

ALAMEDA COUNTY
HEALTH CARE SERVICES

AGENCY
DAVID J. KEARS, Agency Director



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

StID 5568

April 01, 1999

Mr. Manuel Senna
15741 Via Arroya
San Lorenzo, CA 94580

Re: Senna Property (Evergreen Nursery), located at 350 San Leandro Blvd., San Leandro, CA 94577

Dear Mr. Senna:


This letter transmits the enclosed underground storage tank (UST) case closure letter in accordance with Chapter 6.75 (Article 4, Section 25299.37[h]). The State Water Resources Control Board adopted this letter on February 20, 1997. As of March 1, 1997, the Alameda County Environmental Protection Division is required to use this case closure letter for all UST leak sites. We are also transmitting to you the enclosed case closure summary. These documents confirm the completion of the investigation and cleanup of the reported release at the subject site. The subject fuel leak case is closed.

SITE INVESTIGATION AND CLEANUP SUMMARY

Please be advised that the following conditions could exist at the site:

- up to 260ppm TPH as gasoline and 2,200ppm TPH as diesel could still exist in soil beneath the site;
- up to 410ppb TPH as gasoline and 240ppm TPH as diesel could still exist in groundwater beneath the site; and,
- a site safety plan must be prepared for construction workers in the event that excavation/trenching is proposed in the vicinity of residual soil and groundwater contamination.

If you have any questions, please contact me at (510) 567-6763.



Juliet Shin
Hazardous Materials Specialist

enclosures: 1. Case Closure Letter 2. Case Closure Summary

c: Kathleen Livermore, City of San Leandro Planning Dept., 835 E 14th Street,
San Leandro, CA 94577

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HEALTH CARE SERVICES

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April 01, 1999
StID # 5568

REMEDIAL ACTION COMPLETION CERTIFICATION

Mr. Manuel Senna
15741 Via Arroya
San Lorenzo, CA 94580

**RE: Senna Property (Evergreen Nursery), located at 350
San Leandro Blvd., San Leandro, CA 94577**

Dear Mr. Senna:

This letter confirms the completion of site investigations and remedial action for the two 4,000-gallon gasoline and two 4,000-gallon diesel fuel underground tanks removed from 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 tanks is greatly appreciated.

Based upon the available information and with provisions 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, Division 3, Chapter 16, Section 2721 (e) of the California Code of Regulations.

Please contact Juliet Shin at (510) 567-6763 if you have any questions regarding this matter.

Sincerely,

Mee Ling Tung
Director, Environmental Health

c: J. Shin, Hazardous Materials Division-files
Chuck Headlee, RWQCB
Mr. Dave Deaner, SWRCB Cleanup Fund
Mr. Leroy Griffin, City of Oakland OES, 505 14th St.,
Suite 702, Oakland CA 94612

1999-03-18 15:18
 510 337 9335
 ALAMEDA CO EMS HAZ-OPS

COM No.	REMOTE STATION	START TIME	DURATION	PAGES	RESULT	USER ID	REMARKS
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ALAMEDA COUNTY
 HEALTH CARE SERVICES

AGENCY

DAVID J. KEARS, Agency Director



ENVIRONMENTAL HEALTH SERVICES
 1131 Harbor Bay Parkway, Suite 225
 Alameda, CA 94502-6577
 (510) 567-6700
 (510) 337-9335 (FAX)

StID 5568

February 22, 1999

Mr. Manuel Senna
 15741 Via Arroya
 San Lorenzo, CA 94580

RE: Well Decommission at 350 San Leandro Blvd., San Leandro, CA

Dear Mr. Senna:

This office and the San Francisco Bay-Regional Water Quality Control Board have reviewed the case closure summary for the above referenced site and concur that no further action related to the release from the four former petroleum underground storage tanks is required at this time. Before a remedial action completion letter is sent, the three onsite monitoring wells (B1, B3, and B6) should be decommissioned if they will no longer be monitored. Please notify this office upon completion of well destruction so a closure letter can be issued.

Well destruction permits may be obtained from Alameda County Public Works. They can be reached at (510) 670-5575.

If you have any questions, I can be reached at (510) 567-6763.

Sincerely,

Juliet Shin
 Juliet Shin
 Hazardous Materials Specialist

ALAMEDA COUNTY
HEALTH CARE SERVICES

AGENCY

DAVID J. KEARS, Agency Director



ENVIRONMENTAL HEALTH SERVICES

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

StID 5568

February 22, 1999

Mr. Manuel Senna
15741 Via Arroya
San Lorenzo, CA 94580

RE: Well Decommission at 350 San Leandro Blvd., San Leandro, CA

Dear Mr. Senna:

This office and the San Francisco Bay-Regional Water Quality Control Board have reviewed the case closure summary for the above referenced site and concur that no further action related to the release from the four former petroleum underground storage tanks is required at this time. Before a remedial action completion letter is sent, the three onsite monitoring wells (B1, B3, and B6) should be decommissioned if they will no longer be monitored. Please notify this office upon completion of well destruction so a closure letter can be issued.

Well destruction permits may be obtained from Alameda County Public Works. They can be reached at (510) 670-5575.

If you have any questions, I can be reached at (510) 567-6763.

Sincerely,

Juliet Shin
Hazardous Materials Specialist

ps #01-1318

CASE CLOSURE SUMMARY
Leaking Underground Fuel Storage Tank Program

QUALITY CONTROL BOARD

FEB 08 1999

CALIFORNIA REGIONAL WATER

I. AGENCY INFORMATION

Date: December 14, 1998

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: **Senna Property (Evergreen Nursery)**
Site facility address: **350 San Leandro Blvd., San Leandro, CA 94577**
RB LUSTIS Case No: **N/A** Local Case No./LOP Case No.: **5568**
URF filing date: **6/15/90** SWEEPS No: **N/A**

<u>Responsible Parties:</u>	<u>Addresses:</u>	<u>Phone Numbers:</u>
Manuel Senna	15741 Via Arroya San Lorenzo, CA 94580	(510) 357-6282

<u>Tank No:</u>	<u>Size in gal.:</u>	<u>Contents:</u>	<u>Closed in-place or removed?:</u>	<u>Date:</u>
1	4,000	Gasoline	Removed	02/08/89
2	4,000	Gasoline	Removed	02/08/89
3	4,000	Diesel	Removed	02/08/89
4	4,000	Diesel	Removed	02/08/89

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and type of release: **Unknown**
Site characterization complete? **YES**
Date approved by oversight agency: **12/21/98**
Monitoring Wells installed? **YES** Number: **Three**
Proper screened interval? **YES**
Highest GW depth below ground surface: **20.68** Lowest depth: **23.67**
Flow direction: **Northwesterly/ Westerly**
Most sensitive current use: **Wells located over 300-feet from the site are used for industrial purposes.**
Are drinking water wells affected? **No** Aquifer name: **No Name**
Is surface water affected? **No** Nearest affected SW name: **None**

Off-site beneficial use impacts (addresses/locations): **There appears to be no off-site impacts to sensitive receptors.**

Report(s) on file? **YES** Where is report(s) filed? **Alameda County** **Oakland Fire Dept**
1131 Harbor Bay Pkwy and **505 14th St, Ste 510**
Alameda, CA 94502 **Oakland, CA 94612**

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>
Tank	Four USTs	Tanks were removed by West Coast Tank Testing, however, the manifests cannot be found and the destination is unknown.	02/08/89
Soil		All excavated soils were placed back into the tank pit w/o being characterized.	02/08/89

Maximum Documented Contaminant Concentrations - - Before and After Cleanup

Contaminant	Soil (ppm)		Water (ppb)	
	Before ¹	After ³	Before ⁶	After ⁷
TPH (Gas)	260		410	ND
TPH (Diesel)	2,200		240	ND
Motor Oil	330		NA	NA
Benzene	0.02 ²		ND	ND
Toluene	1.1		ND	ND
Ethylbenzene	6.2		ND	ND
Xylenes	19		ND	ND
Oxygenates ⁴	NA		NA	ND
PolyNuclear Aromatics ⁵	NA		NA	ND

1 - Soil samples collected from the nine borings drilled at the site on July 05, 1990.

2 - Soil sample collected from beneath one of the gasoline USTs (Tank B) during the tank removal in 1988.

3 - None of the contaminated soil was ever disposed of off site or treated.

4 - The oxygenates that were analyzed for are: Methyl Tertiary Butyl Ether (MTBE); Diisopropyl Ether (DIPE); Ethyl Tertiary Butyl Ether (ETBE); Tertiary Amyl Methyl Ether (TAME); and Tertiary Butyl Alcohol (TBA). Analysis used 8260.

5 - Analysis used Method 8270.

6 - Groundwater samples collected immediately after the three on-site monitoring wells were installed in July 1990.

7 - Groundwater samples collected from the three on-site monitoring wells in November 1998.

NA - Not Analyzed

ND - Not Detected above detection limits.

Comments (Depth of Remediation, etc.):

See Section VII, Additional Comments, etc...

IV. CLOSURE

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

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

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?

Monitoring wells Decommissioned: **No**

Number Decommissioned: Number Retained:

List enforcement actions taken: **None**

List enforcement actions rescinded:

V. LOCAL AGENCY REPRESENTATIVE DATA

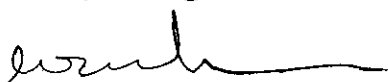
Name: **Juliet Shin**

Title: **Haz Mat Specialist**

Signature: 

Date: **02/02/99**

Reviewed by **EWACHW**

Name: 

Title: **Haz Mat Specialist**

Signature:

Date: **# 12/30/98**

Name: **Thomas Peacock**

Title: **Supervisor**

Signature: 

Date: **1-22-99**

VI. RWQCB NOTIFICATION

Date Submitted to RB: **02/02/99**

RB Response:

RWQCB Staff Name: **Chuck Headlee**

Title: **EG**

Signature: 

Date: **2/8/99**

VII. ADDITIONAL COMMENTS, DATA, ETC.

The site, located at 350 San Leandro Blvd., San Leandro, CA, is currently occupied by Evergreen Nursery (refer to attached Figure 1). Prior to the development of the existing nursery business, a fueling facility had historically been present on the property up until 1989. On February 08, 1989, two 4,000-gallon gasoline underground storage tanks (USTs), and two 4,000-gallon diesel USTs were removed from the site by West Coast Tank Testing (refer to attached Figure 2). The fate of these USTs is unknown because manifests for the disposal of these USTs could not be located.

Soil samples were collected from 2 feet below each end of each of the four USTs and analyzed for Total Petroleum Hydrocarbons as gasoline (TPHg), Total Petroleum Hydrocarbons as diesel (TPHd), and benzene, toluene, ethylbenzene, and total xylenes (BTEX). Analysis of these soil samples identified up to 530 parts per million (ppm) TPHd, 76ppm TPHg, 0.02ppm benzene, 0.07ppm toluene, 0.13ppm ethylbenzene, and 0.68ppm total xylenes (refer to attached Table 1).

On July 05, 1989, nine soil borings, B1 through B9, were drilled at the site to further characterize the observed soil contamination. Soil samples were collected from these borings at selected intervals beginning at 4-feet below ground surface (bgs). All the soil samples collected from these borings were analyzed for TPHd, TPHg, Motor Oil, and BTEX. Analysis of these soil samples identified up to 2,200ppm TPHd, 330ppm Motor Oil, 260ppm TPHg, 1.1ppm toluene, 6.2ppm ethylbenzene, and 19ppm total xylenes (please refer to the attached table showing sample depths and results (refer to attached Table 2 and boring logs).

Three of the soil borings (B1, B3, and B6) were converted into groundwater monitoring wells. Well B1 was screened from 18- to 33-feet bgs, and Wells B3 and B6 were screened from 13- to 33-feet bgs. Groundwater was encountered at roughly 23-feet bgs in Wells B3 and B6, and groundwater was initially encountered in Well B1 at 33-feet bgs and equilibrated at roughly 23-feet bgs. Groundwater samples were collected from these three wells approximately five days after the wells were installed, and these samples were analyzed for TPHd, TPHg, and BTEX. Analysis of these samples identified up to 240 parts per billion (ppb) TPHd, 410ppb TPHg, and 9.1ppb benzene.

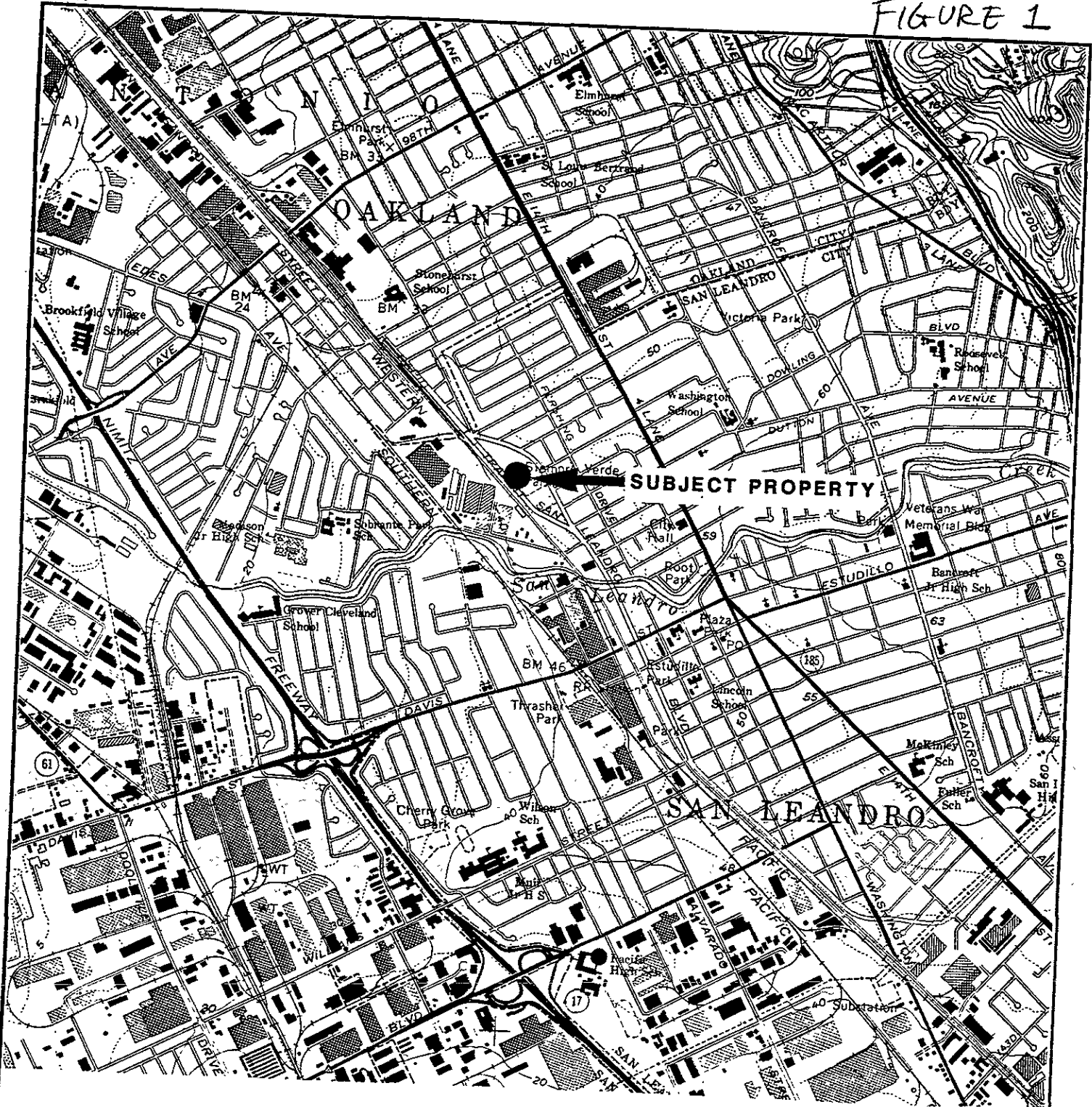
No additional investigations were conducted at the site until November 2, 1998, when the three on-site monitoring wells were purged and sampled. Groundwater samples collected from the three wells were analyzed for TPHd, TPHg, BTEX, Methyl Tertiary Butyl Ether (MTBE), Diisopropyl Ether (DIPE), Ethyl Tertiary Butyl Ether (ETBE), Tertiary Amyl Methyl Ether (TAME), Tertiary Butyl Alcohol (TBA), and PolyNuclear Aromatic Hydrocarbons (PNAs). Analysis of these samples did not identify any contaminant above the detection limits (refer to attached Table 3). Groundwater flow directions have been calculated to be flowing to the northwest/west (refer to attached Figure 3).

Although residual soil contamination remains at the site, this office feels that the site can be closed for the following reasons:

- Of all the soil samples collected from the tank removal and the nine borings drilled at the site, benzene was only identified in one soil sample, collected from the tank removal, at 0.02ppm, which is below the Tier 1 table threshold value given in the American Society for Testing and Materials' Risk-Based Corrective Action guidelines (RBCA) (Designation E 1739-95) for a residential scenario and 10-5 risk (refer to the attached copy). Therefore, the residual concentrations of benzene in the soil do not appear to be posing any on-going risk to human health.
- Concentrations of toluene, ethylbenzene, and total xylenes identified in all the soil samples collected from the site have always been below the Tier 1 table threshold values for a 10-6 residential scenario. Therefore, the residual concentrations of toluene, ethylbenzene, and total xylenes in the soil do not appear to be posing any on-going risk to human health.
- The residual concentrations of TPHd, TPHg, and Motor Oil remaining in the soil at the site are not likely to volatilize significantly as to affect human health or the environment. The most volatile constituents in TPHd are PNAs, and the PNA concentrations at the site appear to be fairly low in soil due to the fact that no PNAs were identified in the most recent groundwater samples. The most volatile constituents in TPHg are BTEX, and as stated above, these constituents do not exceed the conservative human-health protective threshold values for soil. Motor Oil is known to contain very heavy, long-chained hydrocarbons and does not readily volatilize.
- The most recent groundwater samples collected from the on-site monitoring wells did not identify any contaminants above detection limits, so it appears that any residual soil contamination remaining at the site is not leaching significantly to groundwater.
- There are no wells or surface waters located within 300-feet of the site.

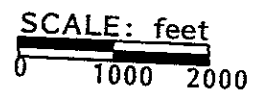
FIGURES

FIGURE 1



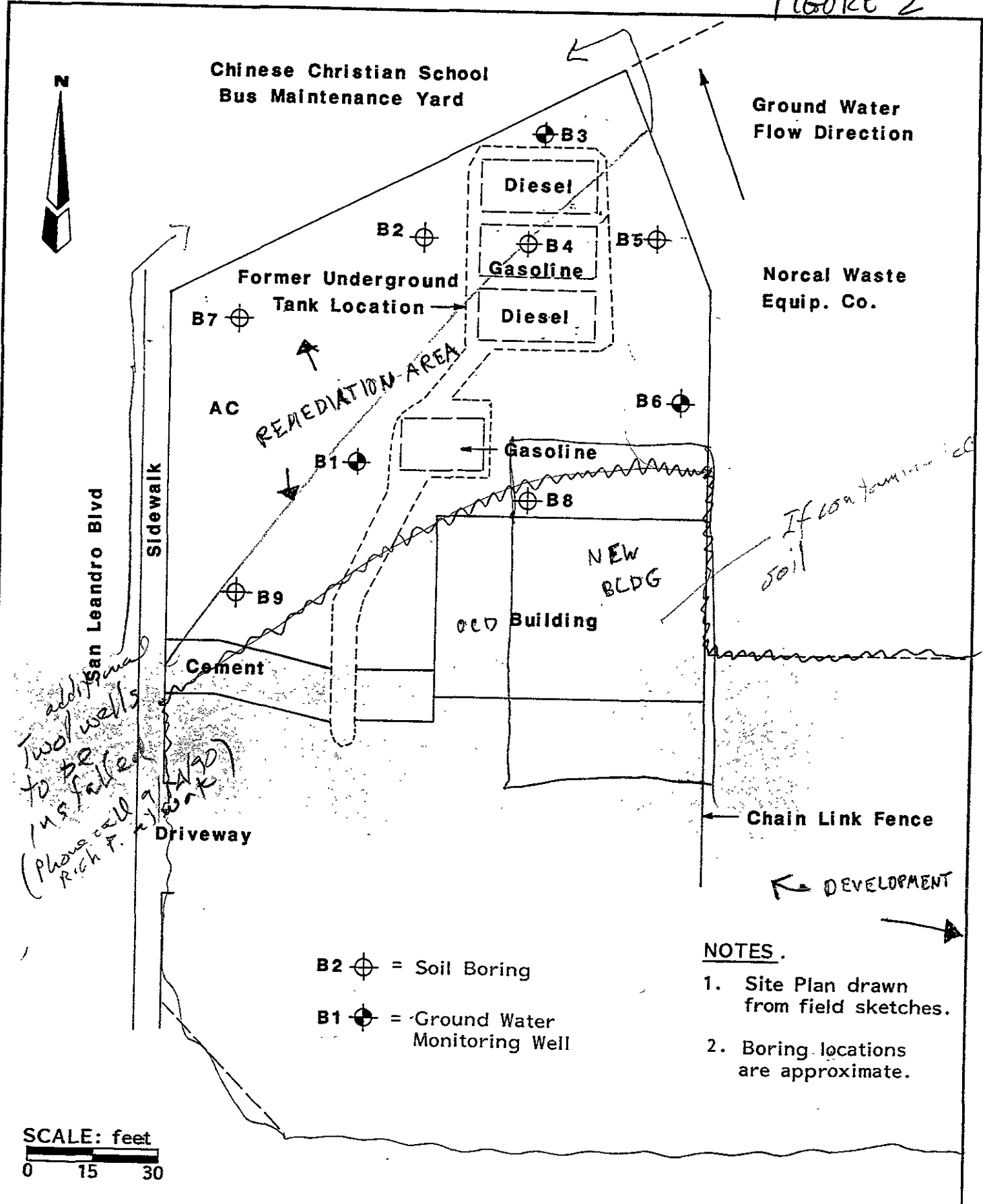
Reference:

Portion of U.S.G.S. San Leandro
7.5 minute Quadrangle; Photo revised 1980.



SITE LOCATION MAP
350 San Leandro Boulevard
San Leandro, California

PROJECT NO: 1281.01
DATE: 7/90
PLATE NO: 1a



SENNA PROPERTY
350 San Leandro Boulevard
San Leandro, California

PROJECT NO: 1281.01
DATE: 6/90
PLATE NO: 1

SAN LEANDRO BLVD

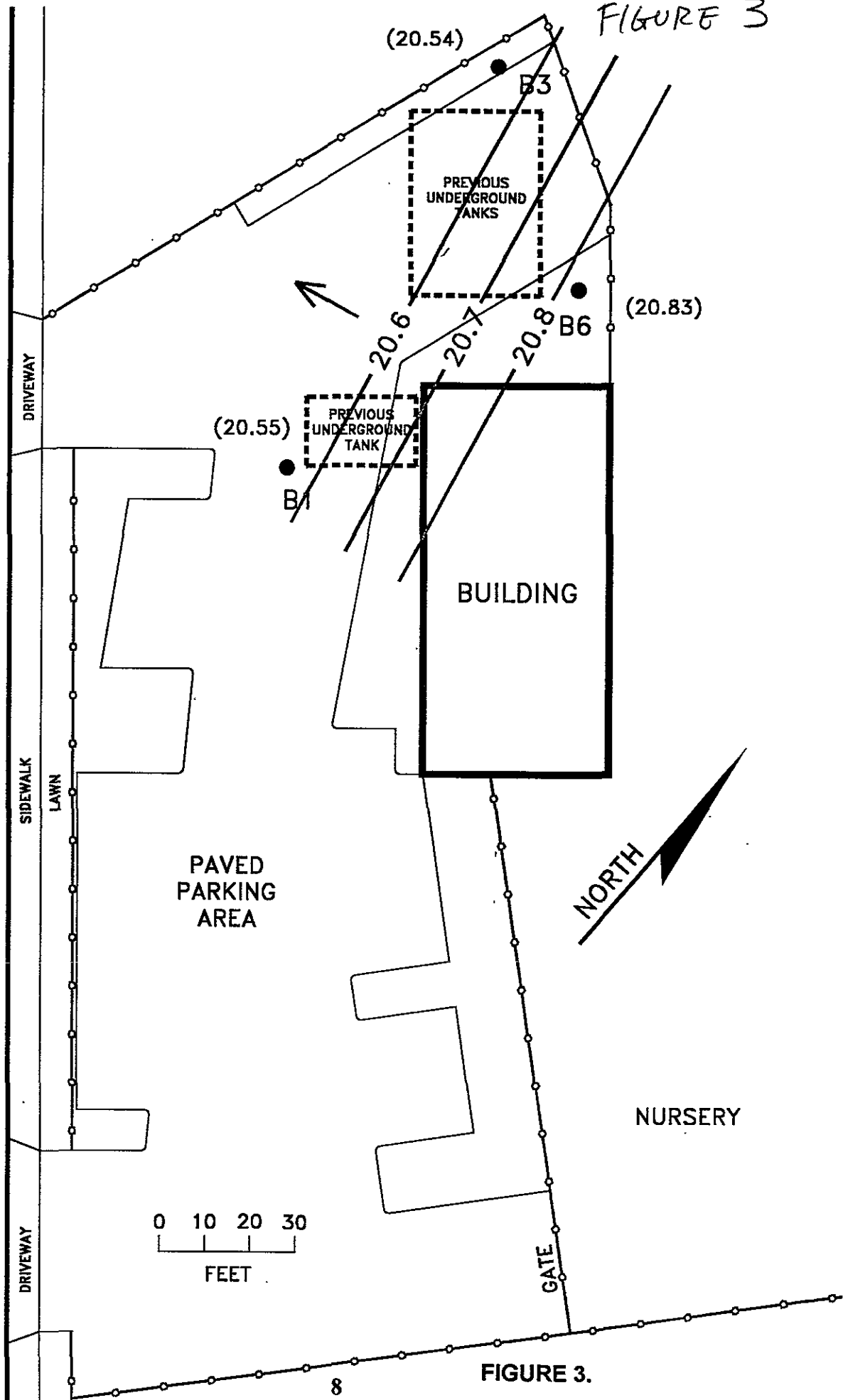


FIGURE 3.

Shallow Groundwater Contour Map.
Measured on November 2, 1998.

TABLES

TABLE 1

TABLE 1
 Summary of Analytical Results (mg/kg) Soil

TANK REMOVAL

Detection Compound	A West	A East	B West	B East	C West	C East	D West	D East	Limit
Benzene	ND	ND	0.02	ND	ND	ND	ND	ND	0.02
Toulene	ND	ND	ND	ND	ND	ND	ND	0.07	0.05
Ethylbenzere	ND	ND	ND	ND	ND	ND	ND	0.13	0.05
Xylene	0.16	ND	ND	ND	ND	ND	ND	0.68	0.05
TVH	27	29	48	45	42	44	13	76	10
TPH	27	170	130	120	72	170	42	530	10

Method BTXE - EPA - 8020

TVH - EPA 8015M

TPH - DHS GC/FID

ND - None Detected

Method

Calculated Solvents

Calculated Solvents



ENVIRONMENTAL SITE EVALUATION

SENNA PROPERTY

WKA No. 1281.01

August 9, 1990

Page 4

grey unit consisting of a mixture of sand, clay and silt predominates the upper seven feet, while a brown silt and clay unit extends from seven feet to approximately 25 feet below grade. At depths greater than 25 feet we observed a brown mixture of sand, silt and clay to depths of 34.5 feet in Borings B1, B3 and B6.

Selected soil samples from the borings and monitoring wells were analyzed in the laboratory when OVA measurements and visual observations indicated hydrocarbon contamination of the soils. Analytical results revealed detectable concentrations of total petroleum hydrocarbons (TPH) in soil samples from all borings.

TPH concentrations ranged from 73 mg/kg as diesel in Boring B2 at a depth of nine feet to 2,200 mg/kg as diesel in Boring B7 at a depth of 14 feet. TPH contaminated soils were observed to depths of 24 feet and were as high as 940 mg/kg. Analytical results did not reveal detectable concentrations of benzene in any of the borings. Toluene, xylene and ethyl benzene were detected in six of the borings, but at relatively low concentrations. Organolead was not detected in the samples analyzed.

A summary of hydrocarbon analytical results for the soil samples is presented in Table 1. Complete laboratory analytical reports and chain-of-custody documents for all soil samples are included in Appendix A.

TABLE 1

**SUMMARY OF ANALYTICAL RESULTS FOR SOIL SAMPLES
(mg/g)**

Sample Designation	Sample Depth (feet)	EPA METHOD 8015 MODIFIED Total Petroleum Hydrocarbons			EPA METHOD 8020			
		Diesel	Motor Oil	Gasoline	Benzene	Toluene	Xylenes	Ethyl Benzene
B1-1I	4	ND	13	ND	ND	ND	ND	ND
B1-2I	9	ND	16	ND	ND	ND	ND	ND
B1-3I	14	680	ND	ND	ND*	ND*	1.3	0.21
B1-4I	19	1400	ND	ND	ND*	ND*	ND*	ND*
B1-5I	24	120	ND	ND	ND*	ND*	ND*	ND*
B2-1I	9	73	ND	260	ND*	0.074	19	6.2
B2-2I	19	1900	ND	ND	ND	ND	ND	ND
B3-1I	4	ND	53	ND	ND*	ND*	ND*	ND*
B3-2I	9	ND	86	ND	ND*	ND*	ND*	ND*
B3-3I	14	720	ND	ND	ND*	ND*	ND*	ND*
B3-4I	19	970	ND	ND	ND*	ND*	ND*	ND*
B3-5I	24	120	ND	ND	ND*	ND*	ND*	ND*



ENVIRONMENTAL SITE EVALUATION
 SENNA PROPERTY
 WKA No. 1281.01
 August 9, 1990
 Page 5

B4-1I	9	190	330	ND	ND*	ND*	ND*	ND*
B5-2I	14	780	ND	ND	ND*	ND*	0.2	ND*
B6-1I	4	ND	18	ND	ND	ND	ND	ND
B6-2I	9	ND	25	ND	ND	ND	ND	ND
B6-3I	14	1000	ND	ND	ND*	ND*	ND*	ND*
B6-4I	19	730	ND	ND	ND*	ND*	ND*	ND*
B6-5I	24	ND	27	ND	ND*	0.08	ND*	ND*
B7-2I	9	82	ND	ND	ND*	0.17	ND*	ND*
B7-4I	14	2200	ND	ND	ND*	1.1	ND*	ND*
B8-1I	14	150	ND	ND	ND*	0.26	ND*	0.18
B9-2I	14	180	ND	ND	ND*	0.091	ND*	0.071
B9-4I	24	940	ND	ND	ND*	ND*	ND*	ND*

ND = Not Detected

Detection Limits =

TPH Diesel	-	10	mg/kg
TPH Motor Oil	-	50	mg/kg
TPH Gasoline	-	0.5	mg/kg
Benzene	-	0.005	mg/kg
Toluene	-	0.005	mg/kg
Xylenes	-	0.005	mg/kg
Ethyl Benzene	-	0.005	mg/kg

*0.05 mg/kg

*0.05 mg/kg

*0.05 mg/kg

*0.05 mg/kg

*Increased reporting limit due to presence of high boiling hydrocarbons in the sample.

Ground Water Conditions

Ground water was initially encountered at approximately 23 feet below grade in Borings B3, B6 and B9. Ground water was initially encountered in Boring B1 at 33 feet below grade, and then rose to approximately 23 feet below grade after approximately one hour. Ground water measurements taken prior to sampling of the three ground water monitoring wells are shown on Table 2. Ground water measurements indicate direction of ground water flow to be to the north-northwest with a relatively flat hydraulic gradient of 0.0013 feet/foot.

TABLE 2

GROUND WATER ELEVATION DATA

Monitoring Well	Date	Well Casing Elevation*	-	Ground Water Depth**	=	Ground Water Elevation*
B1	7/10/90	41.33	-	22.96	=	18.37
B3	7/10/90	41.49	-	23.19	=	18.30
B6	7/10/90	42.04	-	23.67	=	18.37

*Feet (Mean Sea Level)

**Feet below top of casing



ENVIRONMENTAL SITE EVALUATION
 SENNA PROPERTY
 WKA No. 1281.01
 August 9, 1990
 Page 6

Analytical results revealed detectable levels of total petroleum hydrocarbons in the water samples from each well. Benzene, toluene, xylene and ethyl benzene (BTX&E) components were not detected in water samples from Wells B2 and B3. Benzene was only observed in the water sample from Well B1; the concentration observed in this well exceeds the Regional Water Quality Control Board threshold of 1.0 µg/L of benzene in the ground water. A summary of hydrocarbon analytical results for the water samples is presented in Table 3. Laboratory analytical reports and chain-of-custody documents for the monitoring wells are included in Appendix A.

TABLE 3
SUMMARY OF ANALYTICAL RESULTS FOR WATER SAMPLES
 (µg/L)

Sample Designation	Date Sampled	EPA METHOD 8015 MODIFIED Total Petroleum Hydrocarbons		EPA METHOD 602			
		Diesel	Gasoline	Benzene	Toluene	Xylenes	Ethyl Benzene
B1	7/10/90	60	410	9.1	ND	2ND	ND
B3	7/10/90	240	ND	ND	ND	ND	ND
B6	7/10/90	81	ND	ND	ND	ND	ND

ND = Not Detected Detection Limits =

- TPH Diesel - 50 µg/L
- TPH Gasoline - 50 µg/L
- Benzene - 0.5 µg/L
- Toluene - 0.5 µg/L
- Xylenes - 0.5 µg/L
- Ethyl Benzene - 0.5 µg/L

CONCLUSIONS

The results of our investigation indicate that subsurface soil and ground water contamination by hydrocarbon components has occurred in the vicinity of the former underground storage tank. The data indicate that soil contamination appears laterally extensive and may extend beyond the property boundaries in the north, east and west directions. The lateral extent of soil contamination is unknown in the southerly direction due to the presence of the building. Vertically, hydrocarbon contaminated soils were observed to extend to 24 feet below grade, but appear to be concentrated in a zone between 12 and 20 feet below grade.

TABLE 3.

Shallow Groundwater Sampling Results

Monitoring Well	Date	TPH as Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-benzene (ug/L)	Total Xylenes (ug/L)	TPH as Diesel (ug/L)
B-1	11-02-98	ND	ND	ND	ND	ND	ND
B-3	11-02-98	ND	ND	ND	ND	ND	ND
B-6	11-02-98	ND	ND	ND	ND	ND	ND
Detection Limit		50	0.5	0.5	0.5	0.5	50

ND = not detected

TABLE 4.

Shallow Groundwater Sampling Results

Monitoring Well	Date	MTBE (ug/L)	DIPE (ug/L)	ETBE (ug/L)	TAME (ug/L)	Tertiary-Butanol (ug/L)
B-1	11-02-98	ND	ND	ND	ND	ND
B-3	11-02-98	ND	ND	ND	ND	ND
B-6	11-02-98	ND	ND	ND	ND	ND
Detection Limit		0.5	0.5	0.5	0.5	0.5

ND = not detected

MTBE = Methyl-tert-butyl ether

DIPE = Diisopropyl ether

ETBE = Ethyl-tert-butyl ether

TAME = Tert-amyl methyl ether

TABLE 5.

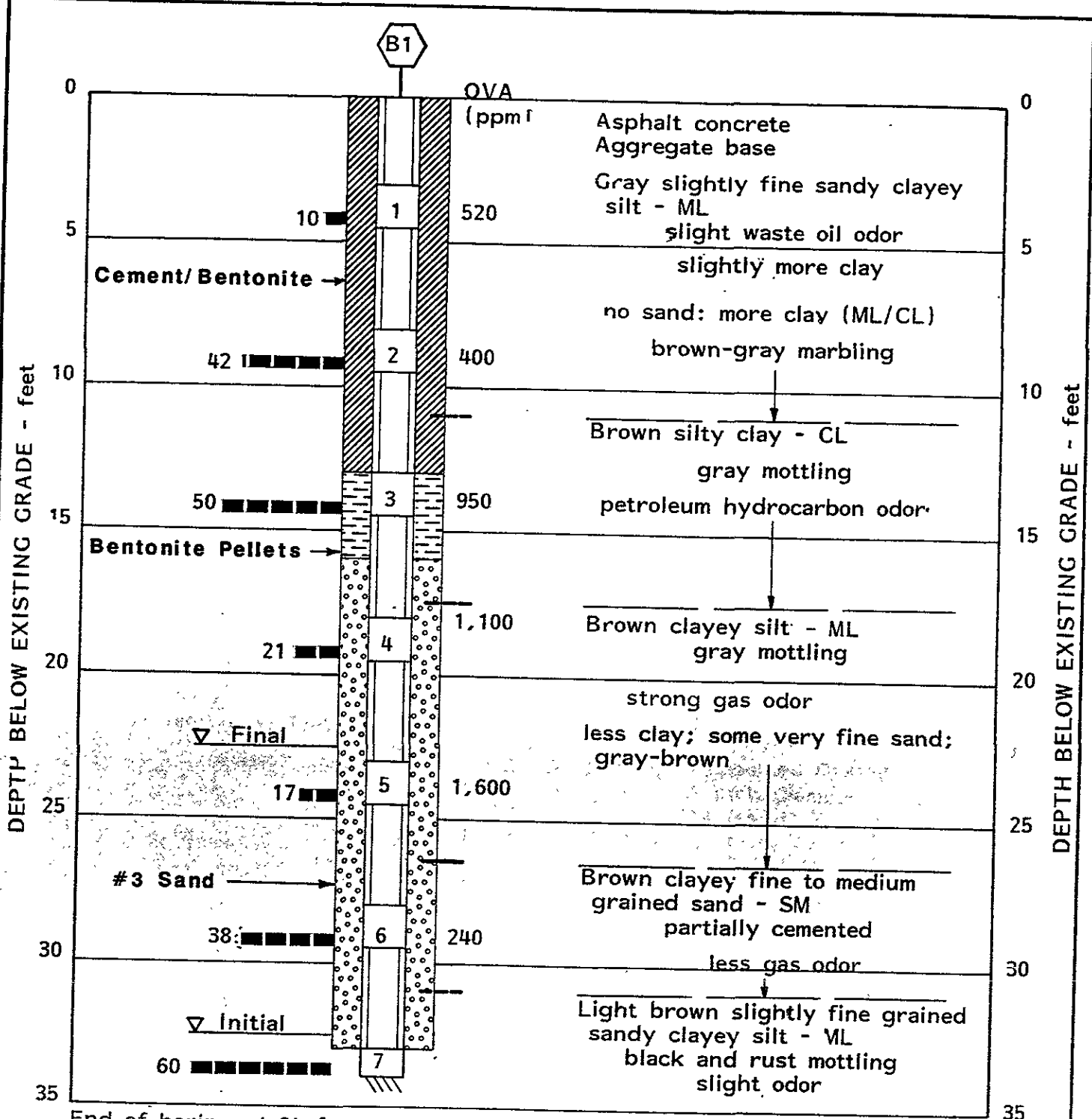
Shallow Groundwater Sampling Results

Monitoring Well	Date	PNAs (ug/L)
B-1	11-02-98	ND
B-3	11-02-98	ND
B-6	11-02-98	ND
Detection Limit		10

ND = not detected
PNAs = Poly Nuclear Aromatics

High detection limit.

BORING LOGS



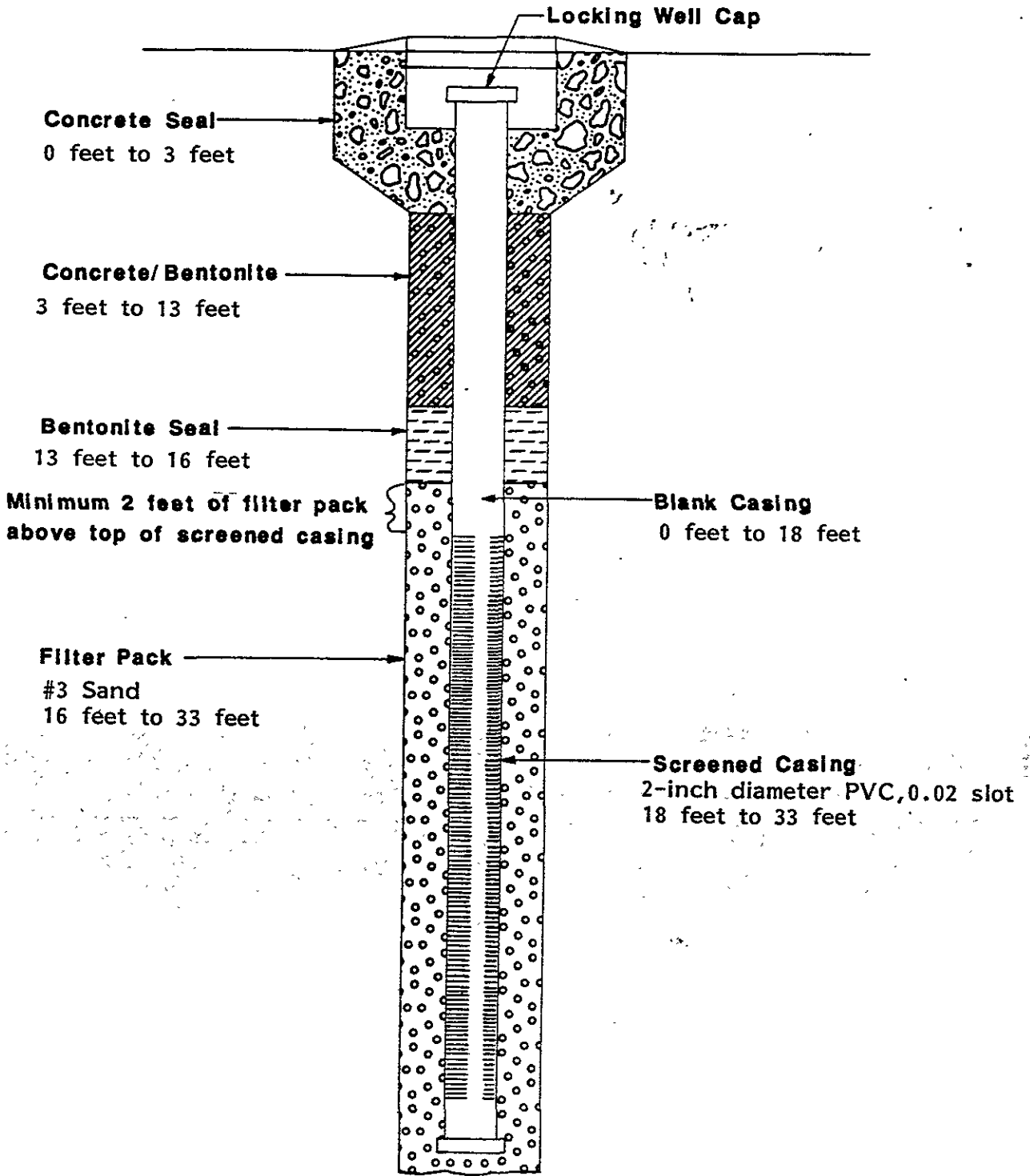
End of boring at 34 feet.
 Ground water initially encountered at 32.5 feet and rose to 22.5 feet after one hour.
 Ground water monitoring well installed to 33 feet.

- NOTES:
- 1) These logs depict conditions only at the boring locations, see Plate No. 1, and only on the dates of field exploration, July 2 & 3, 1990.
 - 2) Explanations of the Unified Soil Classification System and the symbols used on the logs are contained on Plate No. 9.



BORING LOGS
 350 San Leandro Boulevard
 San Leandro, California

PROJECT NO: 1281.01
 DATE: 7/90
 PLATE NO: 2



(Not to Scale)

Groundwater Monitoring Well B1

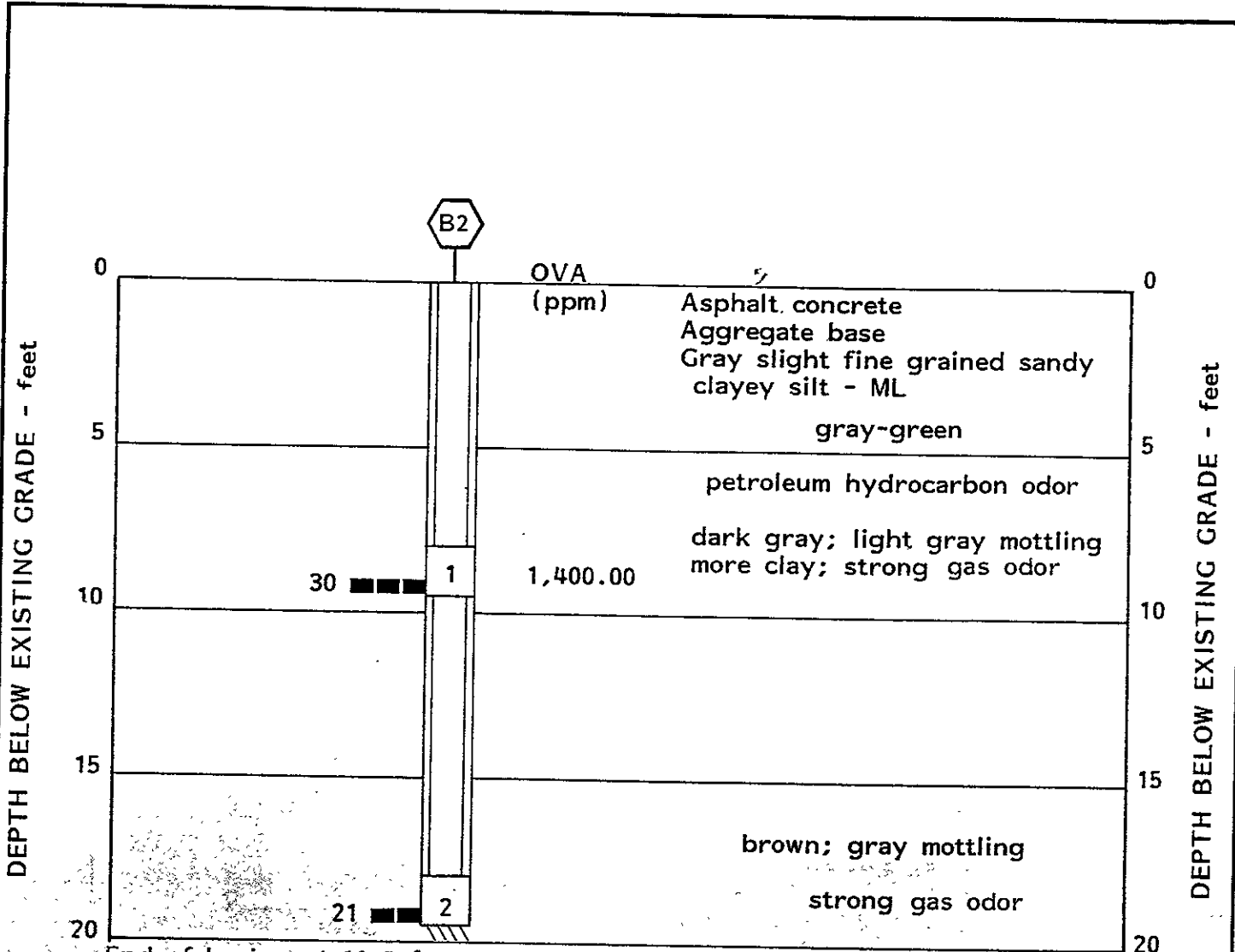


350 San Leandro Boulevard
San Leandro, California

PROJECT NO: 1281.01

DATE: 7/90

PLATE NO: 3



End of boring at 19.5 feet.
Boring backfilled with cement/bentonite slurry.

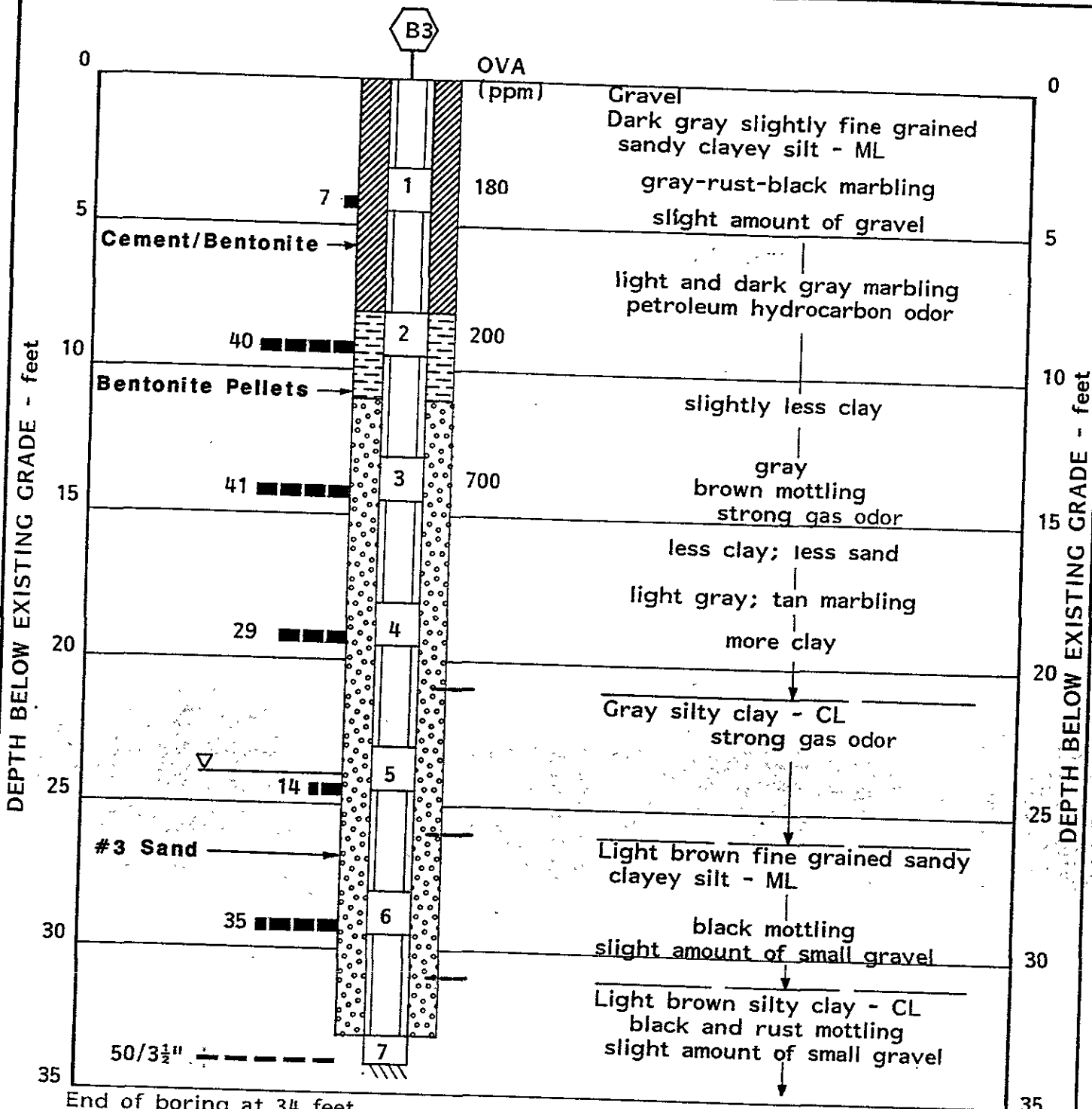
NOTES:

- 1) These logs depict conditions only at the boring locations, see Plate No. 1, and only on the dates of field exploration, July 2 & 3, 1990.
- 2) Explanations of the Unified Soil Classification System and the symbols used on the logs are contained on Plate No. 9.



BORING LOGS
350 San Leandro Boulevard
San Leandro, California

PROJECT NO: 1281.01
DATE: 7/90
PLATE NO: 4



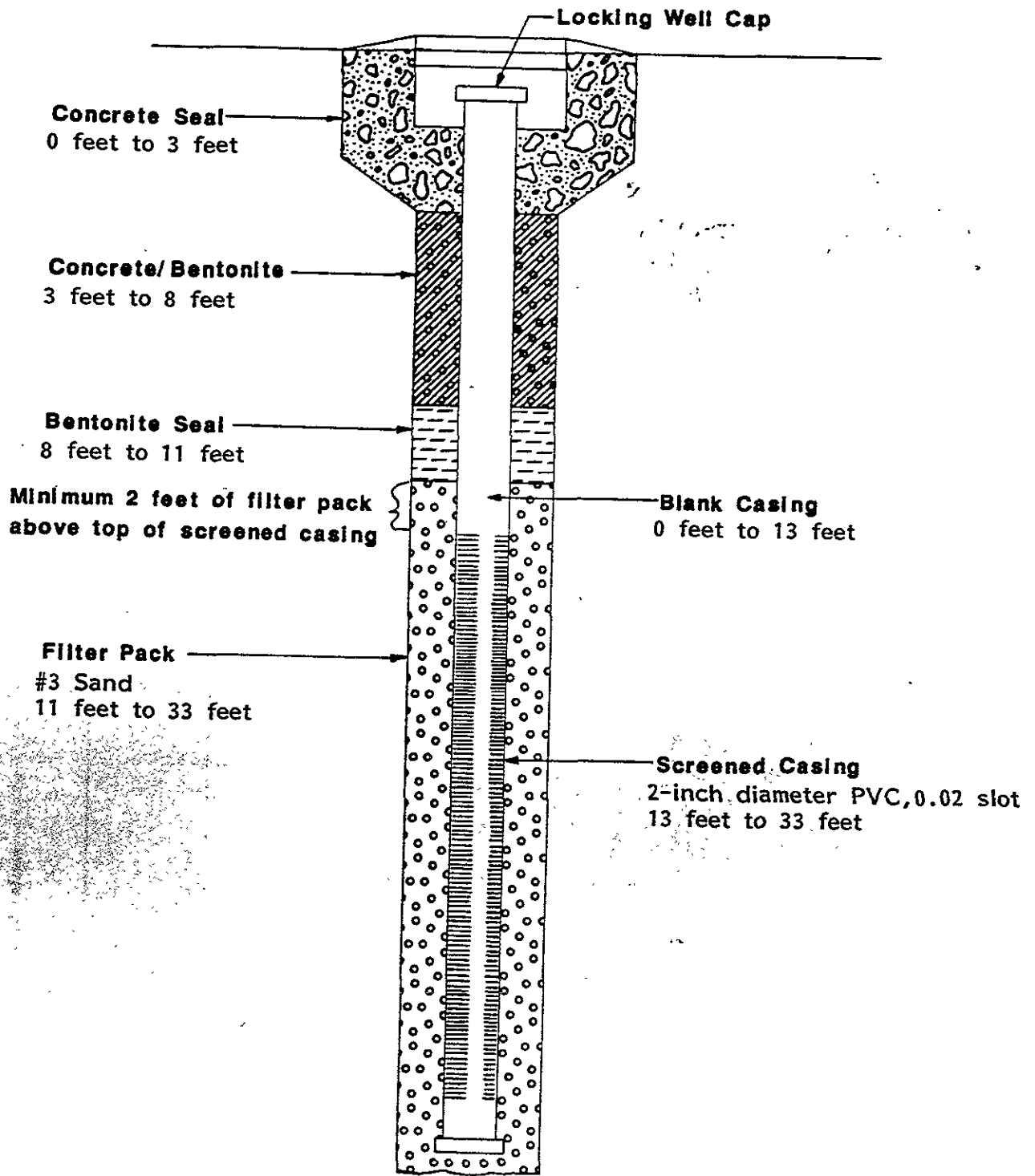
End of boring at 34 feet.
 Ground water encountered at 24 feet.
 Ground water monitoring well installed to 33 feet.

- NOTES:
- 1) These logs depict conditions only at the boring locations, see Plate No. 1, and only on the dates of field exploration, July 2 & 3, 1990.
 - 2) Explanations of the Unified Soil Classification System and the symbols used on the logs are contained on Plate No. 9.



BORING LOGS
 350 San Leandro Boulevard
 San Leandro, California

PROJECT NO: 1281.01
 DATE: 7/90
 PLATE NO: 5



(Not to Scale)

Groundwater Monitoring Well B3

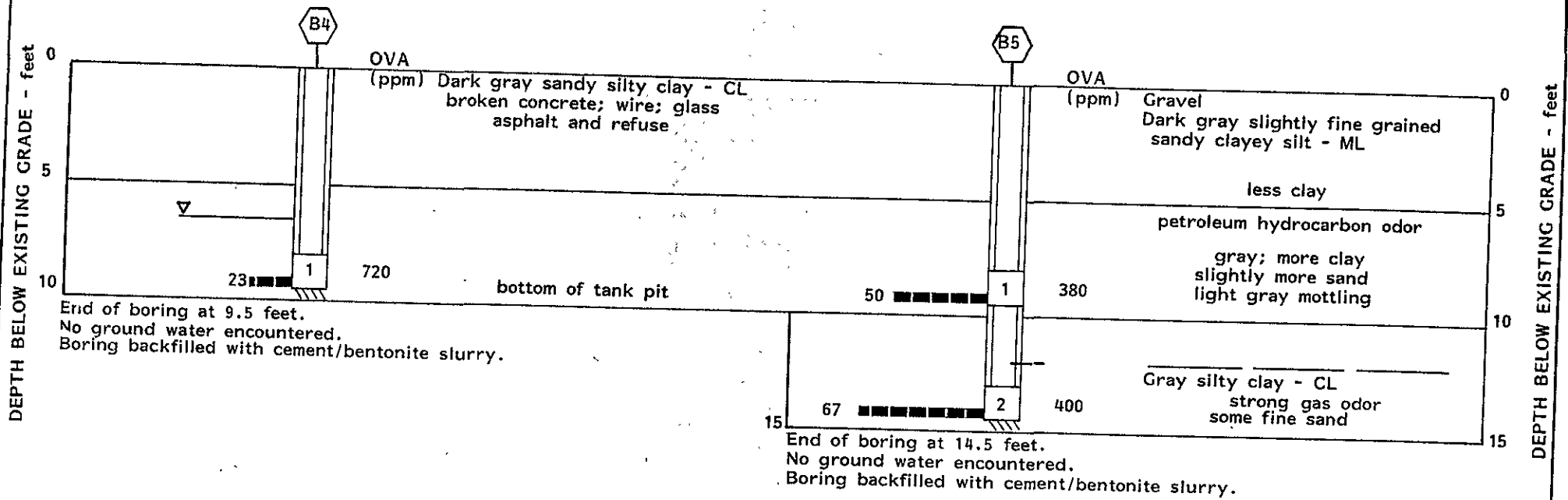


350 San Leandro Boulevard
San Leandro, California

PROJECT NO: 1281.01

DATE: 8/90

PLATE NO: 63



NOTES:

- 1) These logs depict conditions only at the boring locations, see Plate No. 1, and only on the dates of field exploration, July 2 & 3, 1990.
- 2) Explanations of the Unified Soil Classification System and the symbols used on the logs are contained on Plate No. 9.

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DRAWN BY: WGK

CHECKED BY: CLR

BORING LOGS

350 San Leandro Boulevard

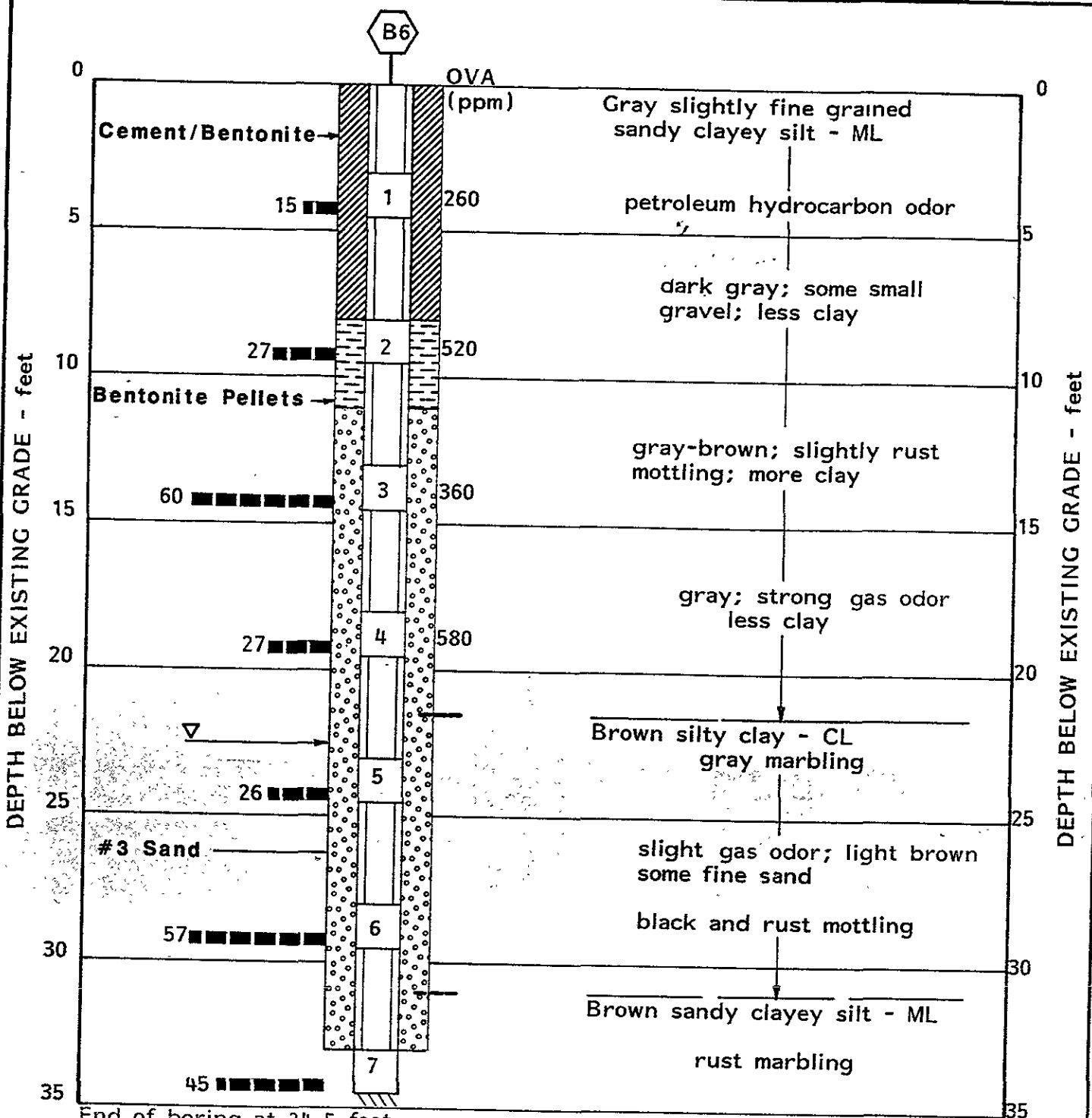
San Leandro, California



PROJECT NO: 1281.01

DATE: 7/90

PLATE NO: 7



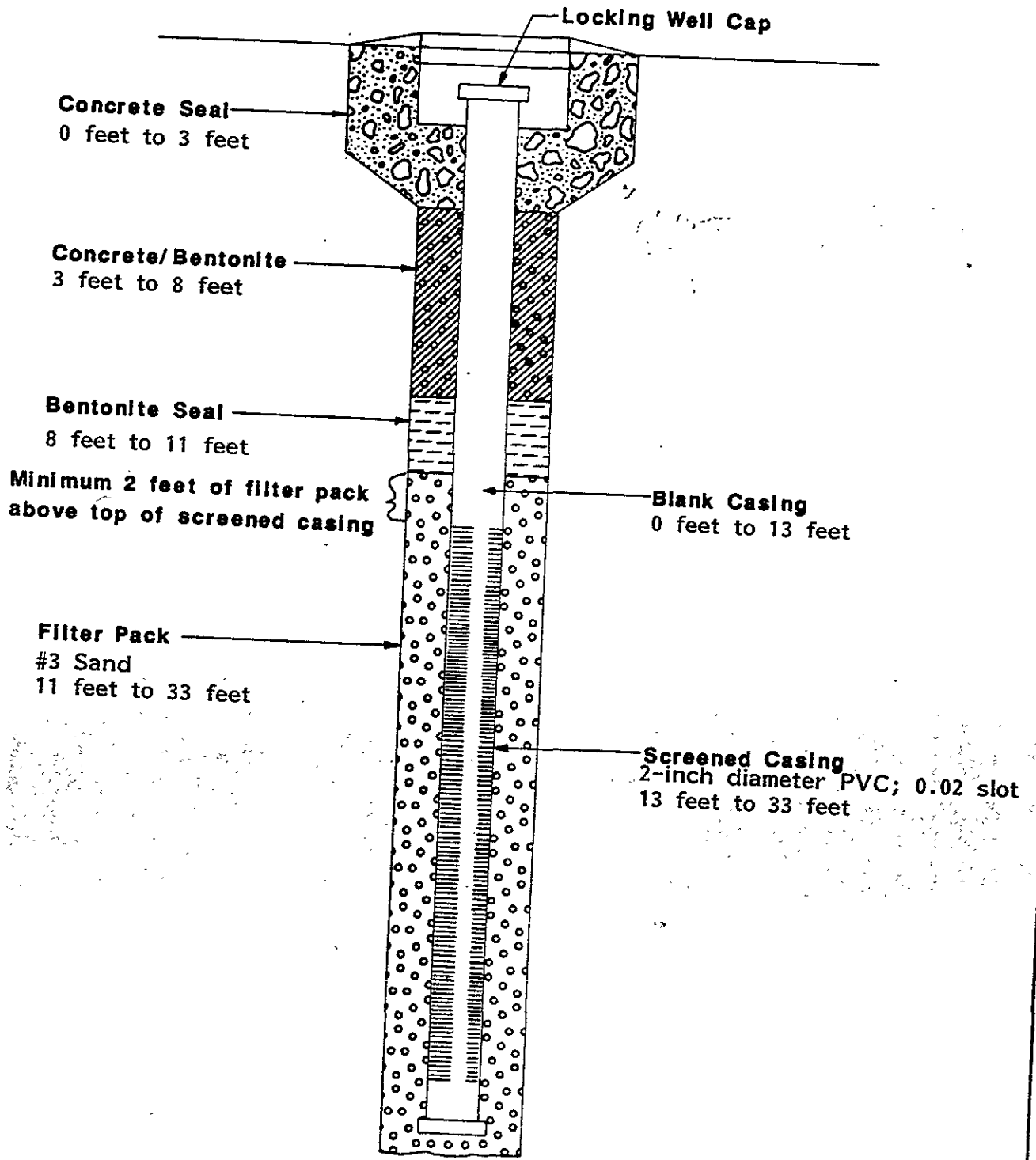
End of boring at 34.5 feet.
 Ground water encountered at 22.5 feet.
 Ground water monitoring well installed to 33 feet.
 NOTES:

- 1) These logs depict conditions only at the boring locations, see Plate No. 1, and only on the dates of field exploration, July 2 & 3, 1990.
- 2) Explanations of the Unified Soil Classification System and the symbols used on the logs are contained on Plate No. 9.



BORING LOGS
 350 San Leandro Boulevard
 San Leandro, California

PROJECT NO: 1281.01
DATE: 7/90
PLATE NO: 8



(Not to Scale)

Groundwater Monitoring Well B6

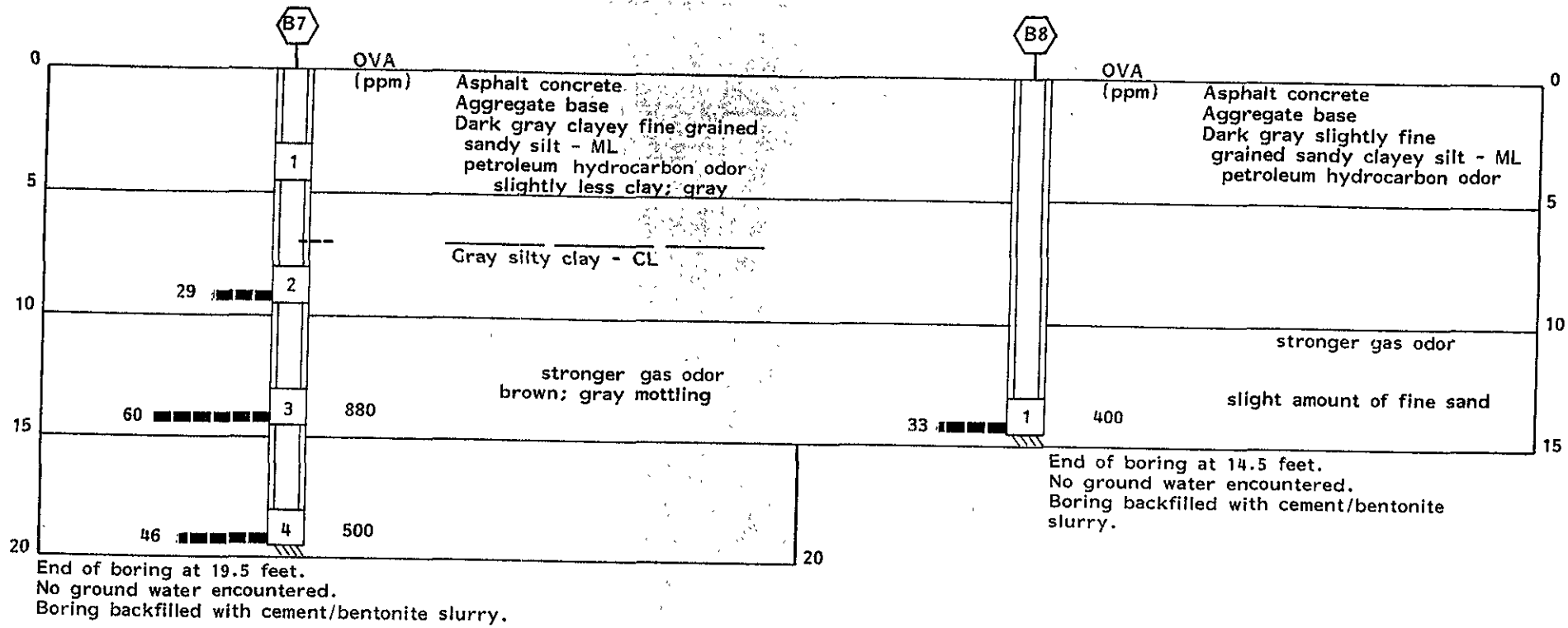


350 San Leandro Boulevard
San Leandro, California

PROJECT NO: 1281.01

DATE: 7/90

PLATE NO: 9



NOTES:

- 1) These logs depict conditions only at the boring locations, see Plate No. 1, and only on the dates of field exploration, July 2 & 3, 1990.
- 2) Explanations of the Unified Soil Classification System and the symbols used on the logs are contained on Plate No. 9.

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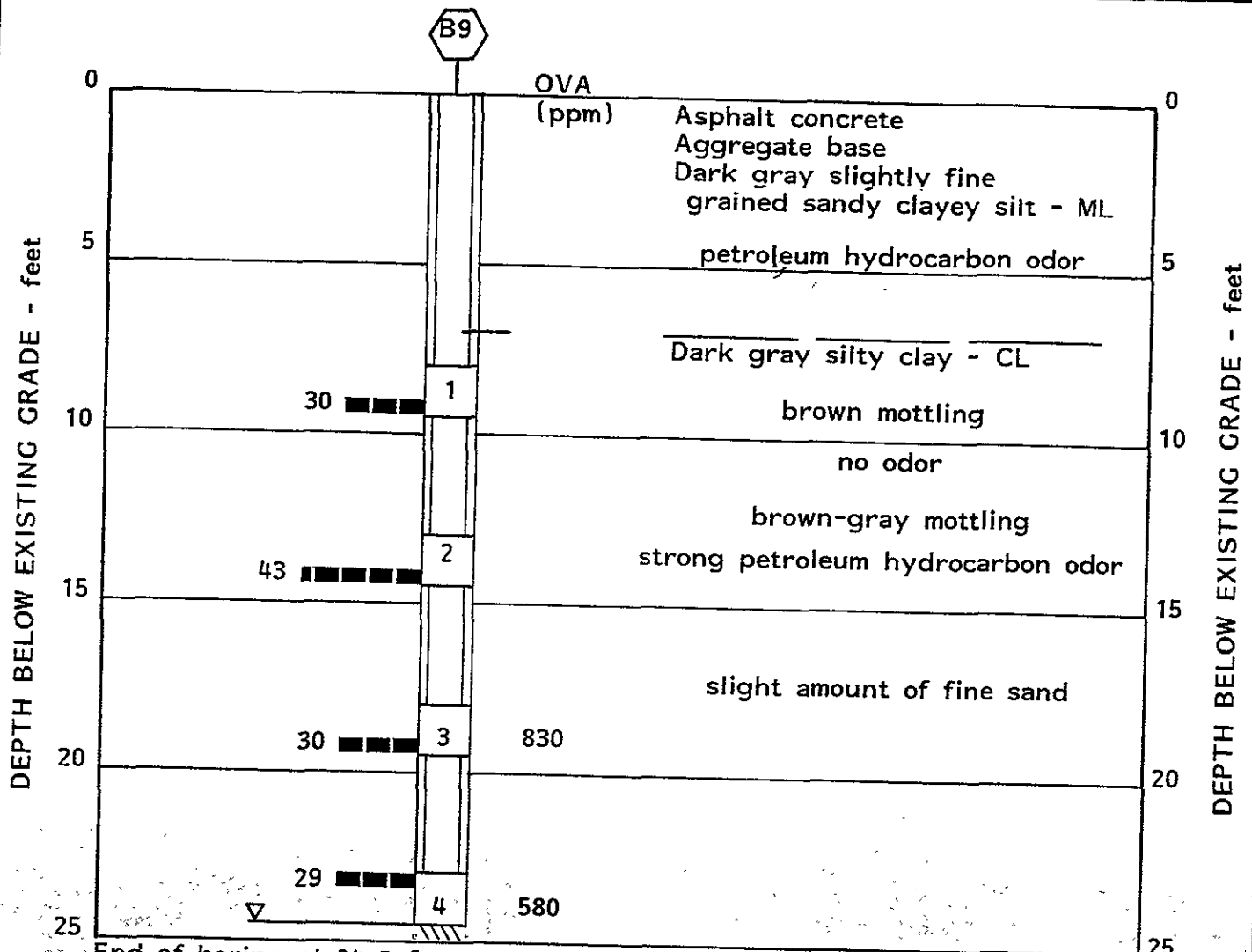
Geotechnical Consultants / Construction Testing

DRAWN BY: W GK
CHECKED BY: CLR

BORING LOGS
350 San Leandro Boulevard
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PROJECT NO: 1281.01
DATE: 7/90
PLATE NO: 10



End of boring at 24.5 feet.
 Ground water encountered at 24.5 feet.
 Boring backfilled with cement/bentonite slurry.



BORING LOGS
 350 San Leandro Boulevard
 San Leandro, California

PROJECT NO: 1281.01
DATE: 7/90
PLATE NO: 11

TABLE 4 Example Tier 1 Risk-Based Screening Level (RBSL) Look-Up Table

NOTE—This table is presented here only as an example set of Tier 1 RBSLs. It is not a list of proposed standards. The user should review all assumptions prior to using any of the values. Appendix X2 describes the basis of these values.

Exposure Pathway	Receptor Scenario	Target Level	Benzene	Ethylbenzene	Toluene	Xylenes (mixed)	Naphthalene	Benzo(a)pyrene	
			ppm						
AIR	Indoor Air Screening Levels for Inhalation Exposure (µg/m³)	Residential	Cancer Risk = 1E-06	0.11				1.86E-03	
			Cancer Risk = 1E-04	11.37				1.86E-01	
			Chronic HQ = 1		1.39E+03	5.56E+02	9.73E+03	1.95E+01	
		Commercial/Industrial	Cancer Risk = 1E-06	0.14					2.35E-03
			Cancer Risk = 1E-04	14.3					2.35E-01
			Chronic HQ = 1		1.46E+03	5.84E+02	1.02E+04	2.04E+01	
	Outdoor Air Screening Levels for Inhalation Exposure (µg/m³)	Residential	Cancer Risk = 1E-06	0.09					1.40E-03
			Cancer Risk = 1E-04	8.53					1.40E-01
			Chronic HQ = 1		1.04E+03	4.17E+02	7.30E+03	1.46E+01	
		Commercial/Industrial	Cancer Risk = 1E-06	0.14					2.35E-03
			Cancer Risk = 1E-04	14.3					2.35E-01
			Chronic HQ = 1		1.46E+03	5.84E+02	1.02E+04	2.04E+01	
OSHA TWA PEL (µg/m³)			3.20E+03	4.35E+05	7.53E+05	4.35E+05	5.00E+04	2.00E+02 [1]	
Mean Odor Detection Threshold (µg/m³) [2]			1.95E+05		6.00E+03	8.70E+04	2.00E+02		
National Indoor Background Concentration Range (µg/m³) [3]			3.25E+03 - 2.15E+01	2.20E+00 - 9.70E+00	9.60E-01 - 2.91E+01	4.85E+00 - 4.76E+01			
SOIL	Soil - Volatilization to Outdoor Air (mg/kg)	Residential	Cancer Risk = 1E-06	0.08				RES	
			Cancer Risk = 1E-04	7.89				RES	
			Chronic HQ = 1		RES	RES	RES	RES	
		Commercial/Industrial	Cancer Risk = 1E-06	0.13					RES
			Cancer Risk = 1E-04	13.25					RES
			Chronic HQ = 1		RES	RES	RES	RES	
	Soil - Vapor Intrusion from Soil to Buildings (mg/kg)	Residential	Cancer Risk = 1E-06	0.002					RES
			Cancer Risk = 1E-04	0.16					RES
			Chronic HQ = 1		3.46E+01	2.08E+01	RES	4.07E+01	
		Commercial/Industrial	Cancer Risk = 1E-06	0.003					RES
			Cancer Risk = 1E-04	0.490.3					RES
			Chronic HQ = 1		9.08E+01	5.45E+01	RES	1.07E+02	
	Surficial Soil (0-3 ft) Ingestion/Dermal/Inhalation (mg/kg)	Residential	Cancer Risk = 1E-06	1.69					1.30E-01
			Cancer Risk = 1E-04	168.8					1.30E+01
			Chronic HQ = 1		7.83E+03	1.33E+04	1.45E+05	9.77E+02	
		Commercial/Industrial	Cancer Risk = 1E-06	2.9					3.04E-01
			Cancer Risk = 1E-04	290					3.04E+01
			Chronic HQ = 1		1.15E+04	1.87E+04	2.08E+05	1.50E+03	
Soil - Leachate to Protect Groundwater Ingestion Target Level (mg/kg)	MCL's		2.93E-02	9.11E+00	1.77E+01	3.05E+02	N/A	9.42E+00	
	Residential	Cancer Risk = 1E-06	0.005					5.50E-01	
		Cancer Risk = 1E-04	0.5					RES	
		Chronic HQ = 1		4.75E+01	1.29E+02	RES	2.29E+01		
	Commercial/Industrial	Cancer Risk = 1E-06	0.017					1.85E+00	
		Cancer Risk = 1E-04	1.68					RES	
Chronic HQ = 1			1.33E+02	3.61E+02	RES	6.42E+01			
GROUND WATER	Groundwater - Volatilization to Outdoor Air (mg/L)	Residential	Cancer Risk = 1E-06	3.19				> S	
			Cancer Risk = 1E-04	319				> S	
			Chronic HQ = 1		> S	> S	> S	> S	
		Commercial/Industrial	Cancer Risk = 1E-06	5.34					> S
			Cancer Risk = 1E-04	> S					> S
			Chronic HQ = 1		> S	> S	> S	> S	
	Groundwater Ingestion (mg/L)	MCL's		5.00E-03	7.00E-01	1.00E+00	1.00E+01	N/A	2.00E-04
		Residential	Cancer Risk = 1E-06	0.0009					1.17E-05
			Cancer Risk = 1E-04	0.085					1.17E-03
			Chronic HQ = 1		3.65E+00	7.30E+00	7.30E+01	1.46E-01	
		Commercial/Industrial	Cancer Risk = 1E-06	0.003					3.92E-05
			Cancer Risk = 1E-04	0.29					> S
Chronic HQ = 1			1.02E+01	2.04E+01	> S	4.09E-01			
Groundwater - Vapor Intrusion from Groundwater to Buildings (mg/L)	Residential	Cancer Risk = 1E-06	0.024					> S	
		Cancer Risk = 1E-04	2.35					> S	
		Chronic HQ = 1		> S	1.14E+02	> S	1.06E+01		
	Commercial/Industrial	Cancer Risk = 1E-06	0.074					> S	
		Cancer Risk = 1E-04	7.424					> S	
		Chronic HQ = 1		> S	3.00E+02	> S	2.78E+01		

As benzene soluble coal tar pitch volatiles.

American Industrial Hygiene Association, Odor Thresholds for Chemicals with Established Occupational Health Standards, 1989.

From: Shah and Singh, Environmental Science Technology Vol 22, No. 12; ATSDR, 1988, Toxicological Profiles, U.S. Public Health Services, 1988, and Wallace, L. A., Journal of Occupational Medicine, Vol 28, No. 5, 1986.

"RES"—selected risk level is not exceeded for pure compound present at any concentration.

">S"—selected risk level is not exceeded for all possible dissolved levels (≤ pure component solubility).