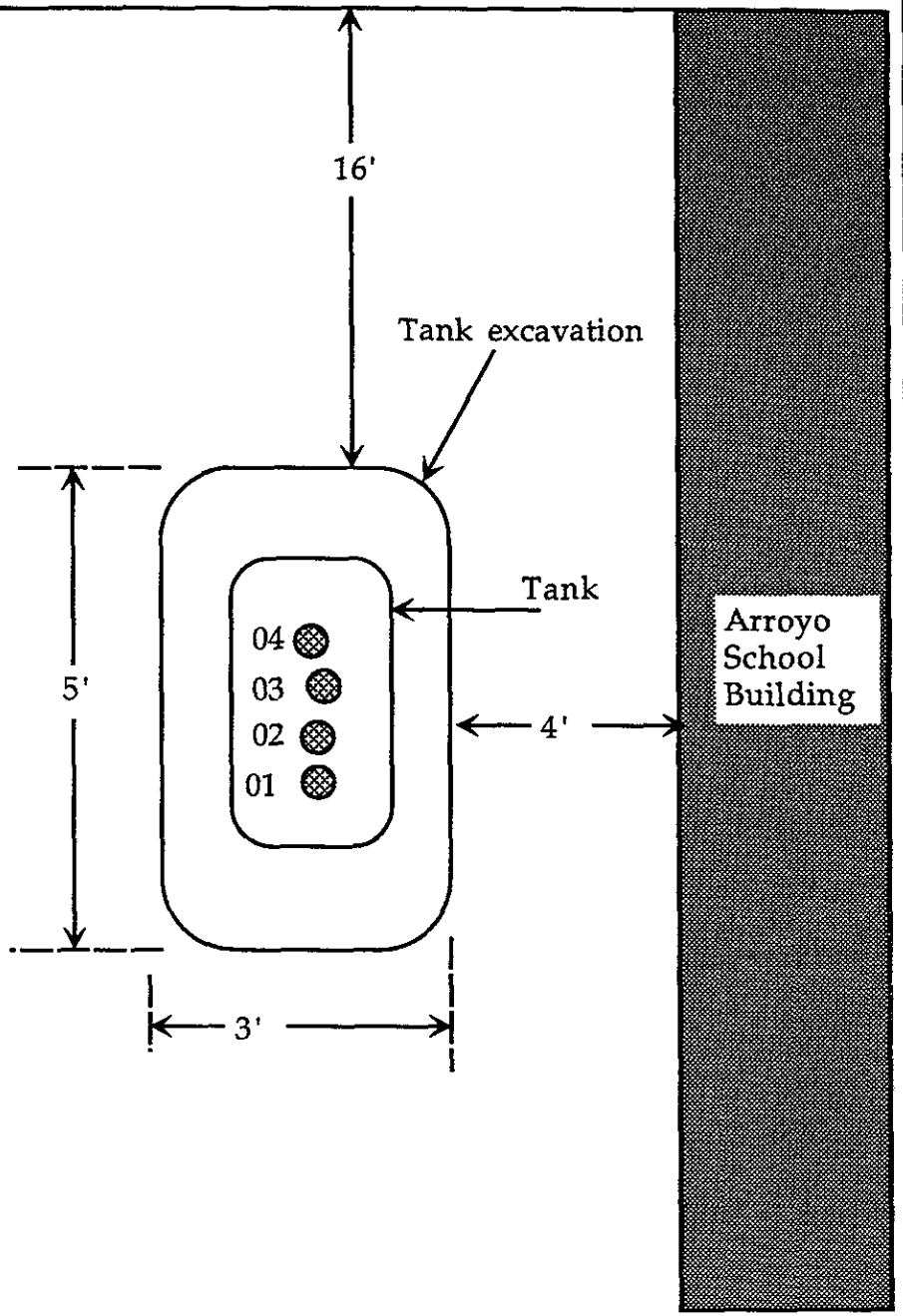
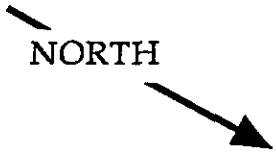
Figure Number: 3



⊗ Approximate sample location

Not to scale

L & W Environmental Services, Inc. 2111 Jennings Street San Francisco, California		SAMPLE LOCATION PLAN Fuel Oil Tank Arroyo School San Lorenzo, California	
Project Number: 5186A	Drawn by: JNC	Date: February, 1991	Figure Number: 3



Approximate sample location

Not to scale

L & W Environmental Services, Inc.

2111 Jennings Street
San Francisco, California

SAMPLE LOCATION PLAN

Auxiliary Fuel Tank
Arroyo School
San Lorenzo, California

Project Number: 5186B

Drawn by: JNC

Date: February, 1991

Figure Number: 3

labeled and stored in a cooled ice chest. The samples were then transported to Precision Analytical Laboratory under Chain of Custody protocol for analysis.

LABORATORY ANALYSIS AND PROCEDURES

The three samples from the excavation were analyzed for Total Petroleum Hydrocarbons as Diesel (TPH-D) by the DHS Extraction Method; Volatile Organic Compounds (Benzene, Toluene, Ethylbenzene, and Xylene-BTEX) by EPA Method 8020; and Total Oil and Grease (TOG) by EPA Method 9071. The six samples from the excavated soil were analyzed for TPH-D and BTEX. The laboratory results are tabulated below.

RESULTS OF SOIL ANALYSIS

Sample Number	Sample Depth (feet)	TPH Diesel	BTEX	TOG	
(results are presented in parts per million-ppm)					
diesel Tank	01BT	10	62	ND/0.12/ND/0.06	ND
	02BT	11	300	ND/0.08/ND/0.33	730
	03BT	11.5?	300	ND/0.10/ND/ND	2000
stockpile	04BT	3	ND	ND/ND/ND/ND	NT
	05BT	2	ND	ND/ND/ND/ND	NT
	06BT	1	ND	ND/ND/ND/ND	NT
	07BT	0.5	ND	ND/ND/ND/ND	NT
	08BT	1	12.0	ND/ND/ND/ND	NT
	09BT	1.5	ND	ND/ND/ND/ND	NT

Notes: ppm parts per million
 ND non-detected at or above the Method Detection Limit.
 BT Boiler Tank
 NT Not Tested

Original signed laboratory certificates from Precision Analytical Laboratory for each analysis are attached.

SOIL HANDLING

As the soil was removed from the tank excavation it was stored on plastic sheeting near the tank excavation area. Subsequently the soil was moved to School District property for aeration and the excavation was filled with low strength concrete slurry.

LABORATORY ANALYSIS AND PROCEDURES

The four samples were analyzed for Total Petroleum Hydrocarbons as Diesel (TPH-D) and Total Petroleum Hydrocarbons as Gasoline (TPH-G) by the DHS Extraction Method and Total Lead by EPA Method 6010. The laboratory results are tabulated below.

Sample Number	Sample Depth (Feet)	RESULTS OF ANALYSIS		
		TPH-D	TPH-G	Total Lead
(results are presented in parts per million)				
01	2.5	ND	ND	11.0
02	3.5	ND	ND	35.0
03	4.0	ND	ND	13.0
04	5.0	ND	ND	0.5

gasoline
UST

Notes: ppm parts per million
ND Non-Detected at or above the Method Detection Limit.

Original signed laboratory certificates from Precision Analytical Laboratory for each analysis are attached.

SOIL HANDLING

As the soil was removed from the tank excavation it was stored on plastic sheeting near the tank area. After sampling and reviewing analytical results it was replaced in the excavation.

If there are any questions please call.

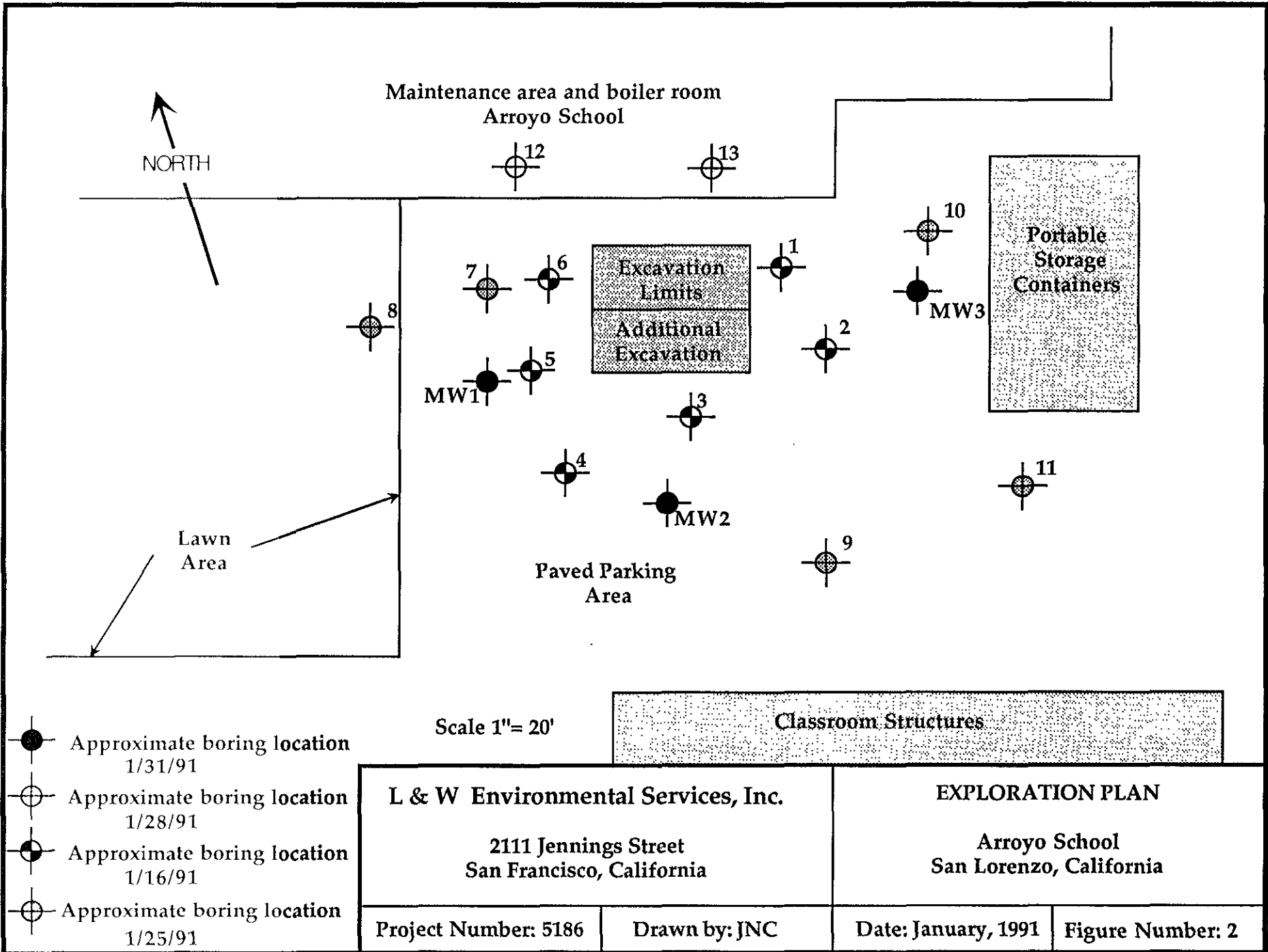
Sincerely

George Wilson
Vice President

Joan Carver
Civil Engineer 23772



- cc: Alameda County Health Care Services Agency
Department of Environmental Health
ATTN: Ms. Pam Evans
- Eden Consolidated Fire Protection District
ATTN: Mr. Vern Brooks



Each sample was analyzed for Total Petroleum Hydrocarbons as Diesel (TPH-D); Benzene, Toluene, Ethylbenzene and Xylene (BTEX); and Total Oil and Grease (TOG).

Results of the analyses are discussed in a later section.

FINDINGS

Soil Conditions

The generalized soil profile at the site could be summarized as several feet of FILL overlying silty CLAY which extended to the depths explored. The fill was typically a brown gravelly sand SILT to a sandy silty GRAVEL, field identified in the Unified Soil Classification System as ML or GM. This material is typical a coarse grained soil with gravels varying up to several inches in dimension. Sand and silt contents varied. The underlying clays were classified as CL and are cohesive, fine grained soils which generally exhibit lower porosities and permeabilities than ML soils. Detailed soil and groundwater conditions along with sampling data are presented on the boring logs in Appendix A.

Soil Analyses

A total of 49 samples were obtained in order to be analyzed for Total Petroleum Hydrocarbons as Diesel (TPH-d) and Aromatic Volatile Hydrocarbons (Benzene, Toluene, Ethylbenzene and Xylene--BTEX) and Total Oil and Grease (TOG). Laboratory certificates for the analyses and copies of the Chains-of-Custody for the available results are attached in Appendix B. The following table summarizes the results available:

Results of Soil Analysis

Boring Number	Sample Depth	TPH Diesel	BTEX	TOG
<hr/>				
(all results are presented in parts per million - ppm)				
1	5.0'	ND	ND/ND/ND/ND	25
1	10.0'	970	ND/0.09/ND/1.9	5685
1	15.0'	80	ND/ND/ND/ND	270
1	20.0'	ND	ND/ND/ND/ND	25

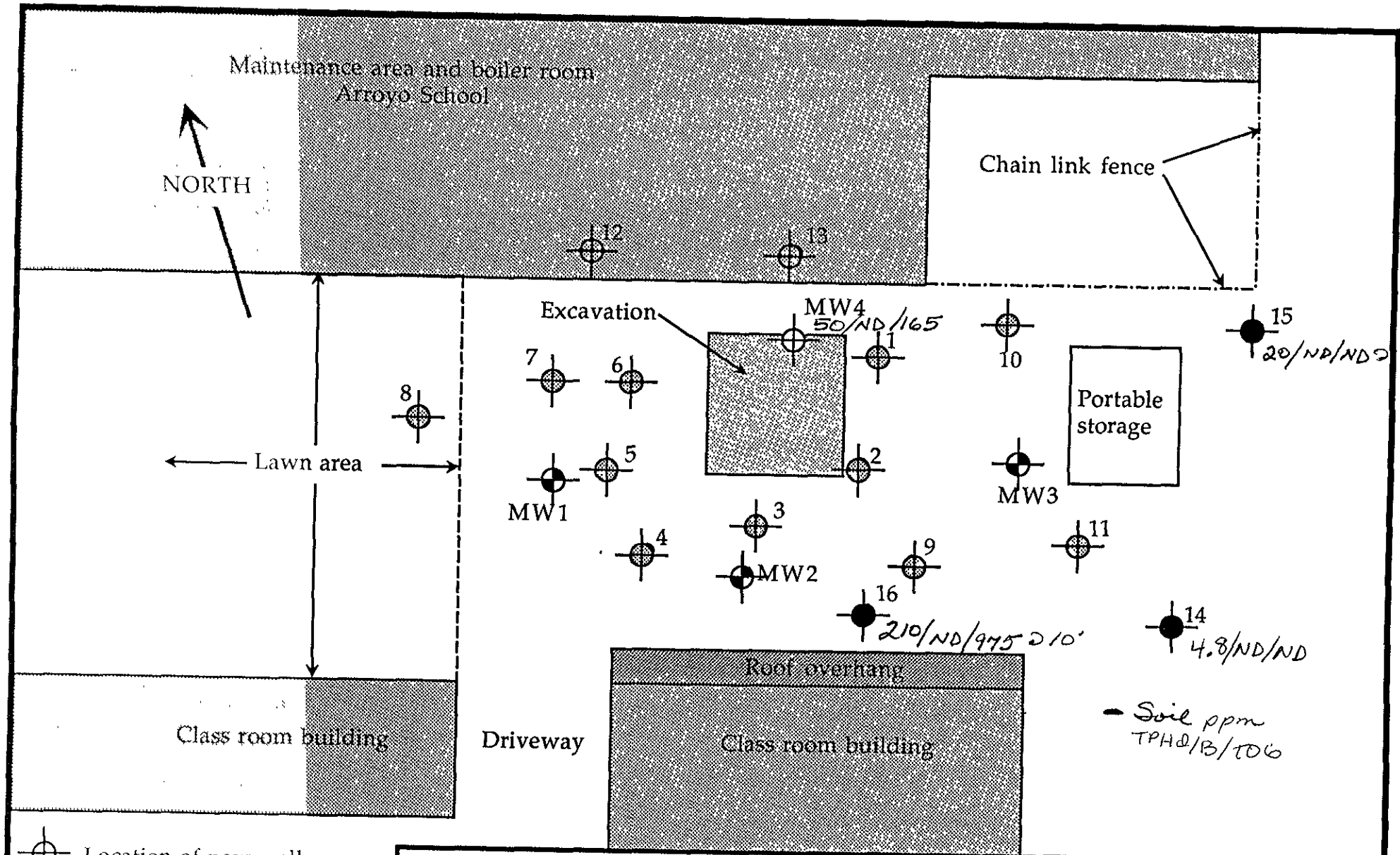
Results of Soil Analysis
(continued)

Boring Number	Sample Depth	TPH Diesel	BTEX	TOG
(all results are presented in parts per million - ppm)				
2	5.0'	ND	ND/ND/ND/ND	110
2	10.0'	1720	ND/ND/ND/1.3	3110
2	15.0'	40	ND/ND/ND/ND	140
3	5.0'	ND	ND/ND/ND/ND	135
3	10.0'	240	ND/ND/ND/ND	1015
3	15.0'	80	ND/ND/ND/ND	ND
4	5.0'	ND	ND/ND/ND/ND	480
4	10.0'	ND	ND/ND/ND/ND	ND
4	15.0'	ND	ND/ND/ND/ND	ND
5	5.0'	ND	ND/ND/ND/ND	ND
5	10.0'	ND	ND/ND/ND/ND	ND
5	15.0'	12	ND/ND/ND/ND	ND
6	5.0'	ND	ND/ND/ND/ND	ND
6	10.0'	1020	ND/ND/ND/ND	1035
6	15.0'	ND	ND/ND/ND/ND	230
7	5.0'	ND	ND/0.1/ND/ND	360
7	10.0'	70	ND/0.05/ND/ND	470
7	15.0'	ND	ND/0.05/ND/ND	575
8	5.0'	ND	ND/0.3/ND/0.07	ND
8	10.0'	ND	ND/0.08/ND/ND	440
8	15.0'	ND	ND/0.03/ND/ND	ND
9	5.0'	ND	ND/0.2/ND/ND	ND
9	10.0'	1140	ND/0.4/ND/ND	4260
9	15.0'	ND	ND/0.05/ND/ND	ND
10	5.0'	ND	ND/0.04/ND/ND	105
10	10.0'	260	ND/0.18/ND/0.5	1185
10	15.0'	13	ND/0.05/ND/ND	ND

Results of Soil Analysis
(continued)

Boring Number	Sample Depth	TPH Diesel	BTEX	TOG
(all results are presented in parts per million - ppm)				
11	5.0'	ND	ND/0.25/ND/ND	25
11	10.0'	590	ND/0.1/ND/ND	805
11	15.0'	20	ND/0.05/ND/ND	ND
12	5.0'	ND	ND/ND/ND/ND	50
12	10.0'	20	ND/ND/ND/ND	20
12	15.0'	110	ND/ND/ND/ND	415
13	5.0'	ND	ND/ND/ND/ND	ND
13	10.0'	17	ND/ND/ND/ND	ND
13	15.0'	290	ND/0.02/ND/ND	265
MW1	5.0'	ND	ND/ND/ND/ND	275
MW1	10.0'	ND	ND/ND/ND/ND	250
MW1	15.0'	25	ND/ND/ND/ND	70
MW2	5.0'	ND	ND/ND/ND/ND	925
MW2	10.0'	ND	ND/ND/ND/ND	295
MW2	15.0'	ND	ND/ND/ND/ND	255
MW3	5.0'	ND	ND/ND/ND/ND	195
MW3	10.0'	20	ND/0.05/ND/ND	550
MW3	15.0'	20	ND/0.04/ND/0.09	570

The results of TPH-d and TOG at the 5.0, 10.0 and 15.0 foot elevations have been plotted and used as the basis of equal compound concentration contours. These contours are presented on Figures 19 through 24 of Appendix A.



- ⊕ Location of new well
- Location of previous well
- Location of new boring
- ⊕ Location of previous boring

L & W Environmental Services, Inc. 2111 Jennings Street San Francisco, California		SITE PLAN Arroyo School San Lorenzo, California	
Project Number: 5186	By: JNC	Scale: 1" = 20'	September, 1992 Figure Number: 2

SOIL SAMPLES FROM BORINGS

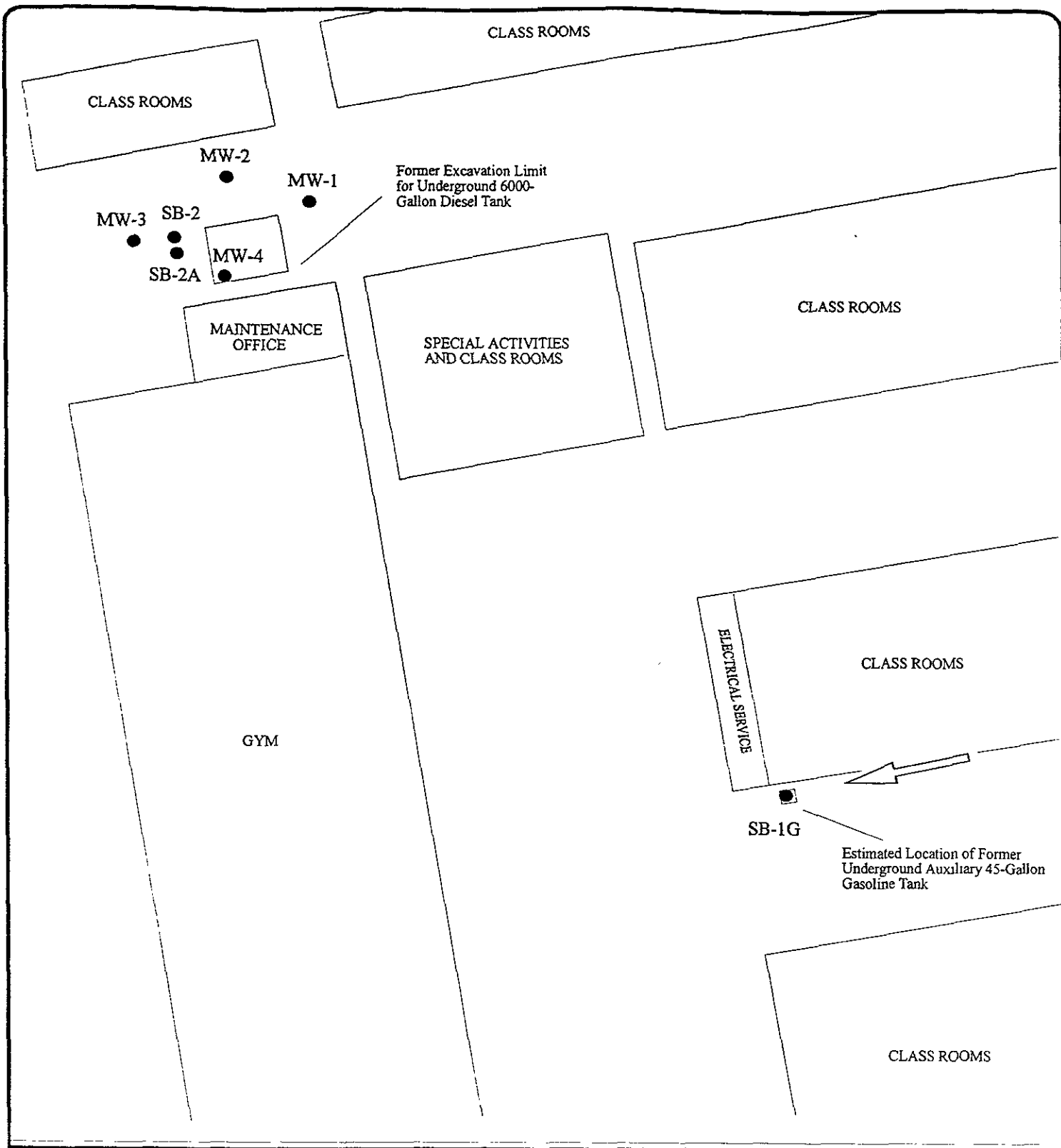
Sample Identification	Date	TPH-D (ppm)	BTEX (ppm)	TOG (ppm)
5186-MW4-15	08/10/92	50	ND/0.24/ND/0.008	165
5186-MW4-20	08/10/92	ND	ND/0.07/ND/ND	ND
5186-B14-5	08/10/92	ND	ND/0.47/ND/ND	ND
5186-B14-10	08/10/92	4.8	ND/0.06/ND/ND	ND
5186-B14-15	08/10/92	ND	ND/0.04/ND/ND	ND
5186-B15-5	08/10/92	ND	ND/0.030/ND/ND	ND
5186-B15-10	08/10/92	20	ND/0.14/ND/ND	ND
5186-B15-15	08/10/92	3.1	ND/0.007/ND/ND	ND
5186-B16-5	08/10/92	ND	ND/0.02/ND/ND	55
5186-B16-10	08/10/92	210	ND/0.05/ND/ND	975
5186-B16-15	08/10/92	8.1	ND/0.020/ND/ND	ND

Notes: TPH-D Total Petroleum Hydrocarbons as Diesel
 BTEX Benzene, Toluene, Ethylbenzene, Xylenes
 ND Not Detected at or above the Method Detection Limit
 ppm Parts per million

Groundwater Monitoring Results

Monitoring Wells MW1 through MW3 were monitored and sampled on July 21, 1992 as part of the quarterly sampling requirements. Groundwater monitoring well MW4 was monitored for depth to groundwater and the presence of free product on September 11, 1992. All groundwater observations made to date are summarized below:

Well No.	Date Measured	Top of Casing Elevation	Thickness of Free Product (feet)	Depth to Groundwater	Piezometric Surface Elevation (feet)
MW1	02/07/91	100.00	NONE	11.42	88.58
MW2	02/07/91	100.03	NONE	11.27	88.76
MW3	02/07/91	100.17	NONE	11.44	88.73
MW1	03/15/91	100.00	NONE	10.16	89.84
MW2	03/15/91	100.03	NONE	10.16	89.87
MW3	03/15/91	100.17	NONE	10.48	89.69
MW1	04/16/91	100.00	NONE	10.44	89.56
MW2	04/16/91	100.03	NONE	10.50	89.53
MW3	04/16/91	100.17	NONE	10.72	89.45



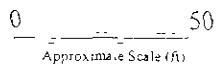
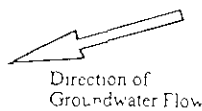
MW-1

● Name and Location of Groundwater Monitoring Well

SB-2A

● Name and Location of Soil Boring

Legend



ALLCAL PROPERTY SERVICES

SITE PLAN

ARROYO SCHOOL
15701 LORENZO AVENUE
SAN LORENZO, CA 94577



McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
 Telephone : 925-798-1620 Fax : 925-798-1622
<http://www.mccampbell.com> E-mail: main@mccampbell.com

ALLCAL Property Services 27973 High Country Drive Hayward, CA 94542-2530	Client Project ID: #137; Arroyo School	Date Sampled: 06/29/99
		Date Received: 06/29/99
	Client Contact: John Mrakovich	Date Extracted: 06/29/99
	Client P.O:	Date Analyzed: 07/01-07/02/99

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with Methyl tert-Butyl Ether* & BTEX*
 EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)*	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	% Recovery Surrogate
14663	SB1G-23.5-24.0	S	ND	ND	ND	ND	ND	ND	111
14664	SB1G-W	W	ND,i	ND	ND	ND	ND	ND	104
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	W		50 ug/L	5.0	0.5	0.5	0.5	0.5	
	S		1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, wipe samples in ug wipe, soil and sludge samples in mg/kg, and all TCLP and SPLP extracts in ug/l

* cluttered chromatogram, sample peak coelutes with surrogate peak

The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant, b) heavier gasoline range compounds are significant (aged gasoline?), c) lighter gasoline range compounds (the most mobile fraction) are significant, d) gasoline range compounds having broad chromatographic peaks are significant, biologically altered gasoline?, e) TPH pattern that does not appear to be derived from gasoline (?), f) one to a few isolated peaks present, g) strongly aged gasoline or diesel range compounds are significant, h) lighter than water immiscible sheen is present, i) liquid sample that contains greater than ~5 vol % sediment, j) no recognizable pattern



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ALLCAL Property Services 27973 High Country Drive Hayward, CA 94542-2530	Client Project ID: #137; Arroyo School	Date Sampled: 06/29/99
		Date Received: 06/29/99
	Client Contact: John Mrakovich	Date Extracted: 06/29/99
	Client P.O:	Date Analyzed: 06/29-07/05/99

Diesel Range (C10-C23) Extractable Hydrocarbons as Diesel *

EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

Lab ID	Client ID	Matrix	TPH(d) [†]	% Recovery Surrogate
14661	SB2A-5.0-5.5	S	3.1,g,b	107
14662	SB2A-10.0-10.5	S	1600,c	103
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	W	50 ug/L		
	S	1.0 mg/kg		

* water and vapor samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP / STLC / SPLP extracts in ug/L

[†] cluttered chromatogram resulting in coeluted surrogate and sample peaks, or, surrogate peak is on elevated baseline, or, surrogate has been diminished by dilution of original extract

The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant, b) diesel range compounds are significant, no recognizable pattern, c) aged diesel? is significant, d) gasoline range compounds are significant, e) medium boiling point pattern that does not match diesel (?), f) one to a few isolated peaks present, g) oil range compounds are significant, h) lighter than water immiscible sheen is present, i) liquid sample that contains greater than ~5 vol % sediment



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ALLCAL Property Services 27973 High Country Drive Hayward, CA 94542-2530	Client Project ID: #137; Arroyo School	Date Sampled: 06/29/99
		Date Received: 06/29/99
	Client Contact: John Mrakovich	Date Extracted: 06/29/99
	Client P.O:	Date Analyzed: 07/06/99

Polynuclear Aromatic Hydrocarbons (PAH / PNA) by GC-MS
 EPA methods 625 (modified 610) and 3510 or 8270 (modified 8100) and 3550

Lab ID	14661	14662	Reporting Limit	
			S	W, STLC TCLP
Client ID	SB2A-5.0-5.5	SB2A-10.0-10.5		
Matrix	S	S		
Compound	Concentration*		mg/kg	ug/L
Acenaphthene	ND	ND<5	0.33	10
Acenaphthylene	ND	ND<5	0.33	10
Anthracene	ND	ND<5	0.33	10
Benzo(a)anthracene	ND	ND<5	0.33	10
Benzo(b)fluoranthene	ND	ND<5	0.33	10
Benzo(k)fluoranthene	ND	ND<5	0.33	10
Benzo(g,h,i)perylene	ND	ND<5	0.33	10
Benzo(a)pyrene	ND	ND<5	0.33	10
Chrysene	ND	ND<5	0.33	10
Dibenzo(a,h)anthracene	ND	ND<5	0.33	10
Fluoranthene	ND	ND<5	0.33	10
Fluorene	ND	ND<5	0.33	10
Indeno(1,2,3-cd)pyrene	ND	ND<5	0.33	10
Naphthalene	ND	ND<5	0.33	10
Phenanthrene	ND	ND<5	0.33	10
Pyrene	ND	ND<5	0.33	10
% Recovery Surrogate 1	87	93		
% Recovery Surrogate 2	112	115		
Comments		J		

* water and vapor samples are reported in ug/L, soil and sludge samples in mg/kg, vapors in ug/volume and all TCLP / STLC / SPLP extracts in ug/L

ND means not detected above the reporting limit, N/A means analyte not applicable to this analysis

* surrogate diluted out of range or surrogate coelutes with another peak

(h) a lighter than water immiscible sheen is present, (i) liquid sample that contains >=5 vol % sediment, (j) sample diluted due to high organic content

TABLE 1
LABORATORY ANALYTICAL RESULTS FOR
FUEL-RELATED COMPOUNDS
DETECTED IN MW1, MW2, MW3, AND MW4
ARROYO SCHOOL
San Lorenzo, California

(concentration expressed in mg/l)

<u>Sample</u>	<u>TPHd</u>	<u>BTEX</u>	<u>TOG</u>
(Sampled February 7, 1991)			
MW1	0.3	ND/ND/ND/ND	ND
MW2	ND	ND/ND/ND/ND	ND
MW3	0.3	ND/ND/ND/ND	ND
(Sampled March 15, 1991)			
MW1	ND	ND/ND/ND/ND	ND
MW2	ND	ND/ND/ND/ND	ND
MW3	0.055	ND/ND/ND/ND	ND
(Sampled April 16, 1991)			
MW1	0.20	ND/ND/ND/ND	ND
MW2	ND	ND/ND/ND/ND	ND
MW3	ND	ND/ND/ND/ND	ND
(Sampled July 15, 1991)			
MW1	ND	ND/0.0003/ND/ND	ND
MW2	ND	ND/ND/ND/ND	ND
MW3	ND	ND/ND/ND/ND	ND
(Sampled October 15, 1991)			
MW1	0.080	ND/ND/ND/ND	ND
MW2	ND	ND/ND/ND/ND	ND
MW3	ND	ND/ND/ND/ND	ND
(Sampled January 3, 1992)			
MW1	0.14 <i>140</i>	ND/ND/ND/ND	ND
MW2	ND	ND/ND/ND/ND	ND
MW3	0.065 <i>65</i>	ND/ND/ND/ND	ND

TABLE 1 (Continued)

(Sampled April 14, 1992)			
MW1	ND	ND/0.023/ND/ND	ND
MW2	ND	ND/0.0007/ND/ND	ND
MW3	ND	ND/ND/ND/ND	ND
Sampled July 21, 1992 (MW 1 - MW 3) and September 11, 1992 (MW 4)			
MW1	ND	ND/ND/ND/ND	ND
MW2	ND	ND/ND/ND/ND	ND
MW3	ND	ND/ND/ND/ND	ND
MW4	0.1	ND/ND/ND/ND	ND
(Sampled November 6, 1992)			
MW1	ND	ND/ND/ND/ND	ND
MW2	ND	ND/ND/ND/ND	ND
MW3	ND	ND/ND/ND/ND	ND
MW4	0.07	ND/ND/ND/ND	ND
(Sampled March 23, 1993)			
MW1	0.08 ⁸⁰	ND/ND/ND/ND	ND
MW2	0.08 ⁸⁰	0.00033/0.004/ND/0.0017	ND
MW3	0.09 ⁹⁰	0.00070/0.013/ND/0.0017	ND
MW4	0.13 ¹³⁰	0.00040/0.0019/ND/ND	ND

ND Not Detected

TABLE 2
GROUNDWATER ELEVATIONS
WELLS MW1, MW2, MW3, AND MW4
FEBRUARY 1991 THROUGH NOVEMBER 1992
ARROYO SCHOOL
San Lorenzo, California

FEBRUARY 1991

WELL	TOP OF CASING ELEVATION	DEPTH TO GROUNDWATER	GROUNDWATER ELEVATION
MW1	100.00	11.42	88.58
MW2	100.03	11.27	88.76
MW3	100.17	11.44	88.73

MARCH 1991

WELL	TOP OF CASING ELEVATION	DEPTH TO GROUNDWATER	GROUNDWATER ELEVATION
MW1	100.00	10.16	89.84
MW2	100.03	10.16	89.87
MW3	100.17	10.48	89.69

APRIL 1991

WELL	TOP OF CASING ELEVATION	DEPTH TO GROUNDWATER	GROUNDWATER ELEVATION
MW1	100.00	10.44	89.56
MW2	100.03	10.50	89.53
MW3	100.17	10.72	89.45

TABLE 2 (Continued)

JULY 1991

WELL	TOP OF CASING ELEVATION	DEPTH TO GROUNDWATER	GROUNDWATER ELEVATION
MW1	100.00	12.06	87.94
MW2	100.03	12.04	87.99
MW3	100.17	12.20	87.97

OCTOBER 1991

WELL	TOP OF CASING ELEVATION	DEPTH TO GROUNDWATER	GROUNDWATER ELEVATION
MW1	100.00	12.50	87.50
MW2	100.03	12.48	87.55
MW3	100.17	12.60	87.57

JANUARY 1992

WELL	TOP OF CASING ELEVATION	DEPTH TO GROUNDWATER	GROUNDWATER ELEVATION
MW1	100.00	11.52	88.48
MW2	100.03	11.53	88.50
MW3	100.17	11.70	88.47

TABLE 2 (Continued)

APRIL 1992

WELL	TOP OF CASING ELEVATION	DEPTH TO GROUNDWATER	GROUNDWATER ELEVATION
MW1	100.00	10.23	89.77
MW2	100.03	10.24	89.79
MW3	100.17	10.50	89.67

JULY 1992 (MW 1 - MW 3) AND SEPTEMBER, 1992 (MW 4)

WELL	TOP OF CASING ELEVATION	DEPTH TO GROUNDWATER	GROUNDWATER ELEVATION
MW1	100.00	11.96	88.04
MW2	100.03	11.96	88.07
MW3	100.17	12.08	88.09
MW4	100.20	12.84	87.36

NOVEMBER, 1992

WELL	TOP OF CASING ELEVATION	DEPTH TO GROUNDWATER	GROUNDWATER ELEVATION
MW1	100.00	12.20	87.80
MW2	100.03	12.18	87.85
MW3	100.17	12.32	87.85
MW4	100.20	12.60	87.60

TABLE 3
GROUNDWATER ELEVATIONS
WELLS MW1, MW2, MW3, AND MW4
MARCH 1993
ARROYO SCHOOL
San Lorenzo, California

WELL	TOP OF CASING ELEVATION	DEPTH TO GROUNDWATER	GROUNDWATER ELEVATION
MW1	100.00	9.30	90.70
MW2	100.03	9.22	90.81
MW3	100.17	9.66	90.51
MW4	100.20	9.84	90.36

*Shallowest
water table
yet &
highest
concentration
observed
in
samples*



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ALLCAL Property Services 27973 High Country Drive Hayward, CA 94542-2530	Client Project ID: #137; Arroyo School	Date Sampled: 06/02/99
	Client Contact: John Mrakovich	Date Received: 06/02/99
	Client P.O:	Date Extracted: 06/02-06/03/99
		Date Analyzed: 06/02-06/03/99






Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with Methyl tert-Butyl Ether* & BTEX*
 EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g) ⁺	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	% Recovery Surrogate
12485	MW-1	W	ND	ND	ND	ND	ND	ND	107
12486	MW-2	W	ND	ND	ND	ND	ND	ND	107
12487	MW-3	W	ND	ND	ND	ND	ND	ND	104
12488	MW-4	W	ND	ND	ND	ND	ND	ND	103
12489	Trip Blank	W	ND	ND	ND	ND	ND	ND	104
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	W		50 ug/L	5.0	0.5	0.5	0.5	0.5	
	S		1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, wipe samples in ug wipe, soil and sludge samples in mg/kg, and all TCLP and SPLP extracts in ug/L

* cluttered chromatogram, sample peak coclutes with surrogate peak

The following descriptions of the TPH chromatogram are cursory in nature and McC Campbell Analytical is not responsible for their interpretation a) unmodified or weakly modified gasoline is significant, b) heavier gasoline range compounds are significant(aged gasoline?), c) lighter gasoline range compounds (the most mobile fraction) are significant, d) gasoline range compounds having broad chromatographic peaks are significant, biologically altered gasoline?, e) TPH pattern that does not appear to be derived from gasoline (?), f) one to a few isolated peaks present, g) strongly aged gasoline or diesel range compounds are significant, h) lighter than water immiscible sheen is present, i) liquid sample that contains greater than ~5 vol % sediment, j) no recognizable pattern



Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
					0	Pavement section of 4 inches of asphalt over 6 inches of base rock.
5187-1-5.0	27	ML	0835		5	Brown gravelly sandy SILT, medium stiff, damp (FILL).
5187-1-10.0	7	CL	0845		10	Dark brown to dark grey very silty CLAY, medium stiff, moist.
5187-1-15.0	20	CL	0855		15	Grey silty CLAY, stiff moist.
5187-1-20.0	23	CL	0910		20	

Boring drilled 1/16/91 using 8 inch hollow stem auger and CME 75 drill rig.

Boring terminated at 20.5 feet. Groundwater encountered at approximately 17 feet

<p>L & W Environmental Services, Inc. 2111 Jennings Street San Francisco, California</p>	<p>Log of Boring Number: 1 Sheet 1 of 1 Arroyo High School San Lorenzo, California</p>
<p>Project Number: 5186</p>	<p>Date: January, 1991</p>

Figure Number 3

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
5187-2-5.0	12	ML	0945		0	Pavement section of 4 inches of asphalt over 6 inches of base rock.
					5	Brown gravelly sandy SILT, stiff, damp (FILL).
5187-2-10.0	10	CL/ML	0955		10	Dark grey to black very silty CLAY to clayey SILT, medium stiff, moist.
5187-2-15.0	21	CL	1005		15	Blue-grey silty CLAY, medium stiff moist.
						Color changing to grey-brown.

Boring terminated at 15.5 feet.
 No groundwater encountered.
 Boring drilled 1/16/91 using
 8 inch hollow stem auger
 and CME 75 drill rig.

L & W Environmental Services, Inc. 2111 Jennings Street San Francisco, California	Log of Boring Number: 2 Sheet 1 of 1 Arroyo High School San Lorenzo, California
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Project Number: 5186	Date: January, 1991	Figure Number 4
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Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
5187-3-5.0	20	ML	1035		0	Pavement section of 4 inches of asphalt over 6 inches of base rock.
					5	Brown gravelly sandy SILT, dense, moist (FILL).
5187-3-10.0	9	CL	1045		10	Dark brown very silty CLAY, medium stiff, moist.
					15	Blue-grey silty CLAY, medium stiff moist.
5187-3-15.0	20	CL	1055		15	Color changing to grey-brown.

Boring terminated at 15.5 feet.
 No groundwater encountered.
 Boring drilled 1/16/91 using
 8 inch hollow stem auger
 and CME 75 drill rig.

L & W Environmental Services, Inc.

2111 Jennings Street
 San Francisco, California

Log of Boring Number: 3

Sheet 1 of 1

Arroyo High School
 San Lorenzo, California

Project Number: 5186

Date: January, 1991

Figure Number: 5

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
5187-4-5.0	13	ML	1120		0	Pavement section of 4 inches of asphalt over 6 inches of base rock.
					5	Brown gravelly sandy SILT, dense, moist (FILL).
5187-4-10.0	6	CL	1130		5	Black very silty CLAY, medium stiff, moist.
		CL			10	Brown silty CLAY, medium stiff, moist.
5187-4-15.0	18	CL	1140		15	Grey-brown silty CLAY, medium stiff moist.
						Brown silty CLAY, stiff, moist, with caliche deposits.

Boring terminated at 15.5 feet.
No groundwater encountered.

Boring drilled 1/16/91 using
8 inch hollow stem auger
and CME 75 drill rig.

L & W Environmental Services, Inc.

2111 Jennings Street
San Francisco, California

Log of Boring Number: 4




Sheet 1 of 1

Arroyo High School
San Lorenzo, California

Project Number: 5186

Date: January, 1991

Figure Number: 6

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
5187-5-5.0	13	ML	1230		0	Pavement section of 4 inches of asphalt over 6 inches of base rock.
					5	Brown gravelly sandy SILT, dense, moist (FILL).
5187-5-10.0	7	CL	1235		5	Dark brown very silty CLAY, medium stiff, moist.
					10	Grey-brown silty CLAY, soft to medium stiff moist.
5187-5-15.0	10	CL	1250		15	

Boring terminated at 15.5 feet.
No groundwater encountered.

Boring drilled 1/16/91 using
8 inch hollow stem auger
and CME 75 drill rig.

L & W Environmental Services, Inc.

2111 Jennings Street
San Francisco, California

Log of Boring Number: 5


Sheet 1 of 1

Arroyo High School
San Lorenzo, California

Project Number: 5186

Date: January, 1991

Figure Number: 7

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
5187-6-5.0	17	ML	1310		0	Pavement section of 4 inches of asphalt over 6 inches of base rock.
					5	Brown gravelly sandy SILT, dense, moist (FILL).
5187-6-10.0	7	CL	1320		10	Dark brown to grey-brown silty CLAY, medium dense, moist.
5187-6-15.0	16	CL	1330		15	

Boring terminated at 15.5 feet.
No groundwater encountered.

Boring drilled 1/16/91 using
8 inch hollow stem auger
and CME 75 drill rig.

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2111 Jennings Street
San Francisco, California

Log of Boring Number: 6

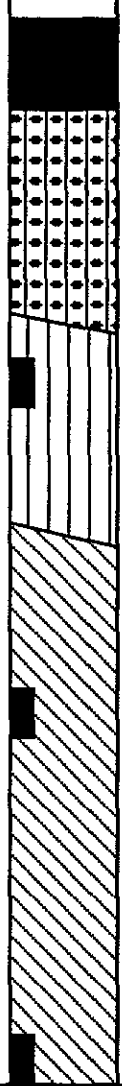
Sheet 1 of 1


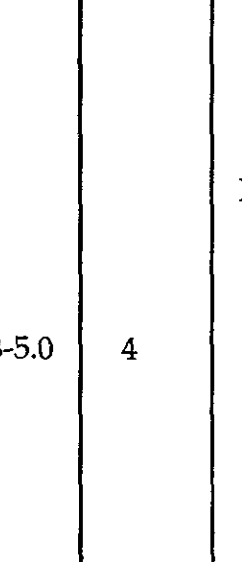

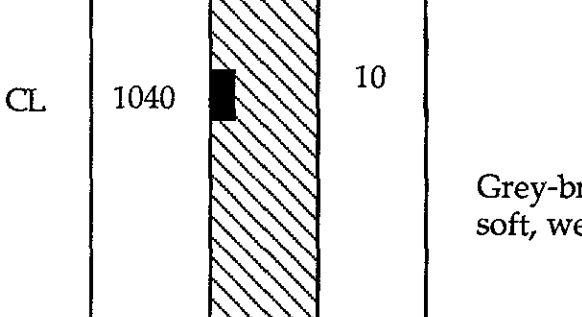

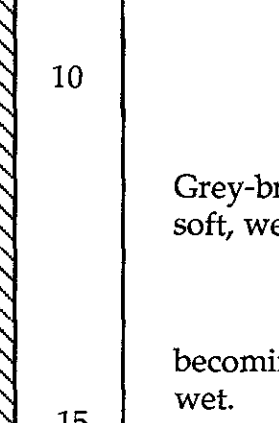

Arroyo High School
San Lorenzo, California

Project Number: 5186

Date: January, 1991

Figure Number: 8

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
					0	Pavement section of 4 inches of asphalt over 6 inches of base rock.
5187-7-5.0	5	GM ML	0915		5	Brown sandy silty GRAVEL, dense, moist (FILL). Dark brown sandy clayey SILT, soft, moist,
5187-7-10.0	7	CL	0925		10	Dark grey silty CLAY, medium stiff, moist.
5187-7-15.0	12	CL	0940		15	Brown silty Clay, stiff, moist.
						<p>Boring terminated at 15.5 feet. No groundwater encountered.</p> <p>Boring drilled 1/25/91 using 8 inch hollow stem auger and CME 75 drill rig</p>
L & W Environmental Services, Inc. 2111 Jennings Street San Francisco, California				Log of Boring Number: 7 Sheet 1 of 1 Arroyo High School San Lorenzo, California		
Project Number: 5186			Date: January, 1991		Figure Number: 9	

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
					0	Dark brown TOPSOIL
		ML				Brown gravelly clayey SILT, dense, stiff, damp to moist (FILL?).
5187-8-5.0	4	CL	1030		5	Dark brown sandy silty CLAY, soft, moist to wet.
						
5187-8-10.0	4	CL	1040		10	Grey-brown silty CLAY, soft, wet.
						
5187-8-15.0	7	CL	1050		15	becoming medium stiff, and less wet.

Boring terminated at 15.5 feet.
No groundwater encountered.

Boring drilled 1/25/91 using
8 inch hollow stem auger
and CME 75 drill rig.

L & W Environmental Services, Inc.

2111 Jennings Street
San Francisco, California

Log of Boring Number: 8

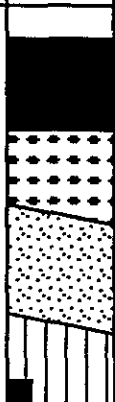
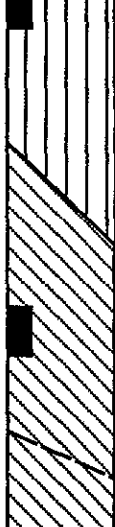
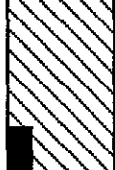
Sheet 1 of 1

Arroyo High School
San Lorenzo, California

Project Number: 5186

Date: January, 1991

Figure Number: 10

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
5187-9-5.0	9	GW	1115		0	Pavement section of 4 inches of asphalt over 6 inches of base rock.
		SP			5	Brown silty sandy GRAVEL, medium dense, moist (FILL). Brown SAND, medium dense, moist (trench backfill).
5187-9-10.0	6	ML	1125		5	Dark brown clayey SILT, medium stiff, moist.
5187-9-15.0	15	CL	1135		10	Black silty CLAY, medium stiff, moist.
5187-9-15.0	15	CL	1135		15	Grey silty Clay, stiff, moist.

Boring terminated at 15.5 feet.
No groundwater encountered.

Boring drilled 1/25/91 using
8 inch hollow stem auger
and CME 75 drill rig.

L & W Environmental Services, Inc.

2111 Jennings Street
San Francisco, California

Log of Boring Number: 9





Sheet 1 of 1

Arroyo High School
San Lorenzo, California

Project Number: 5186

Date: January, 1991

Figure Number: 11

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
					0	Pavement section of 4 inches of asphalt over 6 inches of base rock.
5187-10-5.0	15	CL	1235		5	Brown gravelly sandy CLAY, medium stiff, moist.
5187-10-10.0	5	CL	1240		10	Black silty CLAY, medium stiff, moist.
5187-10-15.0	14	CL	1250		15	Grey silty Clay, stiff, moist.

Boring terminated at 15.5 feet.
No groundwater encountered.

Boring drilled 1/25/91 using
8 inch hollow stem auger
and CME 75 drill rig

L & W Environmental Services, Inc.

2111 Jennings Street
San Francisco, California

Log of Boring Number: 10

Sheet 1 of 1


Arroyo High School
San Lorenzo, California

Project Number: 5186

Date: January, 1991

Figure Number: 12

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
					0	Pavement section of 4 inches of asphalt over 6 inches of base rock.
		ML				Brown gravelly sandy SILT, medium stiff, moist.
5187-11-5.0	5	CL	1320		5	Black silty CLAY stiff, moist.
5187-11-10.0	10	CL	1330		10	
5187-11-15.0	13	CL	1340		15	Grey silty Clay, stiff, moist.
						<p>Boring terminated at 15.5 feet. No groundwater encountered.</p> <p>Boring drilled 1/25/91 using 8 inch hollow stem auger and CME 75 drill rig.</p>
<p>L & W Environmental Services, Inc.</p> <p>2111 Jennings Street San Francisco, California</p>				<p>Log of Boring Number: 11 Sheet 1 of 1 Arroyo High School San Lorenzo, California</p>		
Project Number: 5186				Date: January, 1991		Figure Number: 13

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
					0	Pavement section of 1 inch of concrete over 3 inches of pea gravel.
5187-12-5.0	68	CL	1245		5	Brown gravelly sandy CLAY, medium stiff, moist.
5187-12-10.0	9	CL	1315		10	Black silty CLAY, medium stiff, moist.
5187-12-15.0	27	CL	1340		15	Grey silty CLAY, stiff, moist.

Boring terminated at 15.5 feet.
No groundwater encountered.

Boring drilled 1/28/91 using
4 inch hollow stem auger
and Minute Mandrill rig.

L & W Environmental Services, Inc.

2111 Jennings Street
San Francisco, California

Log of Boring Number: 12

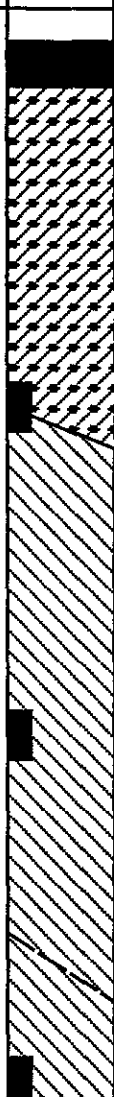
Sheet 1 of 1

Arroyo High School
San Lorenzo, California

Project Number: 5186

Date: January, 1991

Figure Number: 14

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
5187-13-5.0	60	GC	1410		0	Pavement section of 1 inch of concrete over 3 inches of pea gravel. Brown clayey GRAVEL, dense, moist.
5187-13-10.0	12	CL	1430		10	Grey to black very silty CLAY, medium stiff, moist.
5187-13-15.0	20	CL	1500		15	Grey silty CLAY, stiff, moist.

Boring terminated at 15.5 feet.
No groundwater encountered.

Boring drilled 1/28/91 using
4 inch hollow stem auger
and Minute Mandrill rig

L & W Environmental Services, Inc. 2111 Jennings Street San Francisco, California		Log of Boring Number: 13 Sheet 1 of 1 Arroyo High School San Lorenzo, California	
Project Number: 5186		Date: January, 1991	Figure Number: 15

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
5186-B14-5	16	GM	1300		0	4 inches of asphalt
					5	Brown GRAVEL, SAND, AND SILT; medium dense, moist.
5186-B14-10	10	ML	1310		5	Brown SILT, very stiff, moist, slight plasticity.
					10	Gray SILT, stiff, moist, slight to low plasticity.
5186-B14-15	15	GC	1320		10	Light brown GRAVEL, SAND, AND CLAY; loose to medium dense.
					15	Brown silty CLAY, stiff to very stiff, moist, medium plasticity.

Boring drilled 8/10/92 using 8 inch hollow stem auger and CME 75 drill rig.
 Boring terminated at 15 feet. Groundwater encountered at approximately 14.0 feet.

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2111 Jennings Street
 San Francisco, California

Log of Boring Number: B14

Sheet 1 of 1

Arroyo High School
 San Lorenzo, California

Project Number: 5186

Date: September, 1992

Figure Number 3

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
5186-B15-5	12	GM	1350		0	4 inches of asphalt
					5	Same.
						Dark gray SILT, medium stiff, moist, slight plasticity.
5186-B15-10	6	ML	1400		10	Dark gray SILT, medium stiff, moist, slight plasticity.
						Brown GRAVEL, SAND, AND SILT; loose, moist.
5186-B15-15	13	ML	1410		15	Same, but stiff and wet.

Boring drilled 8/10/92 using 8 inch hollow stem auger and CME 75 drill rig.
 Boring terminated at 15 feet. Groundwater encountered at approximately 14.0 feet.

L & W Environmental Services, Inc.

2111 Jennings Street
 San Francisco, California

Log of Boring Number: B15


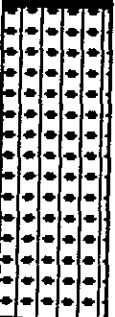
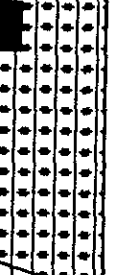

Sheet 1 of 1

Arroyo High School
 San Lorenzo, California

Project Number: 5186

Date: September, 1992

Figure Number 4

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
					0	4 inches of asphalt
5186-B16-5	12	GM	1450		5	Brown GRAVEL, SAND, AND SILT; medium dense, moist.
5186-B16-10	7	ML	1600		10	Brown to dark gray SILT, medium stiff, moist, slight plasticity.
5186-B16-15	16	ML	1610		15	Same, but very stiff and wet.

Boring drilled 8/10/92 using 8 inch hollow stem auger and CME 75 drill rig.
 Boring terminated at 15 feet. Groundwater encountered at approximately 14.0 feet.

L & W Environmental Services, Inc.

2111 Jennings Street
 San Francisco, California

Log of Boring Number: B16


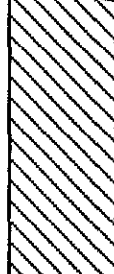


Sheet 1 of 1

Arroyo High School
 San Lorenzo, California

Project Number: 5186

Date: September, 1992

Figure Number 5

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
5186-MW1-5.0	10	ML	0925		0	Pavement section of 3 inches of asphalt over 6 inches of base rock. Brown gravelly sandy SILT, medium dense, damp (FILL).
5186-MW1-10.0	5	CL/ML	0935		5	Dark grey very silty CLAY, to clayey SILT, soft, moist.
5186-MW1-15.0	14	CL/ML	0945		10	Becoming stiff
5186-MW1-20.0	13	CL	0950		15	Brown silty CLAY, stiff, wet

L & W Environmental Services, Inc. 2111 Jennings Street San Francisco, California		Log of Boring Number: MW1 Sheet 1 of 2 Arroyo High School San Lorenzo, California	
Project Number: 5186	Date: January, 1991	Figure Number 16	

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
				/ / / / / / / /	20	Brown silty CLAY as before.
					25	

Boring drilled 1/31/91 using 8 inch hollow stem auger and CME 75 drill rig.

Boring terminated at 25.0 feet. Groundwater encountered at approximately 17 feet.

Boring finished as monitoring well MW1 on 1/31/91.

L & W Environmental Services, Inc.

2111 Jennings Street
San Francisco, California

Log of Boring Number: MW1


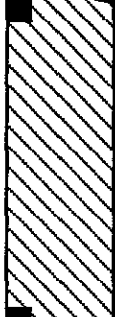


Sheet 2 of 2

Arroyo High School
San Lorenzo, California


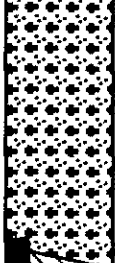


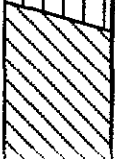
Project Number: 5186

Date: January, 1991

Figure Number 16

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
5186-MW2-5.0	3	ML	1110		0 5	Pavement section of 3 inches of asphalt over 6 inches of base rock. Brown gravelly sandy SILT, dense, damp (FILL?).
5186-MW2-10.0	5	CL	1120		10	Dark grey-brown silty CLAY, soft, moist to wet.
5186-MW2-15.0	15	CL	1130		15	Dark brown sandy silty CLAY, stiff, moist.
		CL/ML			20	Brown very silty CLAY to clayey SILT, stiff, moist.

L & W Environmental Services, Inc. 2111 Jennings Street San Francisco, California		Log of Boring Number: MW2 Sheet 1 of 2 Arroyo High School San Lorenzo, California	
Project Number: 5186		Date: January, 1991	Figure Number 17

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
5186-MW3-5.0	8	GW/GM	1305		0	Pavement section of 3 inches of asphalt over 6 inches of base rock.
		ML			5	Brown silty sandy GRAVEL, medium dense, damp (FILL?).
5186-MW3-10.0	9	CL	1320		10	Grey very silty CLAY medium stiff, moist.
5186-MW3-15.0	18	ML/CL	1330		15	Grey brown clayey SILT to very silty CLAY, medium stiff, moist.
		CL			20	Brown silty CLAY, stiff, moist.

L & W Environmental Services, Inc. 2111 Jennings Street San Francisco, California	Log of Boring Number: MW3 Sheet 1 of 2 Arroyo High School San Lorenzo, California	
	Project Number: 5186	Date: January, 1991

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
				/	20	Brown silty CLAY as before.
				/	25	

Boring drilled 1/31/91 using 8 inch hollow stem auger and CME 75 drill rig.

Boring terminated at 25.0 feet. Groundwater encountered at approximately 17 feet.

Boring finished as monitoring well MW3 on 1/31/91.

L & W Environmental Services, Inc.

2111 Jennings Street
San Francisco, California

Log of Boring Number: MW3


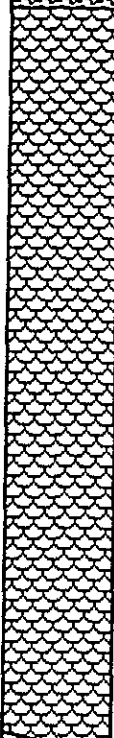

Sheet 2 of 2

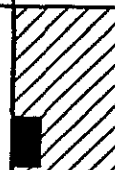
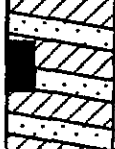
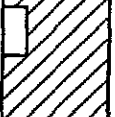
Arroyo High School
San Lorenzo, California

Project Number: 5186

Date: January, 1991

Figure Number 18

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
5186-MW4-15	19	FILL	1110		0	4 inches of asphalt 4 inches concrete
		FILL	1120		5	Controlled Density FILL
		CL	1130		10	Controlled Density FILL Dark gray sandy silty CLAY, very stiff, moist, medium to low plasticity.
L & W Environmental Services, Inc. 2111 Jennings Street San Francisco, California				Log of Boring Number: MW 4 Sheet 1 of 2 Arroyo High School San Lorenzo, California		
Project Number: 5186			Date: September, 1992		Figure Number 6	

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
5186-MW4-15	19	CL	1130		15	Dark gray sandy silty CLAY, very stiff, moist, medium to low plasticity.
5186-MW4-15	32	CL/ SP	1140		20	Same, with thinly-bedded (about 1/4 inch) lenses of medium grained SAND. Clay was hard and moist; sand was dense and wet.
	8	ML	1150		25	Brown SILT, loose, medium stiff to stiff, wet.

Boring drilled 8/10/92 using 8 inch hollow stem auger and CME 75 drill rig.
 Boring terminated at 24 feet and converted to MW4 on 08/10/92.
 Groundwater encountered at approximately 19.5 feet.

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2111 Jennings Street
 San Francisco, California

Log of Boring Number: MW 4

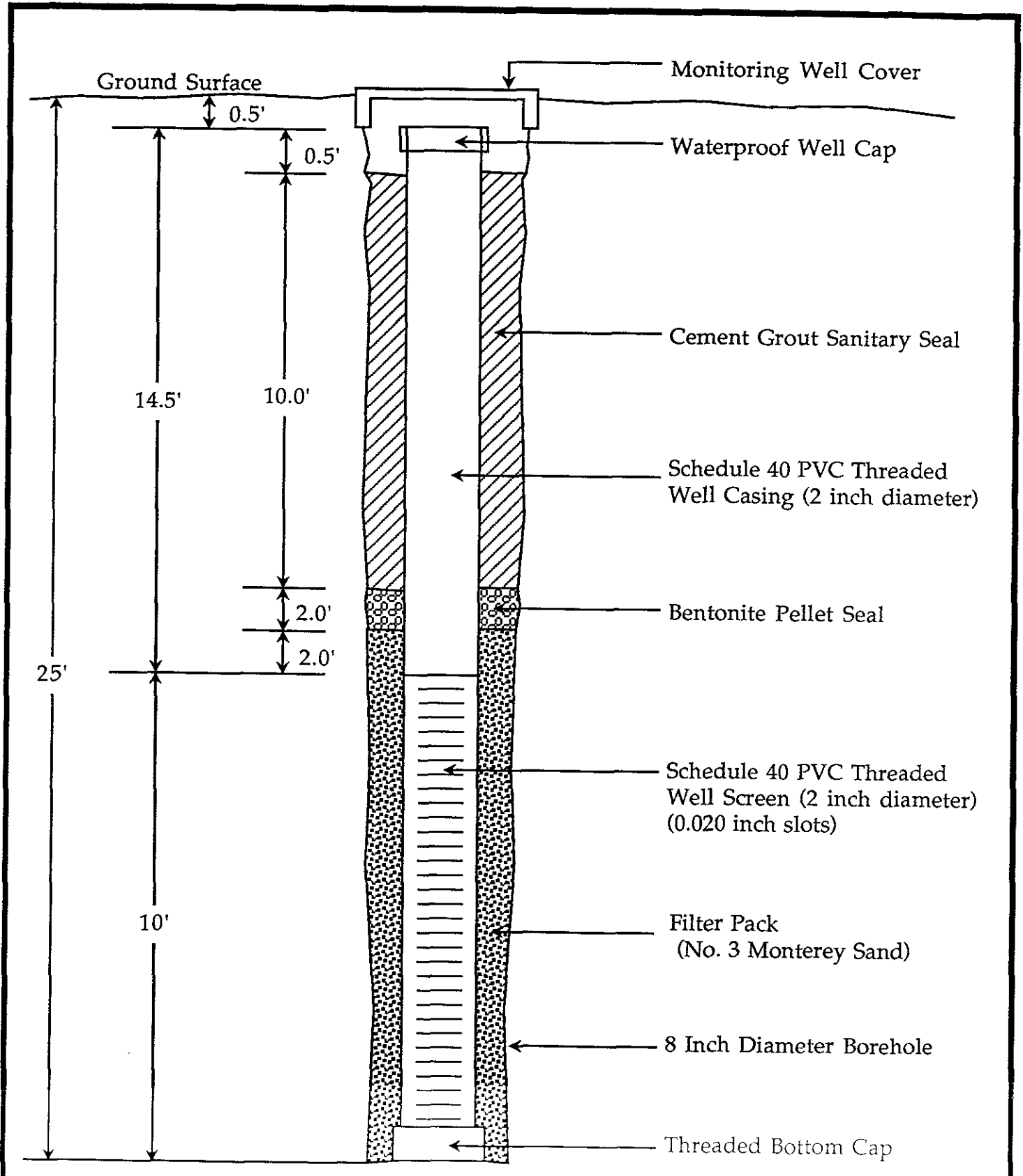
Sheet 2 of 2

Arroyo High School
 San Lorenzo, California

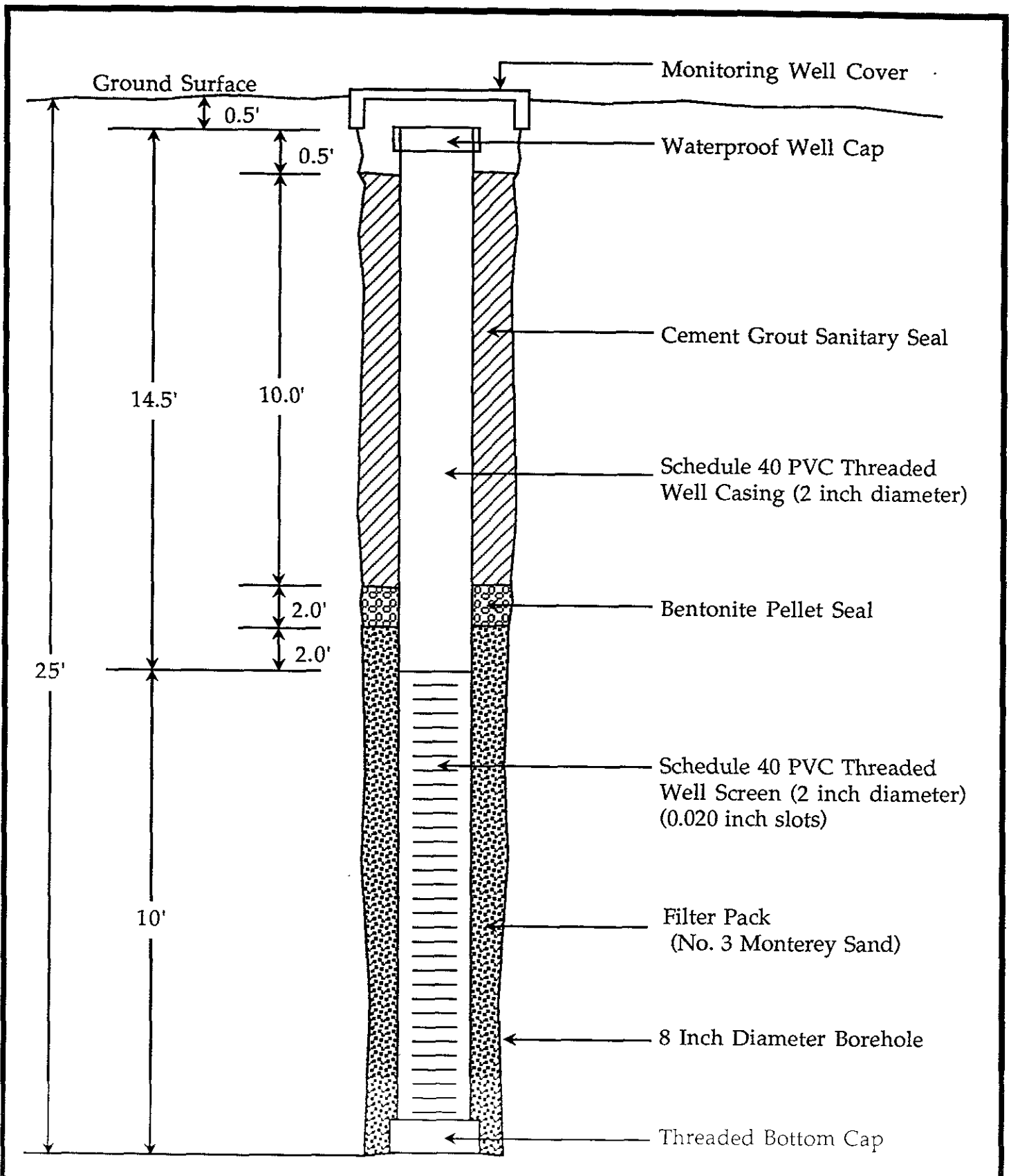
Project Number: 5186

Date: September, 1992

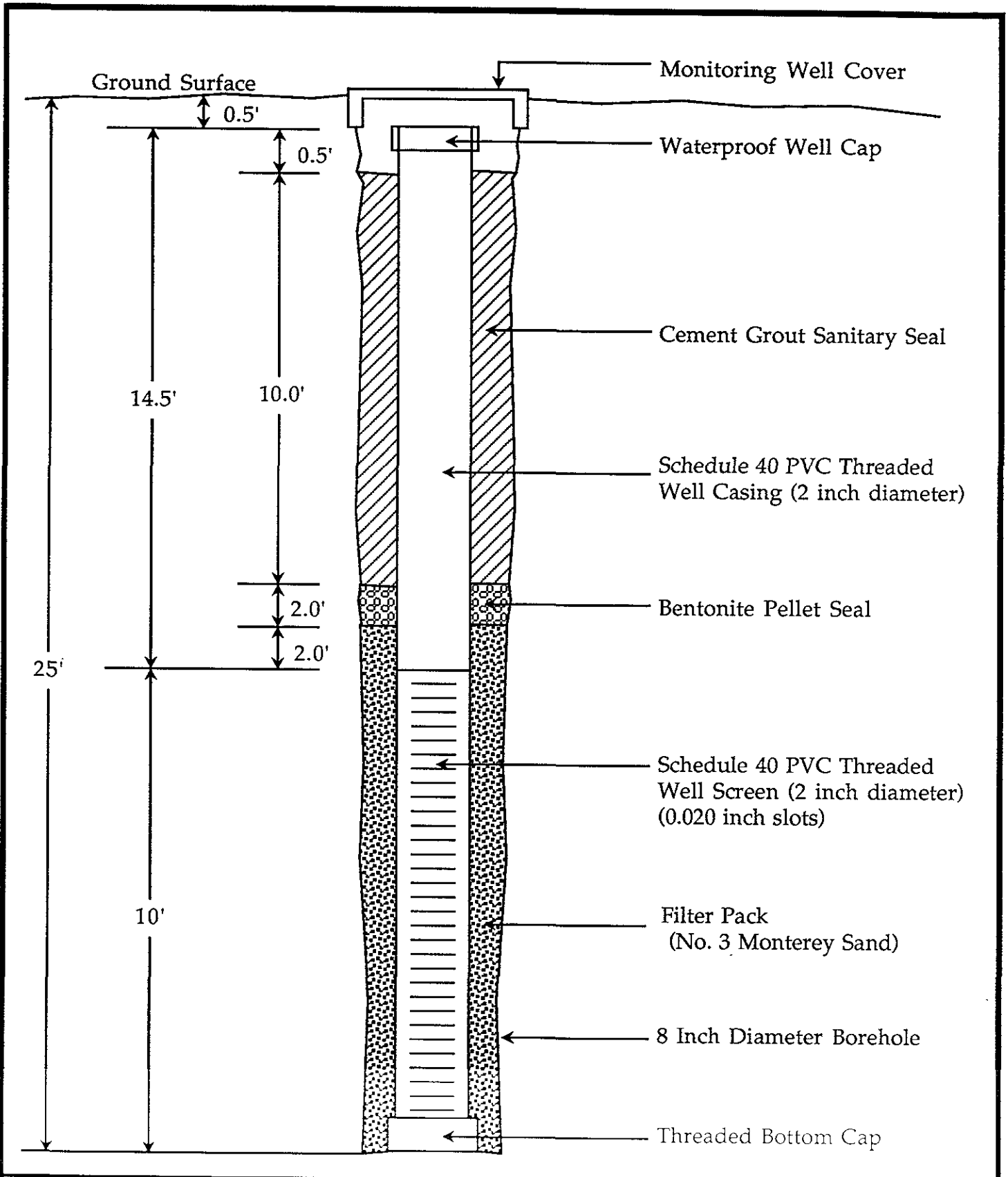
Figure Number 6



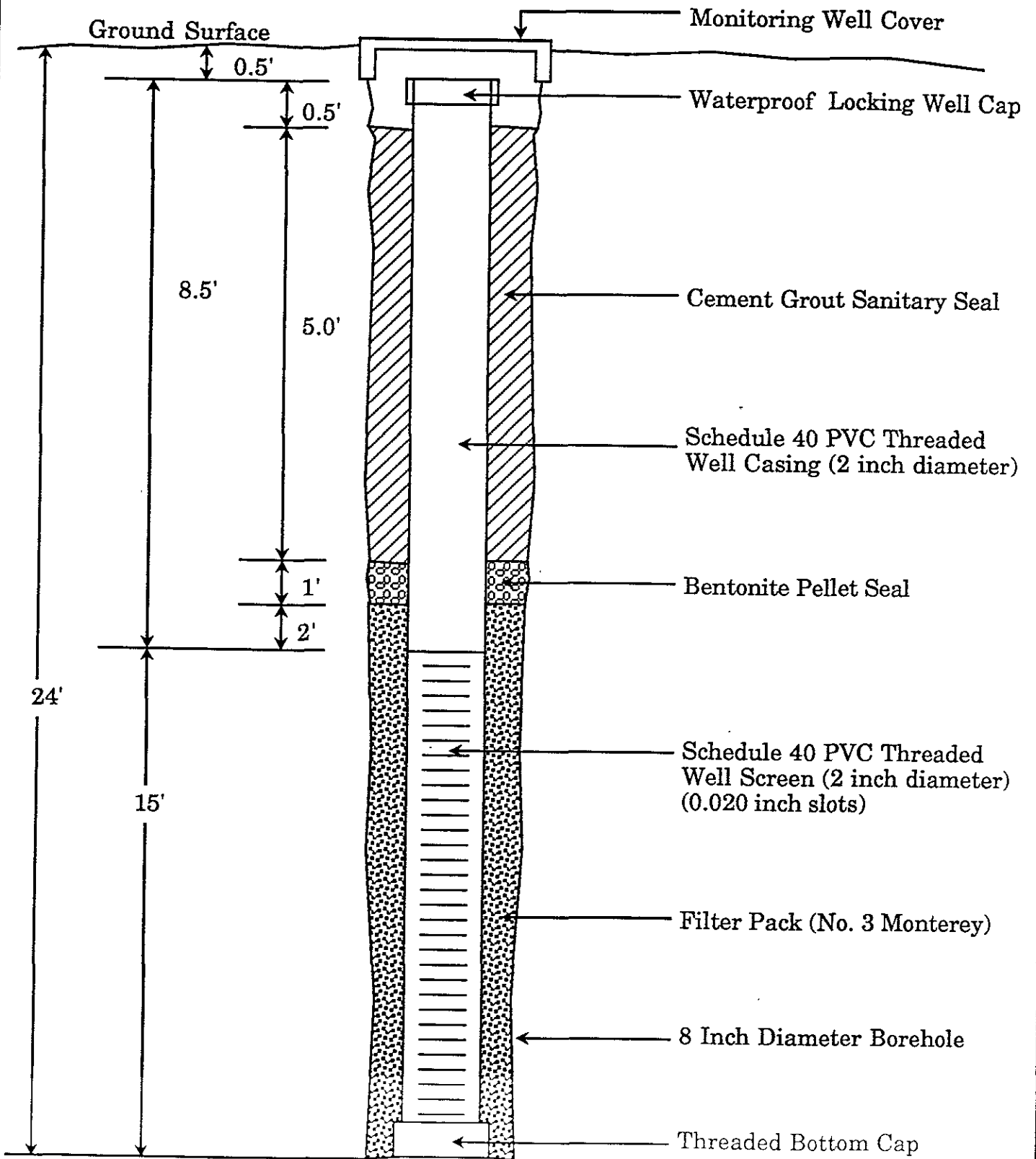
<p>L & W Environmental Services, Inc. 2111 Jennings Street San Francisco, California</p>	<p>Arroyo School Lorenzo Avenue San Lorenzo, California</p>	<p>Monitoring Well MW-1 Installation Detail</p>
<p>Project Number: 5186</p>	<p>Date: January, 1991</p>	<p>Figure Number: 25</p>



<p>L & W Environmental Services, Inc. 2111 Jennings Street San Francisco, California</p>	<p>Arroyo School Lorenzo Avenue San Lorenzo, California</p>	<p>Monitoring Well MW-2 Installation Detail</p>
<p>Project Number: 5186</p>	<p>Date: January, 1991</p>	<p>Figure Number: 26</p>



<p>L & W Environmental Services, Inc. 2111 Jennings Street San Francisco, California</p>	<p>Arroyo School Lorenzo Avenue San Lorenzo, California</p>	<p>Monitoring Well MW-3 Installation Detail</p>
<p>Project Number: 5186</p>	<p>Date: January, 1991</p>	<p>Figure Number:27</p>



L & W Environmental Services, Inc.
 2111 Jennings Street
 San Francisco, California

Monitoring Well 4
 Installation Detail

Project Number 5186

Arroyo School
 San Lorenzo, California

Date: September, 1992

Figure Number 7

EXPLORATORY BORING LOG

Project Number: 137

Boring Number: SB-1G

Project Name: Arroyo School
San Lorenzo, CA

Page Number: 1 of 1

By: ALLCAL PROPERTY SERVICES, INC

Date: 6/29/99

Surface Elevation: NA

RECOVERY (in/in.)	VAPORS (ppm)	PENETRATION (blows/ft.)	GROUND-WATER LEVEL	DEPTH (ft.)	SAMPLES ANALYZED	SOIL TYPE	DESCRIPTION
36/48				5		SP	0.00 - 6.0 FT.: SAND (SP), BROWN, MEDIUM-GRAINED, SOME FINE GRAVEL, DRY, NO ODOR.
36/48						GP	6.0 - 7.0 FT.: SANDY GRAVEL (GP), BROWN, MEDIUM TO COARSE-GRAINED, ANGULAR FRAGMENTS (BROKEN ROCK), ROOTS, DRY, NO ODOR.
36/48				10		SP	7.0 - 11.0 FT.: SAND (SP), BROWN, FINE-GRAINED, SILTY, DAMP (WET @ 11 FT.), NO ODOR.
48/48				15		CL	11.0 - 16.0 FT.: CLAY (CL), DARK BROWN, FIRM, ROOTS, DAMP, NO ODOR. @ 14 FT.: BLACK WITH FINE GRAVEL, DAMP, NO ODOR. @ 16 FT.: SAMPLE SHOE WET.
48/48				20		CL	16.0 - 20.0 FT.: CLAY (CL), RED BROWN, CHANGING TO LIGHT BROWN, FIRM, SANDY, GRAVELLY, DAMP, NO ODOR. @ 20 FT.: SOFT.
48/48			▼	25		SP	20.0 - 28.00 FT.: SAND (SP), BROWN, ALTERNATING LAYERS OF FINE TO MEDIUM-GRAINED AND VERY FINE-GRAINED SAND, CLAYEY, MOIST TO WET NO ODOR. @ 24 FT.: SAND IS MEDIUM-GRAINED.
48/48				30			TOTAL DEPTH OF BORING = 28 FEET

Remarks: BORING CONTINUOUSLY CORED WITH 2.0 - INCH O. D., DIRECT-PUSH, GEOPROBE SYSTEM. SAMPLES COLLECTED IN 1.75 - BY 48 - INCH PETG LINER. BORING SEALED TO GROUND SURFACE WITH CEMENT SLURRY

EXPLORATORY BORING LOG

Project Number: 137

Boring Number: SB-2A

Project Name: Arroyo School
San Lorenzo, CA

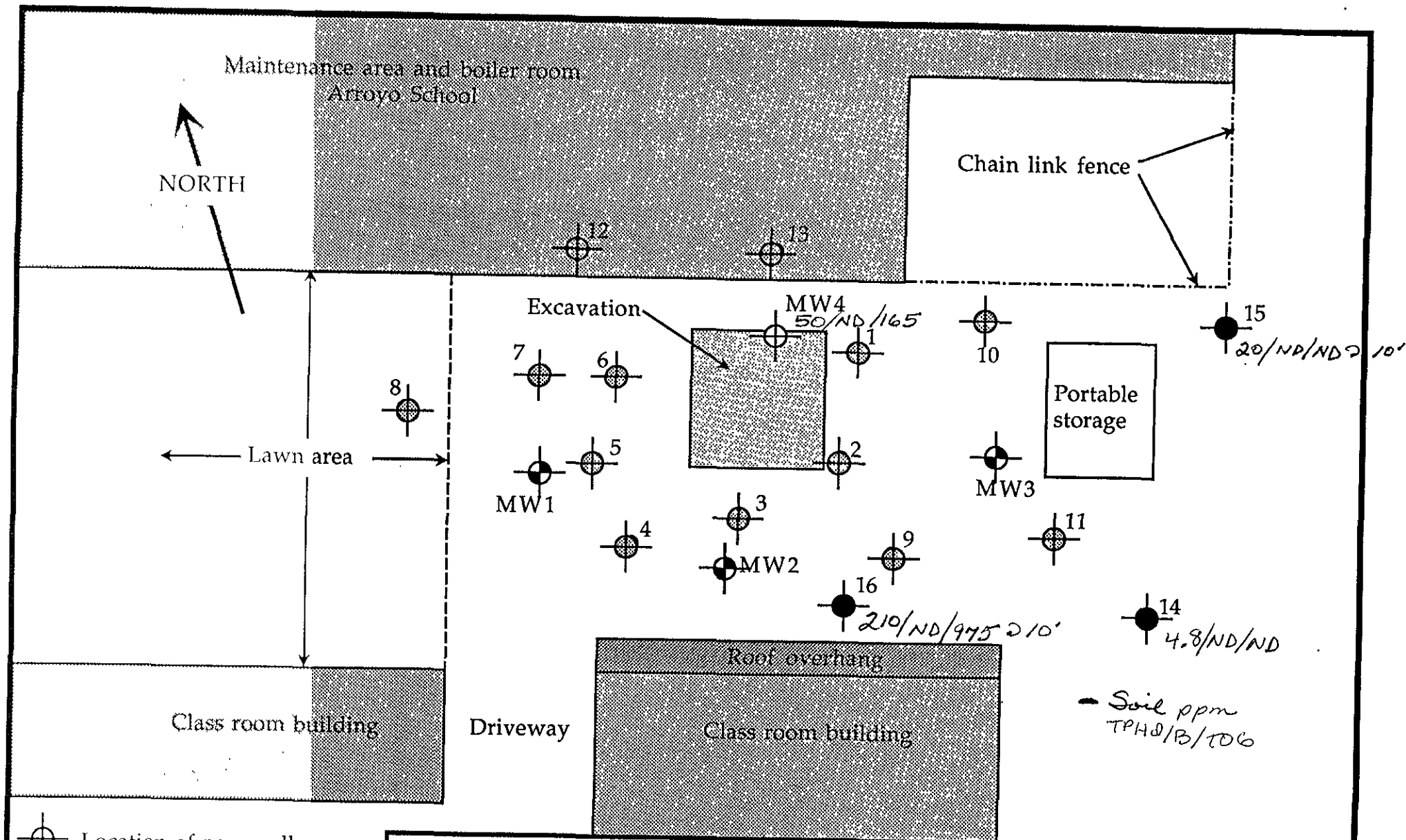
Page Number: 1 of 1

By: ALLCAL PROPERTY SERVICES, INC Date: 6/29/99

Surface Elevation: NA

RECOVERY (in/in.)	VAPORS (ppm)	PENETRATION (blows/ft.)	GROUND- WATER LEVEL	DEPTH (ft.)	SOIL TYPE	DESCRIPTION
				0		0.00 - .5 FT.: ASPHALT UNDERLAIN BY BASE ROCK.
24/24				5	GP	0.5 - 5.5 FT.: SANDY GRAVEL (GP), GREY TO RED-BROWN, MEDIUM TO COARSE-GRAINED, DRY, NO ODOR.
24/24				10	CL	5.5 - 11.0 FT.: CLAY (CL), DARK GREEN TO BLACK, FIRM, SANDY, SILTY, DRY, SLIGHT HYDROCARBON ODOR. @ 9.0 FT.: HYDROCARBON ODOR.
				15		TOTAL DEPTH OF BORING = 11 FEET.
				20		
				25		
				30		

Remarks: BORING DISCRETELY CORED WITH 2 0 - INCH O D , DIRECT-PUSH, GEOPROBE SYSTEM SAMPLES COLLECTED IN 1 75 - BY 36 - INCH PETG LINER BORING SEALED TO GROUND SURFACE WITH CEMENT SLURRY



- ⊕ Location of new well
- Location of previous well
- Location of new boring
- ⊕ Location of previous boring

L & W Environmental Services, Inc. 2111 Jennings Street San Francisco, California		SITE PLAN Arroyo School San Lorenzo, California	
Project Number: 5186	By: JNC	Scale: 1"= 20'	September, 1992 Figure Number: 2

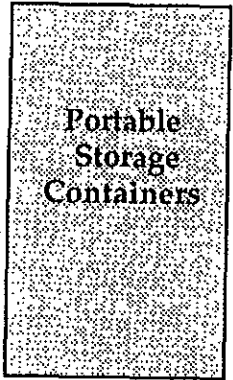


Maintenance area and boiler room
Arroyo School

20
140 — 12 — 110

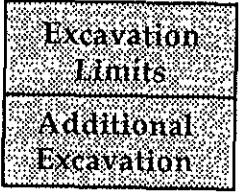
13 290
200

260
260 — 10



Portable
Storage
Containers

970
MW3



Excavation
Limits
Additional
Excavation

1 970

2 -1720

3 -240

4

1720 MW2

11 570
540
MW4

2 10'

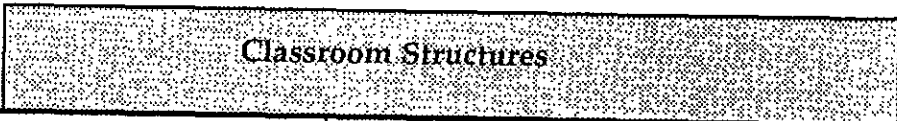
9 1140
1140

o - TPM Derived from

Lawn
Area

Paved Parking
Area

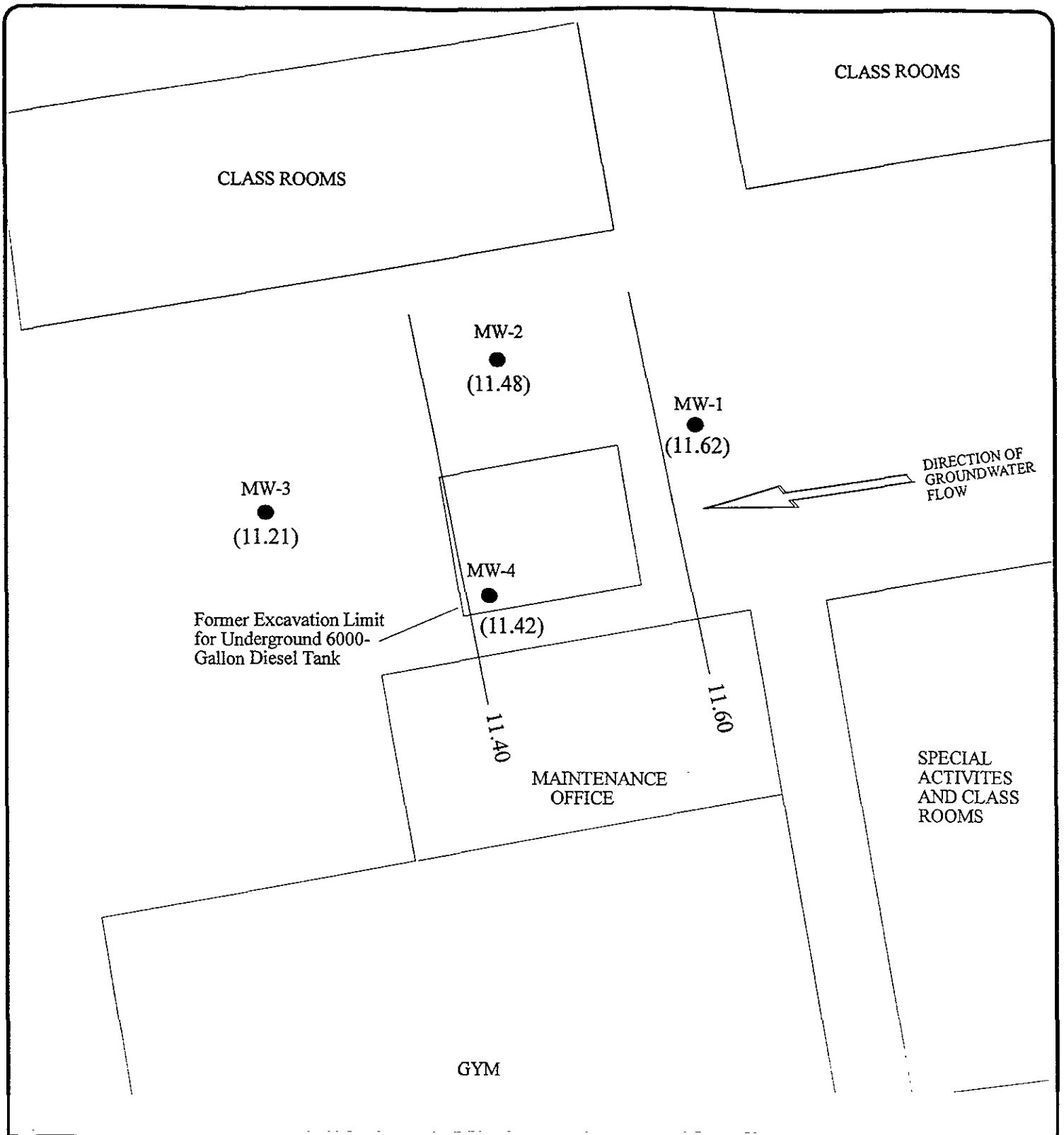
Scale 1" = 20'



Classroom Structures

- Approximate boring location 1/31/91
- ⊕ Approximate boring location 1/28/91
- Approximate boring location 1/16/91
- ⊕ Approximate boring location 1/25/91

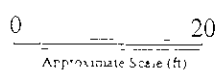
L & W Environmental Services, Inc. 2111 Jennings Street San Francisco, California		EXPLORATION PLAN Arroyo School San Lorenzo, California	



Legend

MW-1
 ● Name and Location of
 (11.63) Groundwater Monitoring Well
 (Groundwater Elevation)

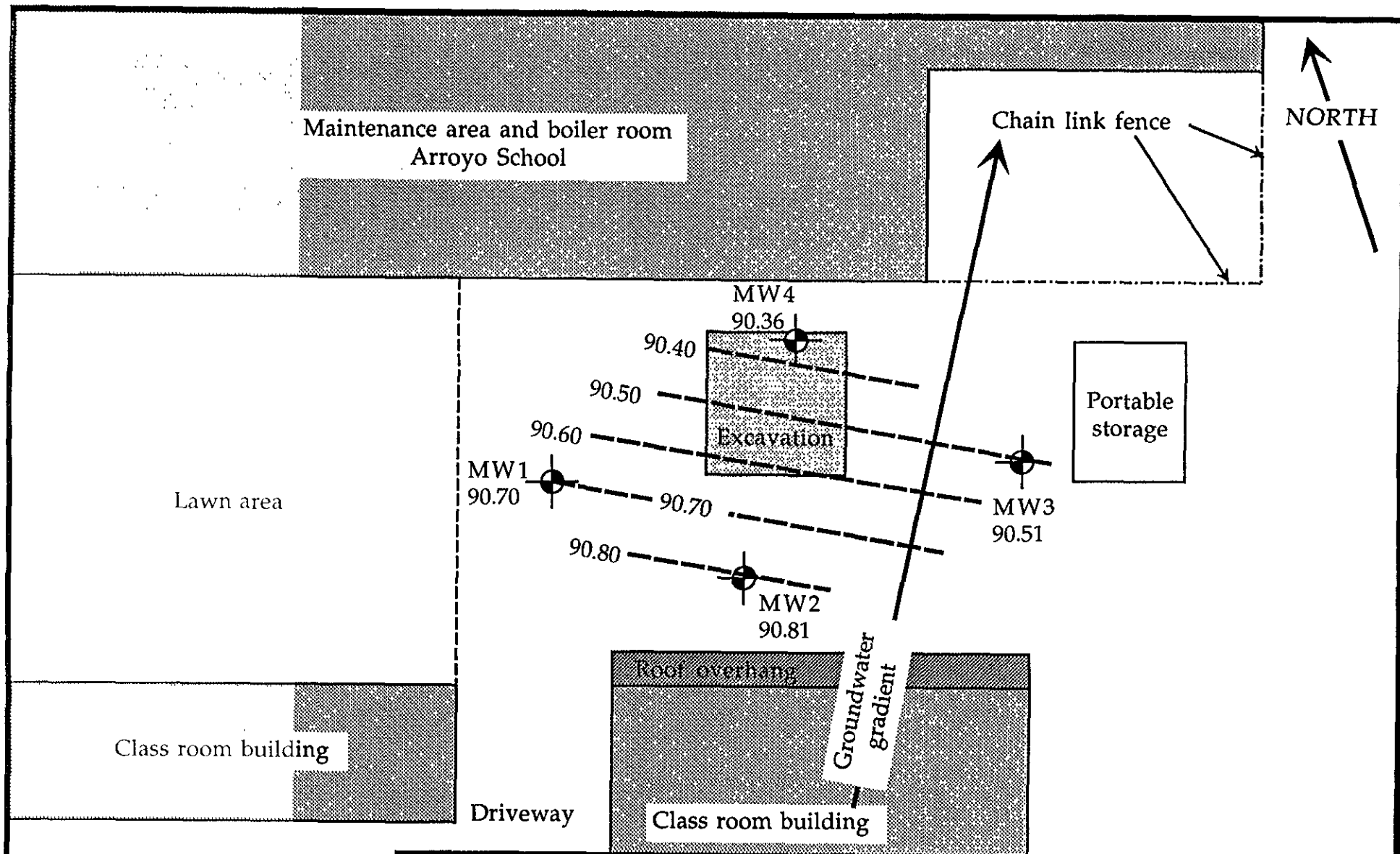
11.40
 Potentiometric Contour
 Contour Interval = 20 ft





ALLCAL PROPERTY SERVICES

GROUNDWATER GRADIENT MAP-6/2/99

ARROYO SCHOOL
 15701 LORENZO AVENUE
 SAN LORENZO, CA 94577




 Location of monitoring well


 Contours of equal groundwater surface elevation

L & W Environmental Services, Inc.
 2111 Jennings Street
 San Francisco, California

Groundwater Gradient
 03/23/93
 Arroyo School
 San Lorenzo, California

Project Number: 5186

By: SA

Scale: 1" = 20'

May, 1993

Figure Number: 3