Pangea
ENVIRONMENTAL SERVICES, INC.

November 11, 2004

Mr. Don Hwang
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: **Interim Remedial Action Plan**
Connell Automotive Dealership
3093 Broadway
Oakland, California
StID #469

Dear Mr. Hwang:

On behalf of the Hill Family Trust and the Linden Broadway Property Trust, Pangea Environmental Services, Inc. (Pangea), prepared this *Interim Remedial Action Plan* (IRAP) for the above-referenced site. This IRAP was requested in August 11, 2004 letter by the Alameda County Health Care Services Agency (ACHCSA). Described below are an introduction and overview, site background, remedial objectives, an evaluation of remedial alternatives, and the proposed interim remediation and implementation plan.

INTRODUCTION AND OVERVIEW

Unauthorized Release and Corrective Action History: Three former underground storage tanks (USTs) were located beneath the sidewalk adjacent to the north site of the facility as shown on Figure 1. The former USTs previously contained gasoline, diesel, and waste oil. A major leak from a nearby offsite City water main apparently caused an unauthorized release from the USTs. In 1989 the former USTs were removed from the subject site and replaced with clean, imported fill material. Soil and groundwater investigation has been ongoing since 1990. The lateral extent of hydrocarbons has been characterized by existing site wells, and by previous groundwater monitoring wells, grab groundwater sampling and soil borings. Between October 1996 and March 1998 operation of a soil vapor extraction (SVE) remediation system removed approximately 1,421 lbs of hydrocarbons. Manual removal of separate phase hydrocarbons (SPH, also known as free product) from site monitoring wells has been ongoing since 1991. Feasibility testing in September 2000 indicated that dual phase extraction (DPE) was effective for removing hydrocarbons at the site.

Subsurface Conditions: Groundwater monitoring indicates that SPH persists in four site wells, and elevated concentrations of gasoline constituents are present in several wells across the site. Historical groundwater elevation data and analytical data for volatile hydrocarbons are summarized on Table 1 (see most recent quarterly monitoring report for additional groundwater data). A site map and soil borings/monitoring well locations are shown on Figure 1. Groundwater elevation contours and hydrocarbon concentrations from recent monitoring (August 2004) are shown on Figure 2. Figure 3 illustrates the hydrocarbon distribution in groundwater based on recent monitoring well data and on grab groundwater sampling from 1992 and 1998. The shaded area on Figure 3 indicates the significant lateral extent of hydrocarbons near or above 100,000 (micrograms/liter (ug/L) Total Petroleum Hydrocarbons as gasoline (TPHg)/Total Volatile Hydrocarbons (TVH) and 10,000 ug/L benzene. The grab sampling results and are probably representative of shallow, first encountered groundwater while the monitoring well results are more representative of groundwater conditions in the water-bearing units at the site. The lack of significant hydrocarbon attenuation and the low dissolved oxygen concentrations in site wells suggest that the grab groundwater samples likely represent approximate current conditions at the site, despite the age of the sampling. The grab sampling results may have been affected by hydrocarbons adsorbed to sediment, if any, within the grab samples. The approximate hydrocarbon distribution is also illustrated on a geologic cross section in Figure 4. Attachment A presents historical soil analytical data compiled from previous reports, and suggests that the soil impact is primarily in the saturated zone. Attachment B presents boring logs, well construction details, and a geologic cross sections prepared by others.

Despite prior soil vapor extraction and ongoing interim remediation, free product and elevated constituent concentrations persist at both the upper and lower portions of the site. The site is located on the hillside of "Pill Hill." The upper portion of the site is near the former USTs (the presumed source area), while the lower portion of the site is near the bottom of the hill. The subsurface materials consist of permeable soil interbedded with lower permeability materials, apparently sloping down the hillside.

It is likely that free product from the former UST area (near MW-1) migrated down the hillside and collected near MW-6. Investigation, feasibility test data, and monitoring data indicate that free product is accessible for dual phase extraction near MW-1, is less accessible near wells MW-14 and MW-15, and is primarily *submerged* and trapped under a clay unit near downgradient well MW-6 where more aggressive dual phase extraction/insitu remediation would be required.

At the upper portion of the site, free product is present in wells MW-1, MW-14, and MW-15. Prior to the detection of free product in the wells MW-1, MW-14, and MW-15, the benzene concentrations were 39,000 micrograms per liter (ug/L), 12,000, and 9,900 ug/L, respectively.

At the lower portion of the site, the elevated impact area is characterized by wells MW-4, MW-6, MW-9 and MW-10. Free product is still present in well MW-6 despite approximately 18 months of soil vapor extraction (SVE) from that well using an internal combustion engine between October 1996 and March 1998 by Subsurface Consultants. SCI concluded that vapor extraction was no longer effectively removing hydrocarbons when the water level rose during the rainy season of 1997/1998. In well MW-4, located approximately 100 feet away from MW-6, free product was observed in 1993 and 1995. Since 1995 benzene concentrations in well MW-4 have ranged from 12,000 to 24,000 ug/L. Benzene concentrations in well MW-10 ranged from 28,000 to 140,000 ug/L before monitoring discontinued in 1998 due to its proximity to well MW-4. At the upgradient most edge of the lower portion of the site, well MW-9 has had benzene concentrations ranging from 730 to 2,600 ug/L since 2000. Grab groundwater sampling from 1992 and 1998, as shown on Figure 3, also helps characterize the extent of hydrocarbons at the site.

Nearly fourteen years of groundwater monitoring data suggests that limited natural attenuation is occurring at the site. Dissolved hydrocarbon concentrations exhibit stable or small decreasing trends in site wells. The very low dissolved oxygen concentrations support the conclusion that limited bioattenuation is occurring. The dissolved oxygen concentrations in site wells have primarily ranged from approximately 0.25 to 0.75 milligrams/liter (mg/L), with a slight increase to near or above 1 mg/L for the past two monitoring events. In general, the dissolved oxygen concentrations are slightly higher in the less impacted or non-impacted wells. The recent highest dissolved oxygen concentration (1.41 mg/L) was observed in well MW-8, a nearly 'clean' well. The hydrocarbon concentration trends for well MW-3 suggest that natural attenuation is occurring in groundwater near the downgradient edge of the plume. Site conditions are discussed further in the site background section.

Regulatory Request for Remediation: The ACHCSA is currently requesting interim remedial action at the site. To respond to this request Pangea has reviewed and compiled available site data to facilitate IRAP preparation. To facilitate selection of appropriate and cost-effective interim remediation, Pangea included an evaluation of several remedial techniques, including interim techniques already used at the site. Pangea's IRAP has considered pertinent site data and is tailored specifically for this site.

SITE BACKGROUND

Site Description: The site is occupied by an automotive dealer and repair facility, located on the south side of Hawthorne Avenue, between Broadway and Webster Street. The facility consists of a one-story building with a slap-on-grade floor. Asphalt and concrete-paved access ways extend along the west and south sides of the structure. Sidewalks boring the north and east sides of the site.

Regional Hydrogeology: The site was developed by cutting into the eastern flank of a minor structural uplift on the Oakland alluvial plain referred to as "Pill Hill" The ground surface in the area slopes moderately down toward the east and southeast. The ground surface slopes downward across Broadway and toward Glen Echo Creek, a southerly flowing stream which empties into Lake Merritt.

Site Lithology and Hydrogeology: The site is underlain by interbedded layers of alluvium. The alluvial soils consist of varying gradations of sand, silt, clay and gravel. The soils appear to primarily consist of two permeable materials such as clayey sands and silt, and silty clays. A saturated sand and gravel layer beneath the eastern portion of the site, situated between 15 and 30 feet below grade surface (bgs), and "deepends" toward the east and south. The layer appears to thin toward the hills to the west. Levine-Fricke data from the adjacent site indicated the stream channel deposits exist near the ground surface below Hawthorne Avenue. Underlain by the Temescal formation, an extensive Quaternary Age alluvial fan deposit comprised of interbedded lenses of silt, sand, clay and gravel. The random nature of alluvial fan deposit of heterogeneous layers are irregular and thickness and laterally discontinuous. According to previous reports, analysis of subsurface profiles provides little correlation between layers encountered within the various borings and CPT probes.

The heterogeneous nature of the subsurface was confirmed by pump test results, which found preferential flow within the coarse-grained deposits. The effect of pumping from well MW-10, which has well-graded sandy gravel present at the groundwater surface, was observed up to 200 feet away in well MW-2 with similar soils present at the groundwater surface. However, well MW-6 (situated about 90 feet away from well MW-10) also has coarse-grained soils near the groundwater surface and was unaffected by pumping from well MW-10. Pumping from well MW-8, which penetrates predominantly fine grained soils, did not affect water levels in adjacent wells.

Based on groundwater monitoring on August 19, 2004, groundwater flowed east north-eastward with a calculated gradient of 0.092, which is consistent with historical trends (Figure 2). The historical depth to water has ranged from approximately 16 to 28 feet bgs in site wells.

Soil and Groundwater Quality: The presence of free product and the elevated constituent concentrations significantly exceed the water quality objectives and the environmental screening levels (ESL) established by the Regional Water Quality Control Board – San Francisco Bay Region (RWQCB-SFBR). The primary compounds of concern identified at the site are the volatile constituents of gasoline including benzene, toluene, ethylbenzene and xylenes (BTEX) and 1,2-dichloroethane (DCA, aka ethylene dichloride, EDC). On occasion polycyclic aromatics have been identified at the site, including naphthalene and 2-methylnaphthalene. Other halogenated volatile organic compounds, semi-volatile compounds (primarily phenols), and metals have been detected in groundwater, as shown on Table 1 and monitoring reports.

Previous Investigations: In December 1989 soil sampling was conducted during removal of the USTs. In December 1990, preliminary site assessment was conducted by Subsurface Consultants, Inc. (SCI), which included the completion of five soil borings (B-1 through B-4) and the installation of MW-1 (boring B-5). The maximum hydrocarbon concentrations were detected in soil at 30.5 feet bgs in the boring for MW-1. In 1989 and 1990 groundwater samples were analyzed from nearby offsite wells installed by Levine Fricke (LF2, LF3 and LF4). In October 1990 only 10 ug/L benzene was detected in LF2; no BTEX was detected in wells LF3 and LF4 except for trace xylenes. In June 1991, SCI performed an additional site assessment consisting of the installation of groundwater monitoring wells MW-2 through MW-7. In October 1992 SCI apparently conducted CPT testing at seventeen (17) locations onsite and offsite, and installed wells MW-8 through MW-13. Wells MW-8 and MW-10 are six-inch diameter groundwater monitoring/extraction wells, with MW-10 located within the plume and well MW-8 located near the approximate downgradient edge of the site. In May 1998, SCI completed seven borings (SB-A through SB-G) and converted boring SB-D into monitoring well MW-14 and boring SB-E into well MW-15. Results of grab groundwater sampling from borings B, C and G are included on Table 1 and Figure 3. In 2000, a potential receptor and preferential pathway survey was conducted by Cambria Environmental Technology, Inc. This included a well survey, conduit study, and a review of surface water and historical geological/hydrogeological maps for the vicinity, and did not identify any significant receptors or pathways of concern.

REMEDIAL OBJECTIVES

Given the persistence of free product and elevated hydrocarbon concentrations in groundwater, the ACHCSA has required an interim remedial action plan (IRAP). The objective of this IRAP is to significantly improve soil and groundwater quality, potentially to the point where residual contamination can attenuate naturally within a reasonable timeframe. Since previous remedial efforts (soil vapor extraction and passive skimming/manual bailing of SPH) have been relatively ineffective at the site, another IRAP objective is to implement more appropriate remedial techniques. Feasibility testing in September 2000 indicated that dual phase extraction (DPE), a more aggressive technique than prior techniques used at the site, effectively removed hydrocarbons from the site subsurface.

EVALUATION OF ALTERNATIVES

Pangea offers this evaluation of the appropriateness and cost effectiveness of several techniques for site remediation. Based on the fairly unique site conditions and the history of ineffective remediation at the site, Pangea evaluates several remedial techniques.

Free Product Skimming/Bailing

This is a common interim remedial approach. Since 1991 consultants have conducted manual removal of free product from site monitoring wells via manual bailing, passive skimmers, and absorbent socks. After nearly thirteen years of implementing this approach free product persists. While this approach can be relatively inexpensive in the short term, the approach is labor intensive and more expensive in the long term. The continued presence of free product in site wells suggests this is not an appropriate primary technique for site remediation.

Excavation

Excavation is also a proven and effective technique for interim remediation of petroleum hydrocarbons. Excavation is most appropriate for shallow soil, and especially for low permeability soil where insitu remedial techniques have very limited effectiveness. Excavation is also a cost effective option for undeveloped sites, where the excavation area is accessible and not beneath site facilities. Excavation can remove unsaturated soil, capillary fringe soil, and saturated soil. Excavated soil is usually transported offsite for disposal, but soil can be treated and reused at the site in accordance with regulatory guidelines and approval. Given the depth of the site contamination and the presence of an operating automobile dealership, excavation is not deemed appropriate or cost effective for this site.

Soil Vapor Extraction

Soil vapor extraction is another common approach for remediating free product and unsaturated soil. This approach uses an aboveground blower to extract vapor phase hydrocarbons from the site subsurface, simultaneously volatilizing SPH on the water table or SPH trapped within vadose zone soil. SVE also remediates hydrocarbons adsorbed to unsaturated soil that could pose a risk to groundwater quality. At sites with a fairly permeable capillary fringe and saturated zone, SVE can improve groundwater quality. Extracted vapors are typically treated aboveground with oxidizers or activated carbon.

SVE was used on well MW-6 for 18 months (October 1996 through March 1998) and removed approximately 1,421 pounds of hydrocarbons. However, the remediation consultant concluded that vapor extraction was no longer effectively removing hydrocarbons when the water level rose during the rainy season of 1997/1998. Site data suggests that free product near well MW-6 is likely present within a clay unit from approximately 26 to 28 feet bgs, and submerged/trapped within a gravelly sand unit present at approximately 28 to 33 feet bgs. For the free product area near well MW-1, feasibility testing in September 2000 demonstrated that combining SVE with groundwater extraction (also known as dual phase extraction, DPE) effectively removed hydrocarbons. During this DPE testing of MW-1 the extraction piping (or 'stinger') was placed 4.6 feet into groundwater to dewater and expose saturated soil to SVE. Therefore, SVE alone is not appropriate for the site.

Dual Phase Extraction and Air Sparging

Dual-phase extraction (DPE) is a common technique for remediating sites impacted with elevated concentrations of petroleum hydrocarbons and SPH. This approach targets unsaturated soil, the capillary fringe, and shallow saturated soil. DPE involves the simultaneous extraction of soil vapor and liquid (groundwater/free product mixture) from site wells using a large above-ground extraction blower. DPE is sometimes referred to as soil vapor extraction/groundwater extraction (SVE/GWE). For applications requiring significant groundwater extraction flow rates, submersible groundwater pumps are also used to help dewater the hydrocarbon smear zone and expose hydrocarbons to vapor extraction. DPE requires a network of extraction and discharging piping to extract, treat and dispose of the extracted media. Long-term DPE applications require electrical service as well as natural gas or propane as supplemental fuel for vapor treatment. Extracted groundwater requires temporary storage and/or treatment prior to discharge to the sanitary sewer or storm drain. For small scale and short-term operations, portable generators and temporary water storage tanks are used. DPE is often most appropriate for sites with low to moderate soil permeability where other insitu techniques are less effective. Based on site feasibility test results and our experience at other sites, DPE is an appropriate remedial technique for this site.

Air sparging (AS) is often used to enhance DPE effectiveness and provide greater remedial cost effectiveness. AS involves the injection of compressed air into the saturated zone to 'strip' hydrocarbons from groundwater for capture by SVE or DPE. AS also oxygenates groundwater and stimulates hydrocarbon degradation. AS wells are typically constructed with well screen starting approximately 10 feet below the water table, and well screen intervals are carefully selected to allow capture of hydrocarbon vapors created by sparging. For sites with deeper water-bearing units overlain by clayey soil, AS can be performed at low flow rates to allow groundwater oxygenation without causing lateral migration of hydrocarbons. Low flow AS is also a cost effective technique to stimulate hydrocarbon degradation of residual contamination that slowly diffuses out of the fine grained materials at a given site. AS is an appropriate technique for this site given the impacted fine grained material in the capillary fringe (found within most site wells) and impacted coarse grained materials gravel/sand units) deeper in the saturated zone (e.g., MW-6 and MW-14).

Ozone Sparging

Ozone sparging is a relatively new remedial technique. It is similar to AS but includes the addition of ozone to air injected into the subsurface. Ozone sparging is used especially for remediation of petroleum hydrocarbon releases with methyl tertiary butyl ether (MTBE). MTBE is considered a fairly recalcitrant compound, which biodegrades slowly in the subsurface, and typically requires groundwater extraction, oxidation, or advance techniques for remediation. The ozone rapidly oxides petroleum hydrocarbons and MTBE within the immediate influence area and provides significant groundwater oxygenation to stimulate hydrocarbon degradation. Ozone sparging is often used in conjunction with SVE or DPE to capture hydrocarbon vapors

created by sparging (although ozone's oxidation of volatile compounds makes vapor capture less important than with traditional air sparging). The ozone, however, acts as a biocide near the injection location and temporarily stops microbial degradation of hydrocarbons. Upon completion of ozone injection the microbial populations likely return rapidly in the presence of the elevated dissolved oxygen. Because ozone is a strong oxidizer, ozone injection within areas impacted by free product should be carefully controlled and monitored. Given the added cost and risks associated with ozone sparging and the lack of MTBE, AS is a more appropriate and cost effective approach than ozone sparging for enhancing DPE effectiveness at this site.

PROPOSED INTERIM REMEDIATION

Based on the above evaluation, Pangea proposes dual-phase extraction (DPE) with air sparging (AS) as an appropriate and cost effective technique for interim remedial action at the site. DPE/AS is a common technique for remediating sites impacted with elevated concentrations of petroleum hydrocarbons and separate-phase hydrocarbons (free product). Described below are the proposed DPE/AS system design, the benefits of the DPE/AS approach, and the implementation plan.

DPE/AS System Design

The proposed system layout and estimated influence area are shown on Figure 5. The IRAP involves four dual phase extraction (DPE) wells and four air sparge wells in the upper portion of the site, and again in the lower portion of the site. Since DPE feasibility testing in September 2000 measured vacuum influence up to 35 and 60 feet from extraction wells, Pangea used a design radius of 40 feet as the estimated 'effective' influence radius. Of the total eight DPE wells, five wells will be existing monitoring wells converted for DPE use. The four air sparge wells will be two shallow air sparge wells and two deeper air sparge wells. To control costs and minimize disruption to the current tenant, Pangea proposes to install one shallow and one deep air sparge well within one borehole. To further minimize cost and tenant disruption, Pangea did not recommend additional wells, and may route remedial piping along the building walls or overhead.

The remediation equipment compound will be located near well MW-9. Electrical services will be provided to the equipment compound, which will also have noise abatement materials. The sanitary sewer connection is anticipated nearby the equipment compound near boring SB-G. In summary, our plan involves the completion of seven borings for installation of three DPE wells and eight AS wells, and surface/subsurface piping from the wells to the remediation equipment compound and sanitary sewer.

Benefits of DPE/AS

The proposed DPE/AS approach offers the following benefits for the site:

- The approach may remediate the hydrocarbon impact to the point where residual contamination can degrade naturally after ceasing DPE/AS. The approach targets the primary area and media impacted by hydrocarbons: unsaturated soil, capillary fringe, shallow saturated soil, and groundwater. DPE/AS can remediate hydrocarbons far more effectively than prior techniques used at the site (soil vapor extraction, passive hydrocarbon skimmers, and manual bailing).

- DPE can be achieved cost effectively using a large above-ground vacuum pump (blower) to simultaneous extract soil vapor and liquid (groundwater/free product mixture) from site wells. Submersible groundwater pumps can also used to help dewater the hydrocarbon smear zone and expose hydrocarbons to vapor extraction. To facilitate use of submersible pumps (if needed), the proposed remediation wells will be sized appropriately and additional piping will be installed.

- Remediation can be conducted in stages to optimize effectiveness and control costs. DPE can be implemented alone until SPH thickness in site wells decrease, with the addition of AS to enhance subsurface vapor flow, improve DPE effectiveness, and accelerate site remediation.

- AS can be conducted in shallow wells to optimize remediation in capillary fringe soil of relatively lower permeability (near most wells), and to separately target remediation of deeper water bearing units consisting of higher permeability soil (e.g., gravelly sand near MW-14 present at 34 to 38 feet bgs).

- Low flow AS can be used to oxygenate groundwater once hydrocarbon removal rates using DPE reach asymptotic levels and costly DPE technique can be discontinued. Low flow AS will cost effectively stimulate hydrocarbon degradation of residual contamination that slowly diffuses out of the silty and clayey materials at the site. Additional piping will be installed to all remediation wells to facilitate future low flow AS or other oxygenation techniques, if merited.

- Existing and proposed wells can be used to monitor remedial effectiveness and groundwater quality.

IRAP IMPLEMENTATION

Pangea plans to commence implementation of the IRAP upon receipt of regulatory approval. Pangea will prepare construction drawings, obtain necessary permits, procure appropriate DPE and AS equipment, install the proposed remediation wells, and coordinate system installation and startup. The system design phase will involve equipment selection and piping design based on available utilities and brief DPE/AS testing of new remediation wells. At a minimum, Pangea anticipates using a catalytic oxidizer and extraction blower capable of achieving a minimum flow rate of 250 cubic feet per minute and an applied vacuum up to 15 inches of

mercury. The brief testing will also determine if submersible pumps are merited to enhance groundwater drawdown. The design phase will also involve tenant meetings to incorporate techniques and construction schedules that minimize disruption to the automobile dealership.

Interim remediation will be conducted in these phases: 1) DPE to reduce SPH thickness in site wells, 2) the subsequent addition of AS to enhance subsurface vapor flow and improve DPE effectiveness, and 3) discontinued DPE and initiation of low flow air sparging to oxygenate groundwater, once DPE removal rates reach asymptotic levels. During startup and operation of low flow AS, Pangea will monitor groundwater quality in monitoring wells surrounding the AS wells. This monitoring will help evaluate if low flow AS without DPE is causing lateral migration of hydrocarbons.

After system startup and one quarter of system operation, Pangea will prepare a system installation and quarterly remediation progress report. Remediation progress reports will be prepared on a quarterly basis. Pangea may request rebound testing of DPE and low flow AS to evaluate the effectiveness of the remedial efforts and the extent of residual hydrocarbons. Interim remedial action will be discontinued upon approval from the ACHCSA.

CLOSING

Pangea appreciates this opportunity to present this IRAP. If you have any questions or comments, please contact me at (510) 435-8664 or bcr@pangeaenv.com.

Sincerely,
Pangea Environmental Services, Inc.

Everett Sorensen, P.E.
Senior Engineer

Bob Clark-Riddell
Principal Engineer

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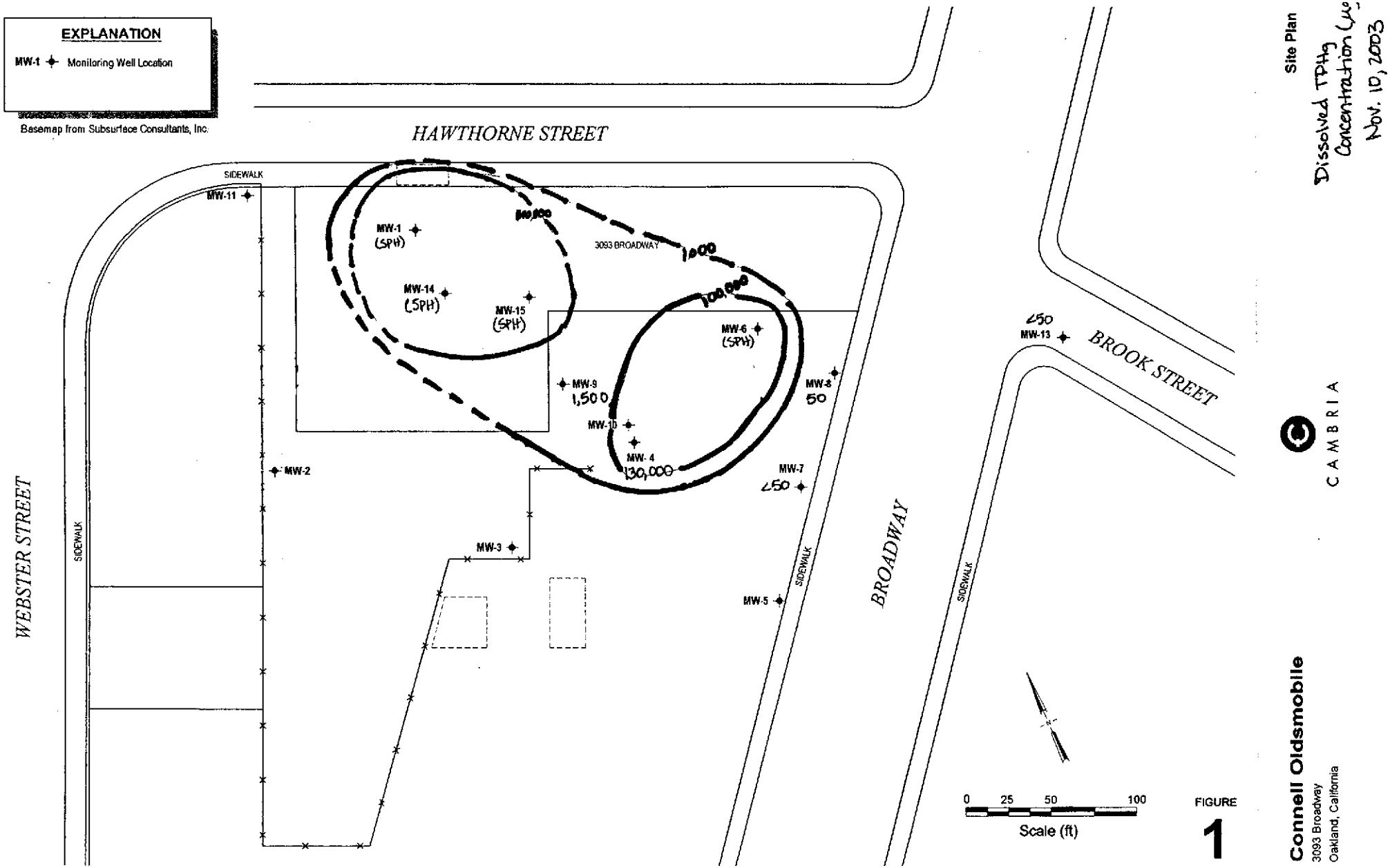
ATTACHMENTS

Figure 1 - Site Map with Boring/Well Locations
Figure 2 - Groundwater Elevation Contour - Third Quarter 2004
Figure 3 - Hydrocarbon Distribution in Groundwater
Figure 4 - Cross Section with Hydrocarbon Distribution
Figure 5 - Interim Remedial Action Plan

Table 1 – Groundwater Elevation and Analytic Data

Attachment A – Historical Soil Analytical Data
Attachment B – Boring Logs, Well Construction Details, and Geologic Cross Sections by Others

CC: George Hill, 305 Sheridan Ave., Piedmont, CA 94611
Gordon Linden, 150 La Salle Avenue, Piedmont, California 94611
Paul Kibel, Fitzgerald, Abbott & Beardsley, LLP, 1221 Broadway, 21st Floor, Oakland, CA 94612
Leroy Griffin, Hazardous Materials Manager, Fire Department - OES, 1605 MLK Jr. Way, Oakland, CA 94612


EXPLANATION
MW-1 Monitoring Well Location
Basemap from Subsurface Consultants, Inc.
HAWTHORNE STREET
WEBSTER STREET
BROADWAY
BROOK STREET
SIDEWALK
3093 BROADWAY
MW-11
MW-1 (SPH)
MW-14 (SPH)
MW-15 (SPH)
MW-2
MW-3
MW-9 1,500
MW-10
MW-4 130,000
MW-6 (SPH)
MW-8 50
MW-7 450
MW-5
MW-13 450
Site Plan
Dissolved TPHg Concentration (µg/L) Nov. 10, 2003
0 25 50 100
Scale (ft)
FIGURE 1
Connell Oldsmobile
3093 Broadway
Oakland, California
CAMBRIA

11/10/2004

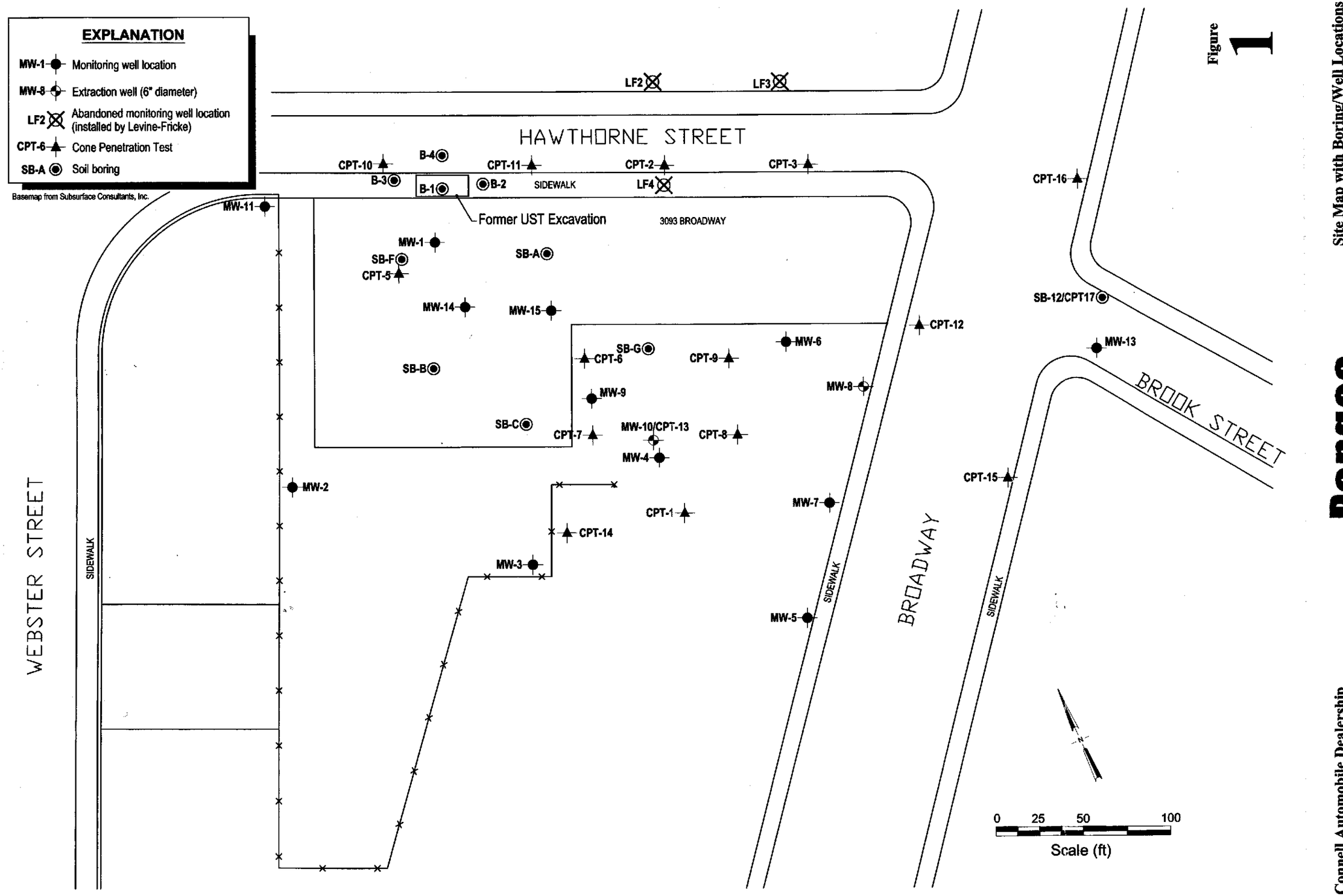
Figure 1

Site Map with Boring/Well Locations

EXPLANATION

- MW-1 — Monitoring well location
- MW-8 — Extraction well (6" diameter)
- LF2 — Abandoned monitoring well location (installed by Levine-Fricke)
- CPT-6 — Cone Penetration Test
- SB-A — Soil boring

Basemap from Subsurface Consultants, Inc.



Connell Automobile Dealership
3093 Broadway
Oakland, California

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ENVIRONMENTAL SERVICES, INC.

11/10/2004

Figure 2

Groundwater Elevation Contour
Third Quarter 2004

HAWTHORNE STREET

LF2 LF3

former USTs

sidewalk LF4

Connell Automobile Dealership
3093 Broadway

Office Building

Auto Repair Shop

parking lot

parking lot

parking lot

shed

shed

driveway

sidewalk

WEBSTER STREET

sidewalk

BROOK STREET

BROADWAY

sidewalk

MW-1
70.43
SPH (0.38)

MW-11

MW-14
70.57
SPH (0.05)

MW-15
69.45
SPH (Sheen)

MW-6
61.68
SPH (0.03)

MW-8
57.95
72
1.7
<5.0

MW-13
59.77
<50
<0.5
<5.0

MW-9
70.23
1,200
95
<25

MW-10

MW-4
70.73
92,000
9,500
<2,500

MW-2

MW-3

MW-7
67.36
<50
<0.5
<5.0

MW-5

70.00
68.00
66.00
64.00
62.00
60.00
58.00
64.00
62.00
60.00
70.00
68.00
66.00

EXPLANATION

MW-1 Monitoring well location

LF2 Abandoned monitoring well location (installed by Levine-Fricke)

Well ID
ELEV
TPHg
Benzene
MTBE

Well Designation

Groundwater Elevation

Hydrocarbon concentrations in groundwater in micrograms per liter (µg/L)

Approximate Groundwater Flow Direction and Gradient

70.00 Groundwater elevation contour, in feet (measured to an arbitrary datum)

SPH Separate Phase Hydrocarbons present (thickness in feet)

N

0 25 50 100

Scale (ft)

Basemap from Subsurface Consultants, Inc. and Cambria Environmental Technology, Inc.

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3093 Broadway
Oakland, California

11/16/2004

Figure 3

Hydrocarbon Distribution in Groundwater

LF2 ⊠ ⊠ LF3

HAWTHORNE STREET

CPT-10 (1992)
190,000 µg/L TVH
13,000 µg/L Benzene

Former USTs

CPT-3 (1992)
50 µg/L TVH
< 0.4 µg/L Benzene

SIDEWALK

CPT-11 (1992)
2,000 µg/L TVH
200 µg/L Benzene

⊠ LF4

MW-11
ND (1998)

MW-1 SPH

SB-A
NS

3093 BROADWAY

CPT-5 (1992)
600,000 µg/L TVH
2,300 µg/L Benzene

MW-14 SPH

SPH
MW-15

SB-B (1998)
140 µg/L TVH
37 µg/L Benzene

SB-G (1998)
590,000 µg/L TVH
15,000 µg/L Benzene

CPT-12 (1992)
130,000 µg/L TVH
4,100 µg/L Benzene

MW-6 SPH

< MCLs (2004)

MW-8

MW-9
~ 1,000 µg/L TPHg
~ 75 µg/L Benzene

SB-C (1998)
< 50 µg/L TVH
0.72 µg/L Benzene

CPT-9 (1992)
2,100,000 µg/L TVH
49,000 µg/L Benzene

MW-10

CPT- 7 (1992)
1,700,000 µg/L TVH
40,000 µg/L Benzene

MW- 4
~ 100,000 µg/L TPHg
~ 10,000 µg/L Benzene

MW-7
ND (2004)

CPT-1 (1992)
490 µg/L TVH
20 µg/L Benzene

MW-5
ND (1998)

MW-2
ND (1998)

ND (1998)
MW-3

WEBSTER STREET

SIDEWALK

SIDEWALK

BROADWAY

SIDEWALK

ND (2004)
MW-13

BROOK STREET

EXPLANATION

MW-1	Monitoring Well Location
CPT-3 (1992)	CPT grab sample (year sampled)
SB-G (1998)	SCI soil boring (year sampled)
LF3	Abandoned monitoring well location (installed by Levine-Fricke)
SPH	Separate phase hydrocarbons (free product)
<MCLs	Concentrations below or near the primary maximum contamination levels established by the California DHS
ND (1998)	Not detected above reporting limits (last year sampled)
NS	Not sampled for groundwater
TVH	Total Volatile Hydrocarbons
TPHg	Total Petroleum Hydrocarbons as gasoline
~ ~	Approximate extent of free product and elevated dissolved hydrocarbon concentrations (~>100,000 µg/L TVH/TPHg and ~>10,000 µg/L benzene), dashed where inferred, queried where uncertain

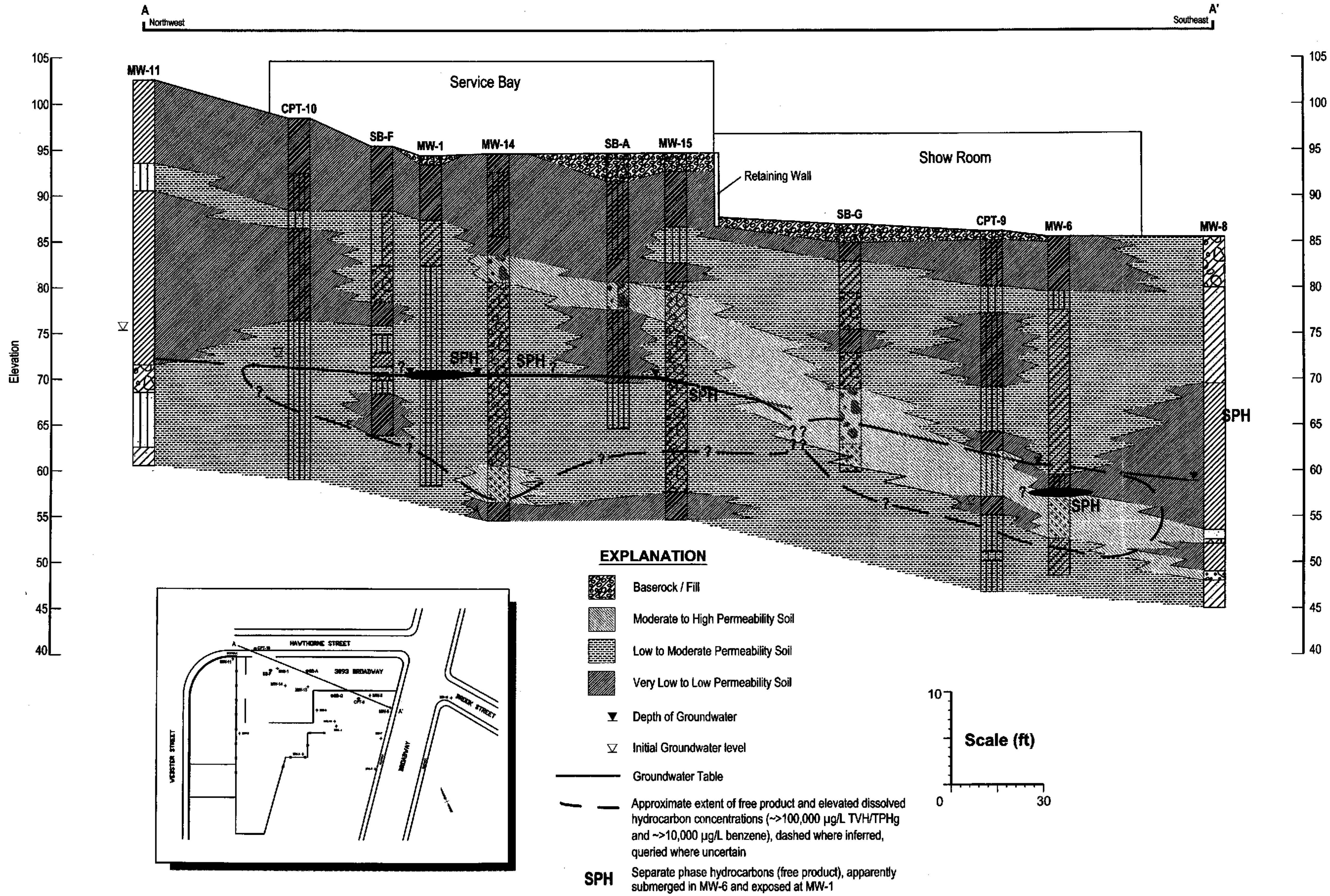
N

0 25 50 100
Scale (ft)

Basemap from Subsurface Consultants, Inc.

Pangea
ENVIRONMENTAL SERVICES, INC.

Connell Automobile Dealership
3093 Broadway
Oakland, California



11/10/2004

Figure 4

Cross Section with Hydrocarbon Distribution

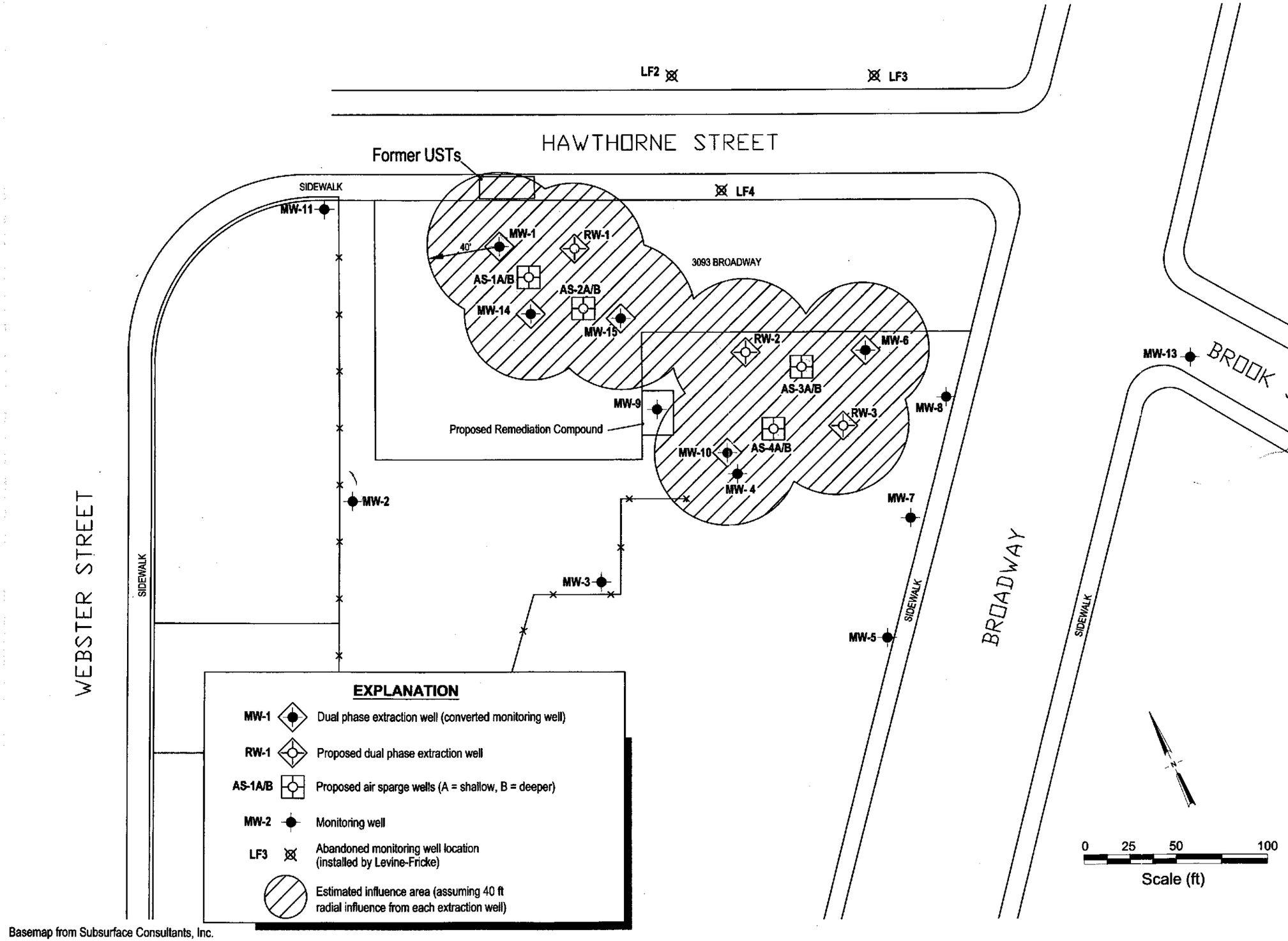
Pangea ENVIRONMENTAL SERVICES, INC.

Connell Automobile Dealership
3093 Broadway
Oakland, California

11/10/2004

Figure 5

Interim Remedial Action Plan



Basemap from Subsurface Consultants, Inc.

Connell Automobile Dealership
3093 Broadway
Oakland, California

Pangea
ENVIRONMENTAL SERVICES, INC.

Pangea

Table 1. Groundwater Elevation and Analytical Data: Volatile Hydrocarbons, HVOCs, and Dissolved Oxygen

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID *TOC Elev.* *(ft)*	Sampling Date	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TVH/TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	1,2-DCA (µg/L)	Other HVOCs (µg/L)	DO (mg/L)
Monitoring Well Data												
MW-1	10/5/1990	26.40	68.08	620,000	33,000	50,000	7,900	41,000	--	--	ND	--
94.48	3/1/1991	27.46	67.02	SPH	--	--	--	--	--	--	--	--
	10/12/1992	26.44	68.04	490,000	51,000	59,000	5,000	27,000	--	--	--	--
	11/24/1992	26.63	67.85	320,000	35,000	43,000	4,200	22,000	--	--	ND	--
	4/5/1993	23.77	70.71	270,000	50,000	58,000	4,600	25,000	--	--	ND	--
	7/21/1993	24.51	69.97	SPH	--	--	--	--	--	--	--	--
	11/9/1993	26.06	68.42	SPH	--	--	--	--	--	--	--	--
	8/30/1995	21.73	72.75	SPH	--	--	--	--	--	--	--	--
	12/4/1995	21.94	72.54	SPH	--	--	--	--	<200	--	--	--
	5/2/1996	20.65	73.83	340,000	57,000	73,000	7,200	38,000	--	--	--	--
	11/5/1996	24.29	70.19	270,000	43,000	56,000	4,500	34,000	--	--	--	--
	5/9/1997	22.79	71.69	240,000	36,000	45,000	3,300	17,900	--	--	--	--
	11/5/1997	25.06	69.42	240,000	42,000	48,000	3,600	18,800	<1,000	--	--	--
	2/9/1998	22.64	71.84	220,000	47,000	60,000	5,200	29,800	<1,000	--	ND	--
	5/1/1998	19.95	74.53	160,000	35,000	42,000	2,800	16,000	<1,000	--	ND	--
	11/3/1998	23.29	71.19	200,000	39,000	49,000	4,400	26,000	<500	--	ND	--
	3/24/1999	22.30	72.18	SPH	--	--	--	--	--	--	--	--
	7/1/1999	22.70	71.78	SPH	--	--	--	--	--	--	--	--
	9/21/1999	23.81	70.67	SPH	--	--	--	--	--	--	--	--
	2/9/2000	23.95	70.59	SPH	--	--	--	--	--	--	--	--
	5/31/2000	22.05	72.43	SPH	--	--	--	--	--	--	--	--
	8/8/2000	22.49	71.99	SPH	--	--	--	--	--	--	--	--
	11/14/2000	24.65	69.83	SPH	--	--	--	--	--	--	--	--
	3/1/2001	24.22	70.28	SPH	--	--	--	--	--	--	--	--
	5/7/2001	23.85	70.67	SPH (0.05)	--	--	--	--	--	--	--	--
	8/1/2001	23.91	70.64	SPH (0.09)	--	--	--	--	--	--	--	--
	11/5/2001	23.95	70.67	SPH (0.18)	--	--	--	--	--	--	--	--
	2/13/2002	23.15	71.39	SPH(0.07)	--	--	--	--	--	--	--	--
	5/2/2002	23.91	70.60	SPH (0.04)	--	--	--	--	--	--	--	--
	8/4/2002	24.02	70.48	SPH (0.03)	--	--	--	--	--	--	--	--
	11/26/2002	24.47	70.05	SPH (0.05)	--	--	--	--	--	--	--	--
	1/20/2003	22.37	72.14	SPH (0.04)	--	--	--	--	--	--	--	--

Table 1. Groundwater Elevation and Analytical Data: Volatile Hydrocarbons, HVOCs, and Dissolved Oxygen

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID *TOC Elev.* *(ft)*	Sampling Date	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TVH/TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	1,2-DCA (µg/L)	Other HVOCs (µg/L)	DO (mg/L)
>>MW-1	5/28/2003	21.77	72.73	SPH (0.02)	--	--	--	--	--	--	--	--
(continued)	8/5/2003	23.07	71.44	SPH (0.04)	--	--	--	--	--	--	--	--
	11/10/2003	22.53	71.97	SPH (0.03)	--	--	--	--	--	--	--	--
	2/18/2004	22.61	71.91	SPH (0.05)	--	--	--	--	--	--	--	--
	5/27/2004	22.08	72.44	SPH (0.05)	--	--	--	--	--	--	--	--
	8/19/2004	**24.35**	**70.43**	**SPH (0.38)**	--	--	--	--	--	--	--	--
MW-2	3/1/1991	27.86	66.95	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
94.81	11/24/1992	27.91	66.90	<50	<0.5	1.1	<0.5	1.5	--	--	ND	--
	4/5/1993	25.95	68.86	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	7/21/1993	25.59	69.22	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	11/10/1993	26.72	68.09	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	8/30/1995	25.75	69.06	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
	5/3/1996	23.28	71.53	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	5/8/1997	24.58	70.23	<50	<0.5	0.7	<0.5	<0.5	--	--	--	--
	4/29/1998	22.18	72.63	<50	<0.5	<0.5	<0.5	<0.5	<2	--	ND	--
MW-3	3/1/1991	23.17	66.91	<50	<50	0.6	<0.5	<0.5	--	--	ND	--
90.08	11/25/1992	23.01	67.07	50	<0.5	0.9	<0.5	2	--	--	ND	--
	4/5/1993	22.11	67.97	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	7/21/1993	23.93	66.15	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	11/10/1993	23.14	66.94	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	8/30/1995	20.61	69.47	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
	5/3/1996	18.43	71.65	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	5/8/1997	19.77	70.31	<50	<0.5	0.7	<0.5	<0.5	--	--	--	--
	4/29/1998	17.92	72.16	<50	<0.5	<0.5	<0.5	<0.5	<2	--	ND	--
										--		
MW-4	3/1/1991	23.79	65.05	150,000	20,000	38,000	2,800	14,000	**	--	ND	--
88.84	10/12/1992	22.48	66.36	230,000	15,000	32,000	2,500	14,000	--	--	--	--
	11/24/1992	22.60	66.24	210,000	14,000	31,000	2,500	14,000	--	--	ND	--
	4/2/1993	20.11	68.73	SPH	--	--	--	--	--	--	--	--
	7/21/1993	20.48	68.36	SPH	--	--	--	--	--	--	--	--
	11/9/1993	21.71	67.13	SPH	--	--	--	--	--	--	--	--
	8/30/1995	19.90	68.94	SPH	--	--	--	--	--	--	--	--

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Well ID *TOC Elev.* *(ft)*	Sampling Date	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TVH/TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	1,2-DCA (µg/L)	Other HVOCs (µg/L)	DO (mg/L)
>>MW-4	12/1/1995	19.40	69.44	SPH	--	--	--	--	--	--	--	--
(continued)	5/2/1996	17.50	71.34	140,000	24,000	50,000	3,000	15,100	--	--	ND	--
88.84	11/4/1996	20.13	68.71	160,000	16,000	38,000	2,700	14,000	--	--	ND	--
	5/8/1997	18.63	70.21	170,000	16,000	37,000	2,400	15,900	--	--	--	--
	11/5/1997	20.19	68.65	190,000	15,000	31,000	2,200	14,600	<400	--	--	--
	2/9/1998	18.28	70.56	110,000	19,000	42,000	2,500	18,300	<500	--	--	--
	5/1/1998	16.11	72.73	130,000	15,000	31,000	2,000	13,400	<1,000	--	ND	--
	8/4/1998	17.54	71.30	130,000	16,000	34,000	2,400	15,700	<400	--	ND	--
	11/2/1998	19.21	69.63	140,000	16,000	32,000	2,300	15,500	<400	--	ND	--
	3/26/1999	17.51	71.33	110,000	15,000	30,000	1,600	15,000	450 [4]	--	[5]	--
	7/1/1999	18.80	70.04	110,000	13,000	23,000	1,600	12,000	<83	--	[5]	--
	9/21/1999	19.85	68.99	140,000	16,000	31,000	2,400	14,800	ND	--	[5]	3.27
	2/9/2000	19.76	69.08	140,000	16,000	28,000	2,100	14,000	<400	--	DCB: 5.9, MCB: 5.9	--
	5/31/2000	17.90	70.94	15,000	17,000	28,000	2,400	14,000	<0.5 [6]	--	ND	--
	8/8/2000	18.62	70.22	140,000	15,000	25,000	2,100	13,000	<300	--	ND	0.60
	11/14/2000	19.63	69.21	150,000	19,000	36,000	2,900	17,000	< 200	--	ND	0.32
	3/1/2001	19.68	69.16	120,000	10,000	15,000	1,300	10,000	<2000	--	ND	0.13
	5/7/2001	18.60	70.24	210,000	12,000	19,000	1,900	12,000	<200	--	ND	0.23
	8/1/2001	18.73	70.11	160,000	13,000	21,000	2,200	13,000	<200	--	ND	--
	11/5/2001	18.97	69.87	220,000	15,000	26,000	3,100	16,000	<200	--	ND	--
	2/13/2002	18.59	70.25	180,000	6,100	11,000	1,400	13,000	<200	--	2-MNE: 620, NE: 1000	0.43
	5/2/2002	18.77	70.07	110,000	13,000	20,000	2,000	10,000	<1,200	--	ND	0.21
	8/4/2002	18.95	69.89	92,000	9,200	15,000	1,800	10,000	<2,000	--	ND	0.35
	11/26/2002	20.83	68.01	110,000	16,000	26,000	2,700	12,000	<1,000	--	ND	0.29
	1/20/2003	16.90	71.94	110,000	9,000	16,000	1,900	11,000	<1,200	--	ND	0.35
	5/28/2003	15.25	73.59	110,000	13,000	17,000	1,800	8,500	<1,000	--	ND	0.59
	8/5/2003	17.05	71.79	110,000	13,000	20,000	2,200	9,800	<1,000	--	<25	0.66
	11/10/2003	16.60	72.24	130,000	14,000	23,000	2,700	12,000	<2,700	--	--	0.74
	2/18/2004	16.59	72.25	110,000	11,000	17,000	1,600	9,900	<3,500	--	--	0.46
	5/27/2004	15.97	72.87	97,000	12,000	18,000	2,100	8,900	<3,000	--	--	0.59
	8/19/2004	**18.11**	**70.73**	**92,000**	**9,500**	**15,000**	**1,900**	**8,600**	**<2,500**	--	--	**0.77**

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MW-5	3/15/1991	26.31	58.53	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
84.84	11/10/1992	26.83	58.01	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	4/2/1993	26.62	58.22	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	7/21/1993	26.60	58.24	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	11/9/1993	27.24	57.60	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	8/30/1995	27.46	57.38	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
	5/3/1996	26.02	58.82	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	5/8/1997	26.76	58.08	<50	<0.5	0.5	<0.5	<0.5	--	--	--	--
	4/29/1998	26.55	58.29	<50	<0.5	0.5	<0.5	<0.5	<2	--	ND	--
										--		
MW-6	3/15/1991	25.82	59.80	80,000	12,000	13,000	1,100	5,400	--	--	DBCM: 160	--
85.62	10/12/1992	25.02	60.60	19,000	3,200	1,400	200	560	--	--	--	--
	12/1/1992	28.87	56.75	SPH	--	--	--	--	--	--	--	--
	4/2/1993	26.96	58.66	SPH	--	--	--	--	--	--	--	--
	7/21/1993	26.17	59.45	SPH	--	--	--	--	--	--	--	--
	11/9/1993	27.51	58.11	SPH	--	--	--	--	--	--	--	--
	8/30/1995	28.00	57.62	SPH	--	--	--	--	--	--	--	--
	12/1/1995	27.58	58.04	SPH	--	--	--	--	<8,000,000	--	--	--
86.94	5/3/1996	28.15	58.79	130,000	37,000	50,000	3,200	14,200	--	--	ND	--
	5/9/1997	26.54	60.40	1,700,000	14,000	27,000	4,000	28,200	--	--	--	--
	11/5/1997	26.16	60.78	160,000	13,000	19,000	1,900	14,300	<200	--	--	--
	5/1/1998	22.96	62.86	130,000	15,000	23,000	1,700	13,200	<500	--	ND	--
85.82	11/3/1998	24.35	61.47	110,000	17,000	21,000	1,800	10,700	<200	--	ND	--
	3/26/1999	23.82	62.00	SPH	--	--	--	--	--	--	--	--
	7/1/1999	24.45	61.37	SPH	--	--	--	--	--	--	--	--
	9/21/1999	24.58	61.24	SPH	--	--	--	--	--	--	--	--
	2/9/2000	24.93	61.24	SPH	--	--	--	--	--	--	--	--
	5/31/2000	23.47	62.41	SPH	--	--	--	--	--	--	--	--
	8/8/2000	23.85	61.97	SPH	--	--	--	--	--	--	--	--
	11/14/2000	24.61	61.21	SPH	--	--	--	--	--	--	--	--
	3/1/2001	23.97	61.85	SPH	--	--	--	--	--	--	--	--
	5/7/2001	23.17	62.71	SPH	--	--	--	--	--	--	--	--
	8/1/2001	obstruction in well		--	--	--	--	--	--	--	--	--
	11/5/2001	obstruction in well		--	--	--	--	--	--	--	--	--

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Well ID *TOC Elev.* *(ft)*	Sampling Date	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TVH/TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	1,2-DCA (µg/L)	Other HVOCs (µg/L)	DO (mg/L)
>>MW-6	2/13/2002	obstruction in well		--	--	--	--	--	--	--	--	--
(continued)	5/2/2002	23.25	62.41	SPH (0.05)	--	--	--	--	--	--	--	--
	8/4/2002	23.55	62.29	SPH (0.03)	--	--	--	--	--	--	--	--
	11/26/2002	24.22	61.62	SPH (0.03)	--	--	--	--	--	--	--	--
	1/20/2003	22.49	63.36	SPH (0.04)	--	--	--	--	--	--	--	--
	5/28/2003	21.92	63.93	SPH (0.04)	--	--	--	--	--	--	--	--
	8/5/2003	23.98	61.87	SPH (0.04)	--	--	--	--	--	--	--	--
	11/10/2003	23.50	62.40	SPH (0.10)	--	--	--	--	--	--	--	--
	2/18/2004	22.21	63.64	SPH (0.04)	--	--	--	--	--	--	--	--
	5/27/2004	22.01	63.85	SPH (0.05)	--	--	--	--	--	--	--	--
	8/19/2004	**24.16**	**61.68**	**SPH (0.03)**	--	--	--	--	--	--	--	--
MW-7	3/15/1991	21.63	63.78	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
85.41	11/24/1992	21.52	63.89	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	4/2/1993	20.08	65.33	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	7/21/1993	19.59	65.82	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	11/9/1993	20.65	64.76	<50	<0.5	1	<0.5	1.7	--	--	ND	--
	8/30/1995	18.78	66.63	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
	12/1/1995	19.47	65.94	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	5/2/1996	17.15	68.26	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	8/8/1996	18.48	66.93	<50	<0.5	<0.5	<0.5	<0.5	<2	--	ND	--
	11/4/1996	18.69	66.72	<50	<1	<1	<1	<1	--	--	ND	--
	2/6/1997	17.44	67.97	<50	<0.5	<0.5	<0.5	<0.5	<2	--	ND	--
	5/8/1997	17.72	67.69	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
	8/7/1997	18.49	66.92	<50	<0.5	<0.5	<0.5	<0.5	<2	--	ND	--
	11/5/1997	18.86	66.55	<50	<0.5	<0.5	<0.5	<0.5	<2	--	--	--
	2/9/1998	17.56	67.85	<50	<0.5	<0.5	<0.5	<0.5	<2	--	--	--
	4/29/1998	16.23	69.18	<50	<0.5	<0.5	<0.5	<0.5	<2	--	ND	--
	8/4/1998	17.24	68.17	<50	<0.5	<0.5	<0.5	<0.5	<2	--	ND	--
	11/2/1998	17.91	67.50	<50	<0.5	<0.5	<0.5	<0.5	<2	--	ND	--
	3/26/1999	16.42	68.99	<50	<0.5	<0.5	<0.5	<0.5	<2	--	ND	--
	7/1/1999	17.90	67.51	85	<0.5	1.1	0.55	2.5	<0.5	--	[5]	--
	9/21/1999	18.91	66.50	<50	0.7	1.8	<0.5	1.5	<5.0	--	ND	4.32
	2/9/2000	16.74	68.67	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	<0.5	--

Table 1. Groundwater Elevation and Analytical Data: Volatile Hydrocarbons, HVOCs, and Dissolved Oxygen

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID *TOC Elev.* *(ft)*	Sampling Date	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TVH/TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	1,2-DCA (µg/L)	Other HVOCs (µg/L)	DO (mg/L)
>>MW-7	5/31/2000	16.21	69.20	<50	3	6	1	9	<0.5	--	ND	--
(continued)	8/8/2000	16.92	68.49	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	ND	0.43
	11/14/2000	17.00	68.41	< 50	< 0.5	0.63	< 0.5	< 0.5	< 5.0	--	ND	0.44
	3/1/2001	17.09	68.32	< 50	< 0.5	<0.5	< 0.5	< 0.5	< 5.0	--	ND	--
	5/7/2001	17.19	68.22	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	ND	0.51
	8/1/2001	17.25	68.16	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	ND	--
	11/5/2001	17.35	68.06	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	ND	--
	2/13/2002	17.50	67.91	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	ND	0.80
	5/2/2002	17.30	68.11	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	ND	0.31
	8/4/2002	17.58	67.83	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	ND	0.37
	11/26/2002	18.35	67.06	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	ND	0.28
	1/20/2003	15.84	69.57	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	ND	0.61
	5/28/2003	15.19	70.22	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	ND	0.74
	8/5/2003	17.00	68.41	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	<0.5	0.61
	11/10/2003	16.54	68.87	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	0.65
	2/18/2004	16.47	68.94	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	0.74
	5/27/2004	15.93	69.48	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	0.65
	8/19/2004	**18.05**	**67.36**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	--	--	**0.71**
MW-8	10/12/1992	27.70	57.80	70	20	1	1	3	--	--	--	--
85.50	11/25/1992	27.62	57.88	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	4/8/1993	26.64	58.86	490	15	45	5.1	73	--	--	ND	--
	7/21/1993	26.60	58.90	180	2.5	3	<0.5	1.9	--	--	ND	--
	11/11/1993	27.18	58.32	310	23	<0.5	<0.5	<0.5	--	--	ND	--
	8/30/1995	26.35	59.15	660	360	6.8	13	2.8	--	--	--	--
	12/4/1995	26.72	58.78	250	46	0.9	4.9	<0.5	--	--	ND	--
	5/3/1996	25.47	60.03	69	110	<0.5	<0.5	1.5	--	--	ND	--
	8/8/1996	26.41	59.09	120	11	<0.5	<0.5	<0.5	<2	--	ND	--
	11/5/1996	26.77	58.73	110	20	<1	1	<1	--	--	ND	--
	2/6/1997	25.84	59.66	67	51	<0.5	0.56	<0.5	<2	--	ND	--
	5/9/1997	26.39	59.11	110	59	<0.5	<0.5	<0.5	--	--	--	--
	8/7/1997	26.72	58.78	<50	12	<0.5	<0.5	<0.5	<2	--	ND	--
	11/5/1997	26.82	58.68	<50	9.4	<0.5	<0.5	<0.5	<2	--	--	--
	2/9/1998	25.57	59.93	<50	6	<0.5	<0.5	<0.5	<2	--	--	--

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Well ID *TOC Elev.* *(ft)*	Sampling Date	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TVH/TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	1,2-DCA (µg/L)	Other HVOCs (µg/L)	DO (mg/L)
>>MW-8	5/1/1998	25.64	59.86	430	490	7.1	27	26	<10	--	ND	--
(continued)	8/5/1998	25.96	59.54	140	19	<0.5	5.2	5.3	<2	--	ND	--
	11/3/1998	26.27	59.23	150	110	1.1	4.3	4.5	<2	--	ND	--
	3/31/1999	20.93	64.57	54	170	1.5	4.1	1.9	4.4	--	1,1 DCA: 0.7	--
	7/1/1999	26.59	58.91	140	58	0.9	3	2.3	<0.5	--	[5]	--
	9/21/1999	26.89	58.61	670	170	2.6	11	7.9	<5	--	ND	2.61
	2/9/2000	26.60	58.90	300	60	1.2	4.8	1.2	<5.0	--	<0.5	--
	8/8/2000	26.43	59.07	270	56	1.2	4.1	1.0	<5.0	--	ND	0.25
	11/14/2000	26.60	58.90	330	64	1.3	3.5	0.60	< 5.0	--	ND	0.51
	3/1/2001	26.41	59.09	400	140	<0.5	<0.5	0.55	<5.0	--	ND	--
	5/7/2001	26.55	58.95	240	37	0.71	2.5	0.77	<5.0	--	ND	0.49
	8/1/2001	26.71	58.79	130	5.2	<0.5	<0.5	<0.5	<5.0	--	ND	--
	11/5/2001	26.67	58.83	140	3.3	<0.5	<0.5	<0.5	<5.0	--	ND	--
	2/13/2002	26.15	59.35	1,100	440	0.087	0.66	2.0	<5.0	--	ND	0.71
	5/2/2002	26.63	58.87	90	3.9	<0.5	<0.5	<0.5	<5.0	--	ND	0.37
	8/4/2002	26.80	58.70	120	2.4	0.77	<0.5	<0.5	<5.0	--	ND	0.44
	11/26/2002	27.50	58.00	85	3.7	<0.5	<0.5	<0.5	<5.0	--	ND	0.48
	1/20/2003	24.93	60.57	90	3.9	0.67	<0.5	<0.5	<5.0	--	ND	0.65
	5/28/2003	24.28	61.22	120	1.4	<0.5	<0.5	<0.5	<5.0	--	ND	0.71
	8/5/2003	26.51	58.99	150[f]	<0.5	<0.5	<0.5	<0.5	<5.0	--	<1.0	0.67
	11/10/2003	26.04	59.46	50	0.84	<0.5	<0.5	<0.5	<5.0	--	--	0.70
	2/18/2004	25.97	59.53	52	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	0.69
	5/27/2004	25.31	60.19	75	0.76	<0.5	<0.5	<0.5	<5.0	--	--	0.98
	8/19/2004	**27.55**	**57.95**	**72**	**1.7**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	--	--	**1.41**
MW-9	11/24/1992	23.51	66.86	19,000	180	590	23	2,000	--	--	TCM: 15	--
90.37	4/5/1993	21.14	69.23	2,300	48	4	0.6	13	--	--	TCM: 2	--
	7/21/1993	21.54	68.83	2,300	170	8.1	15	<0.5	--	--	ND	--
	11/10/1993	27.53	62.84	4,400	69	7.3	21	9.7	--	--	ND	--
	8/30/1995	19.59	70.78	3,200	3,900	49	80	22.8	--	--	--	--
	12/4/1995	20.65	69.72	--	--	--	--	--	<2	--	--	--
	5/2/1996	18.63	71.74	<1300	2,600	<13	200	<13	--	--	ND	--
	11/5/1996	20.69	69.68	1,800	280	<5	65	<5	--	--	ND	--
	5/9/1997	19.96	70.41	1,100	160	<0.5	42	<0.5	--	--	--	--

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>>MW-9	8/8/1997	20.84	69.53	570 [1,2]	<0.5	<0.5	<0.5	0.78 [3]	<2	--	ND	--
(continued)	11/5/1997	21.55	68.82	490 [1]	<0.5	<0.5	6	<0.5	<2	--	--	--
	2/9/1998	20.21	70.16	270 [1]	48	17	5.8	<0.5	<2	--	--	--
	5/1/1998	19.27	71.10	550	70	<0.5	22	2.2	<2	--	ND	--
	8/5/1998	19.35	71.02	550 [1]	88	<0.5	13	1.9 [3]	<2	--	ND	--
	11/2/1998	20.43	69.94	580	<0.5	<0.5	7.5 [3]	1.6 [3]	<2	--	ND	--
	3/25/1999	18.46	71.91	1,100	160	<0.5	21	2.1 [3]	5.7 [4]	--	ND	--
	7/1/1999	19.95	70.42	540	100	7.4	26	16.9	<1.3	--	[5]	--
	9/21/1999	21.15	69.22	2,700	320	98	88	47	<20	--	ND	5.86
	2/9/2000	21.08	69.29	1,600	81	3.6	19	18	<5.0	--	<0.5	--
	5/31/2000	19.11	71.26	1,500	170	13	25	<1.0	<0.5	--	ND	--
	8/8/2000	19.86	70.51	1,300	140	2.1	19	<0.5	<5.0	--	ND	2.4
	11/14/2000	20.90	69.47	1,700	250	2.6	44	2.1	< 5.0	--	ND	0.29
	3/1/2001	20.45	69.92	1,800	170	5.6	30	2.5	<20	--	ND	0.31
	5/7/2001	19.83	70.54	1,500	120	2.6	24	<0.5	<5.0	--	ND	0.18
	8/1/2001	20.02	70.35	2,600	280	4.8	50	<0.5	<5.0	--	ND	--
	11/5/2001	19.85	70.52	2,200	170	4.5	100	0.54	<5.0	--	ND	--
	2/13/2002	19.80	70.57	1,800	98	3	58	1.5	<5.0	--	ND	0.53
	5/2/2002	19.93	70.44	1,100	82	1.4	20	<0.5	<10	--	ND	0.28
	8/4/2002	20.20	70.17	1,200	130	2.5	50	0.58	<10	--	ND	0.51
	11/26/2002	20.37	70.00	1,200	150	3.3	48	<2.5	<25	--	ND	0.53
	1/20/2003	17.93	72.44	840	110	1.2	31	0.76	<5.0	--	ND	0.31
	5/28/2003	17.25	73.12	1,100	40	1.9	3.0	<0.5	<20	--	ND	0.60
	8/5/2003	19.03	71.34	1,100[a]	62	0.99	25	<0.5	<5.0	--	<10	0.54
	11/10/2003	18.65	71.72	1,500	120	7.6	41	<1.0	<10	--	--	0.62
	2/18/2004	18.41	71.96	820	50	1.2	19	<0.5	<5.0	--	--	0.58
	5/27/2004	17.89	72.48	730	36	2.0	11	1.6	<5.0	--	--	0.90
	8/19/2004	**20.14**	**70.23**	**1,200**	**95**	**2.5**	**24**	**<0.5**	**<25**	--	--	**0.98**
MW-10	10/12/1992	21.55	67.05	28,000	2,700	3,800	210	1,300	--	--	--	--
88.60	11/24/1992	21.86	66.74	130,000	9,700	19,000	1,400	8,400	--	--	ND	--
	4/5/1993	19.14	69.46	63,000	6,300	14,000	1,100	7,500	--	--	ND	--
	7/21/1993	19.79	68.81	140,000	16,000	31,000	2,200	13,000	--	--	ND	--
	8/30/1995	17.99	70.61	92,000	13,000	24,000	1,800	9,100	--	--	--	--

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>>MW-10	5/3/1996	17.04	71.56	81,000	17,000	29,000	2,100	8,500	--	--	ND	--
(continued)	5/9/1997	18.36	70.24	63,000	7,400	13,000	940	4,100	--	--	--	--
	5/1/1998	15.84	72.76	60,000	7,100	14,000	1,100	5,300	<250	--	ND	--
MW-11	11/24/1992	33.65	68.41	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
102.06	12/8/92***	33.37	68.69	<50	<0.1	<0.1	<0.1	<0.1	--	--	--	--
	12/8/1992	33.37	68.69	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
	4/5/1993	31.03	71.03	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	7/21/1993	31.90	70.16	160	<0.5	1.8	<0.5	<0.5	--	--	ND	--
	11/9/1993	32.60	69.46	80	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	8/30/1995	28.92	73.14	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
	5/3/1996	28.00	74.06	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	5/8/1997	29.93	72.13	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
	4/29/1998	27.22	74.84	<50	<0.5	<0.5	<0.5	<0.5	<2	--	ND	--
MW-13	11/24/1992	26.05	58.01	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
84.06	12/8/92***	25.08	58.98	<50	<0.1	<0.1	<0.1	<0.1	--	--	--	--
	12/8/1992	25.08	58.98	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
	4/5/1993	24.64	59.42	<50	<0.5	0.9	<0.5	<0.5	--	--	ND	--
	7/21/1993	24.29	59.77	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	11/9/1993	24.23	59.83	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	8/30/1995	23.30	60.76	<50	49	<0.5	<0.5	<0.5	--	--	--	--
	12/1/1995	23.80	60.26	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	5/3/1996	23.19	60.87	<50	<0.5	<0.5	<0.5	<0.5	--	--	ND	--
	8/8/1996	23.44	60.62	<50	32	<0.5	<0.5	<0.5	<2	--	ND	--
	11/5/1996	24.04	60.02	<50	<1	<1	<1	<1	--	--	ND	--
	2/6/1997	23.24	60.82	<50	<0.5	<0.5	<0.5	<0.5	<2	--	ND	--
	5/8/1997	23.46	60.60	<50	81	<0.5	<0.5	<0.5	--	--	--	--
	8/8/1997	23.92	60.14	<50	<0.5	<0.5	<0.5	<0.5	<2	--	ND	--
	11/5/1997	24.27	59.79	<50	<0.5	<0.5	<0.5	<0.5	<2	--	--	--
	2/9/1998	22.89	61.17	<50	<0.5	<0.5	<0.5	<0.5	<2	--	--	--
	4/29/1998	22.27	61.79	<50	24	<0.5	<0.5	<0.5	<2	--	ND	--
	8/4/1998	22.75	61.31	120	200	<1	<1	<1	<4	--	ND	--
	11/3/1998	23.90	60.16	59 [1]	33	<0.5	<0.5	<0.5	<2	--	ND	--

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>>MW-13	3/31/1999	23.11	60.95	130	0.56	<0.5	<0.5	<0.5	<2	--	ND	--
(continued)	7/1/1999	23.40	60.66	160	370	19	1.2	3.5	<1	--	[5]	--
	9/21/1999	21.91	62.15	370	150	1.0	0.8	0.8	<5.0	--	ND	3.76
	2/9/2000	23.84	60.22	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	<0.5	--
	8/8/2000	23.31	60.75	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	ND	1.76
	11/14/2000	24.00	60.06	< 50	< 0.5	0.52	< 0.5	< 0.5	< 5.0	--	ND	0.49
	3/1/2001	23.93	60.13	< 50	< 0.5	<0.5	< 0.5	< 0.5	< 5.0	--	ND	--
	5/7/2001	23.93	60.13	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	ND	0.59
	8/1/2001	24.10	59.96	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	ND	--
	11/5/2001	24.02	60.04	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	ND	--
	2/13/2002	23.70	60.36	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	ND	0.55
	5/2/2002	23.97	60.09	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	ND	0.63
	8/4/2002	24.19	59.87	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	ND	0.31
	11/26/2002	24.78	59.28	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	ND	0.47
	1/20/2003	22.10	61.96	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	ND	0.53
	5/28/2003	21.72	62.34	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	ND	0.75
	8/5/2003	23.99	60.07	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	<0.5	0.59
	11/10/2003	23.47	60.59	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	0.70
	2/18/2004	22.58	61.48	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	0.52
	5/27/2004	21.95	62.11	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	0.84
	8/19/2004	**24.29**	**59.77**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	--	--	**0.98**
MW-14	5/26/1998	21.67	72.99	41,000	7,100	11,000	720	3,900	<1000	--	ND	--
94.66	7/1/1999	22.95	71.71	SPH	--	--	--	--	--	--	--	--
	9/21/1999	24.26	70.40	SPH	--	--	--	--	--	--	--	--
	2/9/2000	24.13	70.53	92,000	12,000	17,000	1,300	8,700	<140	--	<0.5	--
	5/31/2000	22.09	72.57	SPH	--	--	--	--	--	--	--	--
	8/8/2000	22.88	71.78	SPH	--	--	--	--	--	--	--	--
	11/14/2000	23.90	70.76	SPH	--	--	--	--	--	--	--	--
	3/1/2001	23.97	70.69	SPH	--	--	--	--	--	--	--	--
	5/7/2001	23.45	71.23	SPH (sheen)	--	--	--	--	--	--	--	--
	8/1/2001	23.57	71.12	SPH (0.06)	--	--	--	--	--	--	--	--
	11/5/2001	23.50	71.18	SPH (0.03)	--	--	--	--	--	--	--	--
	2/13/2002	22.99	71.70	SPH (0.04)	--	--	--	--	--	--	--	--

Table 1. Groundwater Elevation and Analytical Data: Volatile Hydrocarbons, HVOCs, and Dissolved Oxygen

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID *TOC Elev.* *(ft)*	Sampling Date	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TVH/TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	1,2-DCA (µg/L)	Other HVOCs (µg/L)	DO (mg/L)
>>MW-14	5/2/2002	23.51	71.17	SPH (0.02)	--	--	--	--	--	--	--	--
(continued)	8/4/2002	23.61	71.06	SPH (0.01)	--	--	--	--	--	--	--	--
	1/20/2003	22.35	72.31	SPH (sheen)	--	--	--	--	--	--	--	--
	5/28/2003	21.95	72.74	SPH (0.04)	--	--	--	--	--	--	--	--
	8/5/2003	23.03	71.66	SPH (0.04)	--	--	--	--	--	--	--	--
	11/10/2003	22.70	72.02	SPH (0.07)	--	--	--	--	--	--	--	--
	2/18/2004	22.37	72.32	SPH (0.04)	--	--	--	--	--	--	--	--
	5/27/2004	21.78	72.92	SPH (0.05)	--	--	--	--	--	--	--	--
	8/19/2004	**24.13**	**70.57**	**SPH (0.05)**	--	--	--	--	--	--	--	--
MW-15	5/26/1998	21.87	72.89	130,000	30,000	38,000	2,500	12,600	<1000	--	ND	--
94.76	7/1/1999	22.25	72.51	SPH	--	--	--	--	--	--	--	--
	9/21/1999	24.12	70.64	SPH	--	--	--	--	--	--	--	--
	2/9/2000	24.42	70.34	180,000	32,000	37,000	2,800	14,000	<200	--	<0.5	--
	5/31/2000	22.40	72.36	SPH	--	--	--	--	--	--	--	--
	8/8/2000	23.17	71.59	SPH	--	--	--	--	--	--	--	--
	11/14/2000	24.15	70.61	SPH	--	--	--	--	--	--	--	--
	3/1/2001	23.99	70.77	SPH	--	--	--	--	--	--	--	--
	5/7/2001	23.50	71.26	SPH (sheen)	--	--	--	--	--	--	--	--
	8/1/2001	23.62	71.14	SPH (sheen)	--	--	--	--	--	--	--	--
	11/5/2001	23.65	71.11	SPH (sheen)	--	--	--	--	--	--	--	--
	2/13/2002	23.09	71.67	68,000	9,300	8,500	760	2,600	<200	--	ND	0.59
	5/2/2002	23.59	71.17	SPH (sheen)	--	--	--	--	--	--	--	--
	8/4/2002	23.65	71.11	SPH (sheen)	--	--	--	--	--	--	--	--
	11/26/2002	24.59	70.17	SPH (sheen)	--	--	--	--	--	--	--	--
	1/20/2003	22.08	72.68	48,000	9,900	10,000	1,000	3,600	<1,200	--	ND	0.24
	5/28/2003	21.68	73.08	SPH (sheen)	--	--	--	--	--	--	--	--
	8/5/2003	24.05	70.71	SPH (sheen)	--	--	--	--	--	--	--	--
	11/10/2003	23.68	71.08	SPH (sheen)	--	--	--	--	--	--	--	--
	2/18/2004	23.51	71.25	25,000	5,200	3,600	390	1,100	<1,000	--	--	0.63
	5/27/2004	22.98	71.78	SPH (sheen)	--	--	--	--	--	--	--	--
	8/19/2004	**25.31**	**69.45**	**SPH (sheen)**	--	--	--	--	--	--	--	**0.42**

Table 1. Groundwater Elevation and Analytical Data: Volatile Hydrocarbons, HVOCs, and Dissolved Oxygen

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID *TOC Elev.* *(ft)*	Sampling Date	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TVH/TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	1,2-DCA (µg/L)	Other HVOCs (µg/L)	DO (mg/L)
Grab Sampling Data												
Sample ID												
CPT-1****	10/6/1992	--	--	490	20	60	10	60	--	1	--	--
CPT-3	10/6/1992	--	--	50	<0.4	<0.4	3	3	--	<4	--	--
CPT-4	10/6/1992	--	--	1,100	60	50	80	15	--	110	--	--
CPT-5	10/6/1992	--	--	600,000	2,300	53,000	8,000	43,000	--	730	--	--
CPT-7	10/6/1992	--	--	1,700,000	40,000	120,000	25,000	120,000	--	2,900	--	--
CPT-9	10/7/1992	--	--	2,100,000	49,000	140,000	28,000	145,000	--	620	--	--
CPT-10	10/7/1992	--	--	190,000	13,000	16,000	3,900	18,000	--	1,400	--	--
CPT-11	10/7/1992	--	--	2,000	200	50	30	70	--	11	--	--
CPT-12	10/7/1992	--	--	130,000	4,100	10,000	2,600	10,000	--	9	--	--
CPT-13(MW-10)	10/7/1992	--	--	28,000	2,700	3,800	210	1,300	--	150	--	--
CPT-17 (B-12)	10/6/1992	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	<1	ND	--
B (boring)	5/16/1998	--	--	140	37	0.64	6.6	1.7	<2	17		
C (boring)	5/16/1998	--	--	<50	0.72	<0.5	<0.5	<0.5	<2	210		
G (boring)	5/16/1998	--	--	590,000	15,000	25,000	2,100	10,800	<500	880		

Table 1. Groundwater Elevation and Analytical Data: Volatile Hydrocarbons, HVOCs, and Dissolved Oxygen

Connell Automobile Dealership, 3093 Broadway, Oakland, California

Well ID *TOC Elev.* *(ft)*	Sampling Date	Depth to Groundwater (ft)	Groundwater Elevation (ft)	TVH/TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	1,2-DCA (µg/L)	Other HVOCs (µg/L)	DO (mg/L)

Abbreviations and Notes:

TOC Elev. (ft) = Top of casing elevation, surveyed to an arbitrary datum (measured in feet)

µg/L = micrograms per liter = parts per billion = ppb

-- = Not measured or not analyzed

ND = Not detected above laboratory reporting limit; see laboratory reports for individual reporting limits.

SPH = Separate-phase hydrocarbons encountered in well (value in parentheses is thickness in feet)

TVH = Total Volatile Hydrocarbons

TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015; value in parentheses by EPA Method 8260

Benzene, toluene, ethylbenzene, and xylenes by EPA Method 8021B; value in parentheses by EPA Method 8260

MTBE = Methyl tertiary butyl ether by EPA Method 8021B; values in parentheses by EPA Method 8260

HVOCs = Halogenated volatile organic compounds by EPA Method 8010

1,2-DCA = 1,2 Dichloroethane by EPA Method 8010

DCB = 1, 3 Dichlorobenzene

DBCM = Dibromochloromethane

MCB = Chlorobenzene

NE = Naphthalene (results for MW-1 from 1995 through 1998 from SCI reporting of SVOC results)

TCM = Chloroform = trichloromethane

DO = Dissolved oxygen, measured in the field.

<n = Chemical not present at a concentration in excess of detection limit shown.

* = Suspect laboratory contamination contributing to test result.

** = Fuel fingerprint analysis indicates MTBE is not present in the free product sample collected from this well.

*** = Duplicate sample sent to a different chemical laboratory.

**** = CPT-2, 6, 8, 14, 15 and 16 were not sampled.

1 = Sample exhibits fuel pattern which does not resemble standard

2 = Lighter hydrocarbons than indicated standard

3 = Presence of this compound confirmed by second column, however, the confirmation concentration differed from the reported result by more than a factor of two.

4 = Detection may potentially be a false positive, to be checked during the next event.

5 = One or more of the following substances found: Acetone, 1,2-Dibromoethane, 1,3,5-Trimethylbenzene, 2-Chlorotoluene, 1,2,4-Trimethylbenzene, n-Butylbenzene, and Naphthalene. See laboratory results for details.

6 = Confirmed by GC/MS.

Attachment A

HISTORICAL SOIL ANALYTICAL DATA

Table 5. Summary of Contaminant Concentrations in Soil

Sample	TVH (mg/kg)	TEH (mg/kg)	TOG (mg/kg)	B (ug/kg)	T (ug/kg)	E (ug/kg)	X (ug/kg)	Purgeable Halocarbons (ug/kg)
Tank Pit								
1 @ 12'	31000	ND	710	190000	3000000	68000	2600000	ND
2 @ 12'	490	ND	570	1400	2500	6100	23000	ND
3 @ 12'	300	440	540	ND	720	4700	12000	ND
4 @ 12'	630	--	--	ND	ND	17000	29000	--
5 @ 1.0'	--	--	160	--	--	--	--	--
6 @ 5.5'	--	--	440	--	--	--	--	--
7 @ 1.0'	--	--	460	--	--	--	--	--
8 @ 1.0'	--	--	540	--	--	--	--	--
9 @ 5.5'	--	--	1100	--	--	--	--	--
10 @ 1.0'	--	--	600	--	--	--	--	--
11 @ 1.0'	--	--	530	--	--	--	--	--
12 @ 5.5'	--	--	590	--	--	--	--	--
13 @ 1.0'	--	--	200	--	--	--	--	--
14 @ 0.5'	--	--	440	--	--	--	--	--
15 @ 0.5'	--	--	410	--	--	--	--	--
16 @ 0.5'	--	--	650	--	--	--	--	--
Test Borings								
B1 @ 8.0'	63	ND	ND	17	ND	100	1600	--
B1 @ 23.0'	2700	ND	ND	16000	120000	50000	220000	--
B1 @ 33.0'	4	ND	ND	110	200	52	290	--
B1 @ 43.0'	ND	ND	ND	6.0	22	7	41	--
B2 @ 1.5'	--	--	ND	--	--	--	--	--
B2 @ 3.0'	--	--	ND	--	--	--	--	--
B2 @ 5.5'	--	--	ND	--	--	--	--	--
B2 @ 10.5'	--	--	ND	--	--	--	--	--
B2 @ 15.0'	ND	ND	ND	ND	ND	ND	25	--
B2 @ 25.5'	ND	ND	ND	ND	11	ND	29	--

Table 5. Summary of Contaminant Concentrations in Soil

Sample	TVH (mg/kg)[1]	TEH (mg/kg)	TOG (mg/kg)	B (ug/kg)[2]	T (ug/kg)	E (ug/kg)	X (ug/kg)	Purgeable Halocarbons (ug/kg)
B3 @ 15.5'	ND	ND	ND	ND	10	ND	25	--
B3 @ 25.5'	8.8	ND	ND	ND	290	170	800	--
B3 @ 35.5'	ND	ND	ND	ND	21	7.3	41	--
B4 @ 14.0'	2.3	ND	ND	11	38	31	150	--
B4 @ 24.5'	370	ND	ND	450	10000	770	30000	--
B4 @ 34.5'	ND	ND	ND	6.1	29	6.7	37	--
Well Borings								
MW1 @ 15.5'	510	1100	610	640	6500	3400	14000	ND
MW1 @ 30.5'	5500	ND	ND	16300	170000	98000	520000	ND
MW1 @ 34.5'	2.0	ND	ND	ND	2200	15	79	--
MW3 @ 20.5	ND	ND	ND	ND	ND	ND	ND	ND
MW4 @ 20.5	100	ND	ND	260	2500	1700	7300	ND
MW4 @ 31.0	2.7	ND	ND	76	380	54	290	ND
MW5 @ 20.0	ND	ND	--	ND	6.9	ND	ND	--
MW6 @ 21.0	3.2	ND	--	350	500	28	160	--
MW6 @ 30.5	ND	ND	--	ND	ND	ND	ND	--
MW7 @ 20.5	ND	ND	--	ND	17	ND	ND	--

mg/kg = milligrams per kilogram
ug/kg = micrograms per kilogram
ND = None Detected, chemicals not present at concentrations above detection limits
-- = Test not performed

TABLE 5
SUMMARY OF CHEMICAL CONCENTRATIONS
IN SOIL SAMPLES, MAY 1998 INVESTIGATION
3093 BROADWAY
OAKLAND, CALIFORNIA

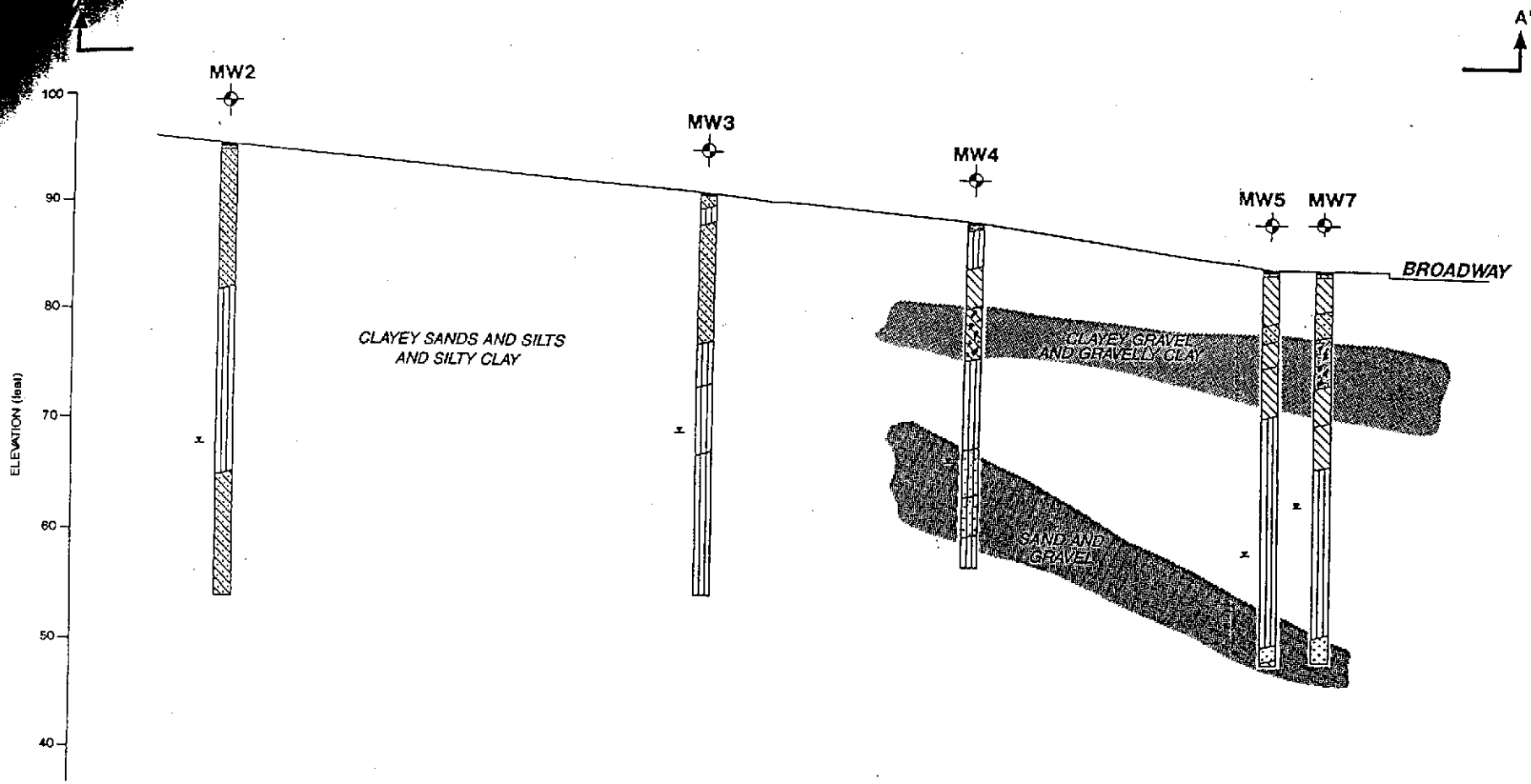
Sample ID	Event Date	TVH mg/kg	TEH mg/kg	MTBE µg/kg	B µg/kg	T µg/kg	E µg/kg	X µg/kg	1,2-DCA µg/kg
Current Investigation									
A @ 11.0	5/17/98	<1	<1	<20	<5	<5	<5	<5	<5
A @ 20.5	5/17/98	<1	<1	<20	<5	<5	<5	<5	<5
B @ 6.0	5/16/98	<1	<1	<20	<5	<5	<5	<5	<5
B @ 20.5	5/16/98	<1	<1	<20	76	<5	<5	<5	77
C @ 6.0	5/16/98	<1	3100YH	<20	<5	<5	<5	<5	<5
C @ 15.5	5/16/98	4.6YL	790YH	84	<5	<5	7.9C	33C	<5
MW-14/D @ 11.0	5/16/98	<1	<1	<20	<5	<5	<5	<5	<5
MW-14/D @ 21.0	5/16/98	<1	<1	<20	95	100	19	103	100
MW-15/E @ 6.0	5/16/98	<1	<1	<20	<5	<5	<5	<5	<5
MW-15/E @ 21.0	5/16/98	<1	<1	<20	<5	<5	<5	<5	<5
F @ 0.5	5/17/98	25,000YH	41YLH	<100,000	<25,000	<25,000	<25,000	<25,000	<5
F @ 6.0	5/17/98	<1	<1	<20	<5	<5	<5	<5	<5
F @ 21.0	5/17/98	<1	<1	<20	24	<5	<5	<5	31
G @ 5.5	5/17/98	<1	<1	<20	<5	<5	<5	<5	<5
G @ 16.0	5/17/98	<1	<1	<20	140	<5	<5	48	13

NOTES:
mg/kg = milligrams per kilogram = parts per million = ppm
µg/kg = micrograms per kilogram = parts per billion = ppb
TVH = Total Volatile Hydrocarbons
TEH = Total Extractable Hydrocarbons
MTBE = Methyl tertiary butyl ethe
BTEX = Benzene, Toluene, Ethylbenzene, Xylene
1,2-DCA = 1,2-Dichloroethane

Y = Sample exhibits fuel pattern which does not resemble standard
L = Lighter hydrocarbons than indicated standard
H = Heavier hydrocarbons than indicated standard
C = Presence of this compound confirmed by second column, however the confirmation concentration differed from the reported result by more than a factor of two
<1 = Chemical not present at a concentration in excess of detection limit shown

Attachment B

BORING LOGS, WELL CONSTRUCTION DETAILS
& GEOLOGIC CROSS SECTIONS BY OTHERS



HORIZONTAL SCALE: 1" = 30'

∇ MARCH 1991 WATER LEVELS

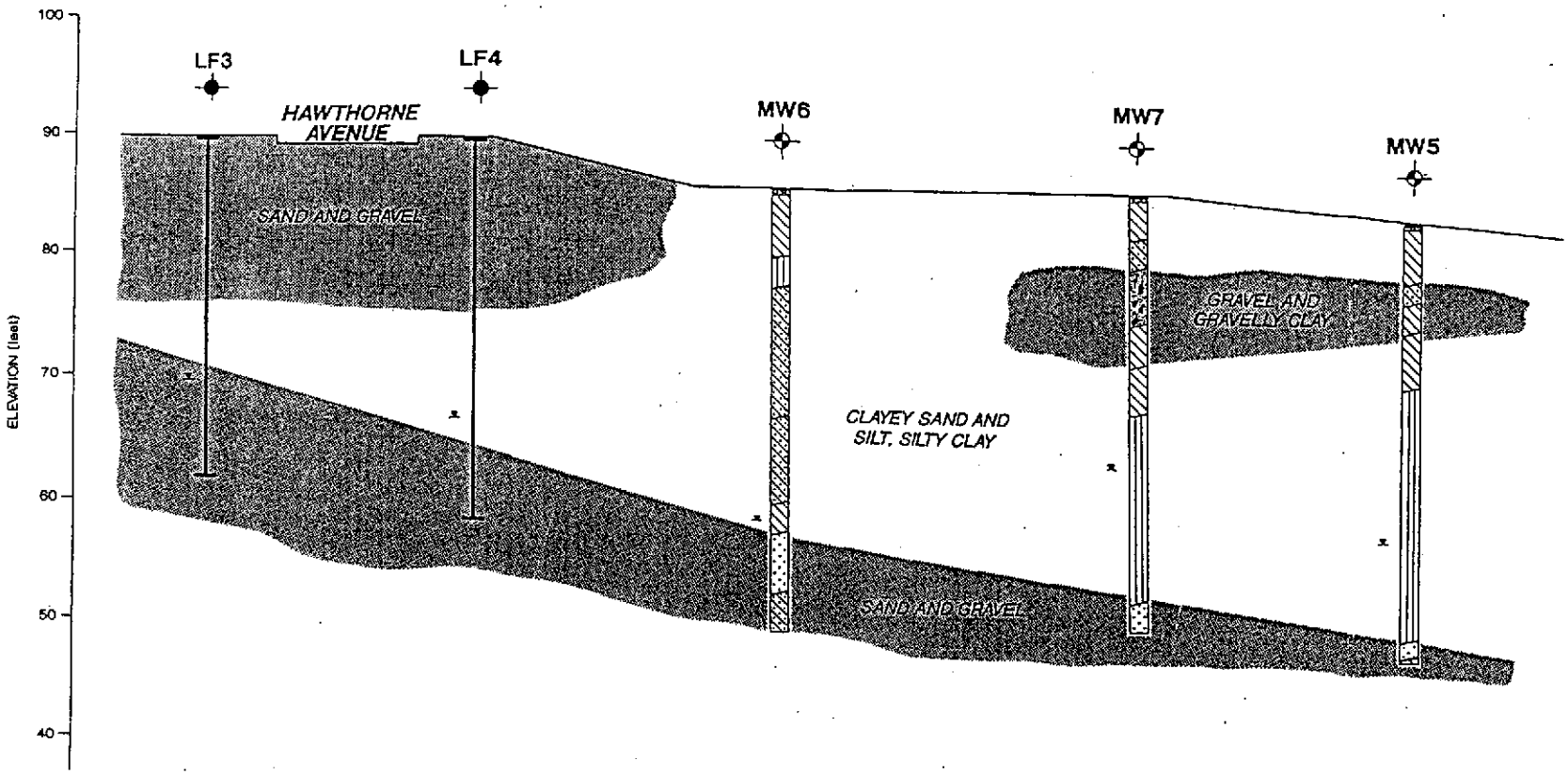
CROSS SECTION A – A'

Subsurface Consultants

CONNELL OLDSMOBILE – OAKLAND, CA

JOB NUMBER	DATE	APPROVED
447.026	4/18/91	

PLATE 3



HORIZONTAL SCALE: 1" = 30'

x MARCH 1991 WATER LEVELS

CROSS SECTION B – B'

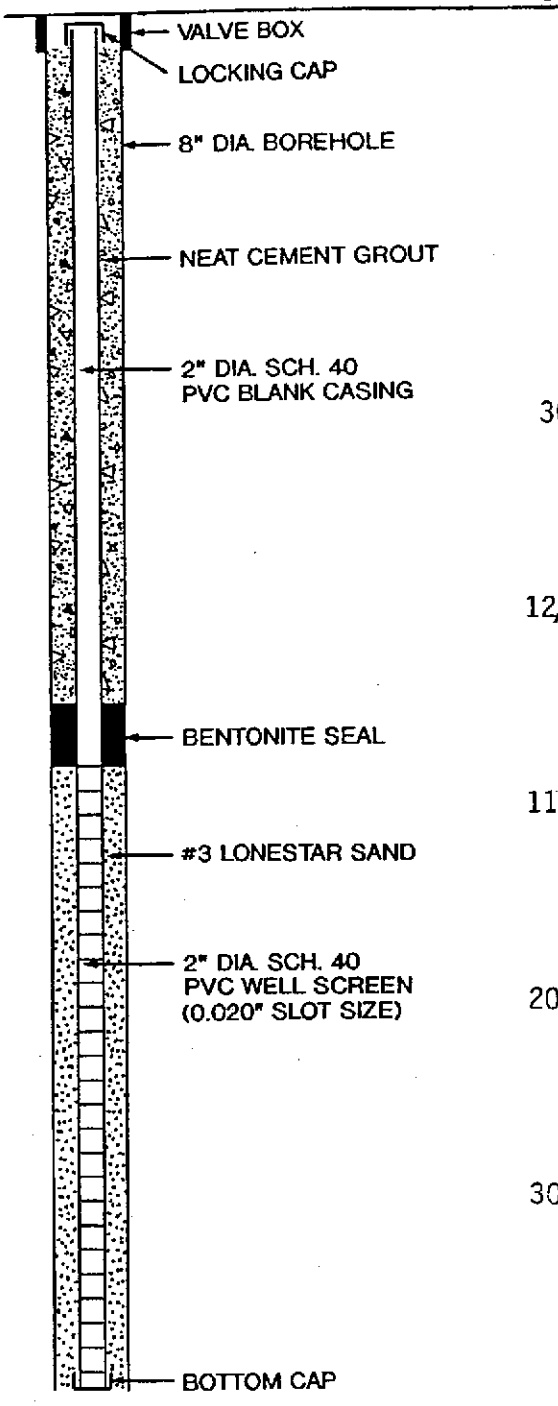
Subsurface Consultants

CONNELL OLDSMOBILE – OAKLAND, CA

JOB NUMBER	DATE	APPROVED	PLATE
447.026	4/18/91		4

LOG OF TEST BORING MW1

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 9/28/90
ELEVATION 94.48 feet



OVM (ppm)	DEPTH (FT)	SAMPLE	BLOWS PER FOOT	
	0			CONCRETE SLAB - 5" thick
			15	BLACK SILTY SAND (SM) medium dense, moist (fill)
			18	BROWN SILTY CLAY (CL) medium stiff, moist, with some sand
	5		19	BROWN SILTY CLAY (CL) medium stiff, moist
				RED BROWN CLAYEY SAND (SC) medium dense, moist
300	10		21	color change to light gray
12,000	15		47*	very strong petroleum odor
				BROWN SANDY SILT (ML) dense, moist
1150	20		31	color change to gray below 23 feet
2000	25 ▼		36	GROUNDWATER LEVEL APRIL 12, 1991
3000	30		29*	
	▽ 35		31*	GROUNDWATER LEVEL DURING DRILLING
	40			

Subsurface Consultants

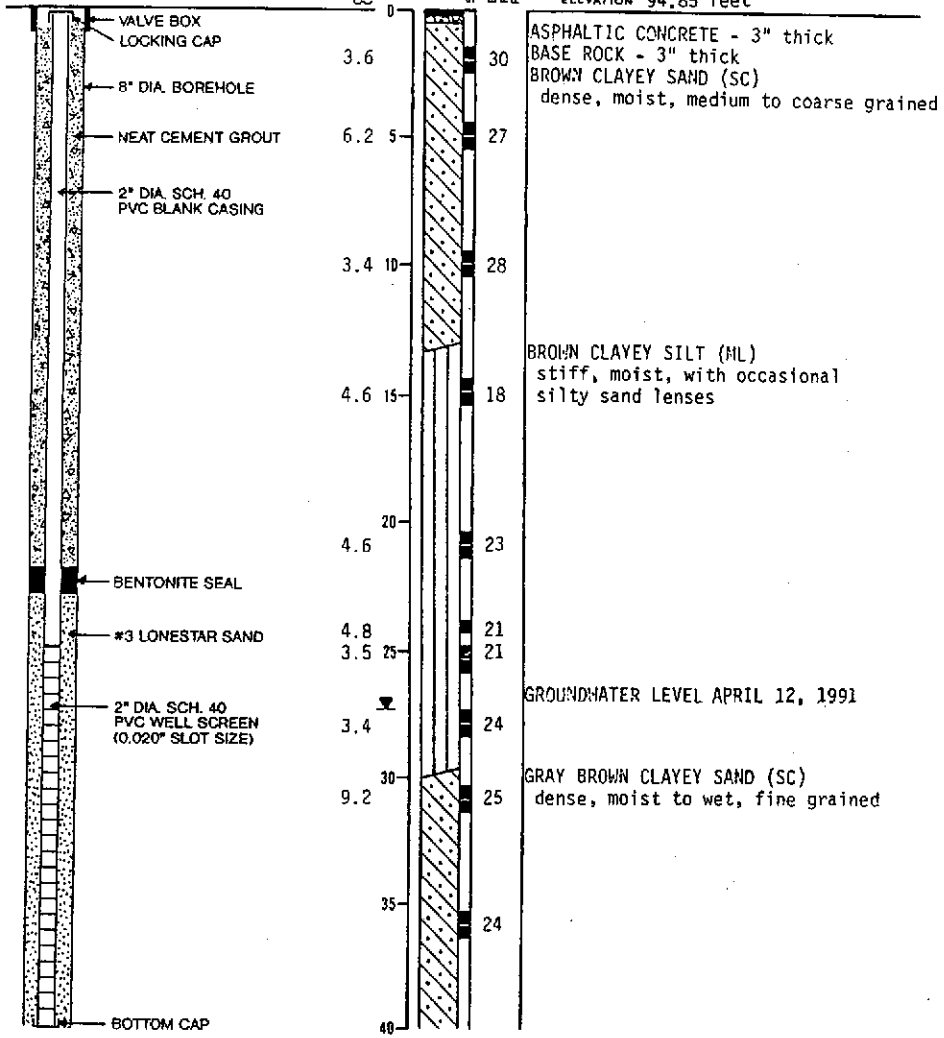
CONNELL OLDSMOBILE - OAKLAND, CA

JOB NUMBER	DATE	APPROVED
447.026	10/17/90	

PLATE A1

LOG OF TEST BORING
MW2

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 2/25/91
ELEVATION 94.85 feet



OVM (ppm)	DEPTH (FT)	SAMPLE	BLOWS PER FOOT	
	0			ASPHALTIC CONCRETE - 3" thick BASE ROCK - 3" thick BROWN CLAYEY SAND (SC) dense, moist, medium to coarse grained
3.6			30	
6.2	5		27	
3.4	10		28	
				BROWN CLAYEY SILT (ML) stiff, moist, with occasional silty sand lenses
4.6	15		18	
4.6	20		23	
4.8			21	
3.5	25		21	
				GROUNDWATER LEVEL APRIL 12, 1991
3.4			24	
				GRAY BROWN CLAYEY SAND (SC) dense, moist to wet, fine grained
9.2	30		25	
	35		24	
	40			

MOISTURE CONTENT %	DRY DENSITY (PCF)	OVM (ppm)	DEPTH (FT)	SAMPLE	BLOWS PER FOOT	
			40			
		2.0			31	GROUNDWATER NOT ENCOUNTERED DURING DRILLING
			45			
			50			
			55			
			60			
			65			
			70			
			75			
			80			

BENTONITE SEAL

Subsurface Consultants

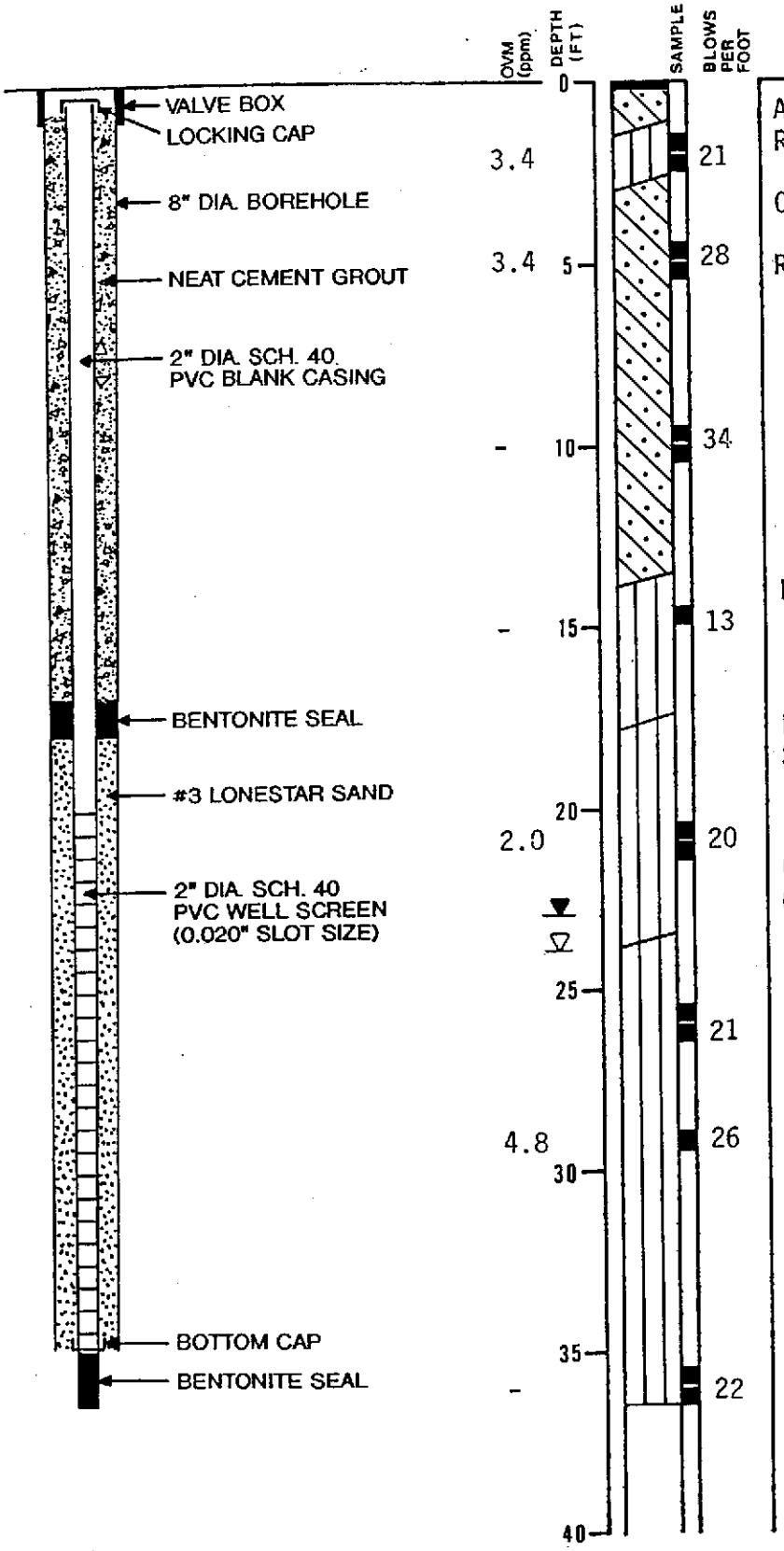
CONNELL OLDSMOBILE - OAKLAND, CA

JOB NUMBER 447.026 | DATE 3/8/91 | APPROVED

PLATE A2

LOG OF TEST BORING MW3

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 2/25/91
ELEVATION 90.08 feet



ASPHALTIC CONCRETE - 3" thick
RED BROWN CLAYEY SAND (SC)
medium dense, moist (fill)
OLIVE GRAY SANDY SILT (ML)
stiff, moist
RED BROWN CLAYEY SAND (SC)
stiff, moist
color change to light brown at 7 feet

color change to red brown at 12 feet

LIGHT GRAY BROWN CLAYEY SILT (ML
medium stiff, moist

LIGHT GRAY BROWN CLAYEY SANDY SILT (ML)
stiff, moist

GROUNDWATER LEVEL APRIL 12, 1991
GROUNDWATER LEVEL DURING DRILLIN(
LIGHT GRAY CLAYEY SILT (ML)
stiff, moist

Subsurface Consultants

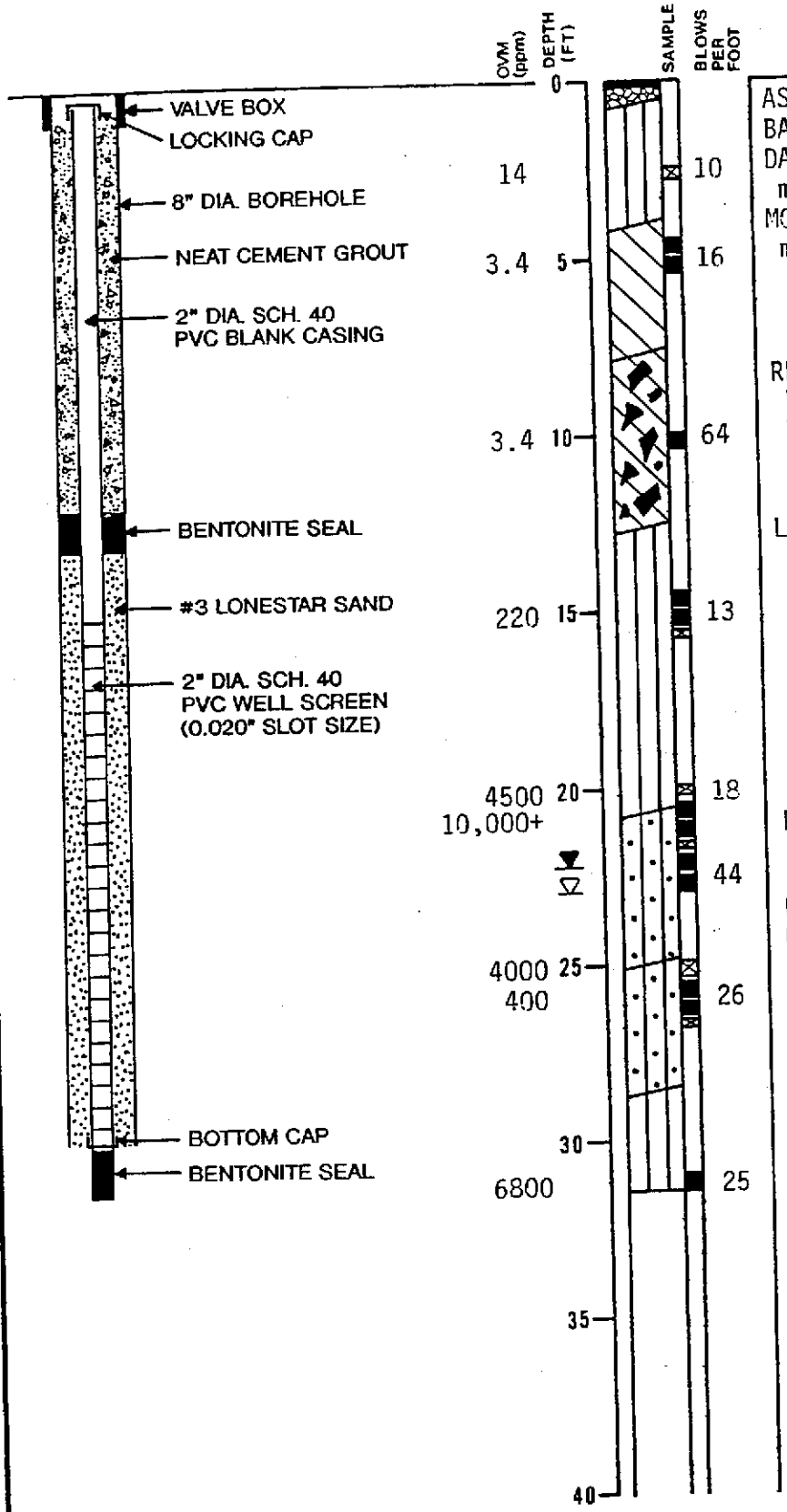
CONNELL OLDSMOBILE - OAKLAND, CA

JOB NUMBER	DATE	APPROVED
447.026	3/8/91	

PLATE A3

LOG OF TEST BORING MW4

EQUIPMENT 8" Hollow Stem Auge
DATE DRILLED 2/26/91
ELEVATION 88.84 feet



OVM (ppm)	DEPTH (FT)	SAMPLE	BLOWS PER FOOT	
	0			ASPHALTIC CONCRETE - 3" thick BASE ROCK - 6" thick
14			10	DARK GRAY CLAYEY SILT (ML) medium stiff, moist
3.4	5		16	MOTTLED BROWN SILTY CLAY (CL) medium stiff, moist
3.4	10		64	RED BROWN CLAYEY GRAVEL (GC) very dense, moist, with cobbl to 2" diameter and sand
220	15		13	LIGHT GRAY BROWN CLAYEY SILT (medium stiff, moist
4500 10,000+	20		18	RED BROWN GRAVELLY SAND (SM-SI dense, moist, with some clay sand lenses
▽			44	GROUNDWATER LEVEL APRIL 12, 1 GROUNDWATER LEVEL DURING DRIL
4000 400	25		26	GRAY BROWN SILTY SAND (SM-SP) medium dense, wet, fine grai
	30			GRAY BROWN CLAYEY SILT (ML) stiff, moist
6800			25	
	35			
	40			

Subsurface Consultants

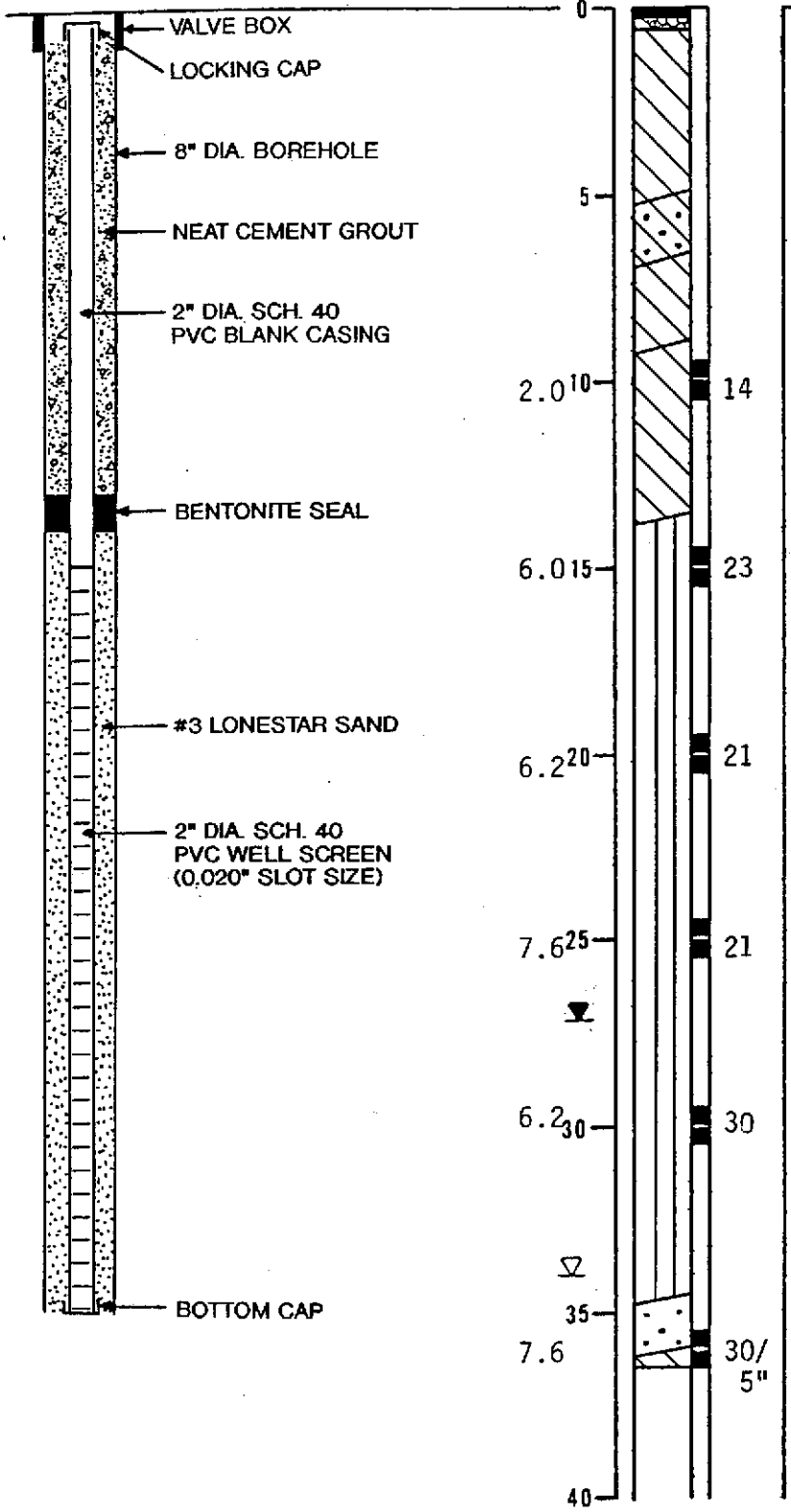
CONNELL OLDSMOBILE - OAKLAND, CA

JOB NUMBER	DATE	APPROVED
447.026	3/8/91	

PLAT

LOG OF TEST BORING MW5

EQUIPMENT 8" Hollow Stem Aug
DATE DRILLED 3/8/91
ELEVATION 84.84 feet



ASPHALTIC CONCRETE - 3" thick
BASE ROCK - 4" thick
MOTTLED GRAY BROWN SILTY CLAY
medium stiff, moist

DARK GRAY CLAYEY SAND (SC)
medium dense, moist, with ch
fragments
BROWN GRAVELLY CLAY (CL)
medium stiff to stiff, moist
with chert fragments
BROWN SILTY CLAY (CL)
stiff, moist

GRAY BROWN CLAYEY SILT (ML)
stiff, moist

increase in sand content belo
24 feet and wet
GROUNDWATER LEVEL APRIL 12, 19

GROUNDWATER LEVEL DURING DRILL
BROWN GRAVELLY SAND (SW)
very dense, wet, medium grain
BROWN SILTY CLAY (CL)
stiff, moist

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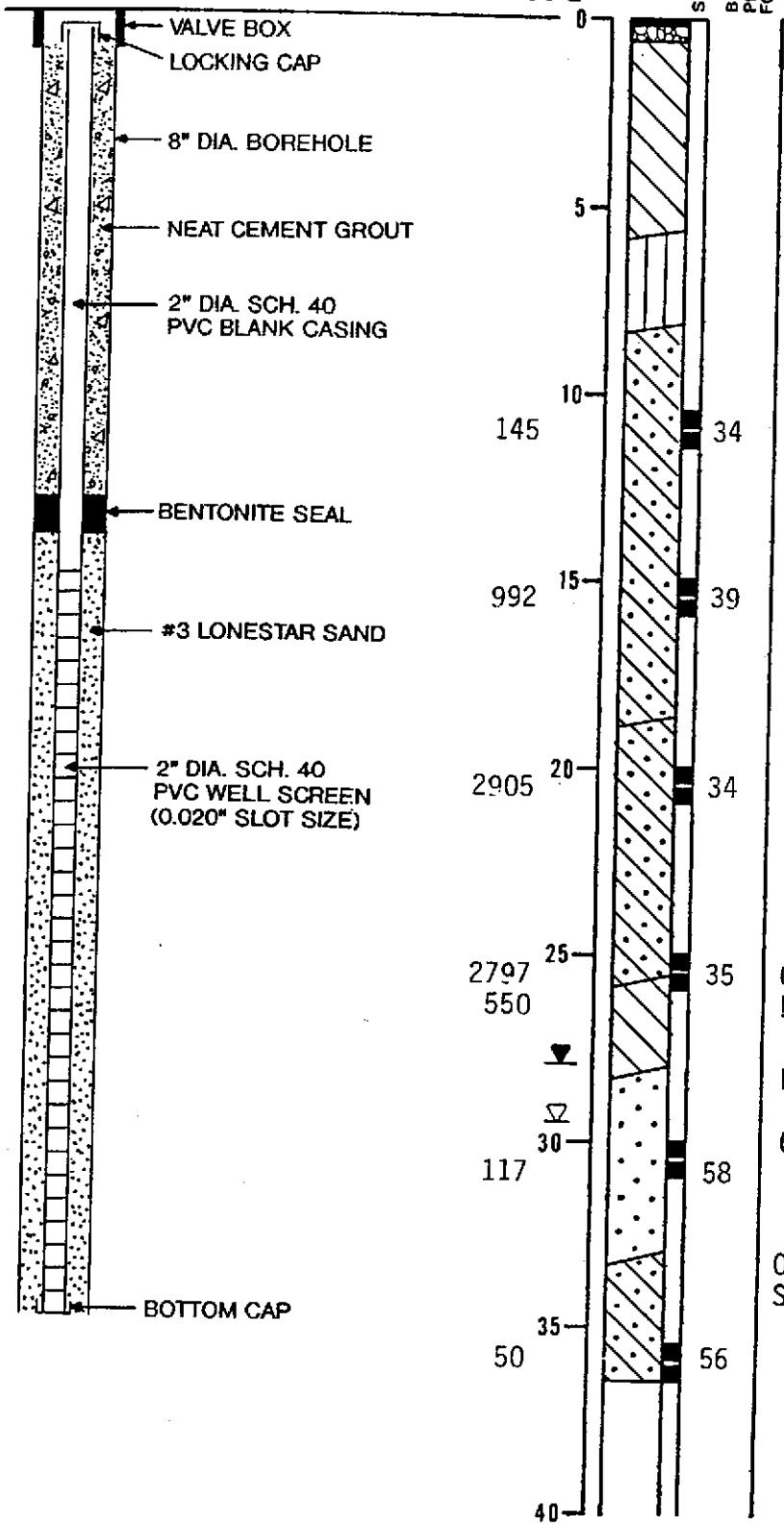
JOB NUMBER	DATE	APPROVED
447.026	3/13/91	

PLATE A

LOG OF TEST BORING MW6

EQUIPMENT 8" Hollow Stem Aug
DATE DRILLED 3/8/91
ELEVATION 85.62 feet



OVM (ppm)	DEPTH (FT)	SAMPLE	BLOWS PER FOOT	
	0			ASPHALTIC CONCRETE - 3" thick BASE ROCK - 5" thick BROWN SANDY CLAY (CL) medium stiff, moist, with occasional rock fragments
	5			BROWN SANDY SILT (ML) medium stiff, moist
145	10		34	MOTTLED BROWN CLAYEY SAND (SC) dense, moist, with some grav slight petroleum odor
992	15		39	
2905	20		34	GRAY CLAYEY SAND (SC) dense, moist, fine grained decrease in clay content belo 23 feet
2797	25		35	GROUNDWATER LEVEL APRIL 12, 19
550				MOTTLED GRAY BROWN SILTY CLAY stiff, moist
				RED BROWN GRAVELLY SAND (SW) dense, wet
117	30		58	GROUNDWATER LEVEL DURING DRILL
				ORANGE-BROWN GRAVELLY CLAYEY SAND (SC) very dense, moist
50	35		56	
	40			

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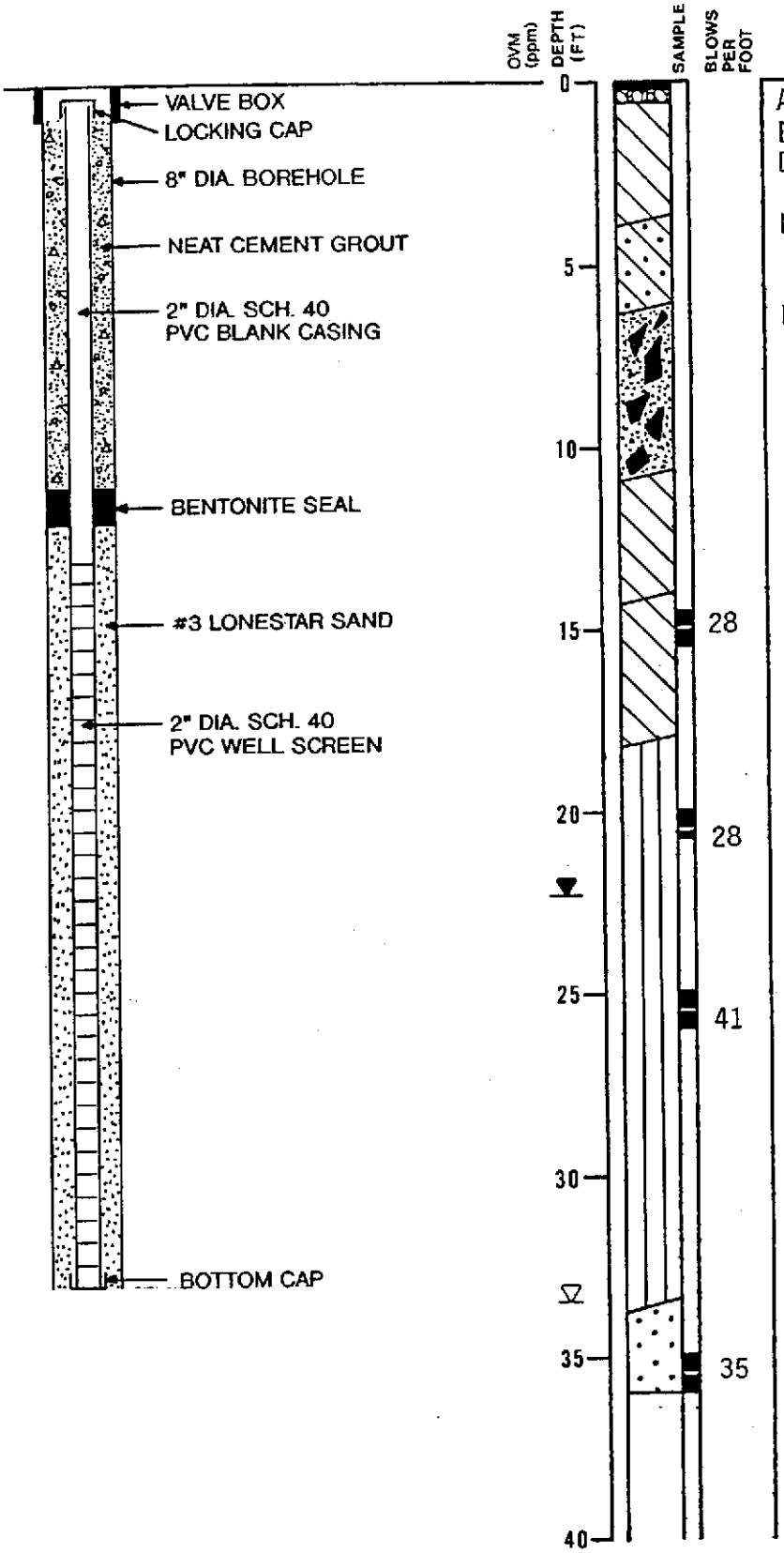
JOB NUMBER 447.026 | DATE 3/13/91 | APPROVED

PLATE A6

LOG OF TEST BORING MW7

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 3/8/91
ELEVATION 85.41 feet



ASPHALTIC CONCRETE - 3" thick
BASE ROCK - 4" thick
DARK BROWN GRAVELLY CLAY (CL)
medium stiff, moist
BROWN CLAYEY SAND (SC)
medium dense, moist, with occasional rock fragment
BROWN SANDY GRAVEL (GW)
medium dense, moist

BROWN GRAVELLY CLAY (CL)
stiff, moist, with some sand

BROWN SILTY CLAY (CL)
stiff, moist

BROWN CLAYEY SILT (ML)
stiff, moist

GROUNDWATER LEVEL APRIL 12, 1991

color change to gray below 24 feet

GROUNDWATER LEVEL DURING DRILLING
BROWN SILTY SAND (SM-SP)
very dense, wet

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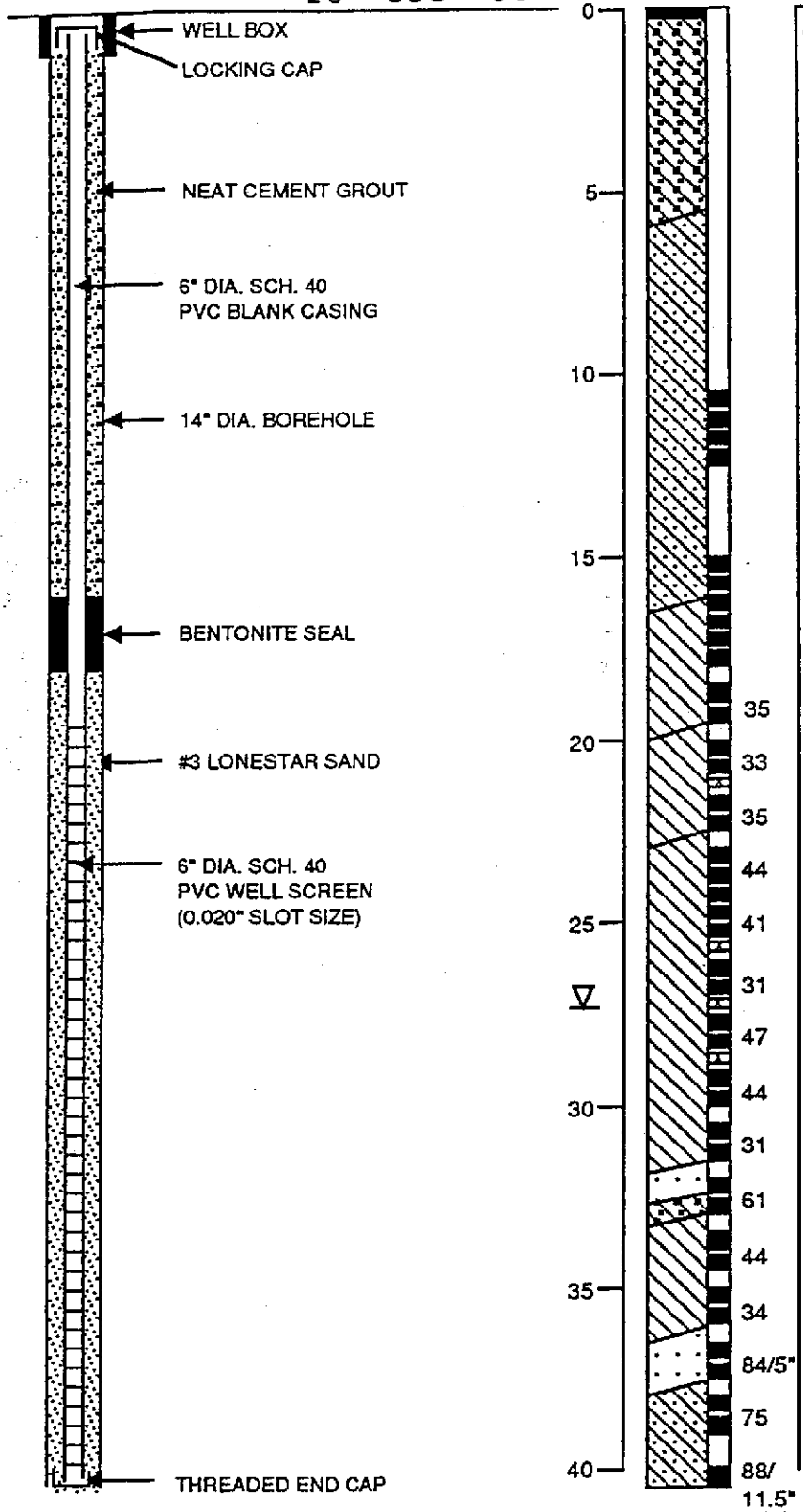
JOB NUMBER	DATE	APPROVED
447.026	3/13/91	

PLATE A7

LOG OF TEST BORING MW8

EQUIPMENT 14" Rotary Wash
DATE DRILLED 10/6/92
TOC ELEVATION 85.50 feet



ASPHALTIC CONCRETE - 3" thick
BROWN AND ORANGE BROWN CLA
GRAVEL (GC)
dense, moist

MOTTLED ORANGE BROWN AND BR
CLAYEY SAND (SC)
medium dense, moist

MOTTLED LIGHT GRAY BROWN AND
GREEN SANDY CLAY (CL)
medium stiff, moist

MOTTLED GRAY BROWN AND LIGHT
BROWN SILTY CLAY (CL)
stiff, moist

LIGHT GRAY BROWN SANDY CLAY ((
stiff, moist, with occasional gravel to 1/
in diameter

GROUNDWATER LEVEL 12/22/92

GRAY BROWN SAND (SP)
dense, moist
LIGHT GRAY BROWN CLAYEY GRAVE
dense, moist
LIGHT GRAY BROWN SILTY CLAY (CL
stiff, moist, occasional lenses of sandy
GRAY BROWN GRAVELLY SAND (SW-
very dense, wet
LIGHT GRAY BROWN CLAYEY SAND (
very dense, wet

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CONNELL OLDSMOBILE - OAKLAND, CA

JOB NUMBER	DATE	APPROVED
447.036	12/4/92	

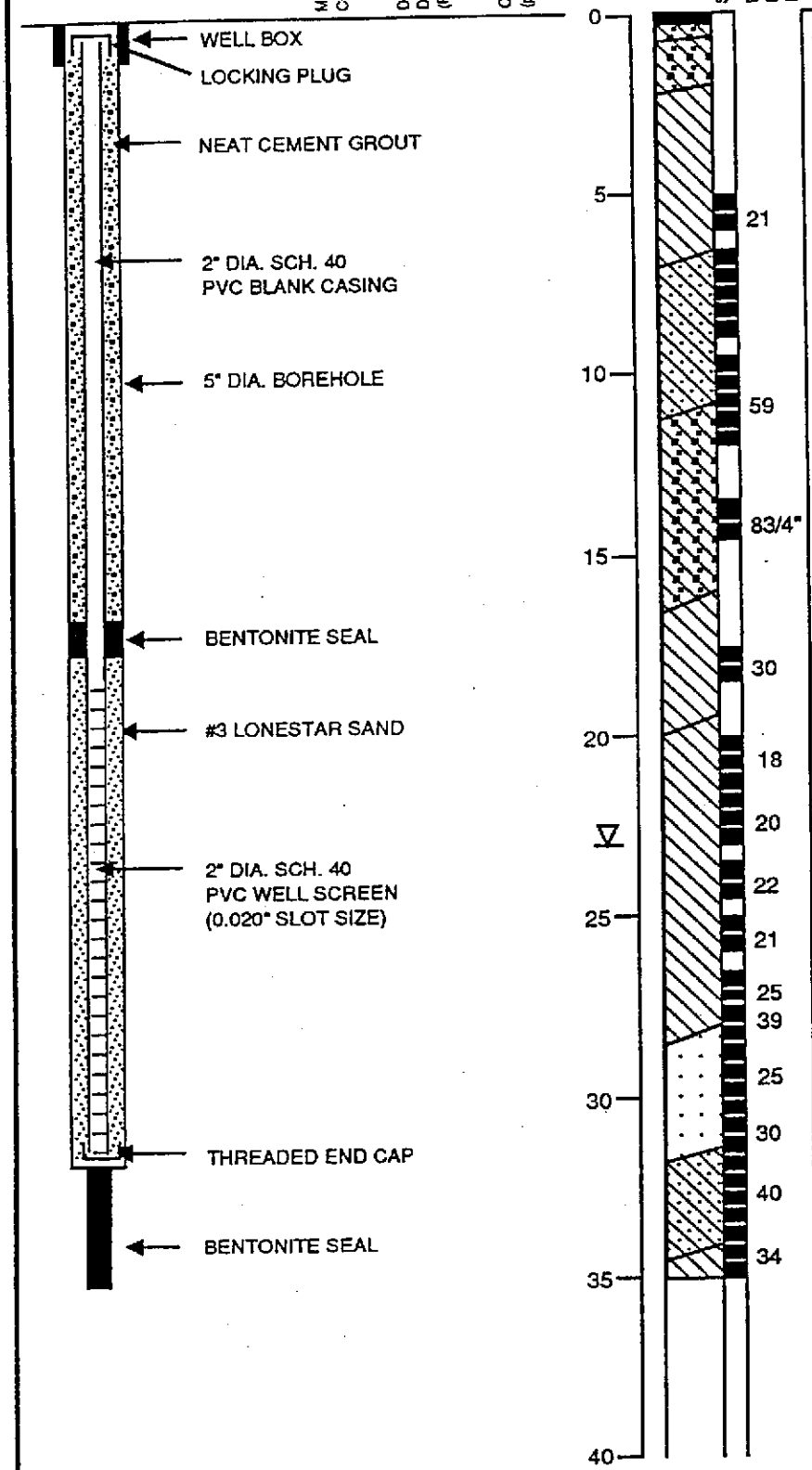
PLATE
A

LOG OF TEST BORING MW9

EQUIPMENT 5" Rotary Wash

DATE DRILLED 10/6/92

TOC ELEVATION 90.37 feet



ASPHALTIC CONCRETE - 3" thick

DARK BROWN CLAYEY GRAVEL (G
dense, moist (fill)

BROWN CLAYEY GRAVEL (GC)
dense, moist

LIGHT BROWN SANDY CLAY (CL)
medium dense, moist

MOTTLED ORANGE BROWN AND L
BROWN CLAYEY SAND (SC)
dense, moist

ORANGE BROWN CLAYEY GRAVE
very dense, moist

MOTTLED ORANGE BROWN AND L
GRAY BROWN SANDY CLAY (CL)
stiff, moist

LIGHT GRAY BROWN SILTY CLAY (
stiff, moist

GROUNDWATER LEVEL 12/22/92

MOTTLED ORANGE BROWN AND L
BROWN CLAYEY SAND (SP-SM)
dense, moist, with occasional thin le
of sandy clay

LIGHT BROWN CLAYEY SAND (SC)
dense, moist

LIGHT BROWN SILTY CLAY (SCLC)
stiff, moist

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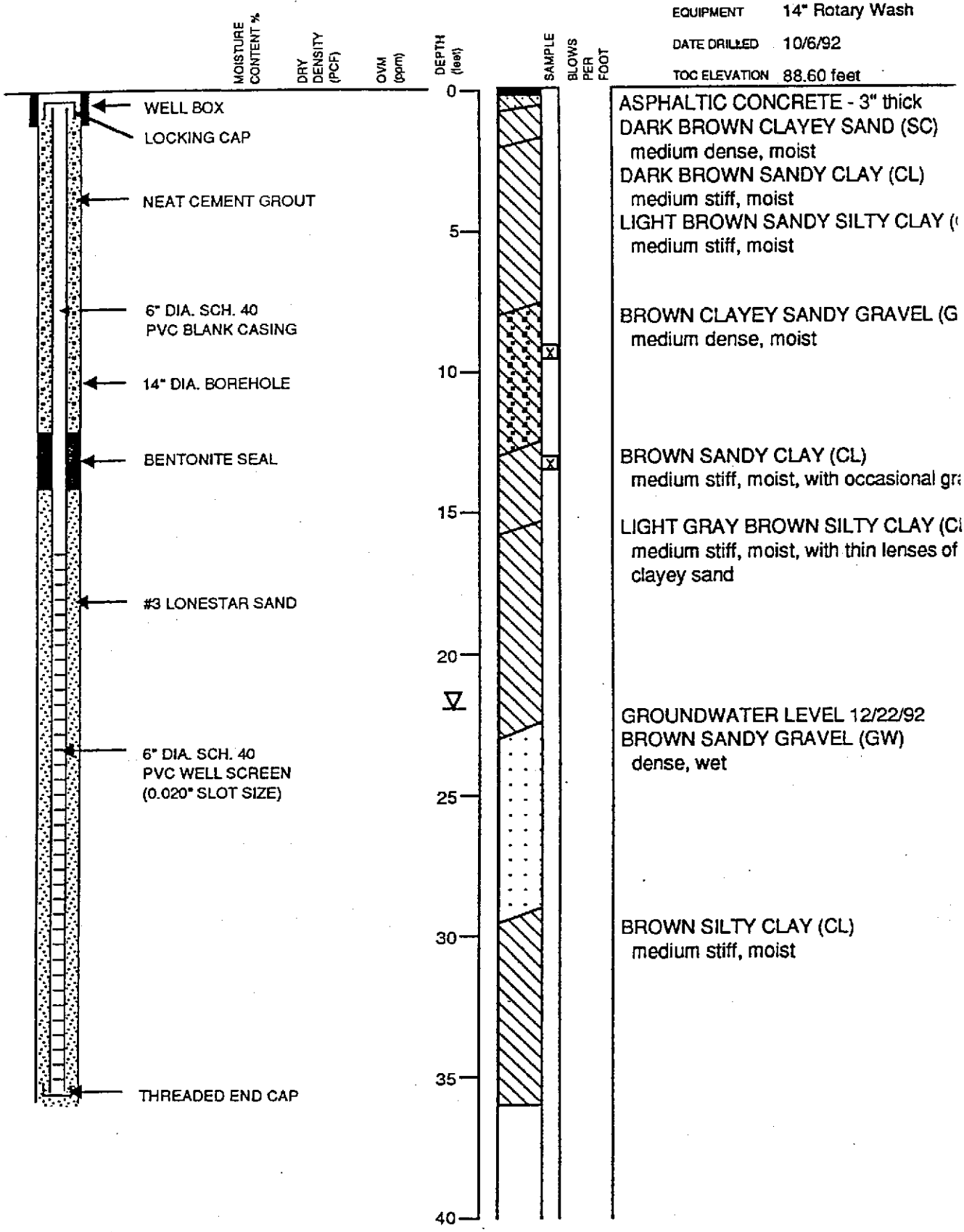
CONNELL OLDSMOBILE - OAKLAND, CA

JOB NUMBER	DATE	APPROVED
447.036	12/4/92	

PL

LOG OF TEST BORING MW10

EQUIPMENT 14" Rotary Wash
DATE DRILLED 10/6/92
TOC ELEVATION 88.60 feet



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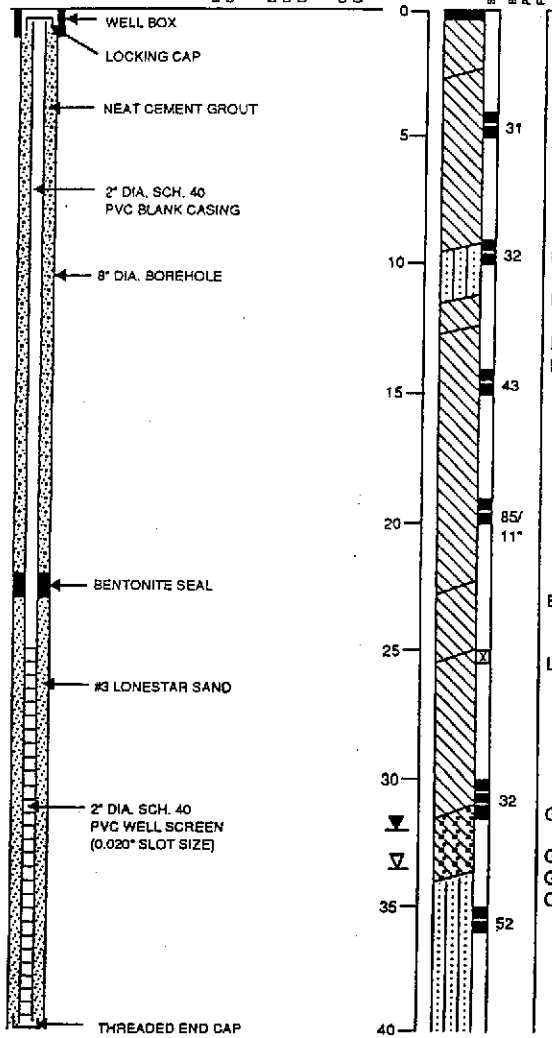
JOB NUMBER	DATE	APPROVED
447.036	12/4/92	

PLATE A

LOG OF TEST BORING MW11

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 10/6/92
TOC ELEVATION 102.60 feet



MOISTURE CONTENT %	DRY DENSITY (PCF)	OVM (ppm)	DEPTH (feet)	SAMPLE	BLOWS PER FOOT	
			0			ASPHALTIC CONCRETE - 4" thick RED BROWN SANDY CLAY (CL) medium stiff, moist, with brick fragments (fill)
			5		31	LIGHT BROWN SANDY CLAY (CL) medium stiff, moist
			10		32	LIGHT BROWN SILTY SAND (SM) medium dense, moist LIGHT BROWN GRAVELLY CLAY (CL) medium stiff, moist MOTTLED DARK BROWN AND LIGHT BROWN SILTY CLAY (CL) stiff, moist, with occasional gravel
			15		43	
			20		85/ 11"	
			25			BROWN SANDY CLAY (CL) medium stiff, moist LIGHT BROWN SANDY SILTY CLAY (CL) medium stiff, moist
			30		32	
			35		52	GRAY GREEN CLAYEY GRAVEL (GC) dense, moist GROUNDWATER LEVEL DURING DRILLING GROUNDWATER LEVEL 12/22/92 ORANGE BROWN SILTY SAND (SM) dense, wet
			40			
			45		42	BROWN GRAVELLY SAND (SC) dense, wet
			50			
			55			
			60			
			65			
			70			
			75			
			80			

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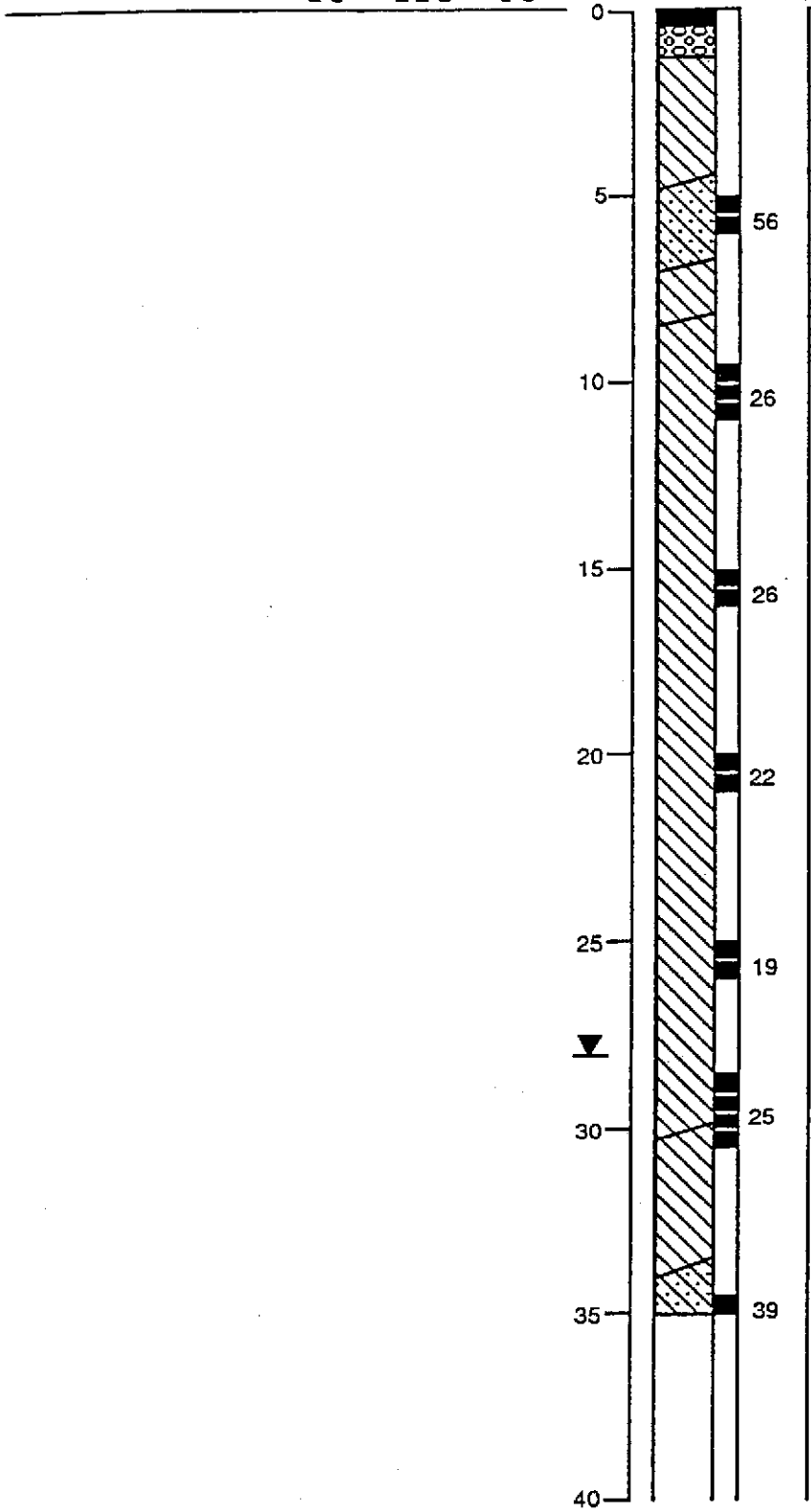
JOB NUMBER 447.036 | DATE 12/4/92 | APPROVED

PLATE A11

LOG OF TEST BORING 12

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 10/6/92
ELEVATION - -



ASPHALTIC CONCRETE - 5" thick
COBBLESTONE PAVEMENT - 13" thick
BROWN SANDY CLAY (CL)
medium stiff, moist, with occasional grav

ORANGE BROWN CLAYEY SAND (SC)
dense, moist, with gravel and rock fragn

DARK BROWN SILTY CLAY (CL)
medium stiff, moist
LIGHT GRAY BROWN SILTY CLAY (CL)
medium stiff, moist, with occasional thin lenses of silt or sand

GROUNDWATER LEVEL DURING DRIL

DARK GRAY SANDY SILTY CLAY (CL)
medium stiff, moist, with organic debris

BROWN CLAYEY SAND (SC)
dense, moist

Boring backfilled with cement grout

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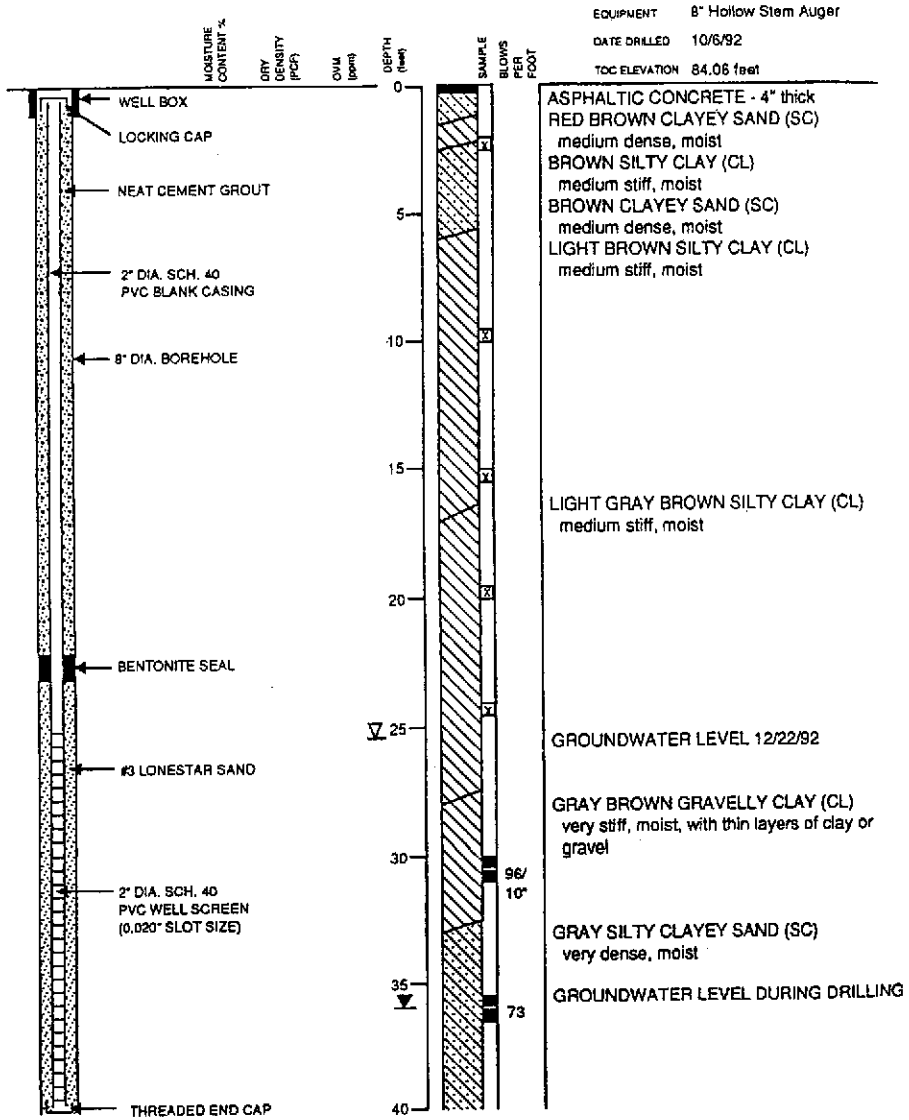
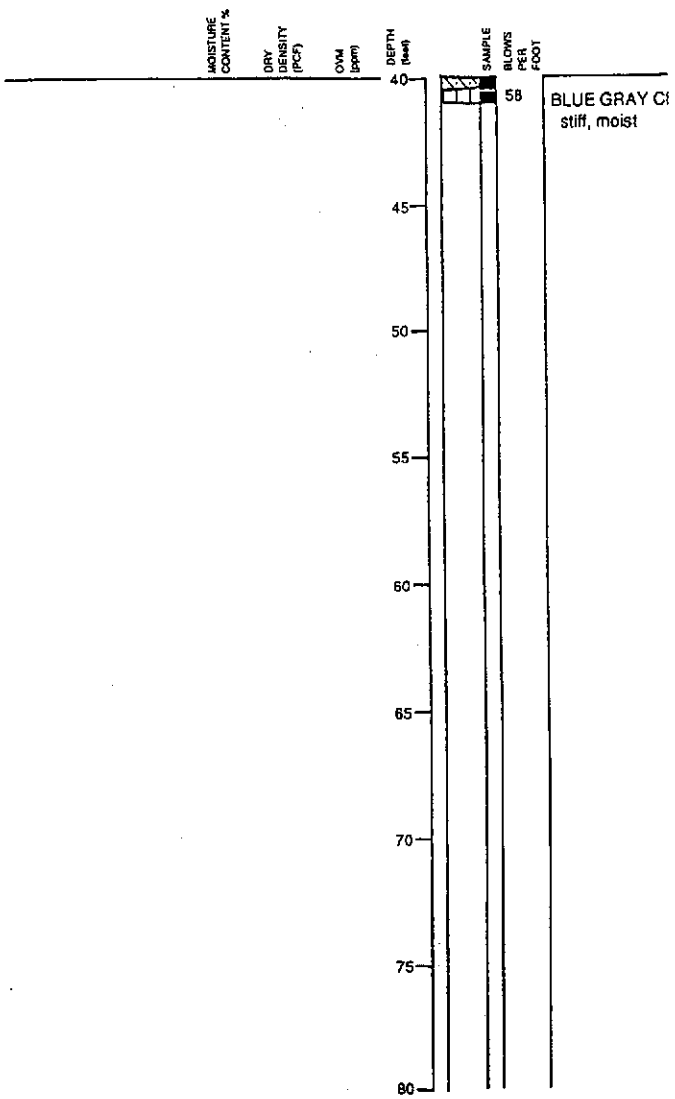
JOB NUMBER	DATE	APPROVED
447.036	12/4/92	

PLATE A1

LOG OF TEST BO

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 10/6/92
TOC ELEVATION 84.06 feet





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CONNELL OLDSMOBILE - (

JOB NUMBER 447.036

DATE 12/4/92

LOG OF BORING NO. A

Project Name & Location: Connell Oldsmobile, Oakland, California

Ground Surface Elevation: –

Elevation Datum: –

Drilling Coordinates: –

Start: Date 5/17/98 Time 1015

Finish: Date 5/17/98 Time 1230

Drilling Company & Driller: Gregg Drilling / Doug

Drilling Fluid: NA

Hole Diameter: 6¼"

Rig Type & Drilling Method: Rhino Limited Access Truck

Sampler Type(s): A) Modified California Sampler (3.0-inch O.D.)
B) Standard Penetration Test Sampler (2.0-inch O.D.)
C)

Logged By: John Wolfe

Sampling Method(s): A) Pneumatic Push
B)
C)

Backfill Method: Cement Grout

Date: 5/17/98

Elevation (feet) / Depth (feet)	Sampler Type	Blows/6 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
0						Concrete Slab - 6 inches thick			
						POORLY GRADED SANDY GRAVEL (GP) dark yellowish-brown 10YR 4/4, medium dense, moist (Fill)			
			0			**LEAN CLAY (CL-ML)** very dark brown 10YR 2/2, medium stiff, moist, with brick fragments (Fill) Color changes to yellowish-brown 10YR 5/8 at 4.5 feet Becomes stiff			
5	B								
			10						
10	B					Gravel lens at 10.5 feet			
			0			**LEAN CLAY (CL)** olive 10YR 4/3, stiff, moist, with hydrocarbon odor			
						WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) light olive-brown 2.5Y 5/6, dense, moist			
15	B		0			**LEAN CLAY (CL-ML)** light olive-brown 2.5Y 5/4 and olive brown 2.5Y 4/4, medium stiff, moist			
20	B		5						
25	B		0			**SILT (ML)** yellowish-brown 10YR 5/8, medium stiff, moist, slight hydrocarbon odor			
30						No groundwater encountered during drilling			

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CONNELL OLDSMOBILE
OAKLAND, CALIFORNIA

JOB NUMBER 447.055

DATE 5/27/98

APPROVED JLS

PLATE 3

LOG OF BORING NO. B

Project Name & Location: Connell Oldsmobile, Oakland, California	Ground Surface Elevation: –
	Elevation Datum: –
Drilling Coordinates: –	Start: Date 5/16/98 Time 0800 / Finish: Date 5/16/98 Time 1030
Drilling Company & Driller: Gregg Drilling / Jason	Drilling Fluid: NA / Hole Diameter: 6"
Rig Type & Drilling Method: Rhino Limited Access Truck	
Sampler Type(s): A) Modified California Sampler (3.0-inch O.D.) B) Standard Penetration Test Sampler (2.0-inch O.D.) C)	Logged By: John Wolfe
Sampling Method(s): A) Pneumatic Push B) C)	Backfill Method: Cement Grout / Date: 5/16/98

Elevation (feet) / Depth (feet)	Sampler Type	Blows/6 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
0						Concrete Slab - 6 inches thick			
			0			**LEAN CLAY (CL-ML)** dark brown 10YR 3/3, medium stiff, moist, brick fragments (Fill)			
			0			**LEAN CLAY (CL-ML)** yellowish-brown 10YR 5/6, medium stiff, moist, (Fill)			
						Silt content varies			
5	A								
			0			Hydrocarbon odor at 7 - 9 feet Some fine sand in clay			
10	A					**POORLY GRADED SAND WITH SILT (SM-SP)** dense, moist (Fill)			
			0			**WELL GRADED SAND WITH GRAVEL (SW)** dark yellowish-brown 10YR 4/6, dense, moist			
						grades to **CLAYEY GRAVEL WITH SAND (GC)** light yellowish-brown 10YR 6/4, dense, moist, faint hydrocarbon odor Color changes to dark yellowish-brown 10YR 4/6			
15	A					**CLAYEY SAND WITH GRAVEL (SC)** brownish-yellow 10YR 6/6, dense, moist			
			3						
			3			**LEAN CLAY (CL)** yellowish-brown 10YR 5/6, medium stiff, moist			
						CLAYEY SAND WITH GRAVEL (SC) yellowish-brown 10YR 5/8, dense, moist			
20	A					**SILT (ML)** mottled very pale brown 10YR 7/4 and yellowish-brown 10YR 5/8, medium stiff, moist, strong hydrocarbon odor			
		▽	35			Groundwater level after drilling			
						LEAN CLAY (CL) light olive-brown 10YR 5/4, medium stiff, moist			
25	A								
			1			Clayey sand (SC-CL) lens at 26-27 feet			
						CLAYEY SAND (SC-CL) light olive-brown 10YR 5/6, dense, moist			
30									

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OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED
447.055	5/27/98	JLC

PLATE **4a**

G OF BORING NO. B

Project Name & Location: Connell Oldsmobile
Oakland, California

Start Date: 5/16/98

Logged By: John Wolfe

Elevation (feet) / Depth (feet)	Sampler Type	Blows/6 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
30	A		0			**LEAN CLAY (CL-ML)** light olive-brown 10YR 5/4, medium stiff, moist, silt content varies			
35	A		0						
40									
45									
50									
55									
60									
65									

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OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED
447.055	5/27/98	

PLATE 4b

LOG OF BORING NO. C

Project Name & Location: Connell Oldsmobile, Oakland, California	Ground Surface Elevation: --
	Elevation Datum: --
Drilling Coordinates: --	Start: Date 5/16/98 Time 1130 / Finish: Date 5/16/98 Time 1400
Drilling Company & Driller: Gregg Drilling / Doug	Drilling Fluid: NA / Hole Diameter: 6"
Rig Type & Drilling Method: Rhino Limited Access Truck	Logged By: John Wolfe
Sampler Type(s): A) Modified California Sampler (3.0-inch O.D.) B) Standard Penetration Test Sampler (2.0-inch O.D.) C)	Backfill Method: Cement Grout / Date: 5/17/98
Sampling Method(s): A) Pneumatic Push B) C)	

Elevation (feet) / Depth (feet)	Sampler Type	Blows/6 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
0						Concrete Slab - 6 inches thick			
			0			**LEAN CLAY (CL)** black 10Y 2.5/1, medium stiff, moist, with brick fragments (Fill)			
			0			**LEAN CLAY (CL)** very dark brown 10Y 2.5/2, medium stiff, moist (Fill)			
5	B		2			**LEAN CLAY (CL)** mottled yellowish-brown 10YR 5/8 and grayish-brown 2.5Y 5/2, medium stiff, moist, faint chemical odor (Fill?)			
						Color changes to yellowish-brown 10YR 4/4 at 9 feet, becomes stiff			
10	B		0			**CLAYEY SAND (SC)** yellowish-brown 10YR 4/6, medium dense, moist			
						Decreasing clay content			
15	B		38			**CLAYEY GRAVEL WITH SAND (GC)** yellowish-brown 10YR 4/6, dense, moist, gravel angular,			
						SILT (ML) dark yellowish-brown 10YR 5/6, medium stiff, moist, with some fine sand			
20	B	▽	0			Color changes to pale brown 10YR 6/3 Groundwater level after drilling			
			0			**LEAN CLAY (CL)** pale olive 2.5Y 6/3, stiff, moist			
25	B		0						
30									

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OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED
447.055	5/27/98	

PLATE 5a

LOG OF BORING NO. C

Project Name & Location: Connell Oldsmobile
Oakland, California

Start Date: 5/16/98

Logged By: John Wolfe

Elevation (feet) / Depth (feet)	Sampler Type	Blows/6 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
30	B		0			**SILTY SAND (SM)** pale olive 2.5Y 6/4, medium dense, wet			
						LEAN CLAY (CL) pale olive 2.5Y 6/3, medium stiff, moist			
35	B		0						
40									
45									
50									
55									
60									
65									

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CONNELL OLDSMOBILE
OAKLAND, CALIFORNIA

JOB NUMBER 447.055 | DATE 5/27/98 | APPROVED JLR

PLATE 5b

LOG OF BORING NO. D (V-14)

Project Name & Location: Connell Oldsmobile, Oakland, California	Ground Surface Elevation: –
	Elevation Datum: –
Drilling Coordinates: –	Start: Date 5/16/98 Time 1400 / Finish: Date 5/16/98 Time 1630
Drilling Company & Driller: Gregg Drilling / Jason	Drilling Fluid: NA / Hole Diameter: 4¼"; reamed to 8" for well installation
Rig Type & Drilling Method: Rhino Limited Access Truck	
Sampler Type(s): A) Modified California Sampler (3.0-inch O.D.) B) Standard Penetration Test Sampler (2.0-inch O.D.) C)	Logged By: John Wolfe
Sampling Method(s): A) Pneumatic Push B) C)	Backfill Method: Well Installed / Date: 5/16/98

Elevation (feet) / Depth (feet)	Sampler Type	Blows/6 Inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	Well Construction	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
0							Concrete Slab - 6 inches thick			
			0				**SANDY LEAN CLAY (CL)** black 10Y 2.5/1, medium stiff, moist, with brick fragments (Fill)			
							LEAN CLAY (CL-ML) dark yellowish-brown 10YR 4/4, medium stiff to stiff, moist (Fill?)			
5	B		0				Hydrocarbon odor at 7 feet			
							SANDY LEAN CLAY (CL) yellowish-brown 10YR 5/4, stiff, moist, with thin lenses of clayey sand			
10	B		3 53				**WELL GRADED GRAVEL WITH CLAY AND SAND (GW)** dark yellowish-brown 10YR 4/6, very dense, moist, with chemical odor, gravel angular			
15	B		15				grades to **CLAYEY GRAVEL (GC)** dark yellowish-brown 10YR 4/6, very dense, moist			
20	B		285				Strong hydrocarbon odor Clay, gravel, and sand contents vary			
		▽					Groundwater level during drilling			
25	B		250							
30										

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OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED
447.055	5/27/98	SLP

PLATE 6a

LOG OF BORING NO. D (...V-14)

Project Name & Location: Connell Oldsmobile
Oakland, California

Start Date: 5/16/98

Logged By: John Wolfe

Elevation (feet) / Depth (feet)	Sampler Type	Blows/6 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	Well Construction	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
30	B	45					Heaving sands at 34 feet, unable to obtain sample below this depth **WELL GRADED SAND WITH GRAVEL (SW)**			
35							**LEAN CLAY (CL)** dark yellowish-brown 10YR 4/4, medium stiff to stiff, moist			
40										
45										
50										
55										
60										
65										

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CONNELL OLDSMOBILE
OAKLAND, CALIFORNIA

JOB NUMBER 447.055

DATE 5/27/98

APPROVED JLC

PLATE 6b

LOG OF BORING NO. E (MW-15)

Project Name & Location: Connell Oldsmobile, Oakland, California	Ground Surface Elevation: –
	Elevation Datum: –
Drilling Coordinates: –	Start: Date 5/17/98 Time 1400 / Finish: Date 5/17/98 Time 1700
Drilling Company & Driller: Gregg Drilling / Doug	Drilling Fluid: NA / Hole Diameter: 6"; reamed to 8" for well installation
Rig Type & Drilling Method: Rhino Limited Access Truck	
Sampler Type(s): A) Modified California Sampler (3.0-inch O.D.) B) Standard Penetration Test Sampler (2.0-inch O.D.) C)	Logged By: John Wolfe
Sampling Method(s): A) Pneumatic Push B) C)	Backfill Method: Well Installed / Date: 5/17/98

Elevation (feet) / Depth (feet)	Sampler Type	Blows/6 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	Well Construction	SOIL DESCRIPTIONS: GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA: Moisture Content (%)	Dry Density (pcf)	Other
0							Concrete Slab - 6 inches thick **POORLY GRADED GRAVEL WITH SAND (GP)** brownish-yellow 10YR 5/8, medium dense, moist (Fill)			
			0				**LEAN CLAY (CL)** very dark grayish-brown 10YR 3/2, medium stiff, moist (Fill)			
5	B		20				**LEAN CLAY (CL)** yellowish-brown 10YR 5/4, medium stiff, moist			
10	B		27				**SILTY SAND (SM)** yellowish-brown 10YR 5/8, dense, moist			
			35				**LEAN CLAY (CL)** olive-brown 2.5Y 4/3, medium stiff, moist			
15	B		10				**CLAYEY GRAVEL (GC)** olive-gray 5Y 4/2 and yellowish-brown 10Y 5/8, dense, moist, gravel angular, well graded			
20	B		25				Gravel, sand, and clay contents vary Color changes to dark brown 10YR 3/3 and dark yellowish-brown 10YR 4/6			
25	B	▽	220				Groundwater level during drilling Strong hydrocarbon odor			
30										

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OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED
447.055	5/27/98	JLP

PLATE **7a**

LOG OF BORING NO. E [illegible]W-15)

Project Name & Location: Connell Oldsmobile
Oakland, California

Start Date: 5/17/98

Logged By: John Wolfe

Elevation (feet) / Depth (feet)	Sampler Type	Blows/6 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	Well Construction	SOIL DESCRIPTIONS **GROUP NAME (GROUP SYMBOL)** color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
30	B		53				**LEAN CLAY (CL)** light olive-brown 2.5Y 5/4, stiff, wet			
35										
40										
45										
50										
55										
60										
65										

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JOB NUMBER	DATE	APPROVED
447.055	5/27/98	JLC

PLATE 7b

LOG OF BORING NO. 4

Project Name & Location: Connell Oldsmobile, Oakland, California	Ground Surface Elevation: –
	Elevation Datum: –
Drilling Coordinates: –	Start: Date 5/17/98 Time 1230 / Finish: Date 5/17/98 Time 1530
Drilling Company & Driller: Gregg Drilling / Doug	
Rig Type & Drilling Method: Rhino Limited Access Truck	Drilling Fluid: NA / Hole Diameter: 6¼"
Sampler Type(s): A) Modified California Sampler (3.0-inch O.D.) B) Standard Penetration Test Sampler (2.0-inch O.D.) C)	Logged By: John Wolfe
Sampling Method(s): A) Pneumatic Push B) C)	Backfill Method: Cement Grout / Date: 5/17/98

Elevation (feet) / Depth (feet)	Sampler Type	Blows/6 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
0						Concrete Slab - 6 inches thick			
	A		500			**LEAN CLAY (CL)** light olive-brown 2.5Y 5/6, medium stiff, moist, with wood fragments, with chemical odor (Fill)			
			350						
			178			**LEAN CLAY (CL)** yellowish-brown 10YR 5/8, medium stiff, moist			
5	B					Variable sand and gravel content			
			6			**POORLY GRADED SAND WITH CLAY (SP) and CLAYEY SAND (SC)** yellowish-brown 10YR 5/6, dense, moist			
10	B								
			9			**CLAYEY GRAVEL (GC)** olive-yellow 2.5Y 6/6, dense, moist, gravel angular, well graded, hydrocarbon odor			
15	B								
			20			**LEAN CLAY (CL)** light olive-brown 2.5Y 5/4, medium stiff to stiff, moist, with hydrocarbon odor			
20	B					**POORLY GRADED SAND WITH CLAY (SP)** pale olive 5Y 6/3, dense, moist			
			55			**SANDY SILT (ML-SM)** pale olive 5Y 6/3, medium stiff, moist			
						LEAN CLAY (CL) pale olive 5Y 6/3, medium stiff, moist			
25	B					**POORLY GRADED SAND WITH CLAY (SP)** medium dense, moist			
						CLAYEY GRAVEL (GC) yellowish-brown 10YR 5/8, dense, moist			
			170			**SILT (ML)** pale olive 5Y 6/3, medium stiff, moist			
						LEAN CLAY (CL) light olive-brown 2.5Y 5/4, stiff, moist			
30									

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OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED	PLATE
447.055	5/27/98	FLC	8a

LOG OF BORING NO. F

Project Name & Location: Connell Oldsmobile
Oakland, California

Start Date: 5/17/98

Logged By: John Wolfe

Elevation (feet) / Depth (feet)	Sampler Type	Blows/6 Inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	SOIL DESCRIPTIONS **GROUP NAME (GROUP SYMBOL)** color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
30	B					No groundwater encountered during drilling			
35	B								
40									
45									
50									
55									
60									
65									

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OAKLAND, CALIFORNIA

JOB NUMBER	DATE	APPROVED
447.055	5/27/98	JLP

PLATE 8b

LOG OF BORING NO. G

Project Name & Location: Connell Oldsmobile, Oakland, California	Ground Surface Elevation: –
	Elevation Datum: –
Drilling Coordinates: –	Start: Date 5/17/98 Time 0900 / Finish: Date 5/17/98 Time 1100
Drilling Company & Driller: Gregg Drilling / Jason	Drilling Fluid: NA / Hole Diameter: 4¼"
Rig Type & Drilling Method: Rhino Limited Access Track	
Sampler Type(s): A) Modified California Sampler (3.0-inch O.D.) B) Standard Penetration Test Sampler (2.0-inch O.D.) C)	Logged By: John Wolfe
Sampling Method(s): A) Pneumatic Push B) C)	Backfill Method: Cement Grout / Date: 5/17/98

Elevation (feet) / Depth (feet)	Sampler Type	Blows/6 inches or Pressure	OVM (ppm)	Sample Interval	Graphic Log	SOIL DESCRIPTIONS GROUP NAME (GROUP SYMBOL) color, consistency/density, moisture condition, other descriptions (Local Name or Material Type)	LABORATORY DATA Moisture Content (%)	Dry Density (pcf)	Other
0						Asphaltic Concrete - 2 inches thick			
			0			**POORLY GRADED SANDY GRAVEL (GP)** dark yellowish-brown 10YR 4/6, medium dense, moist (Fill)			
						LEAN CLAY (CL) yellowish-brown 10YR 5/8, medium stiff, moist			
5	B		0			**CLAYEY SAND (SC)** dark yellowish-brown 10YR 4/6, dense, moist			
						CLAYEY GRAVEL (GC) dark yellowish-brown 10YR 4/6, dense, moist			
10	B		0			**LEAN CLAY (CL)** dark yellowish-brown 10YR 4/6, medium stiff, moist			
15	B		215			**CLAYEY GRAVEL (GC)** yellowish-brown 10YR 5/8, dense, moist			
		▽				Groundwater level during drilling			
20	B		300			**WELL GRADED GRAVEL WITH SAND AND SILT (GW)** brownish-yellow 10YR 6/8 to very pale brown 10YR 7/4, medium dense, wet, with hydrocarbon odor			
25	B		225			**WELL GRADED SAND WITH CLAY AND GRAVEL (SW)** pale olive 10YR 6/4, medium dense, wet			
30									