



76 Broadway
Sacramento, California 95818

October 16, 2009

Barbara Jakub
Alameda County Health Agency
1131 Harbor Bay parkway, Suite250
Alameda, California 94502-577

Re: ***Soil and Groundwater Investigation Report***
76 Service Station # 0746 RO # 0203
3943 Broadway Street
Oakland, CA

Dear Ms. Jakub:

I declare under penalty of perjury that to the best of my knowledge the information and/or recommendations contained in the attached report is/are true and correct.

If you have any questions or need additional information, please call me at (916) 558-7666.

Sincerely,

A handwritten signature in dark ink, appearing to read "Terry L. Grayson". The signature is fluid and cursive, with a large loop at the end.

Terry L. Grayson
Site Manager
Risk Management & Remediation

October 12, 2009

Ms. Barbara Jakub
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

RE: Soil and Groundwater Investigation Report

76 Service Station No. 0746
3943 Broadway
Oakland, California 94612
Case No. R00000203

Dear Ms. Jakub:



On behalf of ConocoPhillips Company (ConocoPhillips), Delta Consultants (Delta) submits this report to document a recent site investigation to further define the vertical extent of petroleum hydrocarbons in the source area of 76 Station No. 0746 (the Site), located at 3943 Broadway, Oakland, California (**Figure 1**). Work was conducted in accordance with Delta's "Work Plan for Source Area Vertical Delineation, dated October 18, 2008, which was subsequently approved in a letter from the Alameda County Environmental Health (ACEH) dated December 5, 2008 (**Attachment A**). Due to construction activity that occurred at the Site during the first half of 2009, this investigation was delayed until the construction was complete. ACDEH allowed an extension of the original deadline (February 5, 2009) to October 16, 2009.

PROJECT OBJECTIVES

Two soil borings (B-1 and B-2) were advanced (**Figure 2**) to investigate the vertical extent of petroleum hydrocarbons in soil and groundwater within the onsite area of highest concentrations. Additionally, as requested by ACEH, Delta was to conduct a utility survey to determine the locations of subsurface utilities (**Figure 2a**) and whether they may be acting as potential conduits for the transport of petroleum hydrocarbons from the Site.

Delineation assessment was conducted using Cone Penetrometer Test (CPT) methodology to advance borings B-1 and B-2. Soil samples were collected continuously to initial groundwater after which soil samples were collected every five feet to a total depth of approximately 35 feet bgs. Discrete grab groundwater samples were collected from three depths to evaluate the vertical distribution of petroleum hydrocarbon constituents in the groundwater.

SITE DESCRIPTION

The Site is currently an active service station located on the west corner of Broadway and 40th Street in Oakland, California. Station facilities include two 12,000-gallon double-wall glasteel gasoline underground storage tanks (USTs) in a common pit, one 520-gallon double-wall glasteel waste oil UST, two dispenser islands, one station building, and a car wash building.

GEOLOGY AND HYDROLOGY

The Site is underlain by fill material that ranges from 2 to 4 feet in thickness. Beneath the fill, the Site is primarily by interlayered clayey/silty deposits and silty and clayey sand. Geologic cross sections are provided as **Figures 3 and 4**. a continuous sand layer extends from approximately 6 to twelve feet bgs. A deeper saturated sand layer is found at a depth of 14-16 feet bgs in the site area. Monitoring wells are typically screened into both the 6-12 bgs and 14-16 foot bgs sand layers. The most recent monitoring and sampling event was conducted at the Site on December 30, 2008. The measured depth to groundwater ranged from 7.47 feet (onsite well MW-6) to 13.56 feet (offsite well MW-10) below top of casing (TOC). The groundwater flow direction was southwest at a gradient of approximately 0.05 feet per foot (ft/ft).

SITE HISTORY

August 1989 Two 10,000 gallon steel gasoline USTs and one 280-gallon steel waste oil UST were removed and replaced with current USTs. A total of approximately 350 cubic yards of soil was removed from the Site during UST removal activities, primarily to enlarge the tank pit for larger tanks. The confirmatory soil sample was reported as non-detect for all constituents. The product piping was also removed. Confirmation soil sampling beneath piping and the waste oil tank contained low concentrations of petroleum hydrocarbons. During the tank removal activities, approximately 6,500 gallons of groundwater was

pumped from the UST cavity. Concentrations of total petroleum hydrocarbons as gasoline (TPH-G) and benzene were reported as 1,200 micrograms per liter ($\mu\text{g/l}$), and 12 $\mu\text{g/l}$, respectively.

October 1989 Three monitoring wells (MW-1, MW-2, and MW-3) were drilled at the Site to depths ranging from 20 to 25 feet below ground surface (bgs).

January 1990 Two additional monitoring wells (MW-4 and MW-5) were drilled at the Site to a depths of 20 feet bgs.

October 1990 Four additional monitoring wells (MW-6 through MW-9) were drilled at and in the vicinity of the Site to depths ranging from 20 to 22 feet bgs. Groundwater recovery tests were conducted on four wells to determine potential locations for placement of recovery wells.

January 1992 Two offsite monitoring wells (MW-10 and MW-11) were drilled in the vicinity of the Site to depths ranging from 19 to 22 feet bgs.

June 1992 One recovery well (RW-1) was drilled onsite to 17.0 feet bgs, and one additional offsite monitoring well (MW-12) was drilled to 17.5 feet bgs.

February 1998 The product piping and associated dispenser islands were replaced at the Site. Four soil samples were collected from beneath the dispenser islands. Petroleum hydrocarbons were reported present in the soil samples. A total of 30.2 tons of stockpiled soil was transported from the Site to the Forward Inc. Landfill in Stockton, California.

October 2003 Site environmental consulting responsibilities were transferred to TRC.

October 2007 Site environmental consulting responsibilities were transferred to Delta.

Groundwater has been monitored at the Site since November 1989. Sampling of the eight onsite and five offsite monitoring wells is currently conducted semi-annually during the second and fourth quarters. During the Fourth Quarter 2008 monitoring and sampling event TPH-G, benzene and methyl tertiary butyl ether (MTBE) were detected at maximum concentrations of 5,800 $\mu\text{g/l}$, 130 $\mu\text{g/l}$, and 22 $\mu\text{g/l}$, respectively, each in the sample from recovery well RW-1.

SENSITIVE RECEPTORS

In 2007, TRC conducted a sensitive receptor survey. From the survey, it was determined that the only surface water within a one-half mile radius of the Site is Glen Echo Creek,

which is approximately 1,630 feet southeast of the Site. According to TRC's Sensitive Receptor Survey, dated February 8, 2007, the Site is within a one-half mile of three water supply wells: two irrigation wells, and one domestic well. The three wells are located upgradient or crossgradient of the Site. In correspondence dated December 5, 2008, ACEH stated that TRC had submitted an incorrect map with the 2007 Sensitive Receptor Survey, and requested that the correct map be presented in addition to the Department of Water Resources (DWR) well logs. In Delta's Sensitive Receptor Survey Addendum, dated April 24, 2009, delta submitted the DWR logs for all wells within a ½-mile radius of the site.

During the current investigation, Delta compared the DWR logs with wells reported by TRC as potential receptors. Delta was unable to verify the existence of the three wells with the DWR logs provided by the DWR. The correct map, for TRCs receptor survey, which was omitted from TRC's original report and the DWR logs for all wells within a one-half mile radius of the Site are included as **Attachment B**.

CONDUIT SURVEY

During this site assessment, Delta conducted an underground conduit survey to determine if there are any preferential migration pathways for petroleum-hydrocarbons within, and in the vicinity of the Site. This was completed by requesting utility location information from companies owning subsurface utilities in the site vicinity, the City of Oakland and Pacific Gas and Electric (PG&E). Delta also contracted a private utility locator to locate additional private subsurface utilities on the site.

Public utility companies were unwilling to provide detailed information regarding their subsurface utilities aside from the location at the surface. No information regarding depth or diameter of utilities was provided, due to potential liability and issues of homeland security. Using a private utility locator, Delta was able to determine the depths of utilities located onsite, and on the adjacent sidewalk. Subsurface utility locations and known depths are shown in the attached site plan with underground utilities (**Figure 2a**).

Onsite electrical, water, and communication lines are between one and two feet below grade. The onsite sewer line ranges from three-feet seven inches (3' 7") bgs to five feet (5') bgs between the site building and the sidewalk. Delta was unable to determine the depth of the sewer line in the street, however based on the depth of the sewer line at the sidewalk; it is estimated that the sewer in the street is less than eight feet bgs.

The communication line running beneath the sidewalk to the east of the site ranges between 20 and 24 inches bgs. The parallel electrical line is three-feet four inches (3' 4") bgs.

Delta was unable to determine the depth of the gas lines or storm drain lines in the site vicinity. Gas lines are typically between three and five feet bgs.

Groundwater was first encountered at approximately 10-14 feet below grade during this investigation. During monitoring, depth to groundwater (DTW) typically fluctuates from approximately 7 feet below TOC to 10 feet below TOC, with historic maximum and minimum depths of 15.72 (MW-11, December 2007) and 5.91 feet (MW-8, July 2006) feet below TOC, respectively. Only in one monitoring event has depth to water been measured at a depth of less than 6.26 feet below TOC.

Delta believes that there is minimal risk of these utilities acting as conduits for shallow groundwater in the vicinity of this site. Although utility trenches with permeable fill material may act as conduits for the migration of petroleum hydrocarbon vapors from groundwater, groundwater is overlain by low permeability silts and clays which inhibit vapor transport.

REMEDIATION STATUS

1989 Approximately 350 cubic yards of soil was removed from the Site during UST removal activities, primarily to make room in the tank pit for larger tanks. During the tank removal activities, a total of approximately 6,500 gallons of groundwater were pumped from the UST cavity.

1990 Groundwater tests were conducted on four wells to determine potential locations for placement of recovery wells.

1993 A soil vapor extraction (SVE) pilot test was conducted at the Site on well RW-1. A maximum concentration of 8.6 µg/l TPH-G was reported in the influent vapor stream. The calculated maximum hydrocarbon extraction rate during the test was 0.00049 lbs/hour. Based on the low extraction rate, high groundwater levels, and fine-grained soil beneath the Site, vapor extraction was determined to not be a feasible remedial option. Well RW-1 was initially installed to conduct a groundwater recovery test; however, due to lack of groundwater recharge the test was not conducted.

March 1998 Product piping and associated dispenser islands were replaced at the Site. Denbeste Transportation, Inc. of Windsor, California transported a total of 30.2 tons of stockpiled soil from the Site to the Forward Inc. Landfill in Stockton, California for disposal.

April 2005 A 68-hour dual phase extraction (DPE) test was conducted. During this event a mobile treatment system was used to remove vapors and liquids from wells RW-1, MW-3, and MW-5. During the event 39.03 pounds of hydrocarbons were recovered with 6,500 gallons of water.

SITE ASSESSMENT ACTIVITIES

On August 27, 2009, Delta advanced CPT borings B-1 and B-2 on the Site to investigate the vertical extent of petroleum hydrocarbons in the onsite areas adjacent to monitoring wells MW-3, MW-4, and MW-5, and extraction well RW-1. Subsurface conditions are shown on geologic cross sections presented as **Figures 3 and 4**.

The results of previous Site investigations show that the highest petroleum hydrocarbon concentrations in soil are from the vicinity of well borings MW-3, MW-4, and MW-5. The following table shows the analytical results of soil samples collected from well borings MW-3, MW-4, and MW-5; no soil samples were collected from boring RW-1.

Sample	Depth (feet)	DTW ¹	TPH-G	Benzene	Toluene	Xylenes	Ethylbenzene
MW3(5)	5	11.75	3.1	0.068	ND	ND	ND
MW3(10)	10	11.75	69	0.89	2.6	7.9	2.0
MW3(11)	11	11.75	1,100	16	85	150	35
MW4(5)	5	11.50	22	0.059	ND	ND	ND
MW4(7)	7	11.50	2.5	ND	ND	ND	ND
MW4(10)	10	11.50	250	1.2	0.66	20	1.4
MW4(11)	11	11.50	280	1.0	4.0	36	7.6
MW5(5)	5	12.25	25	0.21	ND	ND	ND
MW5(7.5)	7.5	12.25	46	0.25	0.28	0.20	0.46
MW5(10)	10	12.25	140	1.5	1.7	10	4.0
MW5(11.5)	11.5	12.25	370	1.8	14	51	11

¹DTW – depth to water during drilling as depicted on boring logs

Initial depth to groundwater in the borings was 11.50-12.25 feet bgs during drilling. The highest petroleum hydrocarbon concentrations in soil samples from each boring were from the depth just above the groundwater surface, i.e., the capillary fringe.

PRE-FIELD ACTIVITIES

Prior to commencing drilling activities, the necessary drilling permits were obtained (**Attachment C**). Underground Service Alert (USA) was notified prior to field activities to mark underground utilities at the Site. In addition, a private utility locator will be used to confirm the absence of buried utilities at each proposed boring location. Prior to advancing each CPT boring, a pilot hole was cleared with a hand auger to approximately five feet bgs to verify the absence of buried utilities.

Delta prepared a health and safety plan (HASP) specific to the Site and to the work being conducted. Prior to beginning the field activities, a safety meeting was conducted with onsite workers to discuss applicable health and safety issues and concerns related to the specific work.

CPT SOIL PROFILING

CPT borings B-1 and B-2 were advanced on August 27, 2009, in accordance with Delta's *Work Plan for Source Area Vertical Delineation*, dated June 27, 2008. The CPT boring locations (B-1 and B-2) consisted of three separate boreholes – one for stratigraphic profiling, one for collecting depth discreet soil samples, and a third for collecting discreet groundwater samples. Stratigraphic profiling boreholes were advanced in each location prior to advancement of soil and groundwater collection boreholes. Boreholes used to gather stratigraphic data were advanced to approximately 35 feet bgs in B-1 and B-2 as outlined in Delta's work plan. CPT soil classifications are based on the cone penetration resistance, sleeve friction, pore pressure, and friction ratio. A soil classification graph was generated during the advancement of each CPT borehole. CPT equipment was provided by Gregg Drilling and Testing, Inc. (License C57-485165). Soil profile graphs and pore pressure dissipation test graphs are included in the report prepared by Gregg Drilling and Testing, Inc. (**Attachment D**). Grout was pumped into all completed boreholes behind a disposable cone tip using a grout collar (retraction grouting).

The soil behavioral profile graphs of B-1 and B-2 illustrate the sediments encountered during boring advancement (**Attachment D**). According to the soil behavior graphs, soil beneath the Site generally consists of interbedded silt and clay, and combinations of silt and clay. A narrow bed of sand approximately one foot thick was detected in each boring at approximately 23 feet bgs. Also, over consolidated or cemented fine grained soil was

encountered in narrow beds between 30 and 34 feet bgs. Subsurface conditions are illustrated by the geologic cross sections shown on **Figures 3 and 4**.

SOIL SAMPLING

Each CPT boring was advanced to approximately 35 feet bgs. Soil samples were collected continuously to five feet past the depth of initial groundwater, initially encountered at 14 feet bgs in B-1 and 13 feet bgs in B-2. The soil samples were logged using the Unified Soil Classification System (ASTM D2487-00). Soil samples were continuously logged to characterize the depth interval of the capillary fringe. Based on the boring logs of wells MW-3 through MW-5, a unit of clayey sand, clayey gravel, or well graded gravel with sand and clay was anticipated to be encountered between 12.5 and 15.5 feet bgs. This unit has been recognized in MW-9, and it is possible that this unit is the primary path for shallow downgradient water flow at the Site.

During the advancement of the soil sampling borehole of B-1, lean clay, sandy lean clay, and lean clay with sand were encountered to a depth of 14 feet bgs, continuously logged. Silty sand was encountered between 14 and 15 feet bgs, and there was no recovery in the sample from 15 feet. Depth to groundwater was measured at 10.2 feet bgs in the soil profiling borehole, so the boring was sampled every five feet after 16 feet, as proposed in the work plan. Sandy silt, clays, and clays with sand were encountered between 20 feet bgs and 36 feet bgs, where the boring was terminated.

Similar soils were encountered in boring B-2, with lean clay, sandy lean clay, and lean clay with sand to a depth of 14 feet bgs. Clayey sand was encountered between 14 and 16 feet bgs, and there was no sample recovery between 16 and 18 feet bgs. Lean clay with sand and sandy lean clay were encountered to 36 feet bgs, where the boring was terminated.

In the CPT profile, additional sandy (permeable) layers were identified in both borings between 22 and 25 feet and between 30 and 32 feet, as well as between 32 and 35 feet bgs in boring B-2. These layers were not detected in the hand samples (drive samples) collected for lithology confirmation, as the lithologic confirmation samples were collected at five-foot intervals.

The layer of silty sand and clayey sand encountered in borings B-1 and B-2 is likely the anticipated layer seen in MW-3 through MW-5 between 12.5-15.5 feet bgs. The first wet soil sample from borings B-1 and B-2 were both collected from this zone. Although

saturated soil was first encountered at 14 feet bgs and 13 feet bgs in borings B-1 and B-2, groundwater was measured at 10.2 and 8.2 feet bgs in the open boreholes, respectively. Groundwater rose approximately 4-5 feet above the first saturated soil.

A photo-ionization detector (PID) was used to measure concentrations of volatile organic compounds in soil samples collected from the boreholes. To obtain a PID reading, a soil sample from each sampling interval was placed in a sealed plastic bag. After approximately five minutes, the PID probe was inserted into the plastic bag and soil gas allowed to pass through the PID until readings stabilized. The resulting concentration reading was recorded in the geologist's field log. Soil Boring Logs with PID readings are presented as **Attachment E**. Selected soil samples were capped with Teflon[®] and plastic end caps, then immediately placed on ice. The samples were then logged on to chains-of-custody forms, and submitted to BC Laboratories, Inc. Bakersfield, California for analysis. Soil samples were analyzed for TPH-G by EPA Method 8015M, and benzene toluene ethylbenzene and total xylenes (BTEX compounds), MTBE, tertiary butyl alcohol (TBA), ethyl tertiary butyl ether (ETBE), tertiary amyl methyl ether (TAME), di-isopropyl ether (DIPE), 1,2-dichloroethane (1,2-DCA), ethylene dibromide (EDB), and ethanol by EPA Method 8260B.

GROUNDWATER SAMPLING

A Delta field geologist interpreted CPT soil behavior type graphs generated in the field and soil characteristics encountered in the soil sampling borehole and selected permeable zones from which to collect groundwater discrete samples. Groundwater samples were collected from boring B-1 at depth intervals of 12.5-15.5 feet bgs, 22-24 feet bgs, and 33-35 feet bgs, while groundwater samples were collected from boring B-2 at depth intervals of 12-15 feet bgs, 23-25 feet bgs, and 32-34.5 feet bgs.

To collect depth-discrete groundwater samples, a sealed stainless steel 1 3/4-inch hollow push rod was advanced to the desired sampling depth. The push rod was then retracted, exposing the inlet screen which allowed groundwater to hydrostatically flow into the sampler. A small diameter stainless steel bailer was lowered through the hollow push rod and into the screened section for sample collection. The groundwater samples were decanted into 40-milliliter glass VOA bottles preserved with hydrochloric acid (HCl) and 1-liter amber bottles with no preservative, and placed on ice for transportation to the laboratory. The soil and groundwater samples were then logged into chain-of-custody

forms, and submitted to BC Laboratories in Bakersfield. Groundwater samples were analyzed for TPH-G by EPA Method 8015M, and BTEX, MTBE, TBA, ETBE, TAME, DIPE, 1,2-DCA, EDB, and ethanol by EPA Method 8260B. One sample (B-2 @ 10 feet) was analyzed additionally for lead for the purpose of waste profiling.

Immediately following sample collection, Portland cement grout was pumped into the initial borehole behind the cone by using a grout collar (retraction grouting) to approximately 0.5 feet below grade. Each CPT boring was then capped flush with concrete and dyed black to match the surrounding asphalt.

SOIL ANALYTICAL RESULTS

In soil boring B-1, TPH-G was detected at maximum concentrations of 120 mg/kg (10 feet bgs) and 110 mg/kg (13 feet bgs). TPH-G was also detected at 6 feet bgs (1.3 mg/kg) and 35 feet bgs (6.1 mg/kg). MTBE was detected at 0.0055 mg/kg at 6 feet bgs. The deepest soil sample contained only TPH-G at a concentration of 6.1 mg/kg. Lead was detected in soil sample B-2 at 10 feet at a concentration of 11 mg/kg, which is consistent with regional background concentrations. There were no other detections of any analytes in soil samples collected from this soil boring.

In soil boring B-2, TPH-G was detected at maximum concentrations of 760 mg/kg (12 feet bgs) and 790 mg/kg (13 feet bgs). TPH-G was also detected at 6.6 (6 feet bgs) mg/kg and 250 mg/kg (10 feet bgs). Benzene was detected in soil samples between 10 and 13 feet bgs, with concentrations ranging between 1.9 mg/kg (10 feet bgs) and 0.22 mg/kg (13 feet bgs). MTBE was detected at six feet bgs at a concentration of 0.0085 mg/kg. Xylene and ethylbenzene were also detected in soil samples collected between six and 13 feet bgs, with ethylbenzene concentrations ranging between 0.0093 mg/kg (six feet bgs) and 42 mg/kg (12 feet bgs), and xylene concentrations ranging between 0.015 mg/kg (six feet bgs) and 130 mg/kg (12 feet bgs).

In boring B-1, no analytes were detected above the reporting limit at 35 feet bgs, which was the deepest sample collected.

A summary of soil analytical data is included in **Table 1**, and the certified laboratory analytical report is included in **Attachment F**.

GROUNDWATER ANALYTICAL RESULTS

In boring B-1 TPH-G, MTBE, and TBA were detected in groundwater samples at maximum concentrations of 1,700 µg/l, 9.2 µg/l, and 47 µg/l, respectively, in the sample collected from 12.5-15.5 feet bgs. As shown in the table below, the maximum detections in groundwater collected from boring B-2 also occurred in the similar depth range of 12-15 feet bgs.

Sample Name	Dissolved Phase Hydrocarbon Concentrations (µg/l)						
	TPH-G	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	TBA
B-1@12.5-15.5	1700	ND<0.50	ND<0.50	ND<0.50	ND<1.0	9.2	47
B-1@22-24	1100	ND<1.0	ND<1.0	ND<1.0	ND<2.0	1.0	ND<20
B-1@33-35	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<0.50	ND<10
B-2@12-15	3200	8.9	ND<5.0	26	74	59	ND<100
B-2@23-25	770	39	ND<0.50	83	240	2.3	ND<10
B-2@32-34.5	370	11	ND<0.50	11	22	ND<0.50	ND<10
ESL	100	1.0	40	30	20	5.0	12

ESL – California Regional Quality Control Board, San Francisco Bay Region Environmental Screening Level for potential drinking water

Although maximum concentrations of TPH-G and MTBE occur in the depth interval of approximately 12-15.5 feet bgs, the maximum concentrations of benzene, ethylbenzene and xylenes occur in groundwater in the 23-25 feet bgs depth interval.

As shown in the table above, MTBE was detected above the California Regional Quality Control Board, San Francisco Bay Region (RWQCB) Environmental Screening Level (ESL) of 5.0 µg/l in both borings in the 12-15.5 feet bgs depth interval, but was below the ESL (in both borings) in samples collected from deeper than 15.5 feet. The maximum concentration of benzene detected was a concentration of 39 µg/l in the 23-25 feet bgs sample. The benzene concentration was 11 µg/l in the deepest sampling interval of 32-34.5.

The TPH-G concentration in boring B-2 at the 32-34.5 feet bgs interval is also above the ESL for potential drinking water, which is 100 µg/l.

A complete groundwater analytical data table is included in **Table 2**, and the laboratory analytical report is included in **Attachment F**.

WASTE DISPOSAL

Waste generated during assessment activities is being temporarily stored onsite in a Department of Transportation (DOT)-approved 55-gallon drum pending disposal to an approved disposal/recycling facility. Mainly construction debris was generated (concrete and asphalt), with only a minor amount of soil.

CONCLUSIONS AND RECOMENDATIONS

Depths to utilities at the Site and in the Site vicinity were found to be between approximately 20-inches and 5-feet bgs, where they could be measured. Typical utility depths are approximately six feet bgs or less.

Groundwater was first encountered at approximately 10-14 feet below grade during this investigation. During monitoring, depth to groundwater (DTW) typically fluctuates from approximately 7 feet below TOC to 10 feet below TOC, with historic maximum and minimum depths of 15.72 feet below TOC and 5.91 feet below TOC (MW-8, July 2006), respectively. Only in one monitoring event has depth to water been measured at a depth of less than 6.26 feet below TOC. Since groundwater is typically encountered at depths between 10 and 14 feet bgs while drilling, and static groundwater is measured at shallower depths, it appears that groundwater at the Site and in the site vicinity may be at least partially confined.

Delta believes that there is minimal risk of utilities acting as conduits for shallow groundwater in the vicinity of this site. Although utility trenches with permeable fill material may act as conduits for the migration of petroleum hydrocarbon vapors from groundwater, groundwater is overlain by low permeability silts and clays which inhibit vapor transport.

Maximum concentrations of TPH-G in soil were detected between 10-13 feet bgs, which appears to act as a smear zone in the capillary fringe. This is also the depth interval in which benzene was encountered in soil, at concentrations ranging between 0.22 mg/kg and 1.9 mg/kg.

In the deepest soil sample (35 feet bgs) collected from B-1, TPH-G was detected at a concentration of 6.1 mg/kg, which is below the ESL of 83 mg/kg. There were no other detections of any analytes in samples collected from 35 feet bgs.

MTBE was detected in two soil samples collected during this investigation; B-1 at six feet bgs (0.0055 mg/kg), and B-2 at six feet bgs (0.0085 mg/kg). Both of these detections are below the ESL of 0.023 mg/kg.

With the exception of benzene, ethylbenzene, and xylenes detected in the 23-25 feet bgs water sample from B-2, concentrations appear to decrease overall as depth increases in both borings. Maximum TPH-G and MTBE concentrations in groundwater from both borings were encountered in the 12-15.5 feet bgs depth interval, while, maximum benzene, ethylbenzene, and xylenes concentrations in groundwater were encountered in the 23-25 feet bgs depth interval in B-2 only.

BTEX compounds were not detected in groundwater from B-1. In the groundwater sample collected from the deepest interval of boring B-1 (33-35 feet bgs), no analytes were detected above the reporting limit.

In the deepest groundwater sample collected from boring B-2, TPH-G and benzene were detected at respective concentrations of 370 µg/l and 11 µg/l. Although both of these concentrations are above their respective ESLs for potential drinking water, these concentrations are relatively low, at levels expected to degrade over time, and do not warrant additional investigation or active remediation.

REMARKS

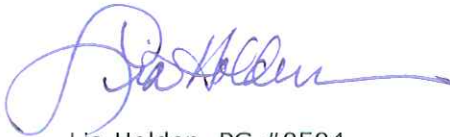
The descriptions, conclusions, and recommendations contained in this document represent Delta's professional opinions based upon the currently available information and are arrived at in accordance with currently acceptable professional standards. This document is based upon a specific scope of work requested by the client. The Contract between Delta and its client outlines the scope of work, and only those tasks specifically authorized by that contract or outlined in this work plan will be performed. This document is intended only for the use of Delta's Client and anyone else specifically listed on this document. Delta will not and cannot be liable for unauthorized reliance by any other third party. Other than as contained in this paragraph, Delta makes no express or implied warranty as to the contents of this document.

If you have any questions regarding this report or need any additional information about the Site, please do not hesitate to contact the undersigned at (408) 826-1863.

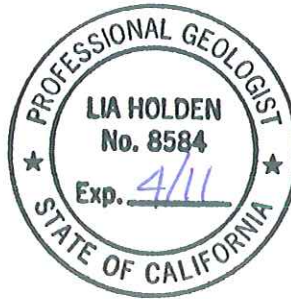
Sincerely,
Delta Consultants



Evan Chantikian
Senior Staff Geologist



Lia Holden, PG #8584
Geologist – Project Manager



Figures

- Figure 1: Site Vicinity Map
- Figure 2: Site Plan
- Figure 2a: Site Plan with Underground Utilities
- Figure 3: Geologic Cross Section A-A'
- Figure 4: Geologic Cross Section B-B'

Tables

- Table 1: Soil Analytical Data Table
- Table 2: Groundwater Analytical Data Table

Attachments

- Attachment A: Agency Correspondence
- Attachment B: Well Location Map and DWR Well Logs
- Attachment C: Soil Boring Permit
- Attachment D: Gregg Drilling and Testing CPT Report
- Attachment E: Soil Boring Logs
- Attachment F: Certified Laboratory Analytical Report

cc: Mr. Terry Grayson, ConocoPhillips (electronic upload)

References:

Kaprealian Engineering, Inc., *Soil Sampling Report*, Unocal Service Station #0746, 3943 Broadway Street, Oakland, California, August 30, 1989

Kaprealian Engineering, Inc., *Preliminary Groundwater Investigation*, Unocal Service Station #0746, 3943 Broadway Street, Oakland, California, November 30, 1989

Kaprealian Engineering, Inc., *Continuing Groundwater Investigation*, Unocal Service Station #0746, 3943 Broadway Street, Oakland, California, March 16, 1990

Kaprealian Engineering, Inc., *Continuing Groundwater Investigation*, Unocal Service Station #0746, 3943 Broadway Street, Oakland, California, December 17, 1990

Kaprealian Engineering, Inc., *Continuing Groundwater Investigation*, Unocal Service Station #0746, 3943 Broadway Street, Oakland, California, March 9, 1992

Kaprealian Engineering, Inc., *Continuing Groundwater Investigation*, Unocal Service Station #0746, 3943 Broadway Street, Oakland, California, September 25, 1992

Kaprealian Engineering, Inc., *Pilot Vapor Extraction Test Report*, Unocal Service Station #0746, 3943 Broadway Street, Oakland, California, May 18, 1993

Gettler-Ryan, Inc., *Product Piping Replacement Report*, Unocal Service Station No. 0746, 3943 Broadway Street, Oakland, California, April 3, 1998

Gettler-Ryan, Inc., *Product Piping Replacement Report*, Unocal Service Station No. 0746, 3943 Broadway Street, Oakland, California, June 18, 1998

TRC, *Sensitive Receptor Survey*, 76 Station No. 0746, 3943 Broadway Street, Oakland, California, February 8, 2007.

California Regional Quality Control Board, San Francisco Bay Region. *Screening For Environmental Concerns at Site with Contaminated Soil and Groundwater*, May 2008.

Delta Consultants, *Work Plan for Source Area Vertical Delineation*, 76 Station No. 0746, 3943 Broadway Street, Oakland, California, June 19, 2008

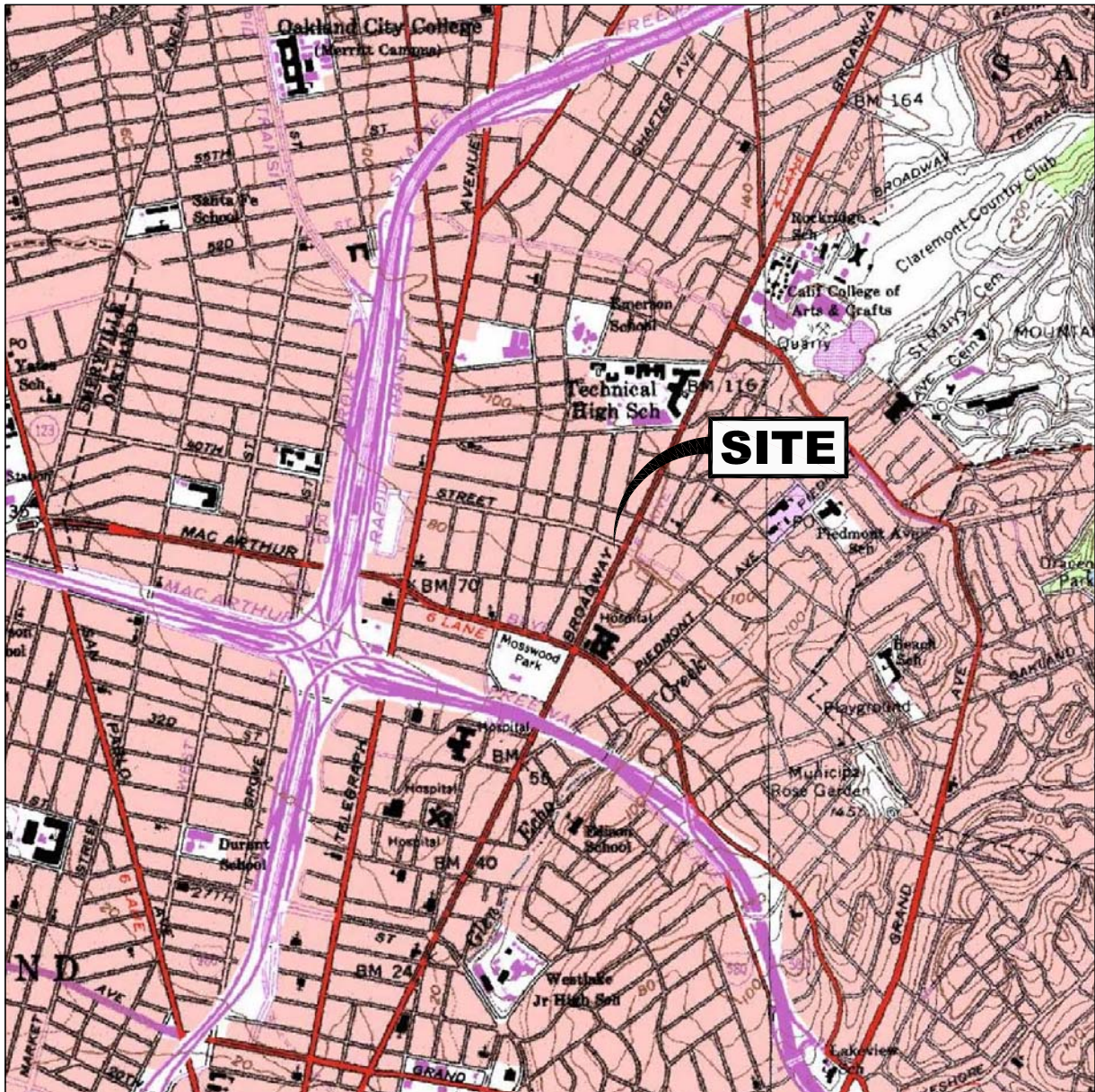
TRC, *Semi-Annual Monitoring Report July through December 2008*, 76 Station 0746, 3943 Broadway Street, Oakland, California, January 19, 2009

Delta Consultants, *Sensitive Receptor Survey, Addendum*, 76 Service Station No. 0746, 3943 Broadway Street, Oakland, California, April 24, 2009

Figures

LATITUDE: N 37° 49' 47.7"
 LONGITUDE: W 122° 15' 32.9"
 UTM COORDINATES: ZONE 10 565197 E 4187203 N

TOWNSHIP 1S
 RANGE 4W
 SECTION 24



OAKLAND WEST QUADRANGLE
 CALIFORNIA
 7.5 MINUTE SERIES (TOPOGRAPHIC)



QUADRANGLE LOCATION

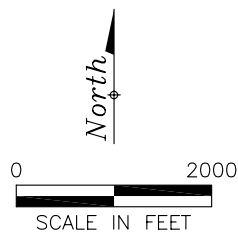
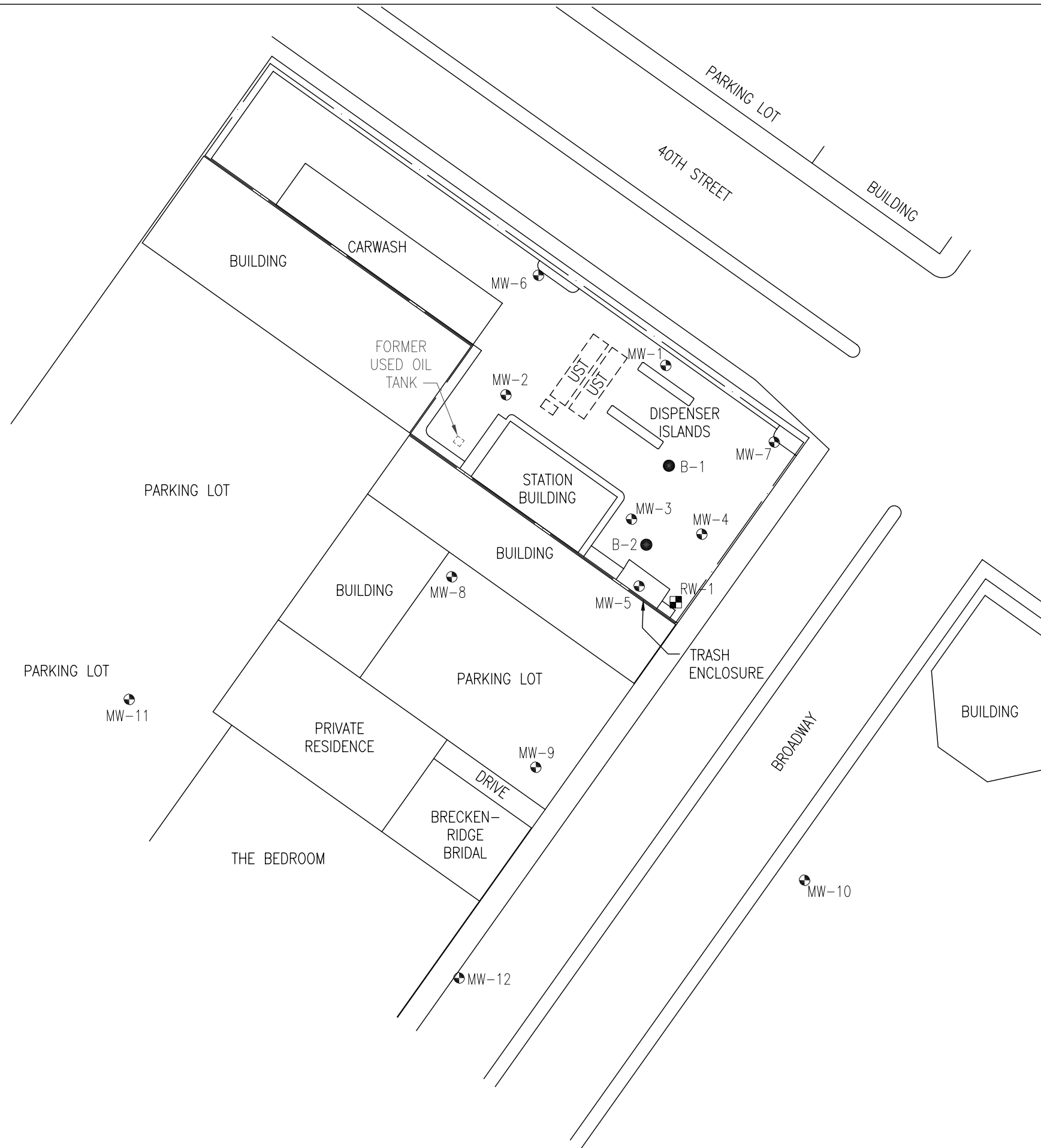


FIGURE 1
 SITE VICINITY MAP

76 STATION NO. 0746
 3943 BROADWAY
 OAKLAND, CALIFORNIA

PROJECT NO. C1007-4600-3	PREPARED BY CM	DRAWN BY DR
DATE 6/25/08	REVIEWED BY	FILE NAME C100746003sm





LEGEND

- — — — — PROPERTY BOUNDARY
- ⊕ MW— MONITORING WELL
- ⊠ RW— RECOVERY WELL
- B— CPT BORING

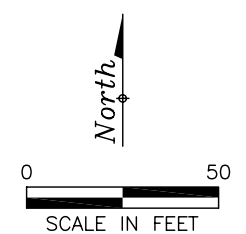
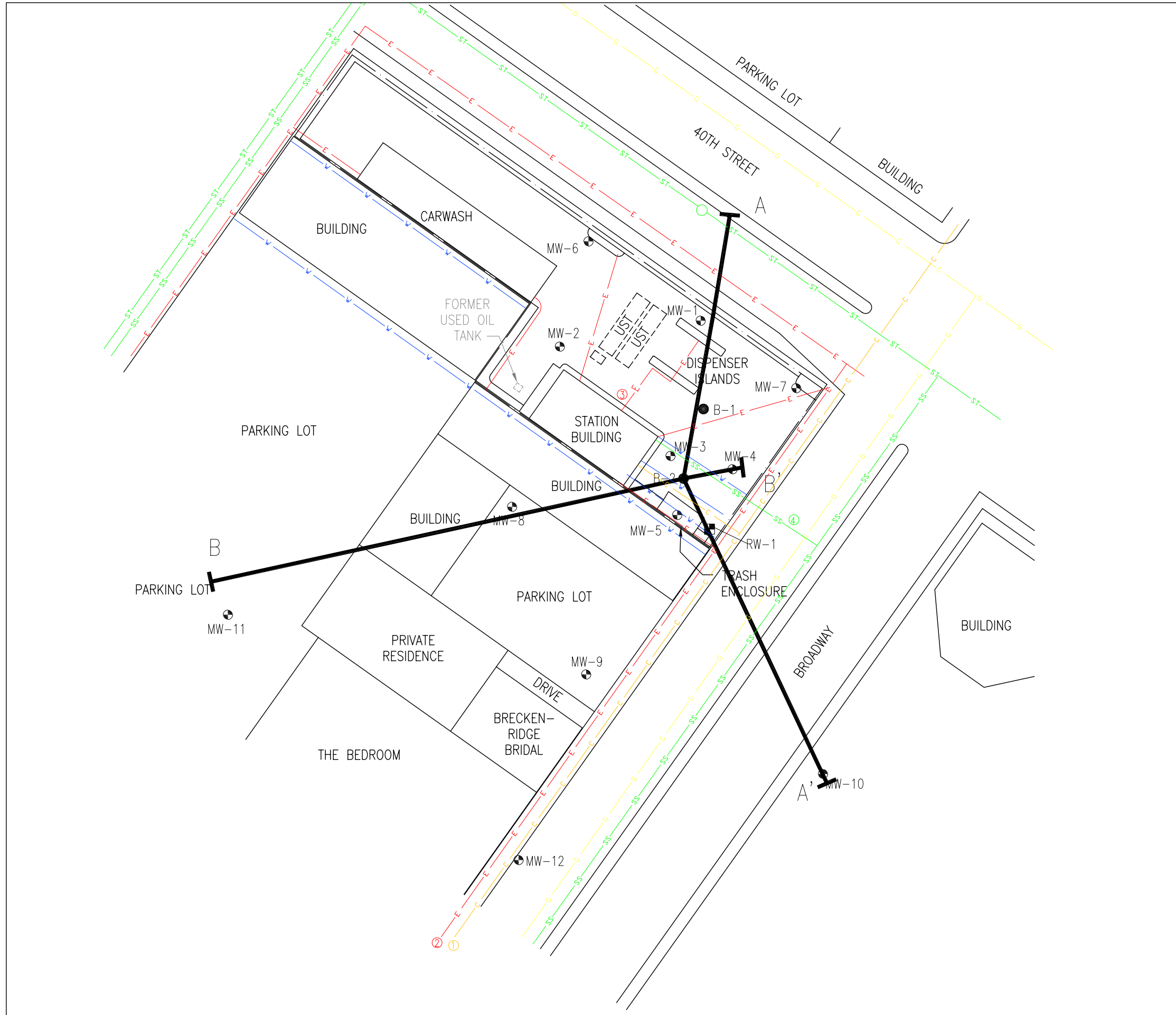


FIGURE 2
SITE PLAN

76 STATION NO. 0746
3943 BROADWAY
OAKLAND, CALIFORNIA

PROJECT NO. C1007-4600-3	PREPARED BY EC	DRAWN BY DR/JH	
DATE 09/14/09	REVIEWED BY	FILE NAME C100746003sm	



LEGEND

- PROPOERTY BOUNDARY
- ⊙ MW- MONITORING WELL
- ⊠ RW- RECOVERY WELL
- B- CPT BORING
- E — UNDERGROUND ELECTRIC LINE
- G — UNDERGROUND GAS LINE
- SS — UNDERGROUND SANITARY SEWER LINE
- ST — UNDERGROUND STORM SEWER LINE
- W — UNDERGROUND WATER LINE
- C — UNDERGROUND COMMUNICATIONS LINE

UTILITY NOTES;

- 1 COMMUNICATIONS LINE IS 20-24" BELOW GROUND SURFACE (BGS).
- 2 ELECTRIC LINE IS 3' 4" BGS.
- 3 ON-SITE ELECTRIC LINES IS 1-2' BGS.
- 4 ONSITE SEWER IS 3' 7" BGS ON-SITE AND 5' BGS AT SIDEWALK.
- 5 DEPTH/DIAMETERS OF GAS, SANITARY SEWER, AND STORM SEWER LINES COULD NOT BE OBTAINED FROM THE CITY OF OAKLAND AND PG&E.
- 6 UTILITIES SHOWN ARE ONLY DELINEATED ON THE RIGHT OF WAY, ON-SITE AND THE IMMEDIATE PERIMETER.

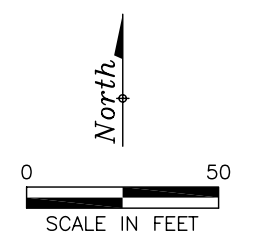
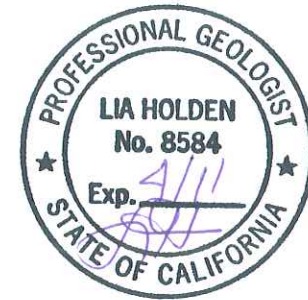
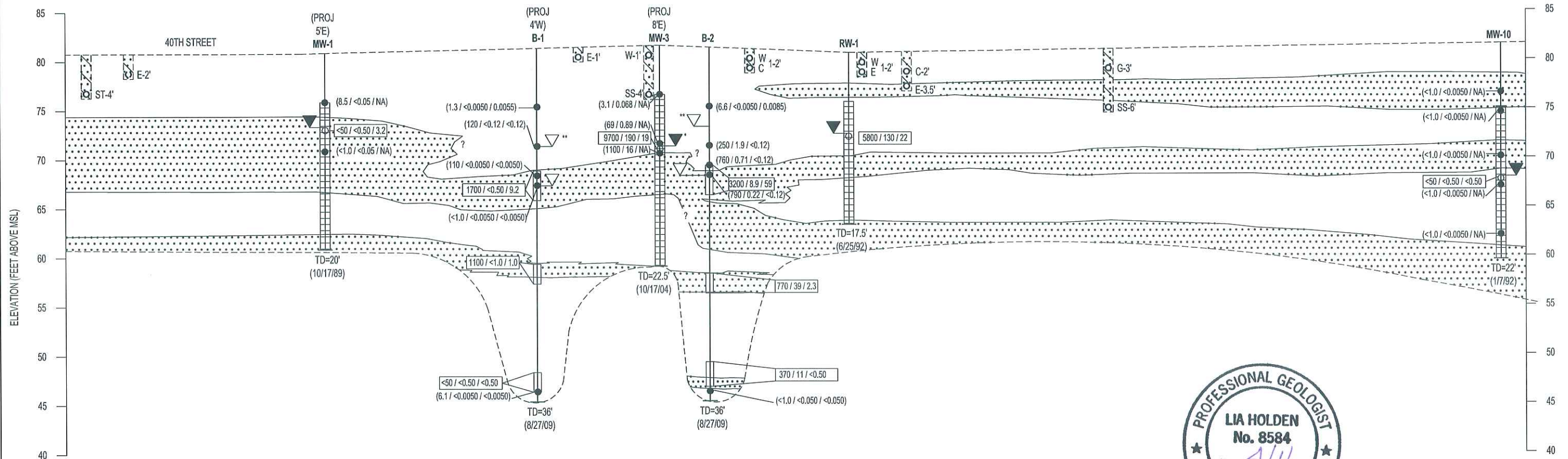


FIGURE 2a
 SITE PLAN WITH
 UNDERGROUND UTILITIES
 76 STATION NO. 0746
 3943 BROADWAY
 OAKLAND, CALIFORNIA

PROJECT NO. C1007-4600-3	PREPARED BY EC	DRAWN BY DR/JH	
DATE 10/08/09	REVIEWED BY	FILE NAME C100746003sm	

NORTH A

SOUTHEAST A'



NOTES:

- 1) <50 =BELOW THE LABORATORY'S INDICATED REPORTING LIMIT
NA =NOT ANALYZED
TPH-G =TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
MTBE =METHYL TERT BUTYL ETHER
MSL =MEAN SEA LEVEL
mg/kg =MILLIGRAMS PER KILOGRAM
ug/L =MICROGRAMS PER LITER
* =GROUNDWATER SAMPLE COLLECTED FROM MW-3 ON 6/9/08.
** =DEPTH TO WATER PRIOR TO GROUTING BOREHOLE
- 2) STRATIGRAPHY BETWEEN BORINGS IS INTERPRETIVE.
- 3) ELEVATION OF GROUND SURFACE AT BORINGS B-1 AND B-2 ARE INTERPRETATIVE BASED UPON THE ELEVATIONS OF SURROUNDING GROUNDWATER MONITORING WELLS.
- 4) SOIL SAMPLES COLLECTED ON DATE DRILLED.
- 5) GROUNDWATER SAMPLES COLLECTED FROM MONITORING WELLS ON DECEMBER 39, 2008. GROUNDWATER SAMPLES COLLECTED FROM SOIL BORINGS ON DATE DRILLED.
- 6) DEPTHS OF GAS, SANITARY SEWER, AND STORM SEWER LINES COULD NOT BE OBTAINED FROM THE CITY OF OAKLAND AND PG&E.
- 7) SIZE AND SHAPE OF UTILITY TRENCHES ARE ESTIMATED BASED ON DEPTH OF UTILITY.
- 8) E =ELECTRIC LINE
C =COMMUNICATIONS LINE
G =GAS LINE
SS =SANITARY SEWER LINE
ST =STORM SEWER LINE
W =WATER LINE

LEGEND

- MW-3
- MONITORING WELL/BORING NAME
- WELL CASING/EXPLORATORY BORING
- SOIL SAMPLE LOCATION
- WELL SCREEN
- TOTAL DEPTH IN FEET (DATE INSTALLED)
- DEPTH TO FIRST ENCOUNTERED GROUNDWATER
- DEPTH TO STATIC GROUNDWATER
- (6.6 / <0.0050 / 0.0085) ● SOIL SAMPLE LOCATION WITH ANALYTICAL DATA: TPH-G, BENZENE, MTBE (mg/kg)
- 3200 / 8.9 / 59 ○ OR □ GROUNDWATER SAMPLE LOCATION WITH ANALYTICAL DATA: TPH-G, BENZENE, MTBE (ug/L)
- LOW PERMEABILITY (LEAN CLAY, SILT, SANDY SILT, SANDY CLAY, LEAN CLAY WITH SAND, SILT WITH SAND)
- ▨ MEDIUM PERMEABILITY (SILTY SAND, CLAYEY SAND)
- ▩ UTILITY TRENCH FILL
- ~ APPROXIMATE STRATIGRAPHIC BOUNDARY
- E-1' APPROXIMATE UTILITY LOCATION AND DEPTH (SEE LEGEND)

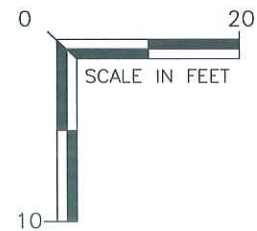
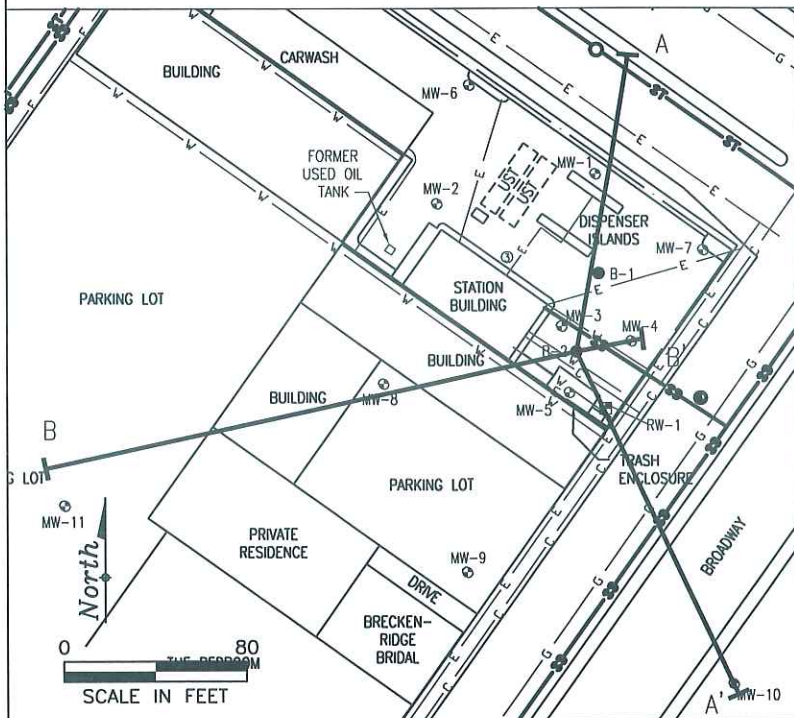


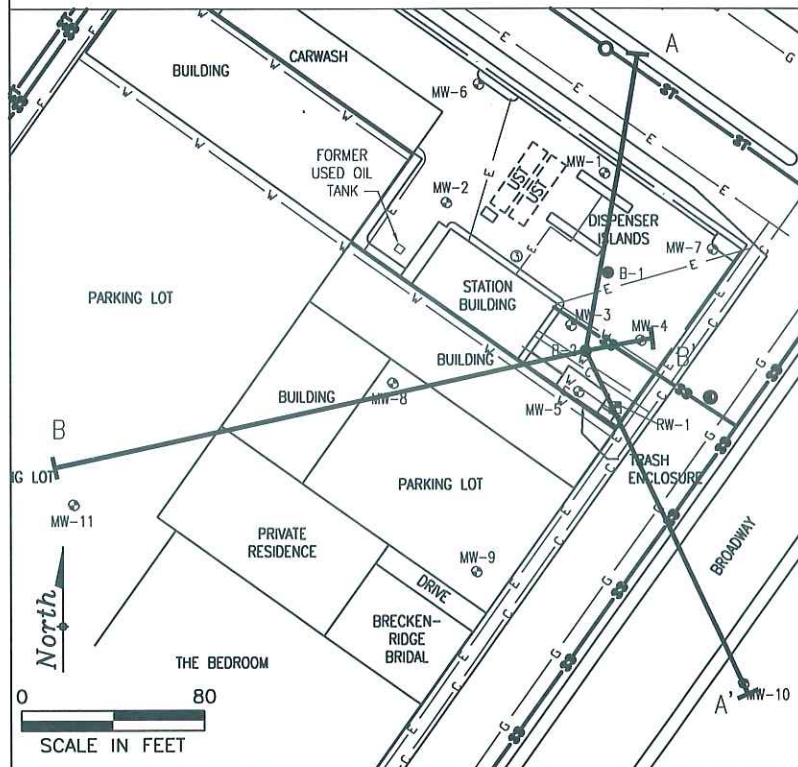
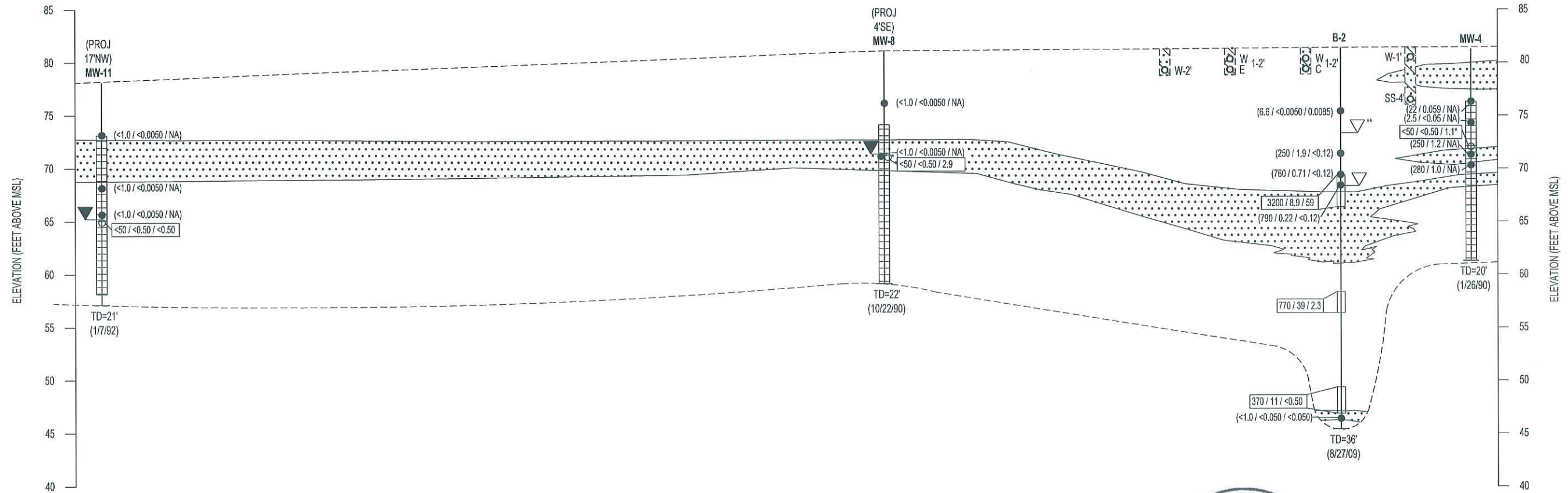
FIGURE 3
GEOLOGIC CROSS SECTION A - A'

76 STATION NO. 0746
3943 BROADWAY
OAKLAND, CALIFORNIA

PROJECT NO. C1007-4600-3	PREPARED BY EC	DRAWN BY DR/JH	
DATE 10/08/09	REVIEWED BY	FILE NAME C100746003sm	

SOUTHWEST B

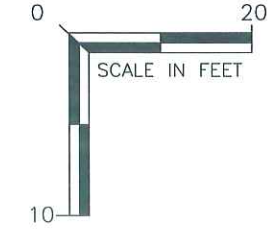
NORTHEAST B'



LEGEND

- MONITORING WELL/BORING NAME
- WELL CASING/EXPLORATORY BORING
- SOIL SAMPLE LOCATION
- WELL SCREEN
- TOTAL DEPTH IN FEET (DATE INSTALLED)
- DEPTH TO FIRST ENCOUNTERED GROUNDWATER
- DEPTH TO STATIC GROUNDWATER
- SOIL SAMPLE LOCATION WITH ANALYTICAL DATA: TPH-G, BENZENE, MTBE (mg/kg)
- GROUNDWATER SAMPLE LOCATION WITH ANALYTICAL DATA: TPH-G, BENZENE, MTBE (ug/L)
- LOW PERMEABILITY (LEAN CLAY, SILT, SANDY SILT, SANDY CLAY, LEAN CLAY WITH SAND, SILT WITH SAND)
- MEDIUM PERMEABILITY (SILTY SAND, CLAYEY SAND)
- UTILITY TRENCH FILL
- APPROXIMATE STRATIGRAPHIC BOUNDARY
- APPROXIMATE UTILITY LOCATION AND DEPTH (SEE LEGEND)

- NOTES:**
- 1) <50 =BELOW THE LABORATORY'S INDICATED REPORTING LIMIT
NA =NOT ANALYZED
TPH-G =TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
MTBE =METHYL TERT BUTYL ETHER
MSL =MEAN SEA LEVEL
mg/kg =MILLIGRAMS PER KILOGRAM
ug/L =MICROGRAMS PER LITER
* =GROUNDWATER SAMPLE COLLECTED FROM MW-3 ON 6/9/08.
** =DEPTH TO WATER PRIOR TO GROUTING BOREHOLE
 - 2) STRATIGRAPHY BETWEEN BORINGS IS INTERPRETIVE.
 - 3) ELEVATION OF GROUND SURFACE AT BORINGS B-1 AND B-2 ARE INTERPRETATIVE BASED UPON THE ELEVATIONS OF SURROUNDING GROUNDWATER MONITORING WELLS.
 - 4) SOIL SAMPLES COLLECTED ON DATE DRILLED.
 - 5) GROUNDWATER SAMPLES COLLECTED FROM MONITORING WELLS ON DECEMBER 30, 2008. GROUNDWATER SAMPLES COLLECTED FROM SOIL BORINGS ON DATE DRILLED.
 - 6) DEPTHS OF GAS, SANITARY SEWER, AND STORM SEWER LINES COULD NOT BE OBTAINED FROM THE CITY OF OAKLAND AND PG&E.
 - 7) SIZE AND SHAPE OF UTILITY TRENCHES ARE ESTIMATED BASED ON DEPTH OF UTILITY.
 - 8) E =ELECTRIC LINE
C =COMMUNICATIONS LINE
G =GAS LINE
SS =SANITARY SEWER LINE
ST =STORM SEWER LINE
W =WATER LINE



**FIGURE 4
GEOLOGIC CROSS SECTION B - B'**

76 STATION NO. 0746
3943 BROADWAY
OAKLAND, CALIFORNIA

PROJECT NO. C1007-4600-3	PREPARED BY EC	DRAWN BY DR/JH
DATE 10/08/09	REVIEWED BY	FILE NAME C100746003sm

Tables

Table 1
Soil Boring Analytical Data (Soil Samples)

76 Service Station No. 0746
3943 Broadway, Oakland, CA

Sample Name	Date	Sample Depth (feet)	Sorbed Phase Hydrocarbon Concentrations (mg/kg)													
			TPH-G	Benzene	Toluene	Ethylbenzene	Xylene	MTBE	TBA	DIPE	ETBE	TAME	1,2-DCA	EDB	Ethanol	Lead
B-1@6	8/27/2009	6	1.3	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.010	0.0055	ND<0.050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<1.0	NA
B-1@10	8/27/2009	10	120	ND<0.12	ND<0.12	ND<0.12	ND<0.25	ND<0.12	ND<1.2	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<25	NA
B-1@13	8/27/2009	13	110	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.010	ND<0.0050	ND<0.050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<1.0	NA
B-1@14	8/27/2009	14	ND<1.0	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.010	ND<0.0050	ND<0.050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<1.0	NA
B-1@35	8/27/2009	35	6.1	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.010	ND<0.0050	ND<0.050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<1.0	NA
B-2@6	8/27/2009	6	6.6	ND<0.0050	ND<0.0050	0.0093	0.015	0.0085	ND<0.050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<1.0	NA
B-2@10	8/27/2009	10	250	1.9	ND<0.12	10	24	ND<0.12	ND<1.2	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<25	11
B-2@12	8/27/2009	12	760	0.71	ND<0.12	42	130	ND<0.12	ND<1.2	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<25	NA
B-2@13	8/27/2009	13	790	0.22	ND<0.12	6.3	12	ND<0.12	ND<1.2	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<0.12	ND<25	NA
B-2@35	8/27/2009	35	ND<1.0	ND<0.050	ND<0.050	ND<0.050	ND<0.10	ND<0.050	ND<0.50	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<10	NA
ESL	--	--	83	0.044	2.9	2.3	2.3	0.023	0.075	--	--	--	0.0045	0.00033	--	200

Notes:

mg/kg - milligrams per kilogram

ND - Not detected above laboratory detection limits

TPH-G - Total Petroleum Hydrocarbons - Gasoline

MTBE - Methyl tert-butyl ether

TBA - Tert-butyl alcohol

DIPE - Diisopropyl ether

ETBE - Ethyl t-butyl ether

TAME - T-amyl methyl ether

1,2-DCA - 1,2-Dichloroethane

EDB - 1,2-Dibromoethane

ESL - California Regional Water Quality Control Board Environmental Screening Level for residential land with a potential drinking water source

Table 2
Soil Boring Analytical Data (Ground Water Samples)

76 Service Station No. 0746
3943 Broadway, Oakland, CA

Sample Name (depth interval indicated)	Date	Dissolved Phase Hydrocarbon Concentrations (µg/l)													
		TPH-G	Benzene	Toluene	Ethylbenzene	Xylene	MTBE	TBA	DIPE	ETBE	TAME	1,2-DCA	EDB	Ethanol	
B-1 @12.5-15.5	8/27/2009	1700	ND<0.50	ND<0.50	ND<0.50	ND<1.0	9.2	47	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<250	
B-1 @22-24	8/27/2009	1100	ND<1.0	ND<1.0	ND<1.0	ND<2.0	1.0	ND<20	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<500	
B-1 @33-35	8/27/2009	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<0.50	ND<10	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<250	
B-2 @12-15	8/27/2009	3200	8.9	ND<5.0	26	74	59	ND<100	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<2500	
B-2 @23-25	8/27/2009	770	39	ND<0.50	83	240	2.3	ND<10	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<250	
B-2 @32-34.5	8/27/2009	370	11	ND<0.50	11	22	ND<0.50	ND<10	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<250	
ESL	--	100	1.0	40	30	20	5.0	12	--	--	--	0.50	0.050	--	

Definitions:

- µg/l Micrograms per liter
- ND< Not detected above that laboratory reporting limit
- MTBE Methyl tert-butyl ether by EPA Method 8260B
- TBA Tert-butyl alcohol by EPA Method 8260B
- TPH-G Total petroleum hydrocarbons as gasoline (reported as GRO (C4-C12) by Method 8015)
- DIPE Diisopropyl ether
- ETBE Ethyl t-butyl ether
- TAME T-amyl methyl ether
- 1,2-DCA 1,2-Dichloroethane
- EDB 1,2-Dibromoethane
- ESL Environmental Screening Level for groundwater that is a potential source of drinking water

Attachment A
Agency Correspondence



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

December 5, 2008

Mr. Terry Grayson
Conoco Phillips
76 Broadway
Sacramento, CA 95818

Clement K Leung
CJS Leung, LLC.
3943 Broadway
Oakland, CA 94611-5615

Subject: Fuel Leak Case No. RO0000203 and Geotracker Global ID T0 600101471, Unocal #0746, 3943 Broadway, Oakland, CA

Dear Messrs. Grayson and Leung:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above-referenced site including the June 27, 2008 *Work Plan for Source Area Vertical Delineation* that was submitted by Delta and received by ACEH on October 17, 2008. This work plan proposes vertical definition of soil and groundwater contamination at the site. ACEH concurs with the proposed work and requests that the previously requested preferential pathway study with utility survey are included in your soil and water investigation report as described in the technical comments below.

TECHNICAL COMMENTS

1. **Preferential Pathway Study.** As discussed in the May 2, 2008 ACEH letter, the well survey map that is included as Figure 1 in the February 8, 2007 Sensitive Receptor Report prepared by TRC is for a site in San Ramon. Another copy of the same report was uploaded to our ftp site on October 17, 2008. Also neither report included the DWR well logs. Please submit a complete well survey including the correct map and a copy of the DWR well logs by **January 5, 2008**. Also, the requested utility survey was not performed and submitted with the work plan. Please submit the utility survey including a discussion of your analysis and interpretation of the results and report your results in the report requested below. The results of your study shall contain all information required by California Code of Regulations, Title 23, Division 3, Chapter 16, §2654(b).

- a. Utility Survey

An evaluation of all utility lines and trenches (including sewers, storm drains, pipelines, trench backfill, etc.) within and near the site and plume area(s) is required as part of your study. Please include maps and cross-sections illustrating the location and depth of all

utility lines and trenches within and near the site and plume areas(s) as part of your study.

2. **Landowner Notification.** As also requested in our May 2, 2008 letter, please provide a landowner notification to the ACEH ftp site by the date requested below.
3. **Groundwater Monitoring Reports.** ACEH has not received any groundwater monitoring reports for this site since July 30, 2007 nor has any report been uploaded to the Geotracker website since the Fourth Quarter 2007. It appears that submittals for the site may be out of compliance. Please submit the reports through the third quarter 2008 to both the ACEH ftp site and Geotracker by **January 5, 2008**.

TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention: Barbara Jakub), according to the following schedule:

- **January 5, 2009** – Landowner Notification
- **January 5, 2009** – Missing groundwater monitoring reports and other reports
- **February 5, 2008** – Soil and Water Investigation Report (SWI) including utility survey

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) Geotracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the Geotracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in Geotracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/electronic_submittal/report_rqmts.shtml).

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to \$10,000 per day for each day of violation.

Messrs. Grayson and Leung
RO0000203
December 5, 2008, Page 4

If you have any questions, please call me at (510) 639-1287 or send me an electronic mail message at barbara.jakub@acgov.org.

Sincerely,



Barbara J. Jakub, P.G.
Hazardous Materials Specialist

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Mr. John Reay, Delta Environmental Consultants, Inc., 11050 White Rock Road, Rancho Cordova, CA 95670
Leroy Griffin, Oakland Fire Department, 250 Frank H. Ogawa Plaza, Ste. 3341, Oakland, CA 94612-2032
Donna Drogos, ACEH
Barbara Jakub, ACEH
File

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	ISSUE DATE: July 5, 2005
	REVISION DATE: December 16, 2005
	PREVIOUS REVISIONS: October 31, 2005
SECTION: Miscellaneous Administrative Topics & Procedures	SUBJECT: Electronic Report Upload (ftp) Instructions

Effective **January 31, 2006**, the Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- Entire report including cover letter must be submitted to the ftp site as a **single portable document format (PDF) with no password protection.** (Please do not submit reports as attachments to electronic mail.)
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- Signature pages and perjury statements **must** be included and have either original or electronic signature.
- **Do not password protect the document.** Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted.**
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:
RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Additional Recommendations

- A separate copy of the tables in the document should be submitted by e-mail to your Caseworker in Excel format. These are for use by assigned Caseworker only.

Submission Instructions

- 1) Obtain User Name and Password:
 - a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
 - i) Send an e-mail to dehloptoxic@acgov.org
 - or
 - ii) Send a fax on company letterhead to (510) 337-9335, to the attention of Alicia Lam-Finneke.
 - b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses, and the Case Numbers (RO# available in Geotracker) you will be posting for.**
- 2) Upload Files to the ftp Site
 - a) Using Internet Explorer (IE4+), go to <ftp://alcoftp1.acgov.org>
 - (i) Note: Netscape and Firefox browsers will not open the FTP site.
 - b) Click on File, then on Login As.
 - c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
 - d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
 - e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.
- 3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
 - a) Send email to dehloptoxic@acgov.org notify us that you have placed a report on our ftp site.
 - b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name at acgov.org. (e.g., firstname.lastname@acgov.org)
 - c) The subject line of the e-mail must start with the RO# followed by **Report Upload.** (e.g., Subject: RO1234 Report Upload)

From: [Yvette Pico](#)
To: [Yvette Pico](#);
Subject: FW: 250746 RO 0203 status
Date: Wednesday, October 07, 2009 10:37:17 AM

From: Jakub, Barbara, Env. Health [mailto:barbara.jakub@acgov.org]
Sent: Wednesday, August 19, 2009 3:29 PM
To: Grayson, Terry L (DXT Services)
Subject: RE: 250746 RO 0203 status

The Soil and Water Investigation Report due date has been extended to October 19, 2009 so you do not need to place a rush on the analytical.
Regards,
Barb Jakub

From: Grayson, Terry L (DXT Services) [mailto:Terry.L.Grayson@contractor.conocophillips.com]
Sent: Wednesday, August 19, 2009 3:06 PM
To: Jakub, Barbara, Env. Health
Subject: 250746 RO 0203 status

Hi Barbara,

Per our several discussion on our site located at 3943 Broadway in Oakland RO 0203 we have indicated that the dealer was in the midst of having a major construction project going on there and that as soon as the work was complete we would set up the planned work per your approval granted 12/05/08 (see attached). Per our verbal discussions and review on 06/25/09 the site is now ready for the work to be completed prior to the end of this month. Therefore as discussed we would like one month from August 28th to submit the requested reports a date of NLT September 30, 2009.

As always thank you for your understanding and patience with us with regard to the construction on this project and the availability to install the requested wells.

Respectfully,

Terry L. Grayson

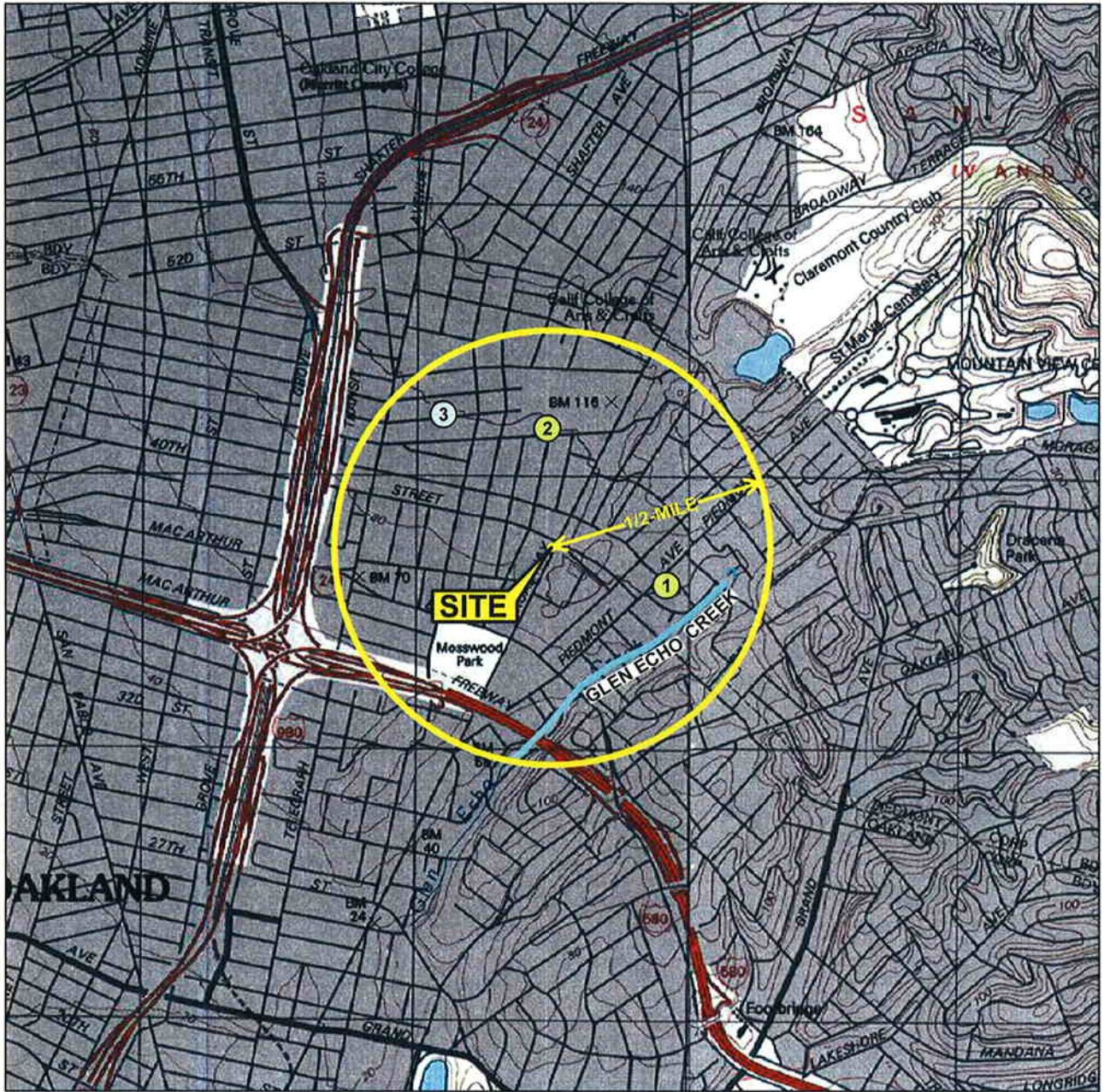
"Safety--Never Compromise"

DXT SERVICES INC.
Approved Services Provider of ConocoPhillips

Client Services Contact Information
76 Broadway Street
Sacramento, CA 95818
916-558-7666 o
916-558-7639 f

Attachment B

Well Location Map and DWR Well Logs



1 MILE 3/4 1/2 1/4 0 1 MILE



SCALE 1 : 24,000



SOURCE:
 United States Geological Survey
 7.5 Minute Topographic Maps:
 Oakland East and Oakland West Quadrangles,
 California

LEGEND

- ① ② Irrigation Wells
- ③ Domestic Well



**SENSITIVE RECEPTORS WITHIN
 ONE-HALF MILE RADIUS OF SITE**

76 Service Station #0746
 3943 Broadway
 Oakland, California

TRC

FIGURE

DEPARTMENT OF WATER RESOURCES

CENTRAL DISTRICT
901 P STREET, 3RD FLOOR
SACRAMENTO, CA 95814-6424

**RECEIVED**

FEB 04 2009

January 30, 2009

Mr. Alan Buehler
Delta Consultants
11050 White Rock Road
Suite 10
Rancho Cordova, California 95670

To Mr. Buehler:

In response to your request, enclosed is a compact disk containing the information you requested for the following areas:

½ mile radius of 3943 Broadway, Oakland

Township 01 South, Range 04 West, Sections 23 and 24

The charge to burn the disk is \$25. Your remittance should be made payable to the Department of Water Resources, Cash Receipts Office, Post Office Box 942836, Sacramento, California 94236-0001. Please show "January 30-2" on your remittance and return it with the enclosed copy of this letter to the Cash Receipts Office.

If you need additional information or have any questions, please contact Anne Roth at (916) 376-9612 or fax (916) 376-9676.

Sincerely,

A handwritten signature in black ink, appearing to be "Juan M. Escobar".

Juan M. Escobar, Chief
Groundwater Supply Assessment and
Special Studies Section

Enclosure

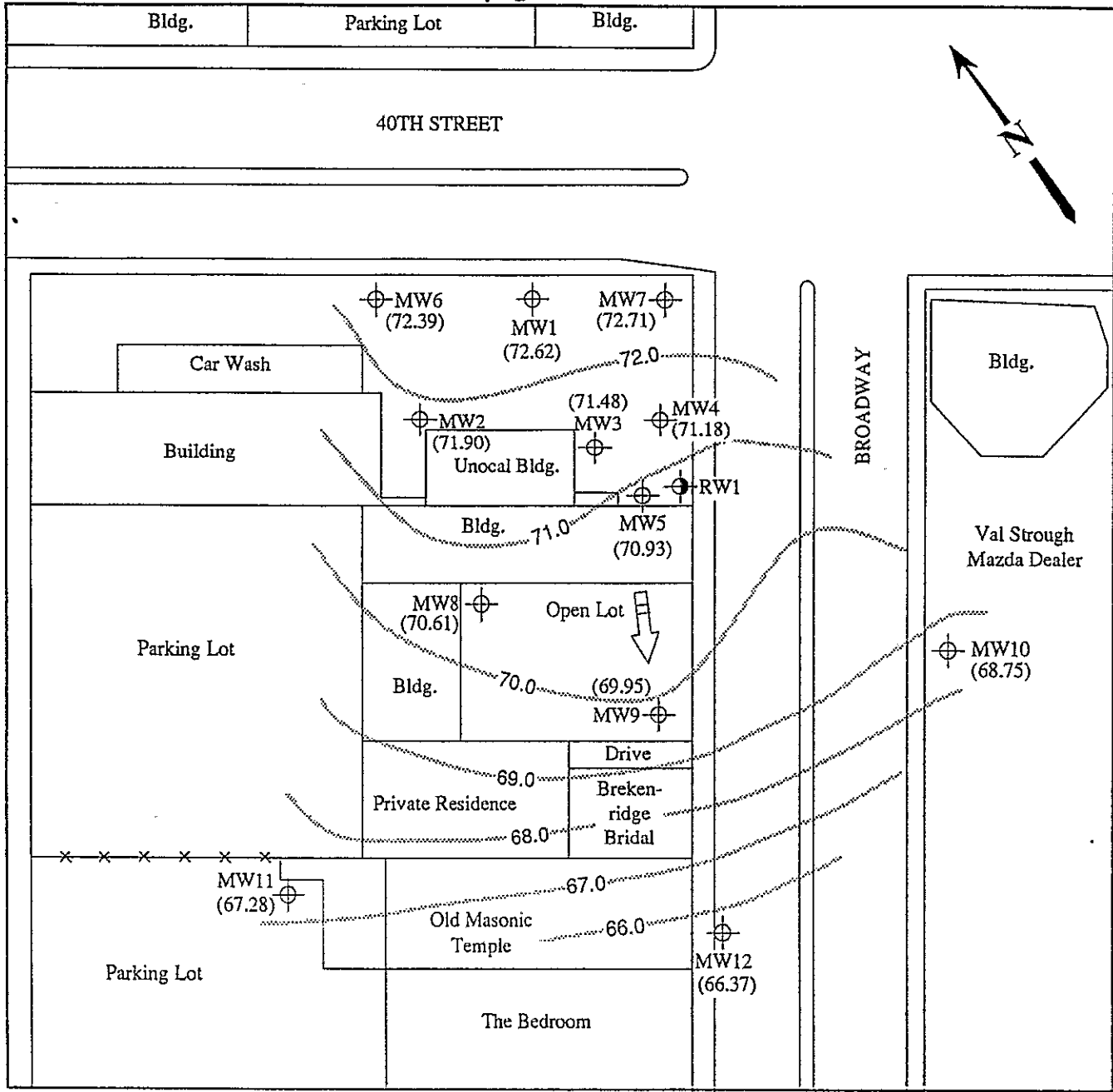
CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

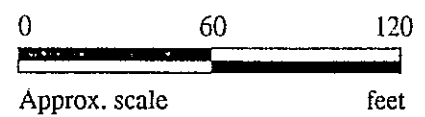
15/4W 24 L19E, 28

413608A-B



LEGEND

- ⊕ Monitoring well
- ⊙ 6-inch diameter recovery well
- () Ground water elevation in feet above Mean Sea Level
- ➡ Direction of ground water flow
- Contours of ground water elevation



POTENTIOMETRIC SURFACE MAP FOR THE AUGUST 25, 1992 MONITORING EVENT

**KAPREALIAN ENGINEERING
INCORPORATED**

UNOCAL SERVICE STATION #0746
3943 BROADWAY
OAKLAND, CA

FIGURE
1

413608A

15/4W 24219

BORING LOG

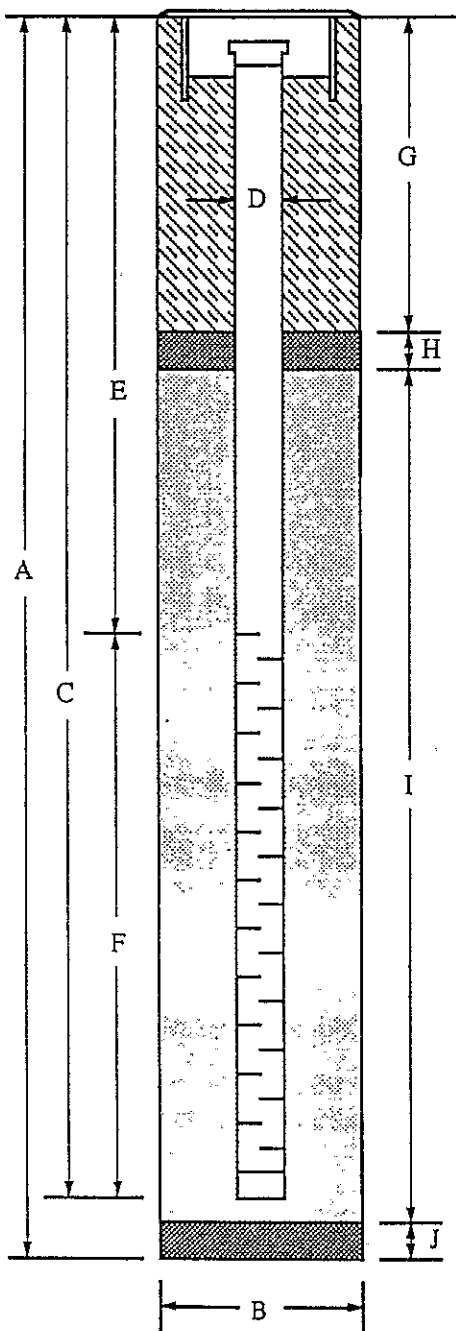
Project No. KEI-P89-0805		Boring & Casing Diameter 8' 2'	Logged By D.L. JGG CEG 1633
Project Name Unocal S/S #0746 3943 Broadway, Oakland		Well Cover Elevation	Date Drilled 6/26/92
Boring No. MW12		Drilling Method Hollow-stem Auger	Drilling Company Woodward Drilling

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
		0		Concrete pavement.
				Clayey sand and gravel and disturbed soil (fill).
			SC	Clayey sand with trace silt, medium dense, moist, dark greenish gray.
2/3/5		5	MH	Clayey silt, trace fine grained sand, firm, very moist, black.
			CL/SC	Sandy clay, firm, moist, dark greenish gray, lensed with clayey sand.
4/7/10			CH	Clay, estimated at 10-15% gravel to 1/2 inch in diameter, trace sand, stiff to very stiff, moist, black with root holes.
11/22/19		10	GC	Clayey gravel with sand, angular to rounded gravel to 1-1/2 inches in diameter, dense, moist, very dark grayish brown.
6/9/13				Clayey gravel with sand as above, except dark grayish brown and olive brown, mottled.
5/7/12				Sandy clay, trace gravel to 1/4 inch in diameter, very stiff, moist, dark yellowish brown and olive brown, mottled.
		15	CL	Clay, trace gravel to 3/8 inch in diameter, stiff to very stiff, moist, olive and light olive brown, mottled.
9/14/20				Clay, as above, stiff to very stiff, friable.
TOTAL DEPTH 17.5'				
		20		

WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal S/S #0746, 3943 Broadway, Oakland WELL NO. MW12
 PROJECT NUMBER: KEI-P89-0805
 WELL PERMIT NO.: _____

Flush-mounted Well Cover



- A. Total Depth : 17.5'
- B. Boring Diameter: 8"
 Drilling Method: Hollow Stem Auger
- C. Casing Length: 17.5'
 Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 5'
- F. Perforated Length: 12.5'
 Perforation Type: Machined Slot
 Perforation Size: 0.010"
- G. Surface Seal: 2'
 Seal Material: Neat Cement
- H. Seal: 1.5'
 Seal Material: Bentonite
- I. Filter Pack: 14'
 Pack Material: RMC Lonestar Sand
 Size: #2/12
- J. Bottom Seal: None
 Seal Material: N/A

413608B

15/4w 24220

BORING LOG				
Project No. KEI-P89-0805		Boring & Casing Diameter 13.5' 6'		Logged By D.L. JGG LEG 1633
Project Name Unocal S/S #0746 3943 Broadway, Oakland		Well Cover Elevation		Date Drilled 6/25/92
Boring No. RW1		Drilling Method Hollow-stem Auger		Drilling Company Woodward Drilling
Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
		0		A.C. pavement over sand and gravel base.
				Clayey sand and gravel with cobbles to 10 inches in diameter, very stiff, moist (fill).
			CH	Sandy clay, stiff, moist, dark greenish gray.
			SC	Clayey sand with trace silt, medium dense, moist, dark greenish gray.
		5	MH	Clayey silt, trace fine grained sand, very stiff, moist, black, with organic matter.
			CH	Clay, estimated at 10-15% gravels to 4 inches in diameter, trace sand, stiff to very stiff, moist, dark olive gray and very dark grayish brown, mottled.
		10	SC	Grades to gravelly clay with sand, gravels to 1 inch in diameter, very stiff, moist, dark olive gray and very dark grayish brown mottled.
			GC	Clayey sand, estimated at 10-15% gravel to 1 inch in diameter, medium dense, moist, dark greenish gray and dark olive gray mottled.
				Clayey gravel with sand, gravels to 3-1/2 inches in diameter, medium dense, moist, dark greenish gray.
		15	CL	Clay, estimated at 10-15% gravel, stiff, moist, olive brown and dark greenish gray, mottled, fissured.
				Silty clay, trace fine-grained sand, stiff, moist, olive brown and dark greenish gray mottled, fissured.
			SC	Clayey sand, minor silt, medium dense, moist, olive brown and dark greenish gray, mottled.
				TOTAL DEPTH 17.5'
				No ground water encountered.
		20		

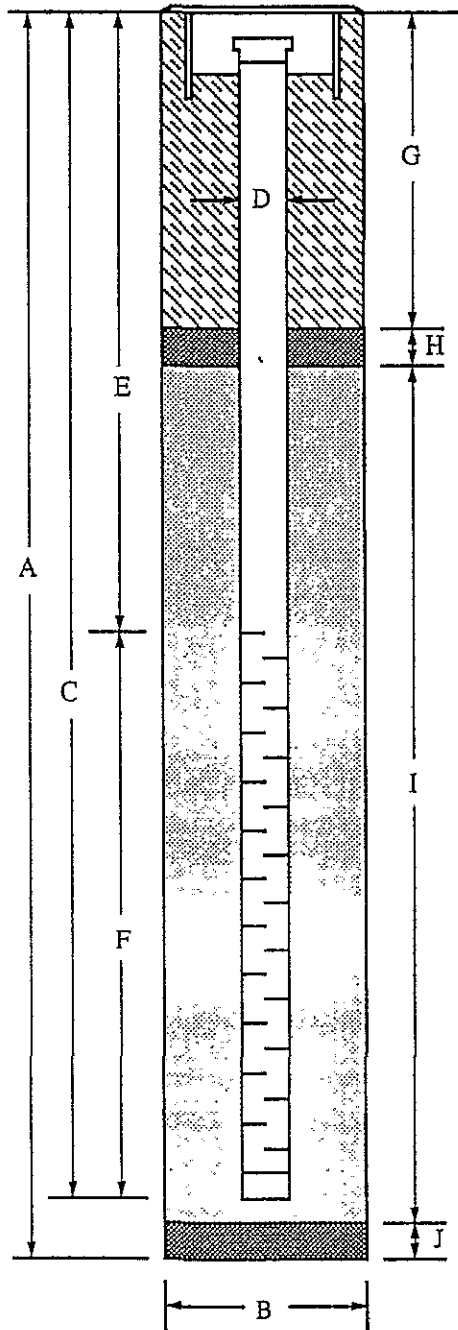
No blow count data - samples continuously cored

No recovery from 11.25 to 12.5 feet.

WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal S/S #0746, 3943 Broadway, Oakland WELL NO. RW1
 PROJECT NUMBER: KEI-P89-0805
 WELL PERMIT NO.: ACFC & WCD 92270

Flush-mounted Well Cover



- A. Total Depth : 17.5'
- B. Boring Diameter* : 13.5"
 Drilling Method: Hollow Stem Auger
- C. Casing Length: 17'
 Material: Schedule 40 PVC
- D. Casing Diameter: OD = 6.625"
ID = 6.065"
- E. Depth to Perforations: 5'
- F. Perforated Length: 10' (2' Blank on bottom)
 Perforation Type: Machined Slot
 Perforation Size: 0.010"
- G. Surface Seal: 3'
 Seal Material: Neat Cement
- H. Seal: 1'
 Seal Material: Bentonite
- I. Filter Pack: 13'
 Pack Material: RMC Lonestar Sand
 Size: #2/12
- J. Bottom Seal: 6"
 Seal Material: Bentonite

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

15/4W 24L2

BORING LOG				308393A
Project No. KEI-P89-0805		Boring & Casing Diameter 9" 2"		Logged By D.L. <i>Don Brown</i> CEG 1310
Project Name Oakland - Broadway		Well Head Elevation N/A		Date Drilled 1-26-90
Boring No. MW4		Drilling Method Hollow-stem Auger		Drilling Company EGI
Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
		0		A.C. Pavement. Sand and gravel: Fill Clay
			SW- SC	Well graded sand with clay and silt medium dense, moist, dark greenish gray.
6/5/11		5	MH	Clayey elastic silt, 5-10% sand, stiff, moist, black.
16/21/24			CH	Clay, with gravel, 10-15% sand gravel to 1/4", very stiff, moist, very dark grayish brown and black, mottled with root holes.
15/24/28		10	GC	Clayey gravel with sand, 15-20% clay, gravel to 3/4", medium dense, moist, dark greenish gray.
8/10/11	▼		CH	Clay, olive brown and dark greenish gray, mottled.
8/7/14			GC	Clayey gravel with with sand, olive brown and dark greenish gray.
10/16/21		15	CH	Clay high plasticity, with silt, 5-10% sand, very stiff, moist, dark yellowish brown and light olive brown, mottled.
10/10/14				Silty clay, high plasticity, 5-10% sand stiff, moist, light olive brown.
		20		TOTAL DEPTH: 20'

15/AW 24L2

308393A

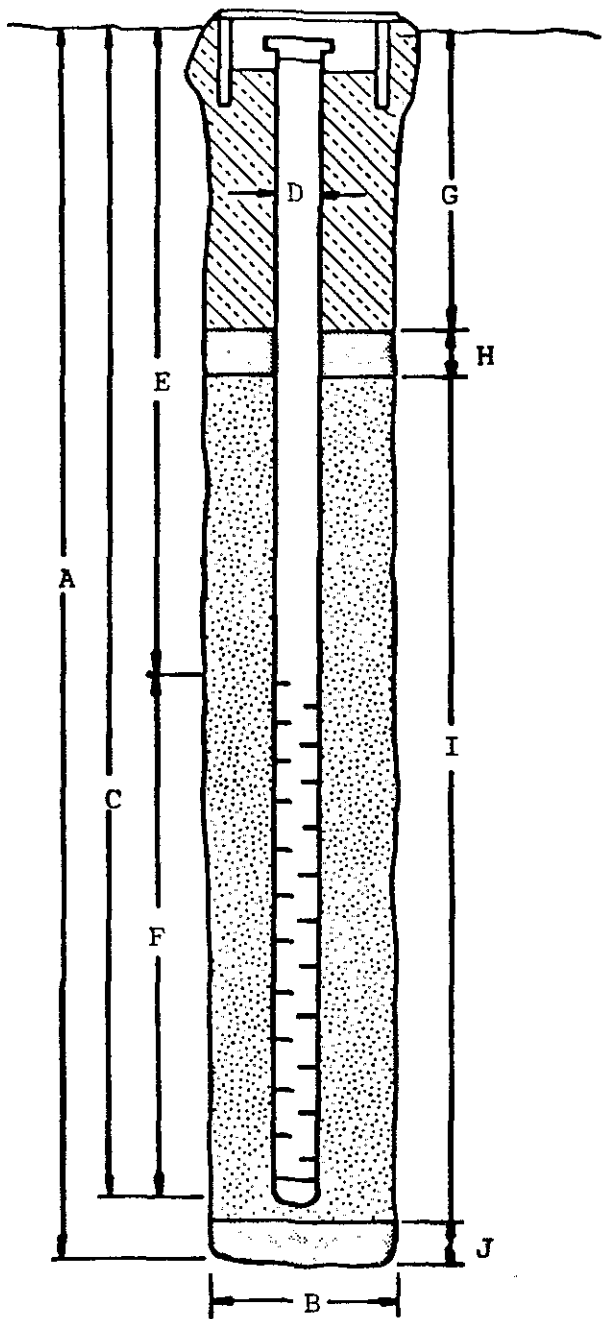
WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal - Oakland - Broadway BORING/WELL NO. MW4

PROJECT NUMBER: KEI-P89-0805

WELL PERMIT NO.: _____

Flush-mounted Well Cover



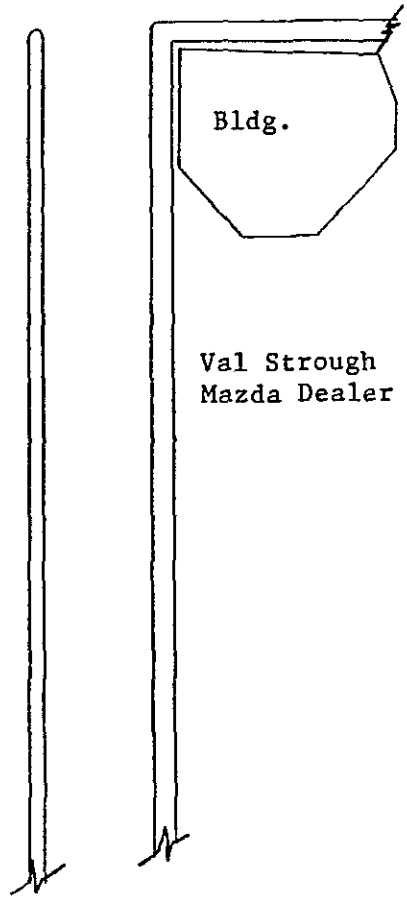
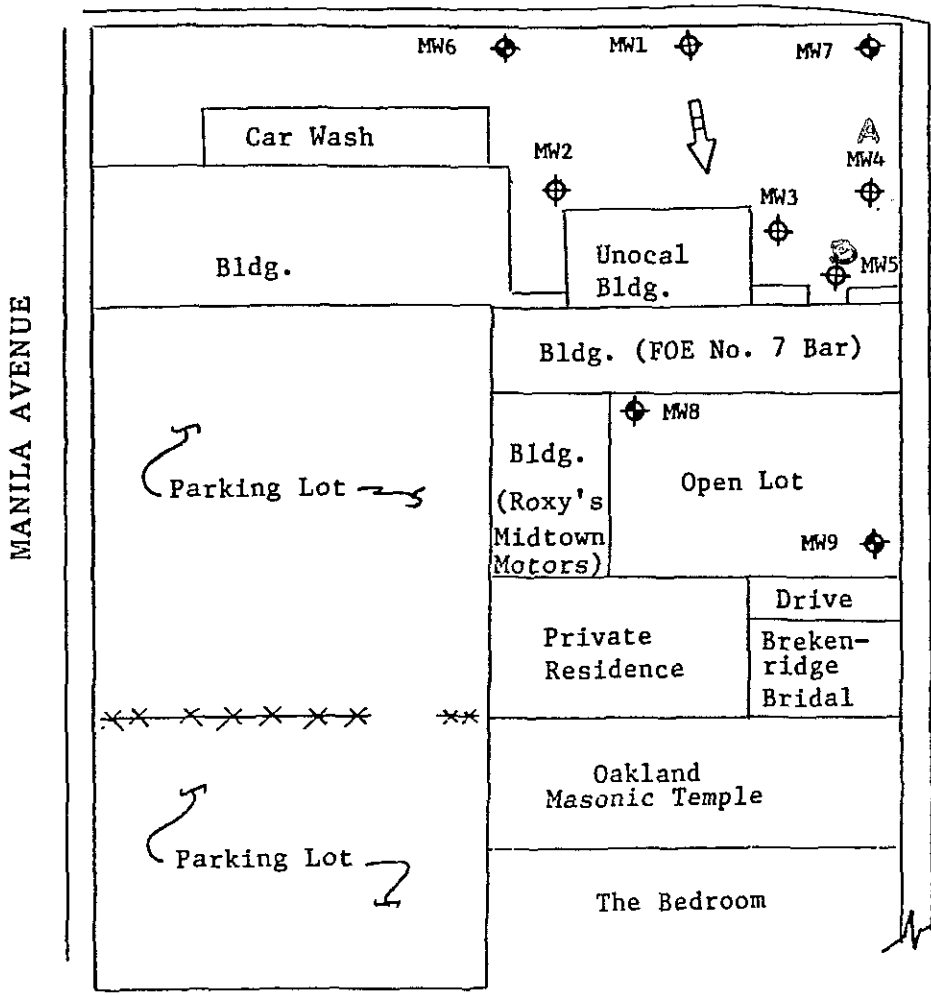
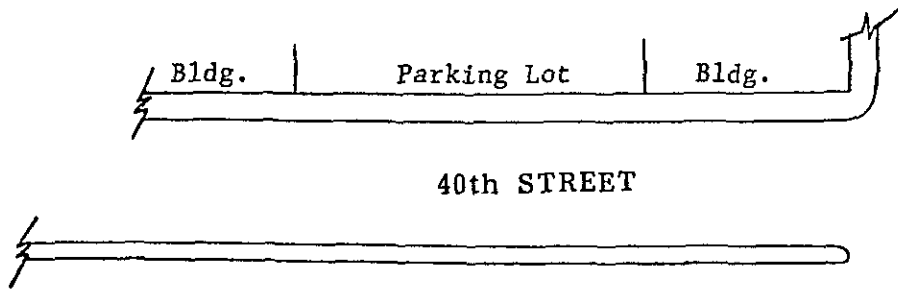
- A. Total Depth: 20'
- B. Boring Diameter*: 9"
Drilling Method: Hollow Stem Auger
- C. Casing Length: 20'
Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 5'
- F. Perforated Length: 15'
Perforation Type: Machined Slot
Perforation Size: 0.020"
- G. Surface Seal: 2'
Seal Material: Neat Cement
- H. Seal: 2'
Seal Material: Bentonite
- I. Gravel Pack: 16'
Pack Material: RMC Lonestar Sand
Size: #3
- J. Bottom Seal: None
Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.



KAPREALIAN ENGINEERING, INC.
 Consulting Engineers
 P.O. BOX 996 • BENICIA, CA 94510
 (707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581

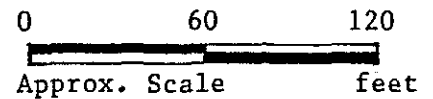
308393 A.8



SITE VICINITY MAP

LEGEND

- Monitoring Well (existing)
- Monitoring Well (proposed)
- Direction of Ground Water Flow



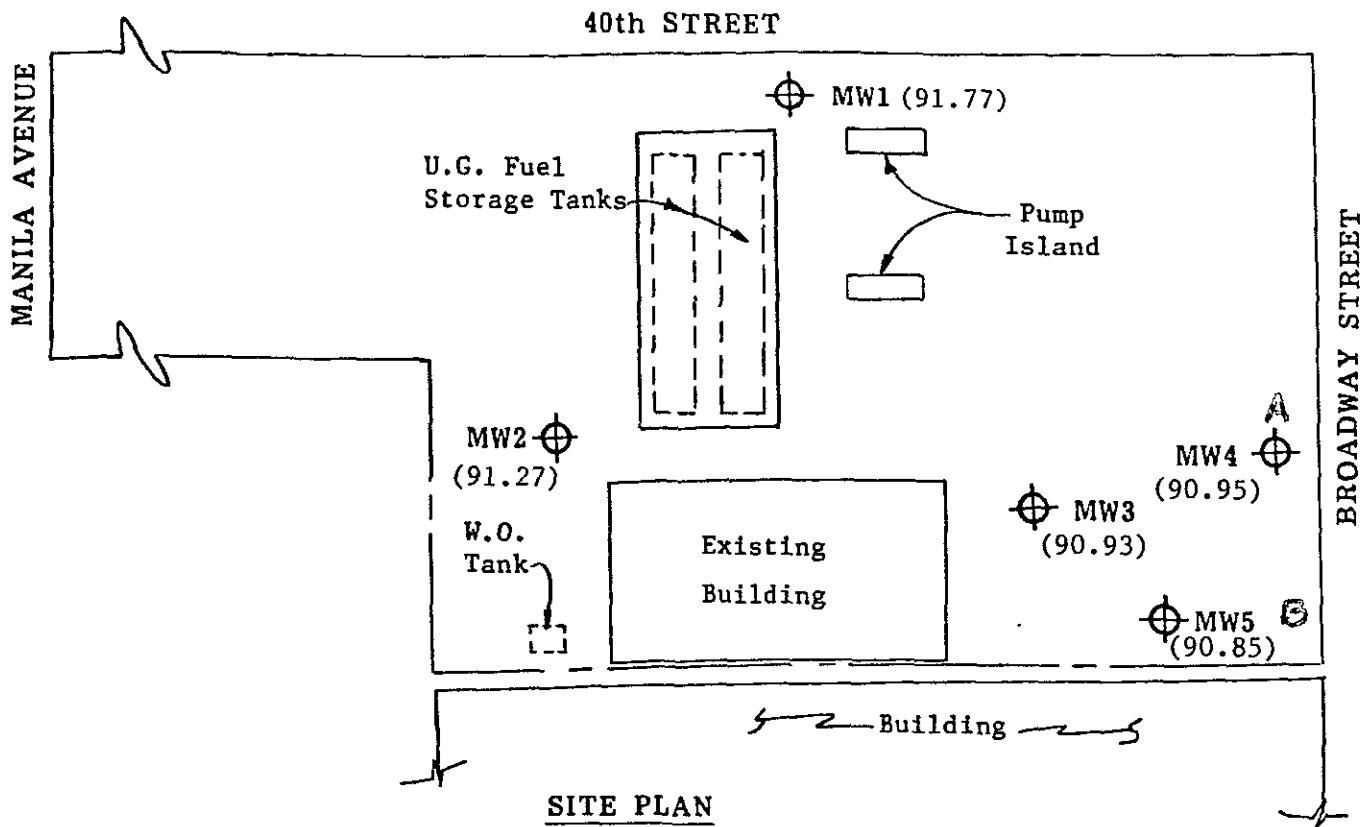
Unocal S/S #0746
 3943 Broadway
 Oakland, California



KAPREALIAN ENGINEERING, INC.
Consulting Engineers



308393A.8


P.O. BOX 996 • BENICIA, CA 94510
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581

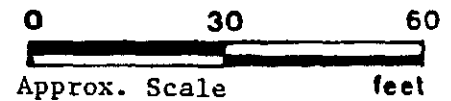


SITE PLAN

LEGEND

-  Monitoring Well (Existing)
-  Ground water surface elevation on 2/15/90. Top of MW1 well cover assumed 100.00 feet as datum.

 Direction of ground water flow



Unocal Service Station #0746
3943 Broadway Street
Oakland, California

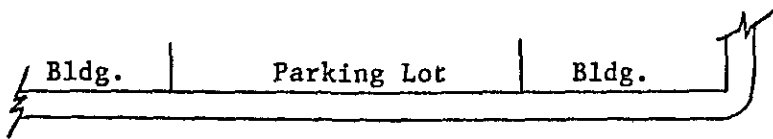


KAPREALIAN ENGINEERING, INC.

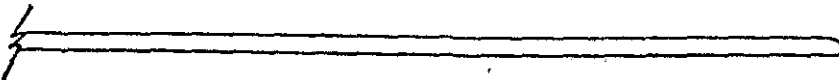
Consulting Engineers

P.O. BOX 996 • BENICIA, CA 94510
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581

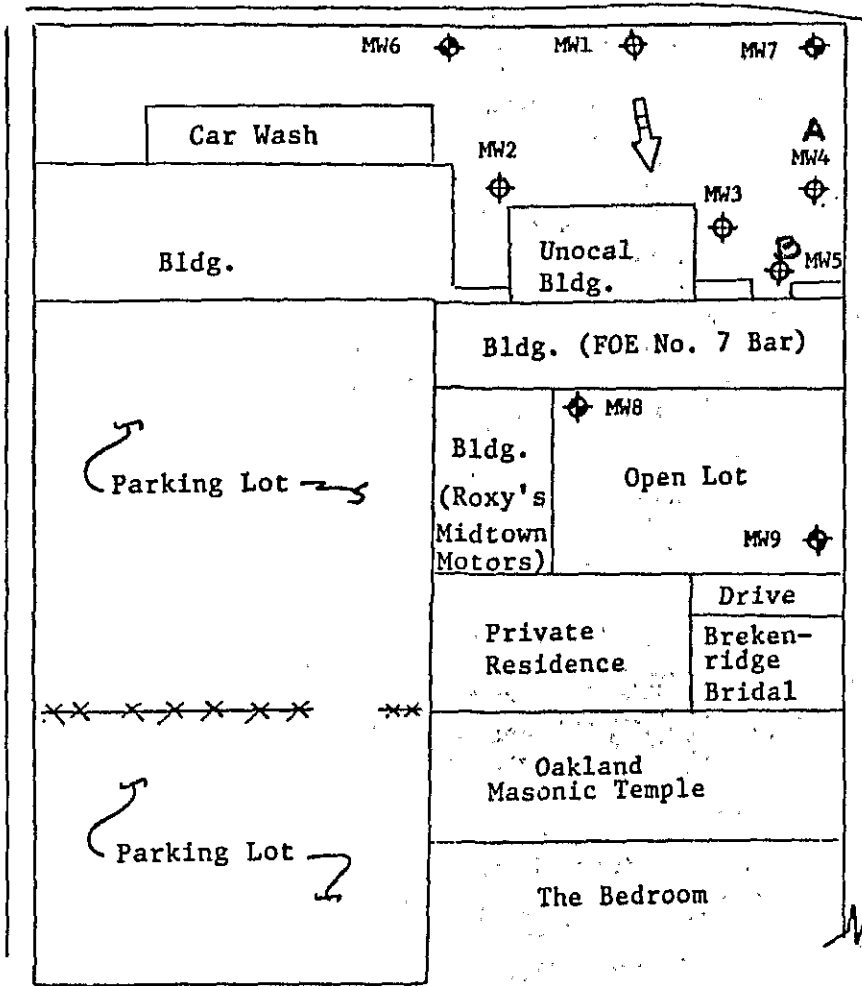
308393 A.B



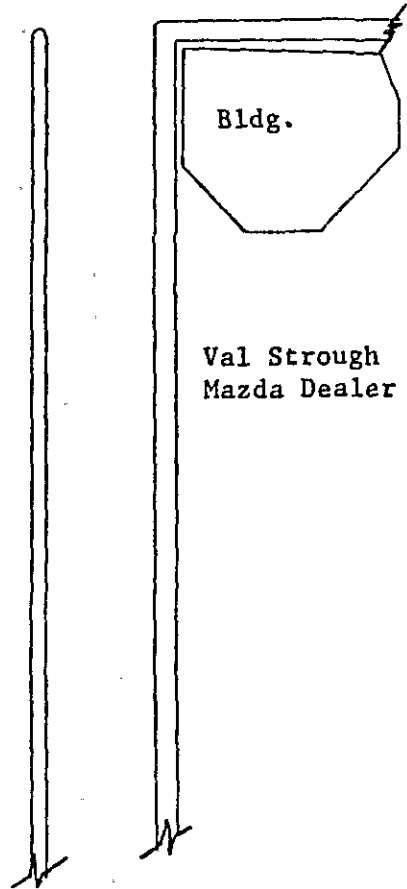
40th STREET



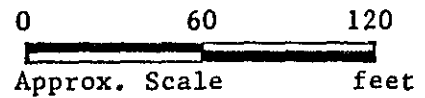
MANILA AVENUE



BROADWAY



SITE VICINITY MAP



LEGEND

- Monitoring Well (existing)
- Monitoring Well (proposed)
- Direction of Ground Water Flow

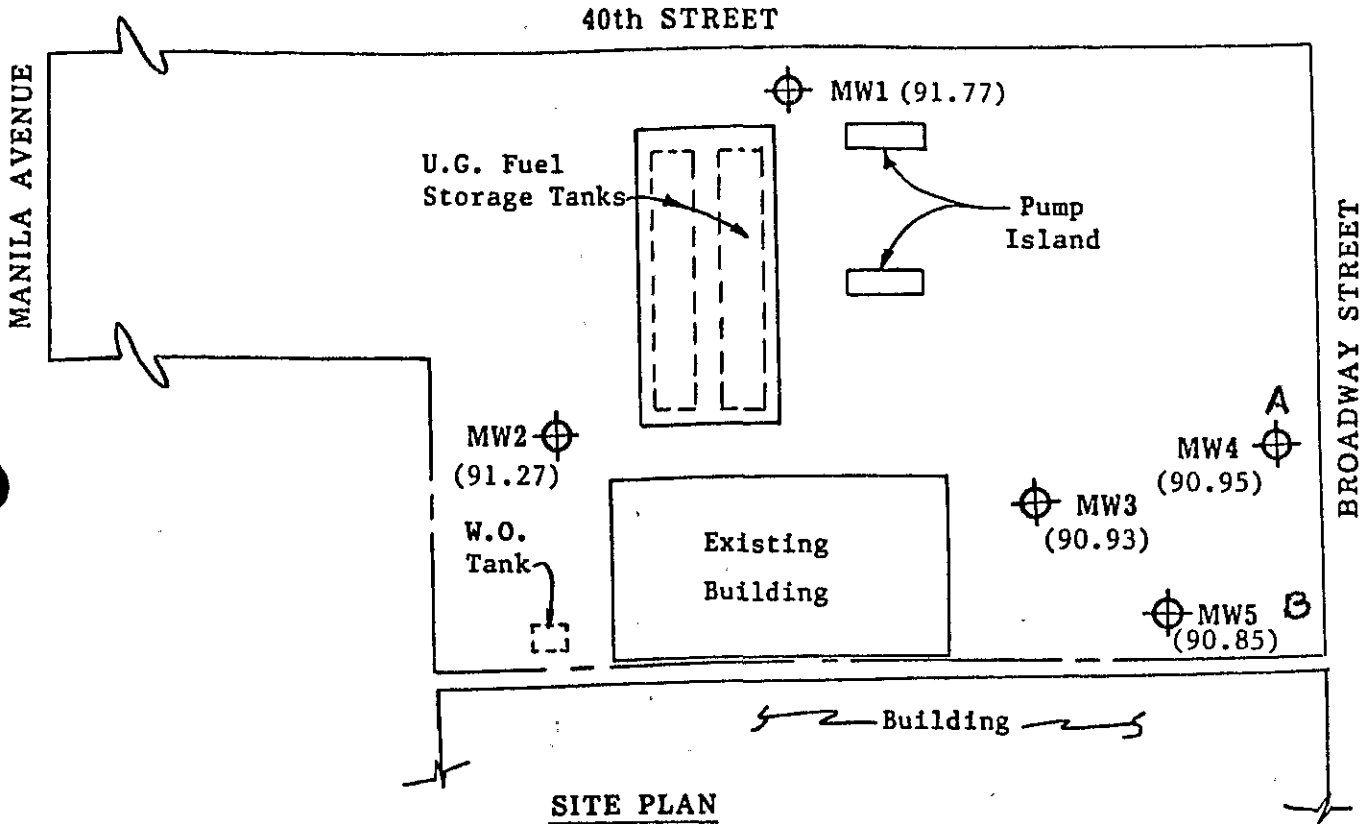
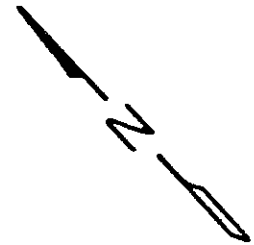
Unocal S/S #0746
3943 Broadway
Oakland, California



KAPREALIAN ENGINEERING, INC.
Consulting Engineers




P.O. BOX 996 • BENICIA, CA 94510
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581

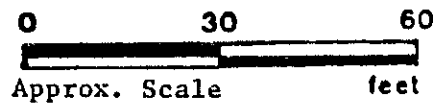
308393A.B



SITE PLAN

LEGEND

-  Monitoring Well (Existing)
-  Ground water surface elevation on 2/15/90. Top of MW1 well cover assumed 100.00 feet as datum.
-  Direction of ground water flow



Unocal Service Station #0746
3943 Broadway Street
Oakland, California

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)


REMOVED

15/4W 29L3

BORING LOG

308393 B

Project No. KEI-P89-0805	Boring & Casing Diameter 9" 2"	Logged By D.L. <i>John P. Brown</i> CFG 1310
Project Name Unocal Oakland - Broadway	Well Head Elevation N/A	Date Drilled 1-26-90
Boring No. MW5	Drilling Method Hollow-stem Auger	Drilling Company EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
		0		A.C. Pavement. Sand and gravel to 9": Fill
			CH	Silty clay, high plasticity, 5-15% sand stiff, moist, dark greenish gray and black, mottled.
5/4/5		5	MH	Clayey elastic silt, 5-10% sand, firm, very moist black.
			CH	Silty clay, high plasticity 10-15% sand stiff, moist, dark olive gray.
8/17/24				Clay, high plasticity, with gravel, 15-30% gravel to 1/2", trace silt, very stiff, moist, dark brown and black, mottled, with root holes.
8/15/23		10		Sandy below 10 feet, olive gray grades to clayey sand.
7/10/12			SC	Clayey sand, 10-15% silt, dense, moist to very moist, dark greenish gray and olive gray, mottled with gravel below 13'.
6/10/18				
6/10/11		15	GW-GC	Well graded gravel with clay and sand, medium dense, wet, dark greenish gray, gravel to >2" diameter.
8/15/18			CH	Clay, high plasticity, trace silt, stiff, moist, dark greenish gray and light olive brown, mottled, dark greenish gray in voids/fissures. Silty clay, high plasticity, stiff, moist to wet, light olive brown and dark greenish gray, mottled, olive greenish gray below 19.5 feet.
		20		TOTAL DEPTH: 20'

15/4W 24L3

308393B

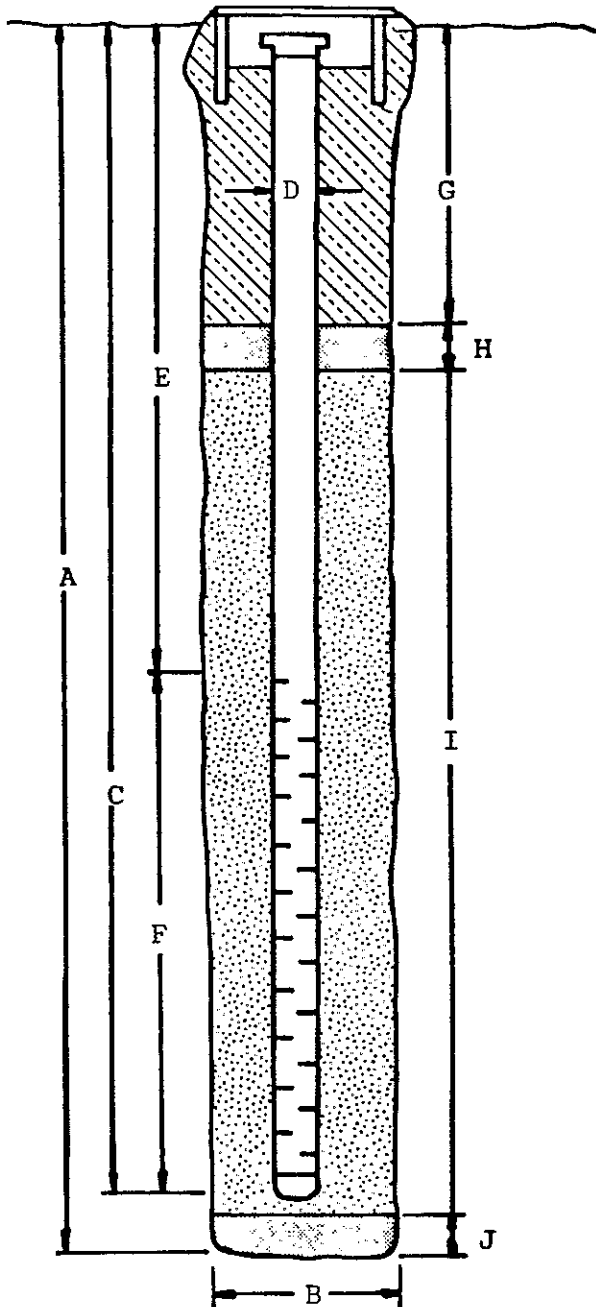
W E L L C O M P L E T I O N D I A G R A M

PROJECT NAME: Unocal - Oakland - Broadway BORING/WELL NO. MW5

PROJECT NUMBER: KEI-P89-0805

WELL PERMIT NO.: _____

Flush-mounted Well Cover



A. Total Depth: 20'

B. Boring Diameter*: 9"

Drilling Method: Hollow Stem Auger

C. Casing Length: 20'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"

ID = 2.067"

E. Depth to Perforations: 5'

F. Perforated Length: 15'

Perforation Type: Machined Slot

Perforation Size: 0.020"

G. Surface Seal: 2'

Seal Material: Neat Cement

H. Seal: 2'

Seal Material: Bentonite

I. Gravel Pack: 16'

Pack Material: RMC Lonestar Sand

Size: #3

J. Bottom Seal: None

Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

15/4W 2424

BORING LOG

01-4495

Project No. KEI-P89-0805	Boring & Casing Diameter 9" 2"	Logged By D.L.
Project Name Unocal Oakland - Broadway	Well Head Elevation N/A	Date Drilled 10/17/89
Boring No. MW1	Drilling Method Hollow-stem Auger	Drilling Company EGI

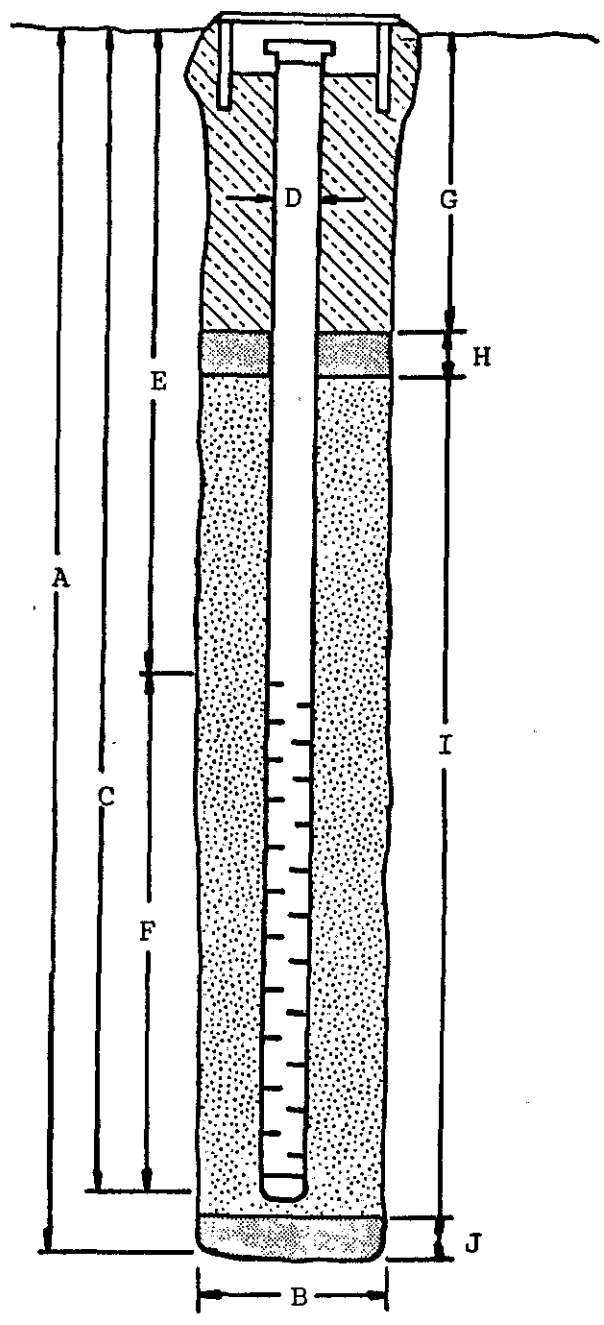
Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
		0		A.C. Pavement Clay, sand and gravel: fill.
5/7/15		5	CH	Silty clay, high plasticity, very stiff, moist, black, trace gravel. Sandy clay, high plasticity, trace gravel, very stiff, moist, dark olive gray.
7/10/16		10	SC	Clayey sand, 30-40% clay, medium dense, very moist, grayish brown, mottled.
10/15/12			GC	Clayey gravel with sand, medium dense, very moist, olive brown and strong brown, mottled.
			GP/ GC	Poorly graded gravel with clay and sand, medium dense, wet, dark yellowish brown.
11/17/23		15	CH	Clay, high plasticity, very stiff, moist, greenish gray and olive brown.
			CH	Clayey gravel with sand, very dense, moist, dark greenish gray, gravel to 1".
10/16/19		20	GC MH	Clayey silt, very stiff, moist, dark greenish gray. TOTAL DEPTH 20'

15/4W 24L4
01-449J

W E L L C O M P L E T I O N D I A G R A M

PROJECT NAME: Unocal - Oakland - Broadway BORING/WELL NO. MW1
PROJECT NUMBER: KEI-P89-0805
WELL PERMIT NO.: 89456

Flush-mounted Well Cover



- A. Total Depth: 20'
- B. Boring Diameter*: 9"
Drilling Method: Hollow Stem Auger
- C. Casing Length: 20'
Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 5'
- F. Perforated Length: 15'
Perforation Type: Machined Slot
Perforation Size: 0.020"
- G. Surface Seal: 2'
Seal Material: Concrete
- H. Seal: 2'
Seal Material: Bentonite
- I. Gravel Pack: 16'
Pack Material: RMC Lonestar Sand
Size: #3
- J. Bottom Seal: None
Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

15/4W 24L4
01-449J



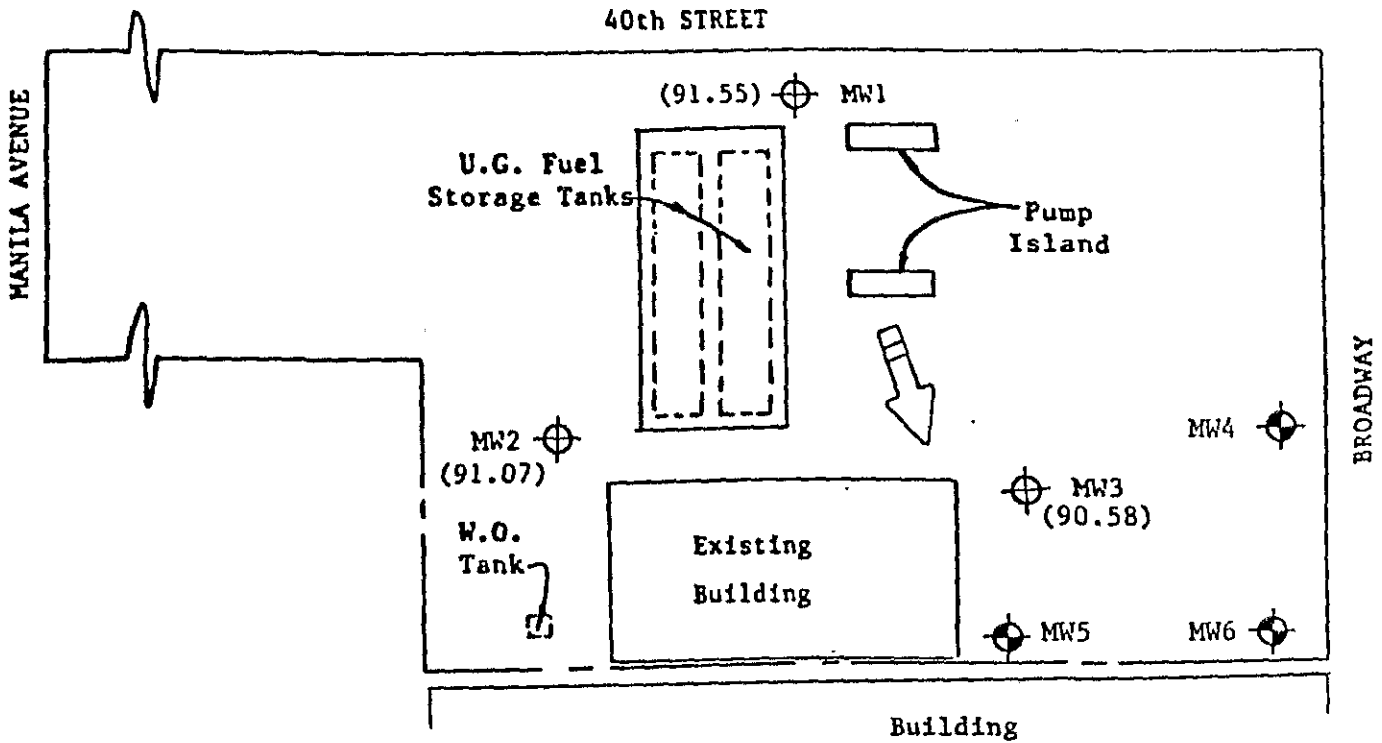
KAPREALIAN ENGINEERING, INC.

Consulting Engineers

P.O. BOX 813




BENICIA, CA 94510

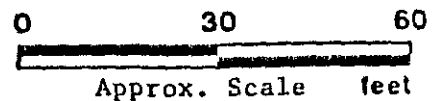
(707) 746-6915



SITE PLAN

LEGEND

-  Monitoring Well (Proposed)
-  Monitoring Well (Existing)
- () Ground water surface elevation on 11/1/89. MW1 well cover assumed 100.00' as datum.
-  Direction of ground water flow on 11/1/89.



Unocal Service Station #0746
3943 Broadway Street
Oakland, California

1S/4W 24L5

BORING LOG

01-449K

Project No. KEI-P89-0805	Boring & Casing Diameter 9" 2"	Logged By D.L.
Project Name Unocal Oakland - Broadway	Well Head Elevation N/A	Date Drilled 10/17/89
Boring No. MW2	Drilling Method Hollow-stem Auger	Drilling Company EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
		0		A.C. Pavement Clay, sand and gravel: fill.
6/9/15		5	CH	Silty clay, high plasticity, stiff, moist, black, organic odor, trace - 15% gravel below 3.5 feet.
				Sandy clay, 5-10% gravel, very stiff, moist, dark olive gray.
7/8/11		10	CL/ CH	Gravelly clay, 15-30% gravel to 5/8", stiff to very stiff, moist, dark brown.
6/7/10			SC	Clayey sand, medium dense, moist to very moist, olive brown and strong brown, mottled.
12/22/28	▽	15	GW/ GC	Well graded gravel with clay and sand, gravel to 2 1/2", dense to very dense.
				Clay, very stiff to hard, olive brown to yellowish brown, mottled.
9/20/18		20	CL/ CH	Clay, as above, yellowish brown, 10% silt, trace - 15% sand.
				TOTAL DEPTH 20'

15/4W 24LS
01-449K

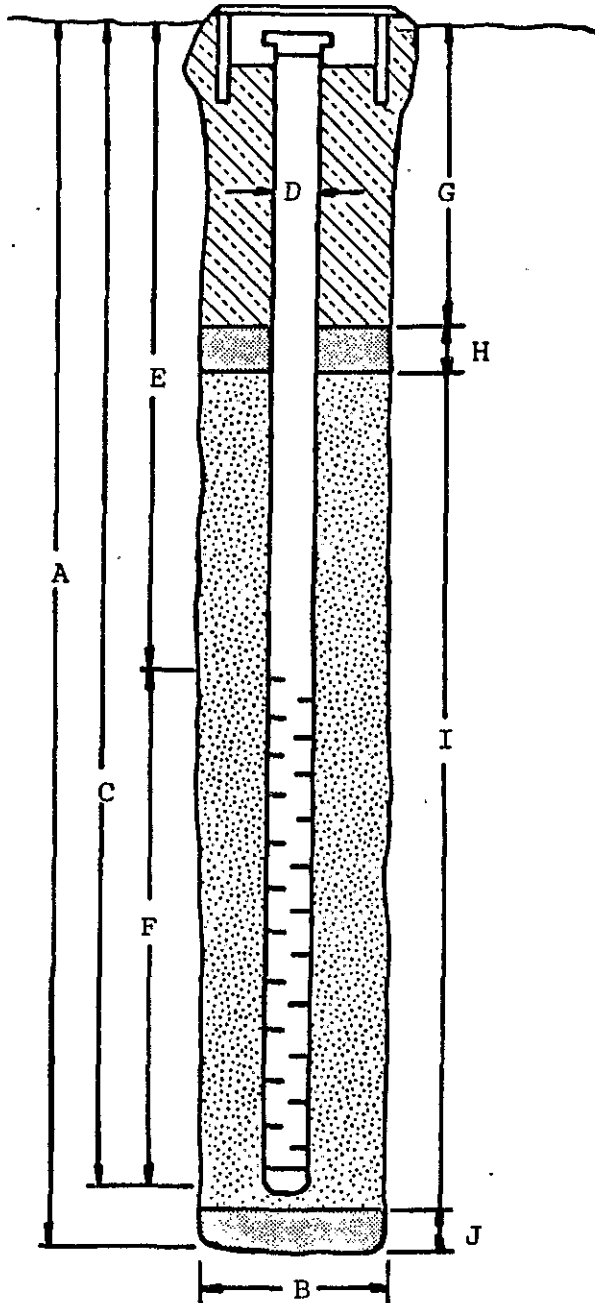
WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal - Oakland - Broadway BORING/WELL NO. MW2

PROJECT NUMBER: KEI-P89-0805

WELL PERMIT NO.: 89456

Flush-mounted Well Cover



A. Total Depth: 20'

B. Boring Diameter*: 9"

Drilling Method: Hollow Stem

Auger

C. Casing Length: 20'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"

ID = 2.067"

E. Depth to Perforations: 5'

F. Perforated Length: 15'

Perforation Type: Machined Slot

Perforation Size: 0.020"

G. Surface Seal: 2'

Seal Material: Concrete

H. Seal: 2'

Seal Material: Bentonite

I. Gravel Pack: 16'

Pack Material: RMC Lonestar Sand

Size: #3

J. Bottom Seal: None

Seal Material: N/A

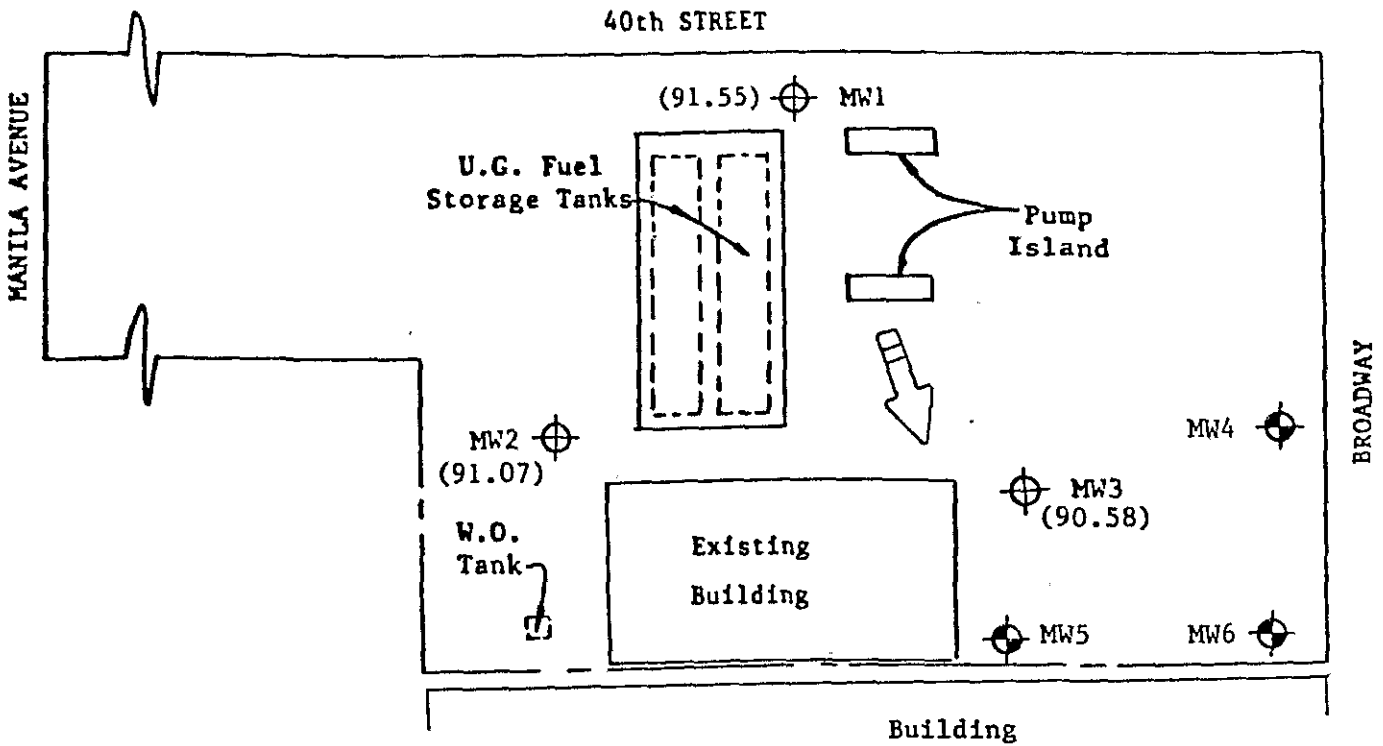
*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

15/4W 24LS
01-449K






KAPREALIAN ENGINEERING, INC.

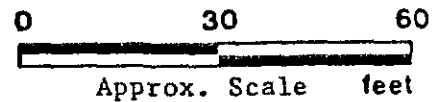
Consulting Engineers
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BENICIA, CA 94510
(707) 746-6915



SITE PLAN

LEGEND

-  Monitoring Well (Proposed)
-  Monitoring Well (Existing)
- () Ground water surface elevation on 11/1/89. MW1 well cover assumed 100.00' as datum.
-  Direction of ground water flow on 11/1/89.



Unocal Service Station #0746
3943 Broadway Street
Oakland, California

15/4W 24L6

BORING LOG					01-449L
Project No. KEI-P89-0805		Boring & Casing Diameter 9" 2"		Logged By D.L.	
Project Name Unocal Oakland - Broadway		Well Head Elevation N/A		Date Drilled 10/17/89	
Boring No. MW3		Drilling Method Hollow-stem Auger		Drilling Company EGI	
Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description	
		0		A.C. Pavement Clay, sand and gravel: fill.	
5/5/11		5	CH	Sandy clay, high plasticity with gravel, firm, moist, olive gray and black, mottled with debris, disturbed.	
			CL/ CH	Silty clay, high plasticity, 5-10% sand, firm, moist, black.	
5/7/12		10		Gravelly clay, 30% gravel to 1/2", firm, moist, very dark grayish brown, gray root holes.	
3/9/11	▽		SC	Sandy clay, stiff, moist, olive brown and gray, mottled.	
6/17/16				Clayey sand, medium dense, very moist, 40% clay, olive gray and olive brown, mottled.	
7/9/13		15		Clayey sand w/gravel, 15% clay, dense, very moist.	
			CL/ CH	Clay, very stiff, moist, grayish green and olive brown, mottled. brown, mottled.	
9/11/14		20		Clay, as above, greenish gray and light olive brown.	

1S/4W 24L6

B O R I N G L O G

01-449L

Project No. KEI-P89-0805	Boring & Casing Diameter 9" 2"	Logged By D.L.
Project Name Unocal Oakland - Broadway	Well Head Elevation N/A	Date Drilled 10/17/89
Boring No. MW3	Drilling Method Hollow-stem Auger	Drilling Company EGI

Penetra- tion blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
9/12/15			CL/ CH	<p>Sandy clay, with gravel to 1/2", very stiff, moist, light olive brown.</p> <hr/> <p>Clay with silt, high plasticity, very stiff, moist light olive brown.</p>
				TOTAL DEPTH 22.5'

15/4W 24LG
01-449L

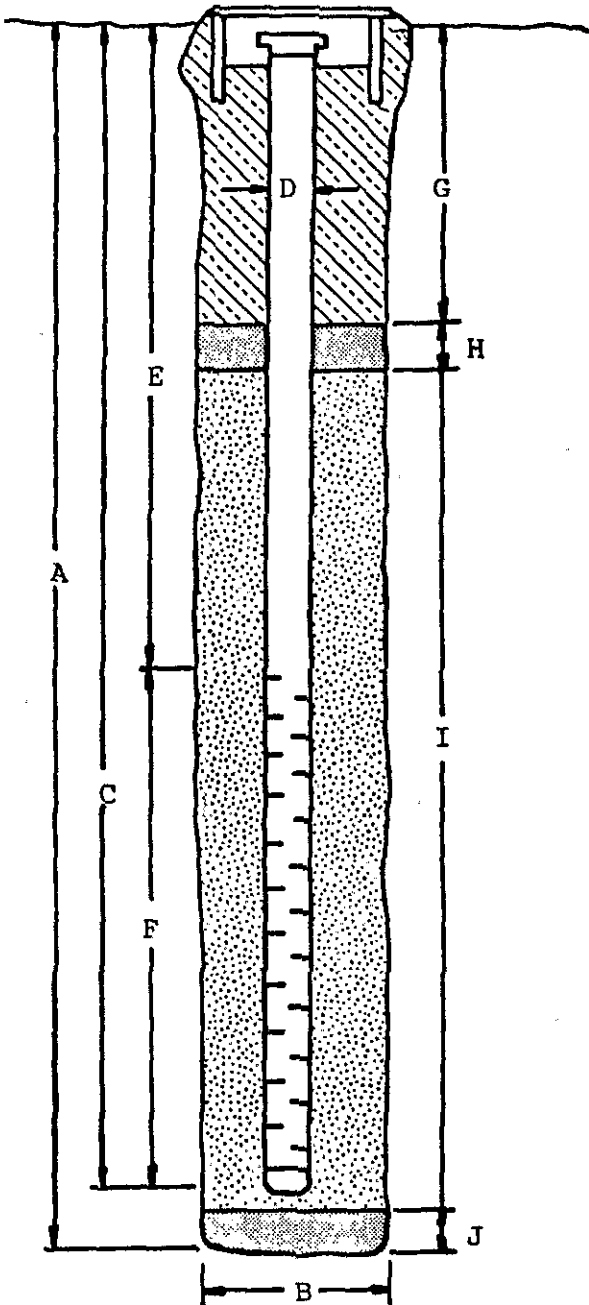
WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal - Oakland - Broadway BORING/WELL NO. MW3

PROJECT NUMBER: KEI-P89-0805

WELL PERMIT NO.: 89456

Flush-mounted Well Cover



A. Total Depth: 22.5'

B. Boring Diameter*: 9"

Drilling Method: Hollow Stem
Auger

C. Casing Length: 22.5'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"

ID = 2.067"

E. Depth to Perforations: 5'

F. Perforated Length: 17.5'

Perforation Type: Machined
Slot

Perforation Size: 0.020"

G. Surface Seal: 2'

Seal Material: Concrete

H. Seal: 2'

Seal Material: Bentonite

I. Gravel Pack: 18.5'

Pack Material: RMC Lonestar
Sand

Size: #3

J. Bottom Seal: None

Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

15/4W 24L6

01-449L



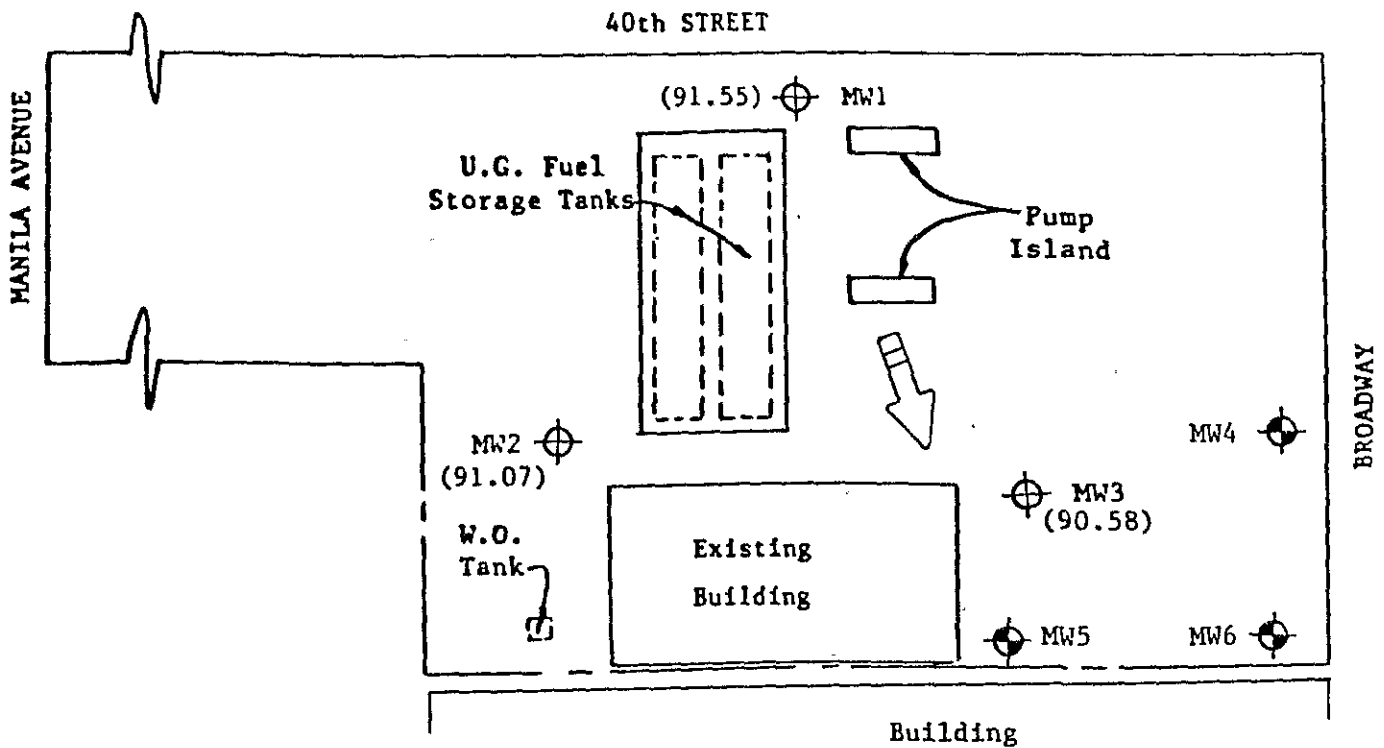
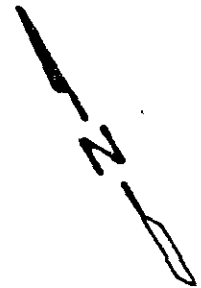
KAPREALIAN ENGINEERING, INC.

Consulting Engineers

P. O. BOX 913

BENICIA, CA 94510

(707) 746-6915

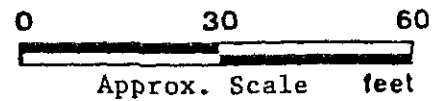


SITE PLAN

LEGEND

- Monitoring Well (Proposed)
- Monitoring Well (Existing)
- () Ground water surface elevation on 11/1/89. MW1 well cover assumed 100.00' as datum.

Direction of ground water flow on 11/1/89.



Unocal Service Station #0746
3943 Broadway Street
Oakland, California

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED



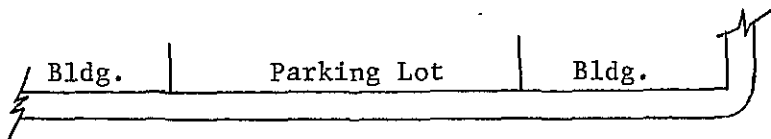
KAPREALIAN ENGINEERING, INC.

Consulting Engineers

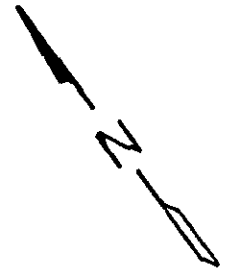
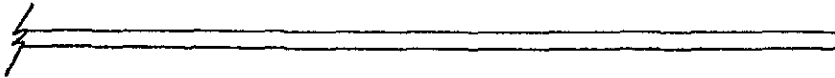
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(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581

364640 A-D

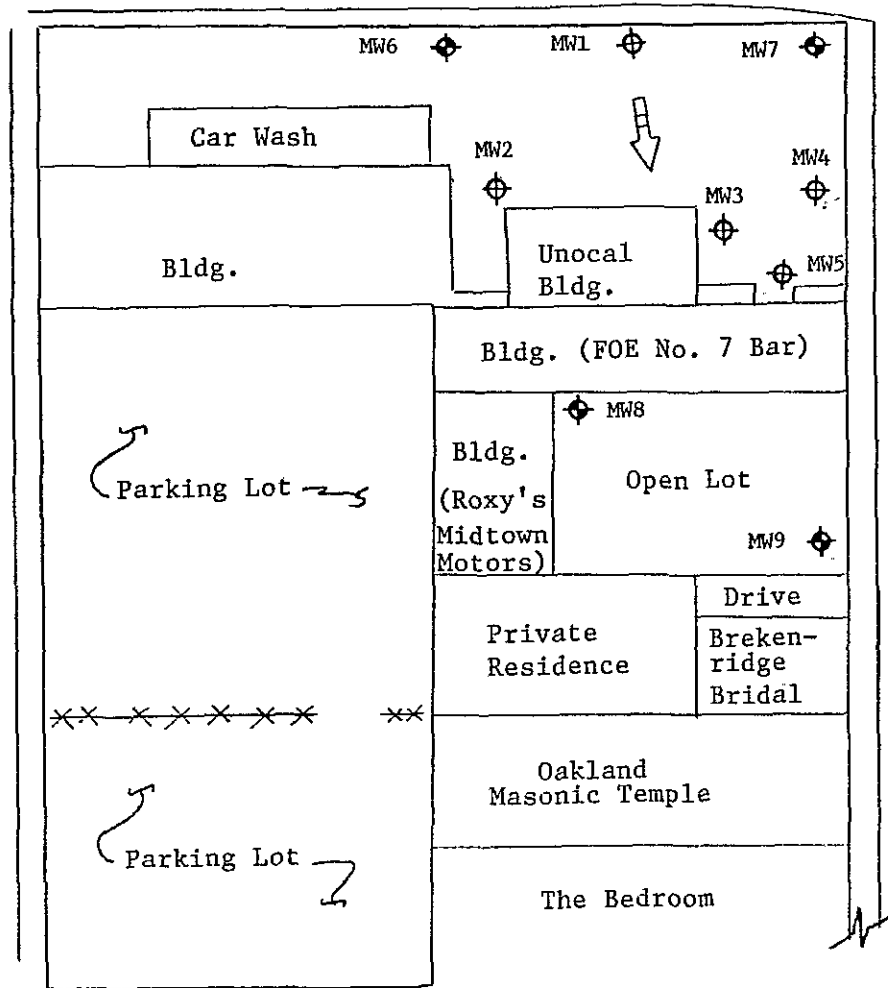
15/4W 24/17-10



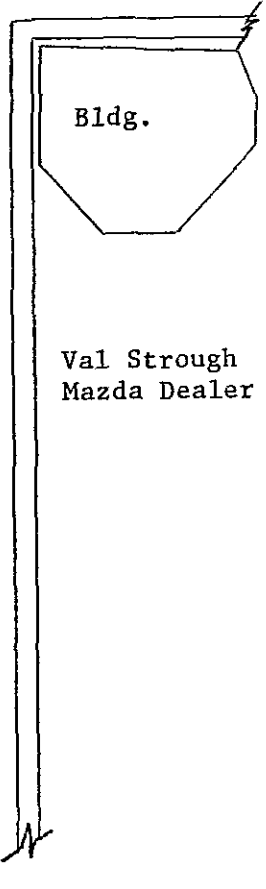
40th STREET



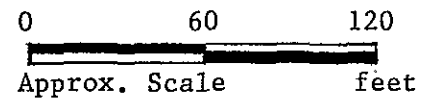
MANILA AVENUE



BROADWAY



SITE VICINITY MAP




LEGEND

- Monitoring Well (existing)
- Monitoring Well (proposed)
- Direction of Ground Water Flow

Unocal S/S #0746
3943 Broadway
Oakland, California

BORING LOG

15/4W 2417

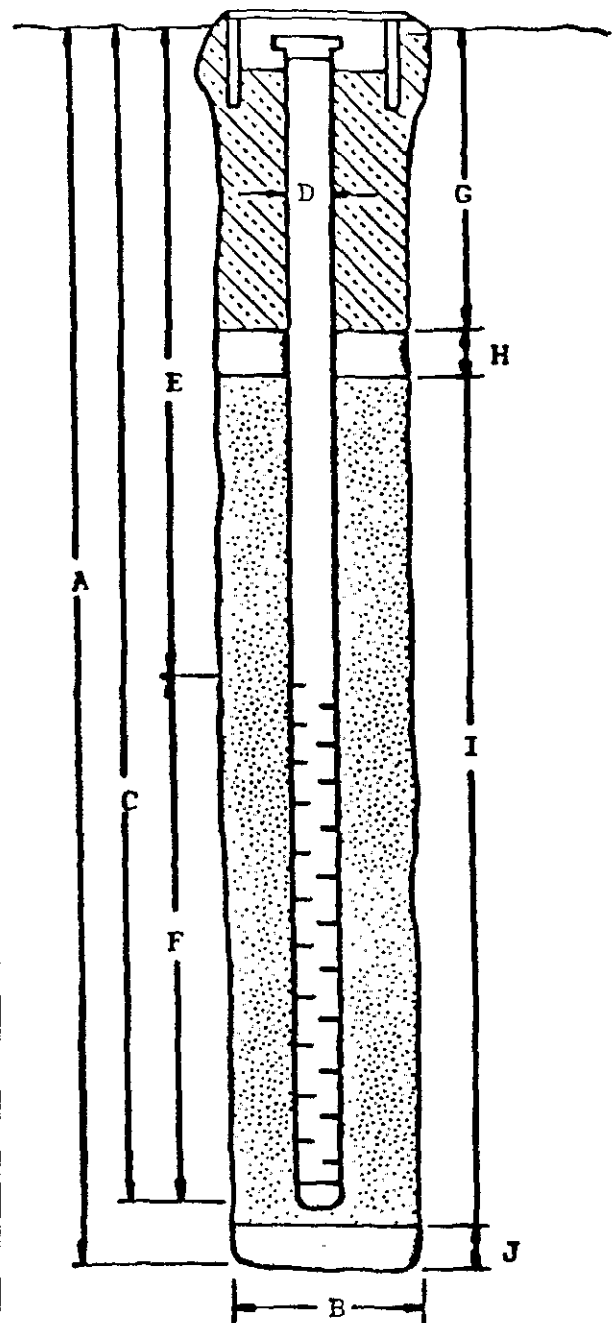
Project No. KEI-P89-0805		Boring & Casing Diameter 9" 2"		Logged By W.W.	
Project Name Unocal 3943 Broadway, Oaklnd		Well Head Elevation N/A		Date Drilled 10/22/90	
Boring No. MW6		Drilling Method Hollow-stem Auger		Drilling Company EGI	
Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description	
		0		Asphalt over sand and gravel base.	
			CL/ CH	Silty clay, trace fine sand, moist, stiff, orange brown. Base of Fill Materials	
			CH	Silty clay, trace fine sand, moist, moist, firm, black.	
4/9/13		5	CL/ CH	Clay, 5% silt, trace rootlets, moist, very stiff, dark grayish brown, trace gravel to 3/8" diameter.	
8/10/15			GC	Clayey gravel, trace sand, subangular gravel to 1-1/8" diameter, moist, very stiff, dark grayish brown, trace orange brown.	
5/6/12		10	CL/ CH	Clay, trace gravel to 3/8" diameter, trace very fine sand, trace organic matter, moist to very moist, very stiff, light yellowish brown with trace pale olive mottling.	
4/7/11		15		Clay, 5% silt, trace organic matter, trace caliche, slightly moist, very moist, very stiff, light yellowish brown.	
5/8/14			ML/ MH	Clayey silt, trace sand, saturated, very stiff, light yellowish brown light yellowish brown mottled with orange brown and light greenish gray.	
		20		TOTAL DEPTH: 20'	

364640A
15/4W 24L.7

WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal - 3943 Broadway St., Oakland BORING/WELL NO. MW6
 PROJECT NUMBER: KEI-P89-0805
 WELL PERMIT NO.: _____

Flush-mounted Well Cover



- A. Total Depth: 20'
- B. Boring Diameter*: 9"
 Drilling Method: Hollow Stem Auger
- C. Casing Length: 20'
 Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 5'
- F. Perforated Length: 15'
 Perforation Type: Machined Slot
 Perforation Size: 0.020"
- G. Surface Seal: 2'
 Seal Material: Neat Cement
- H. Seal: 2'
 Seal Material: Bentonite
- I. Gravel Pack: 16'
 Pack Material: RMC Lonestar Sand
 Size: #3
- J. Bottom Seal: None
 Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

364640 B
15/4W 2AL8

BORING LOG					
Project No. KEI-P89-0805		Boring & Casing Diameter 9" 2"		Logged By W.W.	
Project Name Unocal 3943 Broadway, Oaklnd		Well Head Elevation N/A		Date Drilled 10/22/90	
Boring No. MW7		Drilling Method Hollow-stem Auger		Drilling Company EGI	
Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description	
		0		Asphalt over sand and gravel base with cobbles to 6" diameter.	
			CL/ CH	Silty clay with gravel, trace sand, gravel to 1-1/4" diameter, moist, firm, brown. Clay, 5-10% fine sand, trace silt, moist, stiff, dark yellowish brown. Base of fill?	
3/4/5		5	CH	Silty clay, highly organic, trace subangular gravel to 1" diameter, moist, firm to stiff, moist, black.	
5/10/12			CL/ CH	Clay, trace rootlets, trace silt, trace sand, moist, very stiff, olive brown.	
		10	SC	Clayey sand, trace gravel to 3/8" dia., fine to medium grained, very moist, medium dense, bluish gray.	
6/9/15			GW	Sandy gravel, 5% clay, trace rootlets, gravel to 1" diameter, saturated, medium dense, yellowish brown.	
			GC	Clayey gravel with sand, slight odor, gravel to 1" diameter, saturated, medium dense, bluish gray.	
		15	ML/ MH	Clayey silt, 5% very fine sand, trace organic matter, stiff to very stiff, very moist to saturated, pale olive mottled with light olive brown.	
4/7/9		20		TOTAL DEPTH: 20'	

364640B
15/4W 2/28

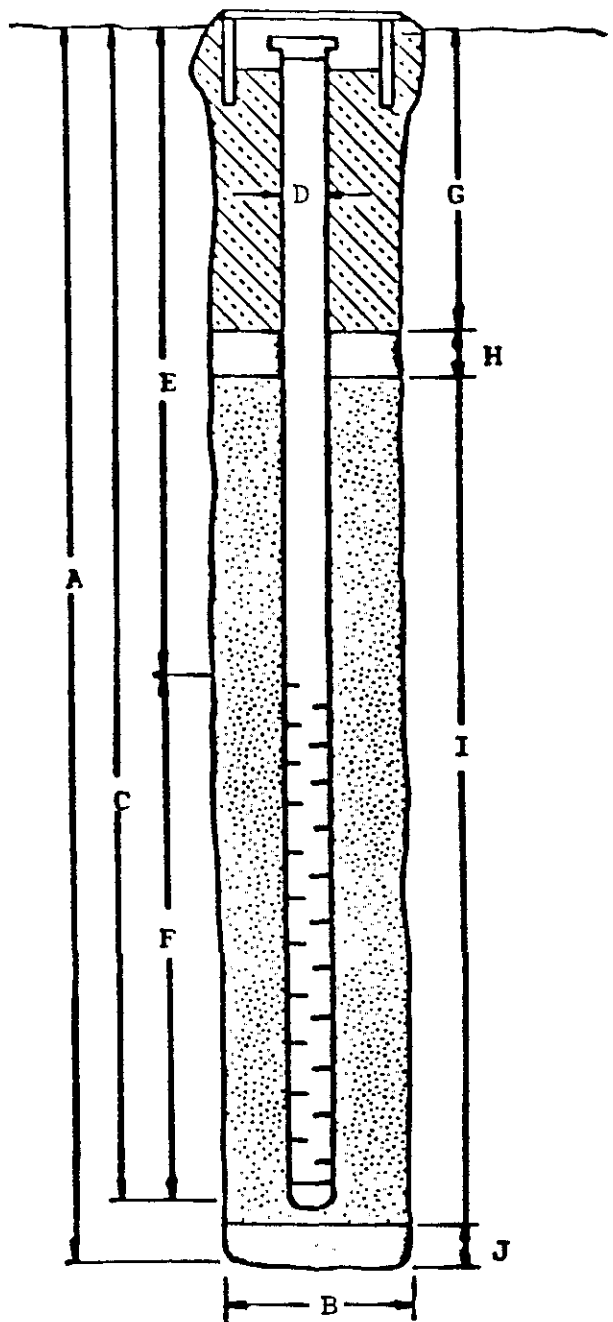
WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal - 3943 Broadway St, Oakland BORING/WELL NO. MW7

PROJECT NUMBER: KEI-P89-0805

WELL PERMIT NO.: _____

Flush-mounted Well Cover



- A. Total Depth: 20'
- B. Boring Diameter*: 9"
Drilling Method: Hollow Stem Auger
- C. Casing Length: 20'
Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 5'
- F. Perforated Length: 15'
Perforation Type: Machined Slot
Perforation Size: 0.020"
- G. Surface Seal: 2'
Seal Material: Neat Cement
- H. Seal: 2'
Seal Material: Bentonite
- I. Gravel Pack: 16'
Pack Material: RMC Lonestar Sand
Size: #3
- J. Bottom Seal: None
Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

364640C

15/4W 24L9

BORING LOG

Project No. KEI-P89-0805		Boring & Casing Diameter 9" 2"		Logged By W.W./J.E.
Project Name Unocal 3943 Broadway, Oaklnd		Well Head Elevation N/A		Date Drilled 10/22/90
Boring No. MW8		Drilling Method	Hollow-stem Auger	Drilling Company EGI - Dave Yager

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
		0		6" concrete slab over sand and gravel.
				Clayey gravel with concrete cobbles, moist, reddish brown.
				Base of fill materials.
3/3/5		5	CL/ CH	Silty clay, trace organic matter, trace gravel, stiff, very dark brown to black, moist.
12/13/15		10	GC	Clayey gravel, highly weathered sand- stone, trace sand, medium dense, mottled, light brown to dark brown, very moist to wet.
5/10/13		15	CL/ CH	Gravelly clay, gravel is subrounded to rounded, very stiff, trace sand, gray to light brown, grading to sandy clay, moist.
5/9/14		20		Sandy clay, trace gravel, very stiff light brown, moist.

364640C

1S/4W 2#L9

BORING LOG

Project No. KEI-P89-0805		Boring & Casing Diameter 9" 2"		Logged By W.W./J.E.
Project Name Unocal 3943 Broadway, Oaklnd		Well Head Elevation N/A		Date Drilled 10/22/90
Boring No. MW8		Drilling Method Hollow-stem Auger	Drilling Company EGI - Dave Yager	
Penetration blows/6"	G. W. level	Depth (feet) Samples	Stratigraphy USCS	Description
			CL/ CH	Sandy clay, trace gravel, very stiff, moist, light brown.
				TOTAL DEPTH: 22'

364640C

WELL COMPLETION DIAGRAM

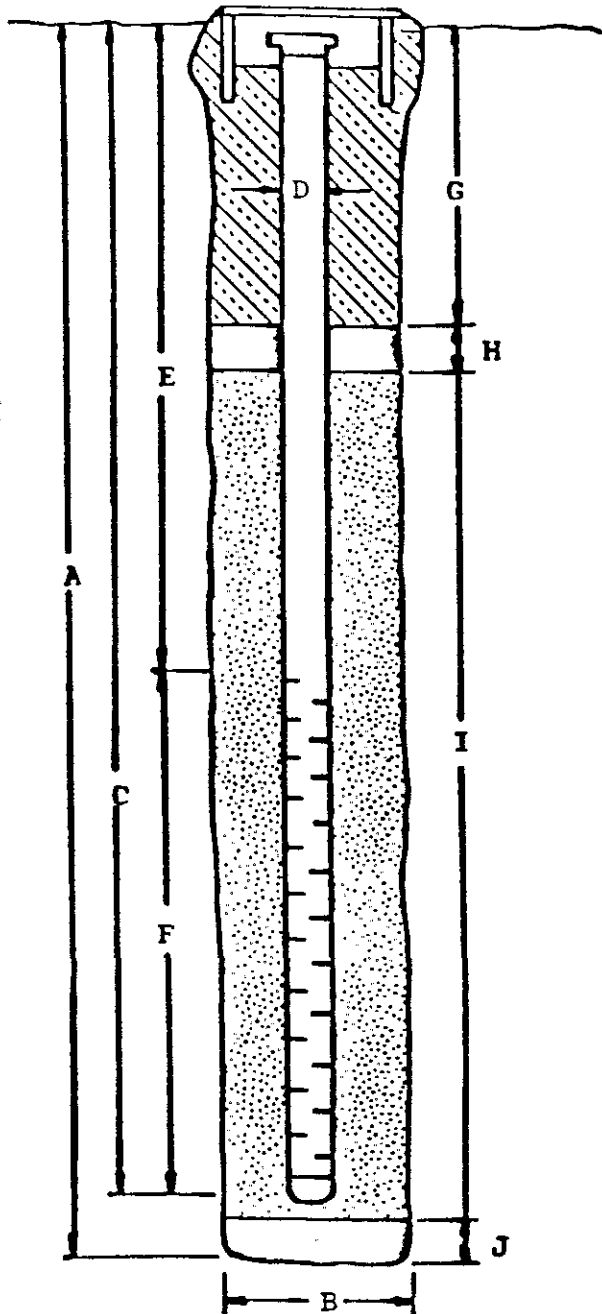
15/11/24L9

PROJECT NAME: Unocal, 3943 Broadway St., Oakland BORING/WELL NO. MW8

PROJECT NUMBER: KEI-P89-0805

WELL PERMIT NO.: _____

Flush-mounted Well Cover



A. Total Depth: 22'

B. Boring Diameter*: 9"

Drilling Method: Hollow Stem Auger

C. Casing Length: 22'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"

ID = 2.067"

E. Depth to Perforations: 5'

F. Perforated Length: 17'

Perforation Type: Machined Slot
Perforation Size: 0.020"

G. Surface Seal: 2'

Seal Material: Neat Cement

H. Seal: 2'

Seal Material: Bentonite

I. Gravel Pack: 18'

Pack Material: RMC Lonestar Sand
Size: #3

J. Bottom Seal: None


Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

364640D
IS/4W 24L10

BORING LOG

Project No. KEI-P89-0805	Boring & Casing Diameter 9" 2"	Logged By W.W.
Project Name Unocal 3943 Broadway, Oaklnd	Well Head Elevation N/A	Date Drilled 10/23/90
Boring No. MW9	Drilling Method Hollow-stem Auger	Drilling Company EGI

Penetration blows/6"	G. W. level	Depth (feet) Samples	Stratigraphy USCS	Description
		0		Asphalt over sand and gravel baserock.
			GC	Clayey gravel with asphalt and concrete cobbles, moist, brown.
3/4/6		5	MH	Clayey silt, 5% fine sand, trace coarse sand, very moist, stiff, pale brown. Base of fill material.
			CL/CH	Silty clay, trace fine sand, trace gravel to 3/8" diameter, moist, stiff, very dark brown to black, trace of red iron oxide staining.
5/9/14		10		Clay, trace silt and sand, trace organic matter, moist, very stiff, slight odor, dark grayish brown mottled with dark yellowish brown.
5/9/12			GC	Clayey gravel with sand, gravel to 3/4" diameter, some highly weathered, trace organic matter, strong odor, very moist to saturated, greenish gray and bluish gray.
		15		
			CL/CH	Sandy clay, trace silt, trace gravel to 3/8" diameter, very moist, very stiff, pale olive to pale yellow.
6/9/15		20		

364640D

B O R I N G L O G

15/4W 24L10

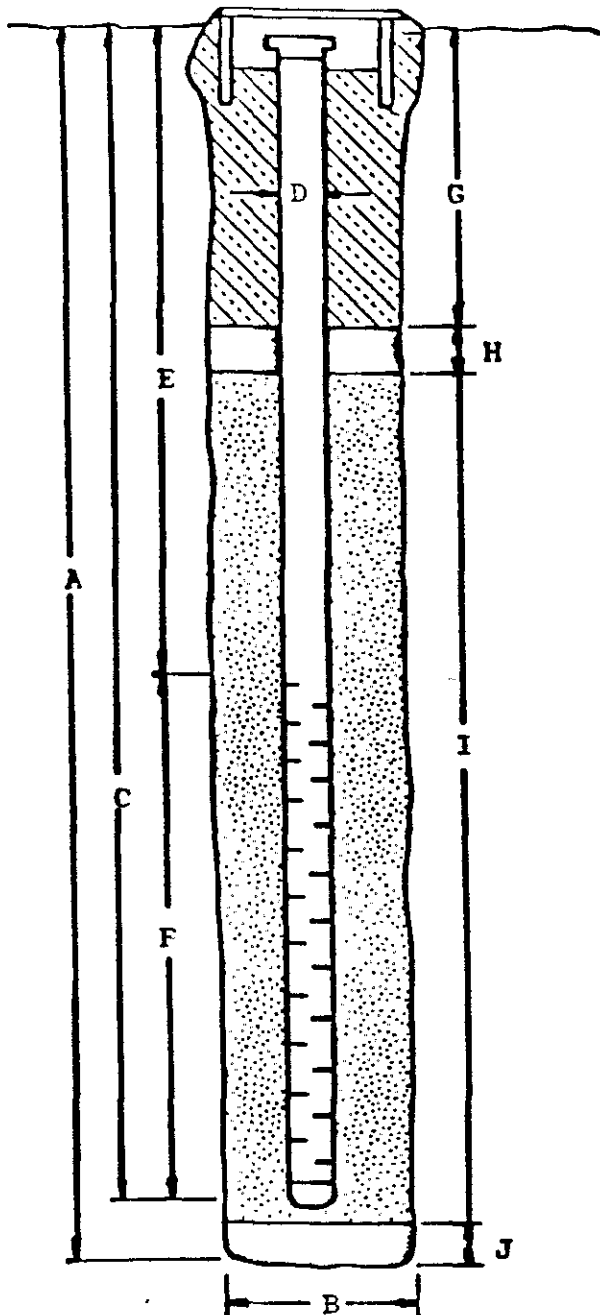
Project No. KEI-P89-0805		Boring & Casing Diameter 9" 2"		Logged By W.W.
Project Name Unocal 3943 Broadway, Oaklnd		Well Head Elevation N/A		Date Drilled 10/23/90
Boring No. MW9		Drilling Method	Hollow-stem Auger	Drilling Company EGI
Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
			CL/ CH	Sandy clay, trace silt, trace gravel to 3/8" diameter, very moist, very stiff, pale olive to pale yellow.
		25		
		30		
		35		
		40		
				TOTAL DEPTH: 22'

WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal, 3943 Broadway St., Oakland BORING/WELL NO. MW9PROJECT NUMBER: KEI-P89-0805

WELL PERMIT NO.: _____

Flush-mounted Well Cover

A. Total Depth: 22'B. Boring Diameter*: 9"Drilling Method: Hollow Stem
AugerC. Casing Length: 22'Material: Schedule 40 PVCD. Casing Diameter: OD = 2.375"ID = 2.067"E. Depth to Perforations: 5'F. Perforated Length: 17'Machined
Perforation Type: SlotPerforation Size: 0.020"G. Surface Seal: 2'Seal Material: Neat CementH. Seal: 2'Seal Material: BentoniteI. Gravel Pack: 18'RMC Lonestar
Pack Material: SandSize: #3J. Bottom Seal: NoneSeal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

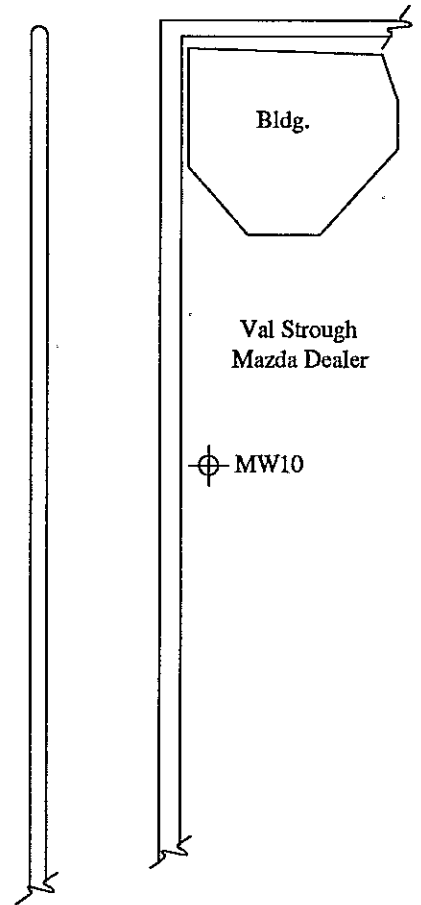
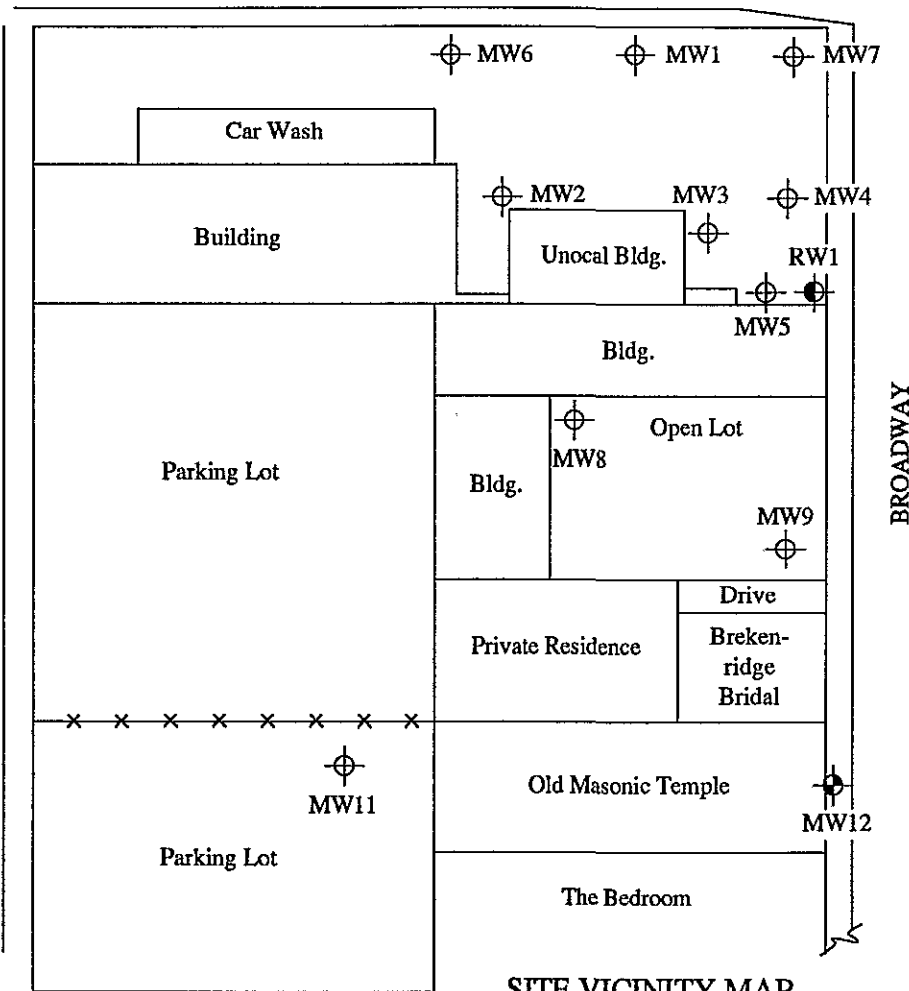
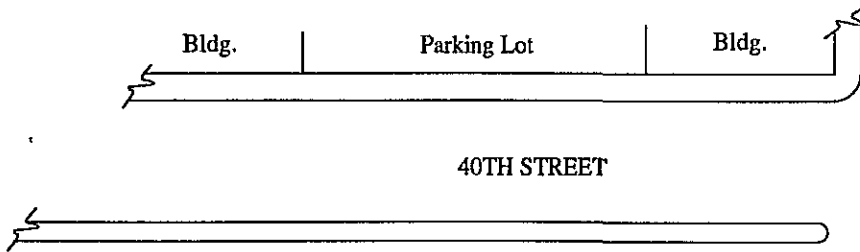
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L15



KAPREALIAN ENGINEERING, INC.

Consulting Engineers

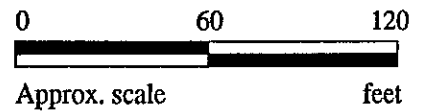
P.O. BOX 996 • BENICIA, CA 94510
(707) 746-6915 • (707) 746-6916 • FAX (707) 746-5581



SITE VICINITY MAP


LEGEND

- ⊕ Monitoring well (existing)
- ⊕ 2-inch diameter Monitoring well (proposed)
- ⊕ 6-inch diameter Recovery well (proposed)



Unocal Service Station #0746
3943 Broadway
Oakland, CA

422134A OIS OAW 24214

BORING LOG				
Project No. KEI-P89-0805		Boring & Casing Diameter 9" 2"		Logged By D.L.
Project Name Unocal Oakland, Broadway		Well Cover Elevation		Date Drilled 1/7/92
Boring No. MW10		Drilling Method Hollow-stem Auger	Drilling Company Woodward Drilling	
Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
		0		Asphalt pavement over sand and gravel.
				Silty clay with minor sand, stiff, moist, dark greenish gray and black mottled (fill).
				Clayey sand with gravel, very stiff, moist, brown, pocketed with silty clay as above (fill).
8/11/14		5	SM	Silty sand with gravel, estimated at 5 to 10% clay content, gravel is angular to rounded, to 3/4" diameter, medium dense, moist, brown.
11/12/14				
6/11/19			CH	Sandy clay, variable clay content estimated at 15 to 30%, trace gravel below 9', very stiff, moist, olive brown,
7/16/24		10	GC	Clayey gravel with sand, gravel to 1" diameter, some gravel is decomposed, medium dense to dense, moist, dark yellowish brown.
11/17/32				Gravelly clay with sand, gravel to 3/4" diameter, hard, moist, brown.
		15	CL	Clay with silt and trace sand, clay is slickensided, hard, moist, olive.
13/20/20				Sandy clay with trace gravel, very stiff, moist, pale olive.
				Silty clay with organic matter, very stiff to hard, moist, pale olive, locally grades to clayey silt.
7/11/17		20	ML	Sandy silt, stiff, moist, olive brown.
			SC	Clayey sand, est. at 15 to 20% clay, med. dense, moist, olive brown, lenses of well graded sand, gravel at 20'. TOTAL DEPTH: 22'

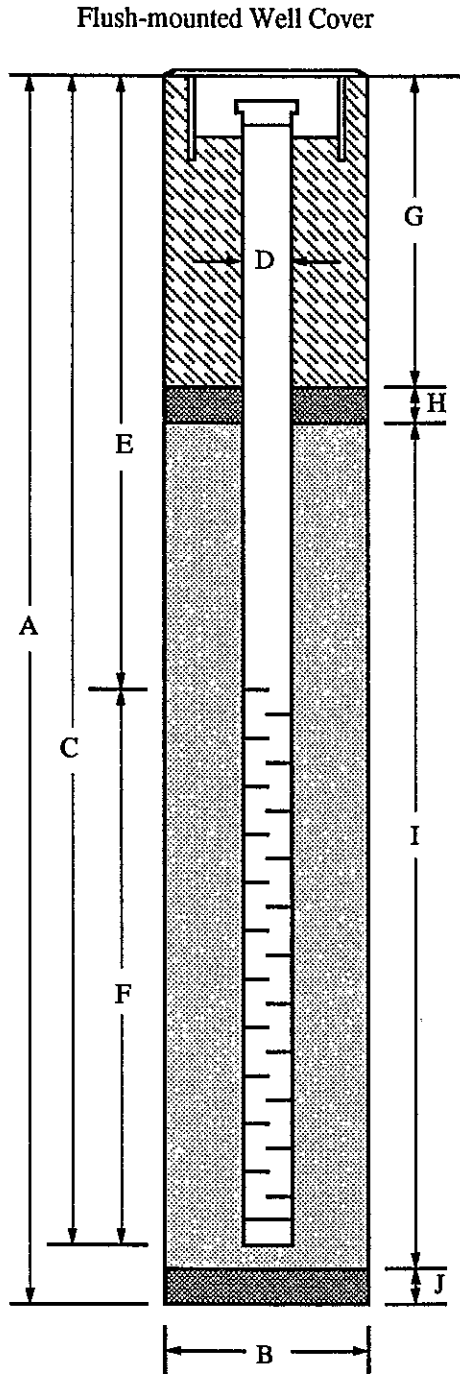
472734A
 OIS 04/24/14

WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal - Oakland, Broadway WELL NO. MW10

PROJECT NUMBER: KEI-P89-0805

WELL PERMIT NO.: ACFD&WCD 91219



- A. Total Depth : 22'
- B. Boring Diameter* : 9"
 Drilling Method: Hollow Stem Auger
- C. Casing Length: 22'
 Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 6'
- F. Perforated Length: 16'
 Perforation Type: Machined Slot
 Perforation Size: 0.010"
- G. Surface Seal: 2'
 Seal Material: Neat Cement
- H. Seal: 2'
 Seal Material: Bentonite
- I. Filter Pack: 18'
 Pack Material: RMC Lonestar Sand
 Size: #2/16
- J. Bottom Seal: none
 Seal Material: N/A

* Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

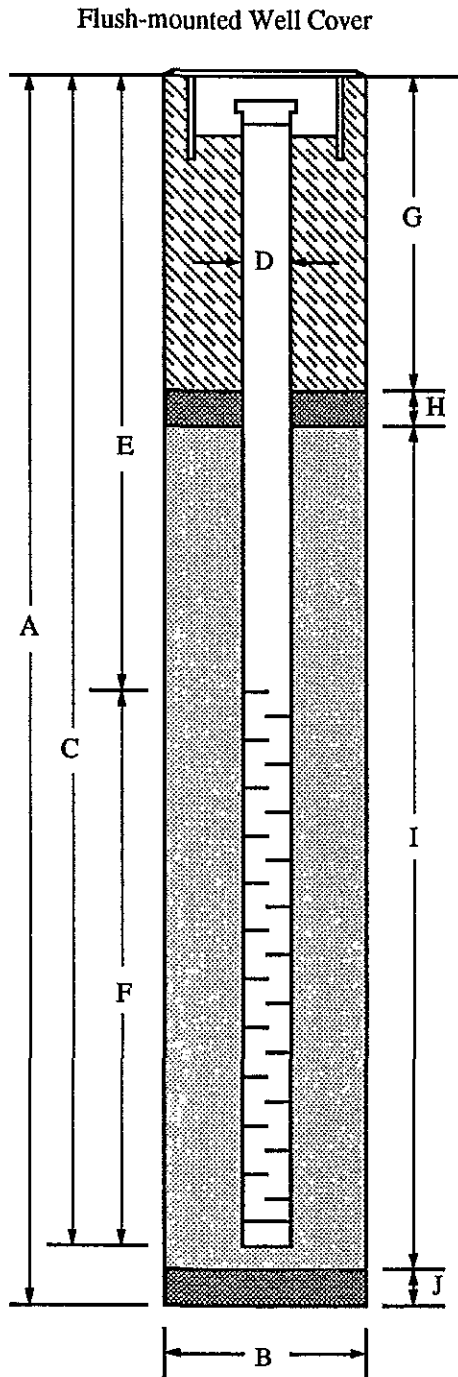
422134B OIS 04/24/15

BORING LOG				
Project No. KEI-P89-0805		Boring & Casing Diameter 9" 2"		Logged By D.L.
Project Name Unocal Oakland, Broadway		Well Cover Elevation		Date Drilled 1/7/92
Boring No. MW11		Drilling Method Hollow-stem Auger	Drilling Company Woodward Drilling	
Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
		0		Asphalt pavement over sand and gravel.
				Silty gravel with sand, bricks and concrete, dense, moist to very moist, black (fill).
9/14/19		5	CH	Sandy clay, estimated at 5 to 10% gravel to 1-1/4" diameter, very stiff, very moist, very dark grayish brown.
			SC	Clayey sand with gravel, estimated at 15 to 20% clay, sand is coarse- to fine-grained, dense, moist, very dark grayish brown and dark brown, mottled.
5/11/14		10	GC	Clayey gravel with sand, angular gravel to 1-1/2" diameter, medium dense, moist to very moist, dark greenish gray and olive brown.
4/8/14				Clay, high plasticity, trace silt and sand, stiff to very stiff, moist, olive brown and dark yellowish brown.
6/13/29		15	CH	Silty clay with trace organic matter, very stiff to hard, moist, olive and olive brown mottled.
13/16/21				Clay, with trace organic matter, slickensided, very stiff to hard, moist, olive and olive brown mottled.
9/17/28		20	SW/ SM	Well graded sand with silt and gravel, estimated at 15 to 20% gravel to 1/4" diameter, medium dense to dense, wet, dark yellowish brown. TOTAL DEPTH: 21'

015 04W 24/15
422/34B

WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal - Oakland, Broadway WELL NO. MW11
PROJECT NUMBER: KEI-P89-0805
WELL PERMIT NO.: ACFD&WCD 91219



- A. Total Depth : 21'
- B. Boring Diameter*: 9"
Drilling Method: Hollow Stem Auger
- C. Casing Length: 19'
Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 5'
- F. Perforated Length: 14'
Perforation Type: Machined Slot
Perforation Size: 0.010"
- G. Surface Seal: 2'
Seal Material: Neat Cement
- H. Seal: 2'
Seal Material: Bentonite
- I. Filter Pack: 15'
Pack Material: RMC Lonestar Sand
Size: #2/16
- J. Bottom Seal: 2'
Seal Material: Bentonite

* Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

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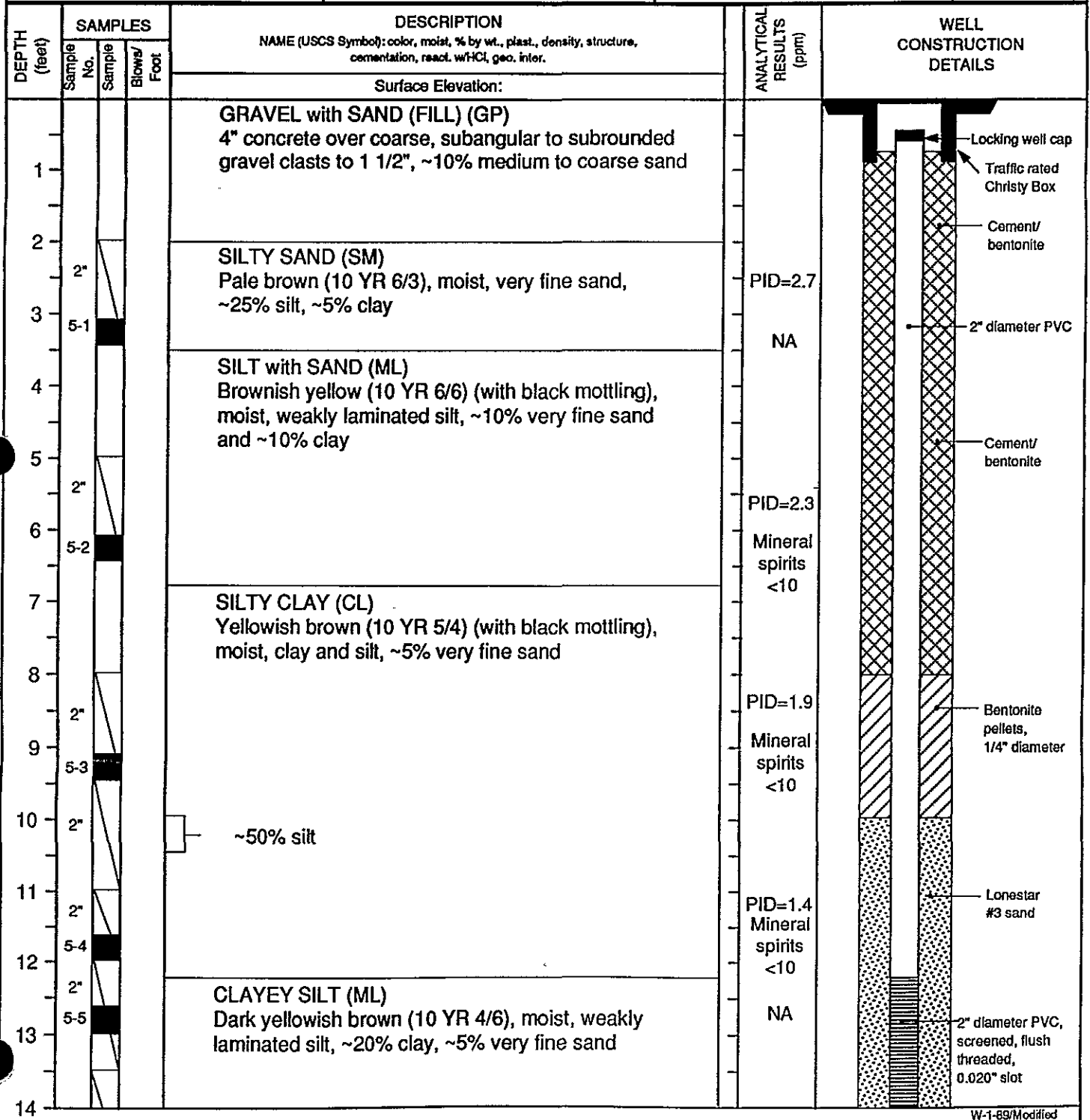
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

343408

1514W 24N12

PROJECT: KAISER Oakland, California		Log of Well No. MW-5	
BORING LOCATION: Linen room, nearest west wall		ELEVATION AND DATUM: 72.19 feet City of Oakland	
DRILLING CONTRACTOR: HEW/Schick		DATE STARTED: 1/26/91	DATE FINISHED: 1/27/91
DRILLING METHOD: 8" Hollow stem auger		TOTAL DEPTH: 18 feet	SCREEN INTERVAL: 12 - 16
DRILLING EQUIPMENT: Portable Holester		DEPTH TO WATER ATD: 12 feet	CASING: 2" diameter SCH 40 PVC
SAMPLING METHOD: 2" Modified California (2"), standard pen (p)		LOGGED BY: D. Wuthrich	
HAMMER WEIGHT: Manual; ~35 lbs.	DROP: Manual; ~24 inches	RESPONSIBLE PROFESSIONAL: J.D. Gallinatti	REG. NO. CEG 1335



W-1-89/Modified

343408 1S/4W 24N12

PROJECT: KAISER
Oakland, California

Log of Well No. MW-5 (cont'd.)

DEPTH (feet)	SAMPLES			DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	ANALYTICAL RESULTS (ppm)	WELL CONSTRUCTION DETAILS
	Sample No.	Sample	Blows/ Foot			
15	P			~10% clay	NA	
16	5-6					
17	P			SILTY CLAY (CL) Brownish yellow (10 YR 6/6), moist, clay and silt		
18				SAND with SILT (SM) Brownish yellow (10 YR 6/6), moist, very fine to fine sand, ~10% silt		
19				Bottom of hole at 18 feet		
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						

W-2-89/Modified

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WELL COMPLETION REPORT
(WELL LOGS)

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343409

1514W 24N13

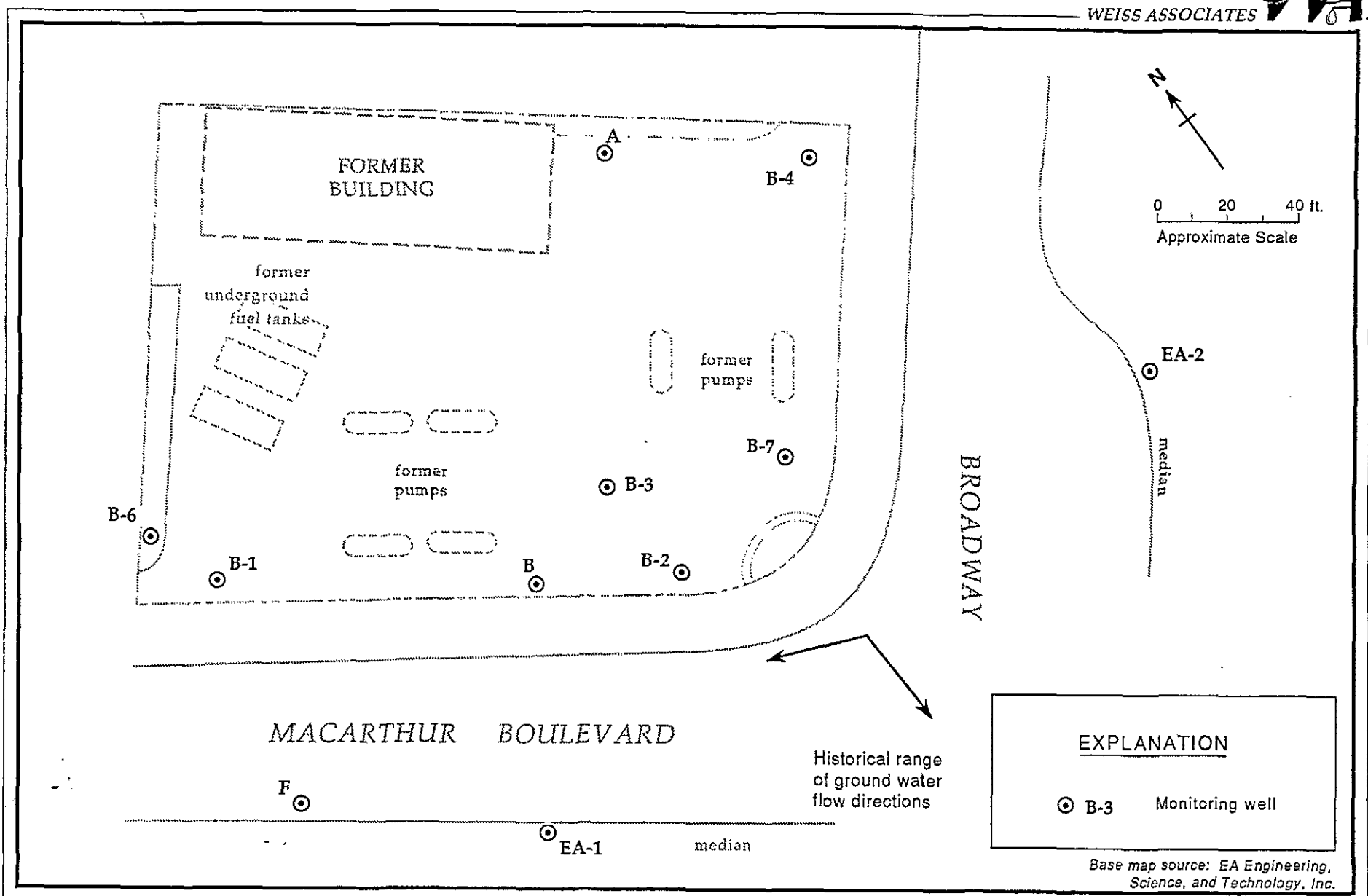
PROJECT: KAISER Oakland, California		Log of Well No. MW-6	
BORING LOCATION: Linen room, nearest east door		ELEVATION AND DATUM: 72.19 feet City of Oakland	
DRILLING CONTRACTOR: HEW/Schick		DATE STARTED: 1/27/91	DATE FINISHED: 1/27/91
DRILLING METHOD: 8" Hollow stem auger		TOTAL DEPTH: 10.5 feet	SCREEN INTERVAL: 4 - 9
DRILLING EQUIPMENT: Portable Holester		DEPTH TO WATER ATD: NA	CASING: 2" diameter SCH 40 PVC
SAMPLING METHOD: 2" Modified California (2"), standard pen (p)		LOGGED BY: D. Wuthrich	
HAMMER WEIGHT: Manual; ~35 lbs.	DROP: Manual; ~24 inches	RESPONSIBLE PROFESSIONAL: J.D. Gallinatti	REG. NO. CEG 1335

DEPTH (feet)	SAMPLES			DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	ANALYTICAL RESULTS (ppm)	WELL CONSTRUCTION DETAILS
	Sample No.	Sample	Blows/ Foot			
Surface Elevation:						
1				GRAVEL with SAND (GP) 4" concrete over dry, coarse, subangular to subrounded gravel, clasts to 1 1/2", ~10% medium to coarse sand		
2				SILTY CLAY (CH) Brownish yellow (10 YR 5/6), moist, clay and silt		
3				SILT with SAND (ML) Brownish yellow (10 YR 6/6) (with black mottling), moist silt, ~15% very fine, subangular sand, ~15% clay		
4						
5						
6	2"				PID=1.5	
6-1	6-1			Clay and silt, no sand	Mineral spirits <10	
7	2"			Silt, ~15% clay, no sand		
8	6-2				NA	
9	P			SILTY CLAY (CL) Yellowish brown (10 YR 5/6) (with black mottling), moist, clay and silt, blocky		
10	2"				Mineral spirits <10	
10	6-3					
11				Bottom of hole at 10.5 feet		
12						
13						
14						

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WELL COMPLETION REPORT
(WELL LOGS)

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Monitoring Well Locations - Former Chevron Service Station #9-1026, 3701 Broadway, Oakland, California

325190
15/40 29N1-2, 14

325190

15146W 2401-2, 14

WEISS ASSOCIATES

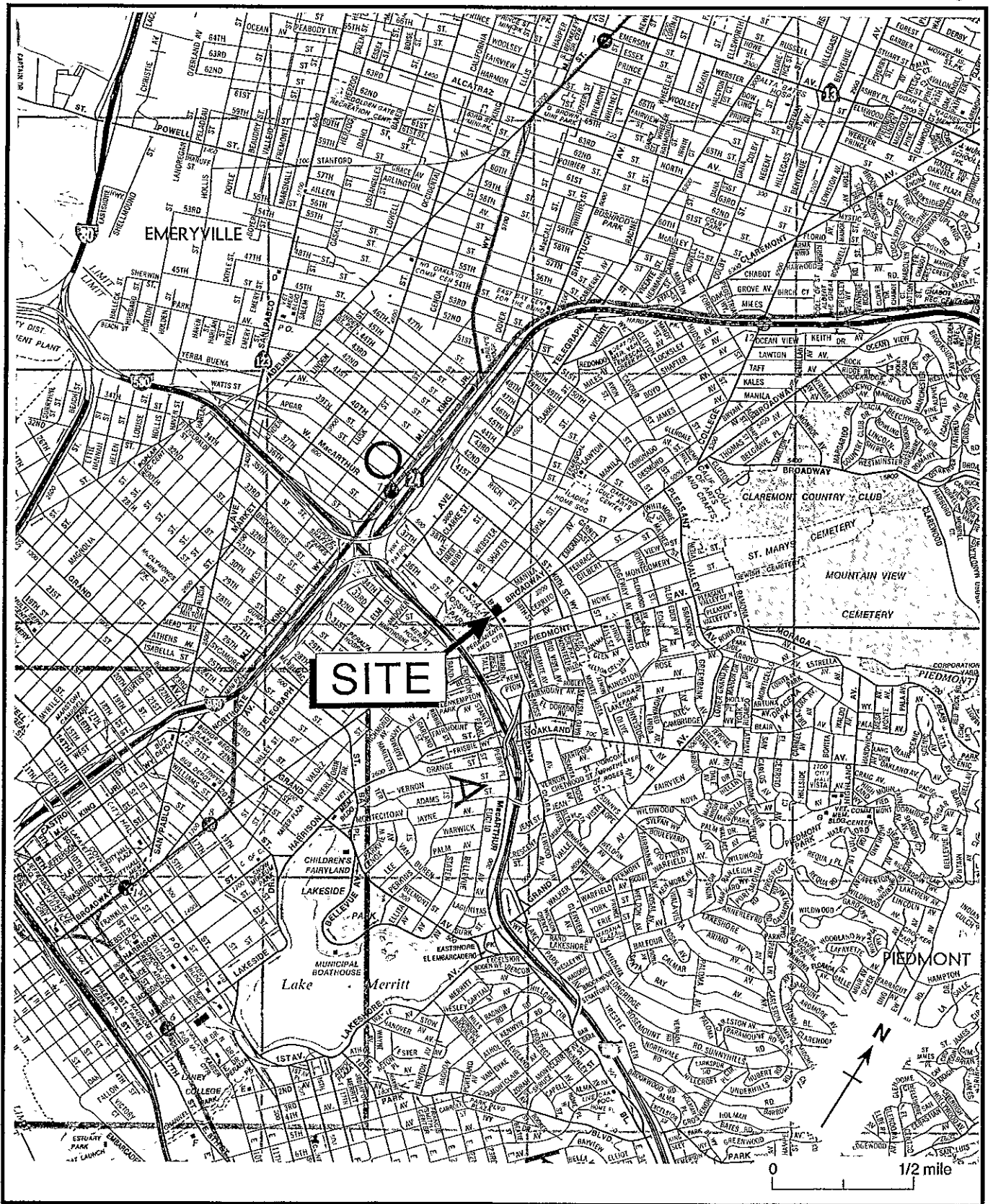


Figure 1. Site Location Map - Former Chevron Service Station #9-1026, 3701 Broadway, Oakland, California

325190

15/4W 24N1-2/14



WEISS ASSOCIATES

Geologic and Environmental Services

Fax: 415-547-5043

15/4W 24 N (132?)
Phone: 415-547-5420

5500 Shellmound Street, Emeryville, CA 94608

91287
PERMIT 91289

June 25, 1991

Ms. Nancy Vukelich
Chevron USA
P.O. Box 5004
San Ramon, CA 94583-0804

Re: Former Chevron Service Station #9-1570
3701 Broadway
Oakland, California
WA Job #4-418-01

Dear Ms. Vukelich:


This letter documents Weiss Associates' (WA) destruction of monitoring wells B-6 and B-7, and the reconstruction of monitoring well B at the site referenced above. The well destruction and reconstruction activities were performed by Soils Exploration Services of Vacaville, California (license No. C-57 582696) under the direction of WA Staff Geologist Robert E. Kitay and the supervision of James W. Carmody, Certified Engineering Geologist No. 1576.

Monitoring wells B-6 and B-7, constructed of corrugated steel casing, were destroyed by pressure grouting Portland Type I,II cement mixed with 3 to 5% bentonite powder by volume into the wells. The upper portions of the corrugated steel casings could not be removed and were left in place. Therefore, we extended the grout to the ground surface and completely sealed the existing concrete vaults with neat cement.

15/4W 24N/4

Monitoring well B was reconstructed by installing a smaller diameter casing inside the existing 12-inch diameter well. The new well was screened with 4-inch diameter 0.02-inch slotted schedule 40 PVC casing from 15 to 35 ft depth. The upper 15 ft of well consists of 4-inch diameter blank PVC casing. The annular space between the existing and the new well was filled with #3 Lonestar Monterey sand from 13 to 35 ft depth, a hydrated bentonite layer from 11 to 13 ft depth, and a sanitary seal consisting of Portland Type I, II cement mixed with 3 to 5% bentonite powder by volume from 11 ft to the ground surface. The existing concrete vault was not changed since this well may be used for ground water extraction and the wellhead and vault may be modified in the future.

325190

1514W 24N14
1514W 24N1-2
WEISS ASSOCIATES 

Ms. Nancy Vukelich
June 25, 1991

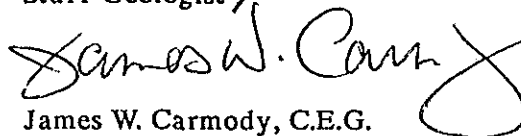
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We are pleased to provide hydrogeologic consulting services to Chevron and trust that this letter meets your needs. If you have any questions, please feel free to call.

Sincerely,
Weiss Associates,



Robert E. Kitay
Staff Geologist



James W. Carmody, C.E.G.
Senior Project Hydrogeologist

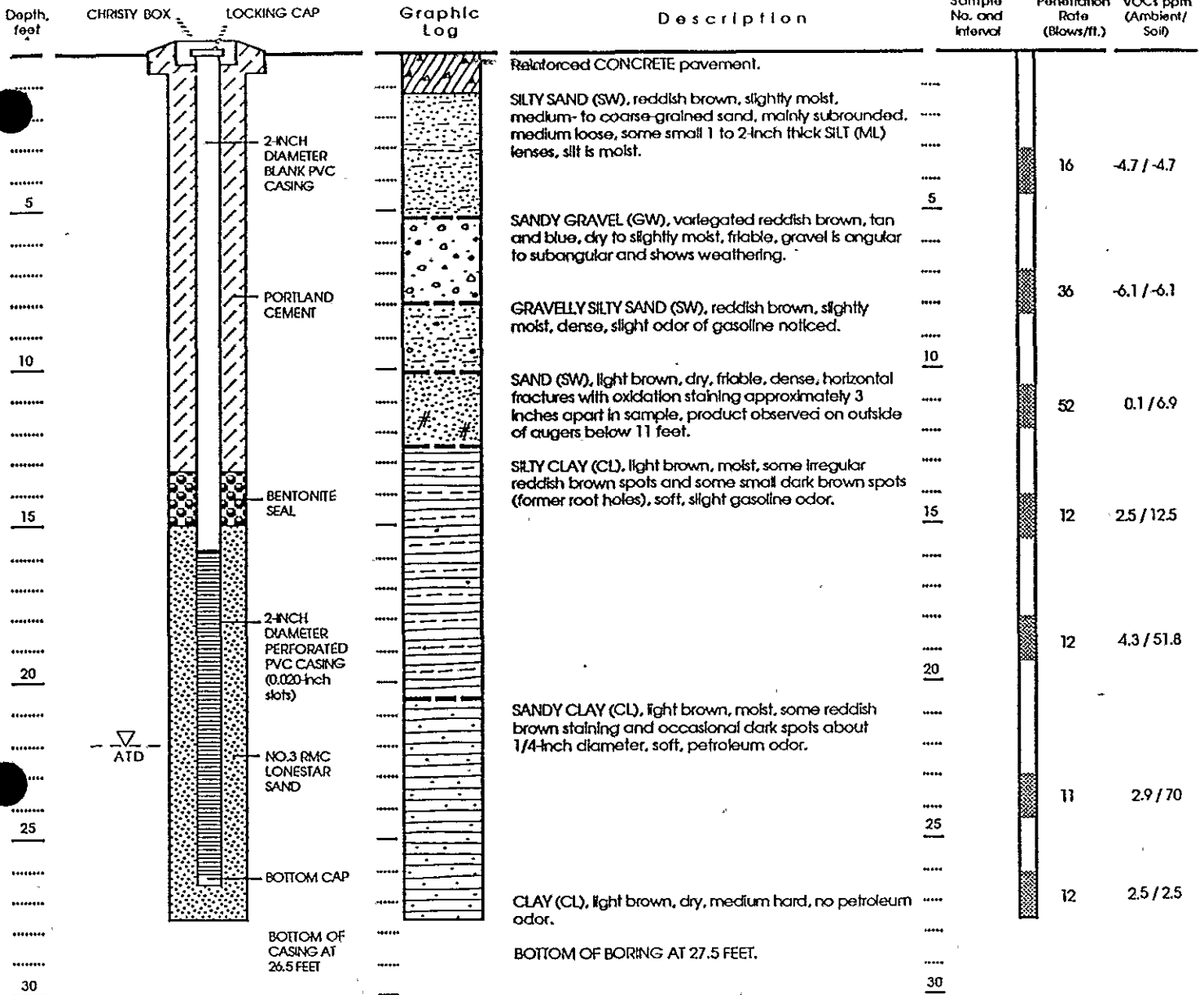
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cc: Mr. Wyman Hong, Alameda County Flood Control and Water Conservation District -
Zone 7, 5997 Parkside Drive, Pleasanton, CA 94588

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED



Well Permif No. 89505

Date well drilled: 30 September 1989

Date water level measured:

Well elevation: 98,405 feet

LF Geologist: John Sturman

EXPLANATION

- Clay
- Silt
- Sand
- Gravel
- Modified California Sampler
- ATD At Time of Drilling

Approved by: *[Signature]*
RG 4605

Figure : WELL CONSTRUCTION AND LITHOLOGY FOR WELL MW-1

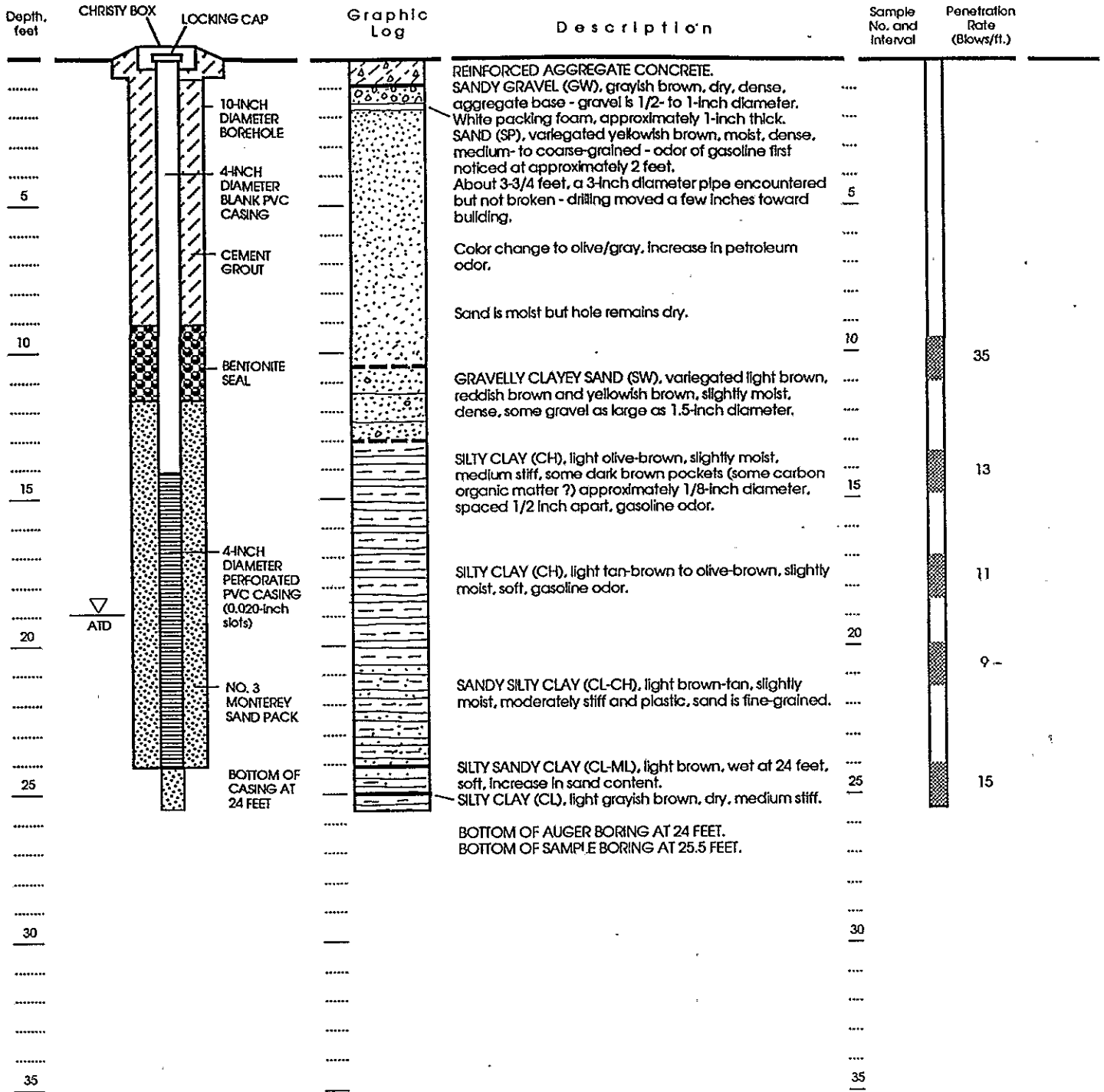
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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

405229

ALS of W 2/1/16



EXPLANATION

- Clay
- Silt
- Sand
- Gravel

Date well drilled: December 16, 1990
 Well elevation: 18.46 feet
 Hammer weight: 140 lbs/30-inch
 LF Geologists: John Sturman & Ron Golubow

Modified California Sampler

Water level at time of drilling

Approved: RG #4605

Figure : WELL CONSTRUCTION AND LITHOLOGY FOR WELL LF-5

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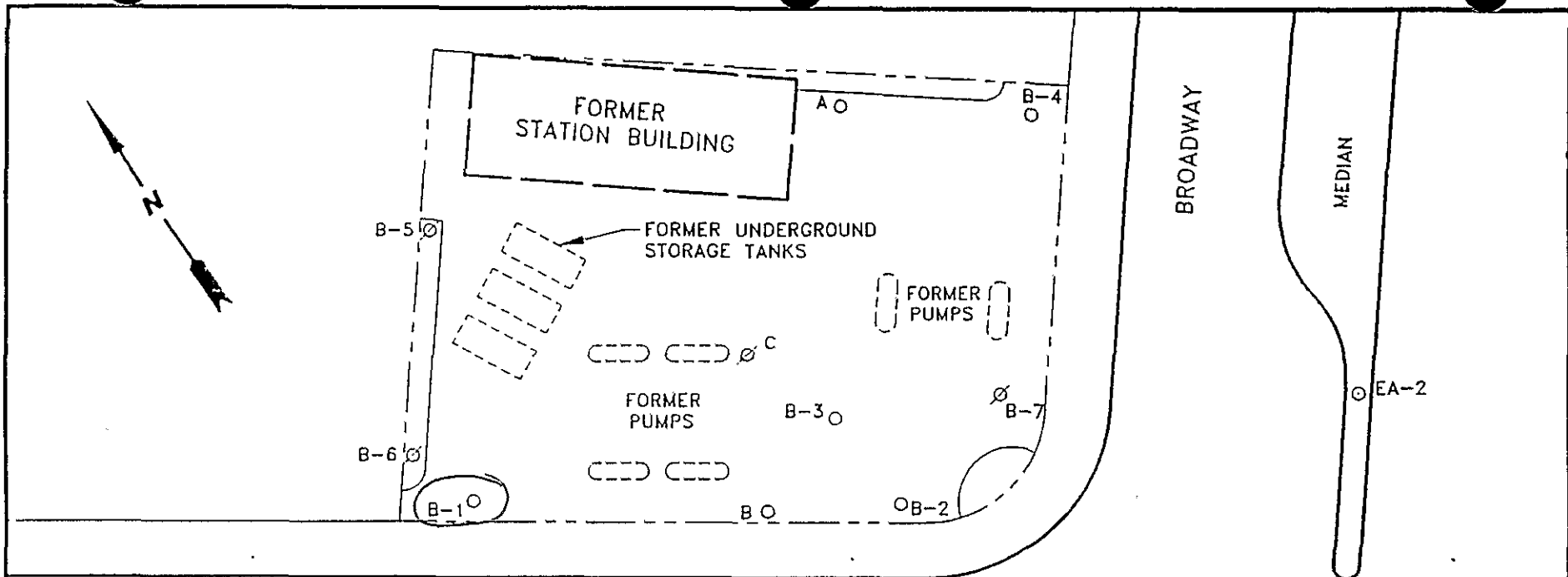
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

P. 2 of 4

403108


1S/AW
TW
CSY



LEGEND

- MONITORING WELL
- Ø ABANDONED WELL



 GROUNDWATER TECHNOLOGY				4057 PORT CHICAGO HWY CONCORD, CA 94520 (510) 671-2387		SITE PLAN			
CLIENT: CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-1026				LOCATION: 3701 BROADWAY OAKLAND, CALIFORNIA		REV. NO.: 0	DATE: 12/28/92		
PM <i>JAW</i>	PE/RG <i>ORK</i>	DESIGNED TW	DETAILED CSY	ACAD FILE: SP1292		PROJECT NO.: 020202782		FIGURE: 2	



GROUNDWATER
TECHNOLOGY

Drilling Log

Monitoring Well B-1

Project CHV/3701 Broadway Owner Chevron U.S.A. Products Co.
 Location Oakland, California Project No. 02320 2782 Date drilled 10/28/92
 Surface Elev. 72.67 ft. Total Hole Depth 35.5 ft. Diameter 8.5 inches
 Top of Casing 72.30 ft. Water Level Initial 15 ft. Static 14.30 ft.
 Screen: Dia 4 in. Length 25 ft. Type/Size 0.020 in.
 Casing: Dia 4 in. Length 10 ft. Type SCH 40 PVC
 Filter Pack Material Clementia #3 sand Rig/Core Type Mobile B-61
 Drilling Company Kvilhaug Well Drilling Method Hollow Stem Auger Permit # 92285
 Driller Rod Furlow Log By Jason Fedota
 Checked By David Kleesattel License No. RG# 5136 *David Kleesattel*

See Site Map
For Boring Location

COMMENTS:
The well was originally 20 feet deep. The well was extended to 35.5 feet below grade. No soil samples were collected from 0 to 20 feet.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						Pulled 20-feet of casing from B-1. No grout in hole. Dark gray to black CLAY
2						
4						Brown silty CLAY
6						
8						
10						
12					CL	
14						
16						
18						
20						Very strong odors, measured 175 parts per million (ppm) with photo-ionization detector (PID) in work area, put on respirators. Gray green silty CLAY (grades brown)
22						
24						

P. 4 of 4

403108

15/4w 24N 17

Drilling Log

Monitoring Well B-1



GROUNDWATER
TECHNOLOGY

Project CHV/3701 Broadway Owner Chevron U.S.A. Products Co.
Location Oakland, California Project No. 02320 2782 Date drilled 10/28/92

Depth (ft.)	Well Completion	PID (ppm)	Sample ID/ Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	
24	[Well Completion Diagram]			[Graphic Log Diagram]		(thin gravel interbed at 24.5 to 25 feet)	
25			15 25 30		CL	Light brown CLAY (saturated, firm, trace black organic clasts)	
26							
28							Work area readings with PID to 12 ppm, respirators removed. Light brown silty, sandy CLAY (saturated, firm)
30					25 50 54	CL	
32							
34							
35					SM	Brown silty fine sand (saturated)	
36						End of boring. Constructed monitoring well.	
38							
40							
42							
44							
46							
48							
50							
52							
54							
56							

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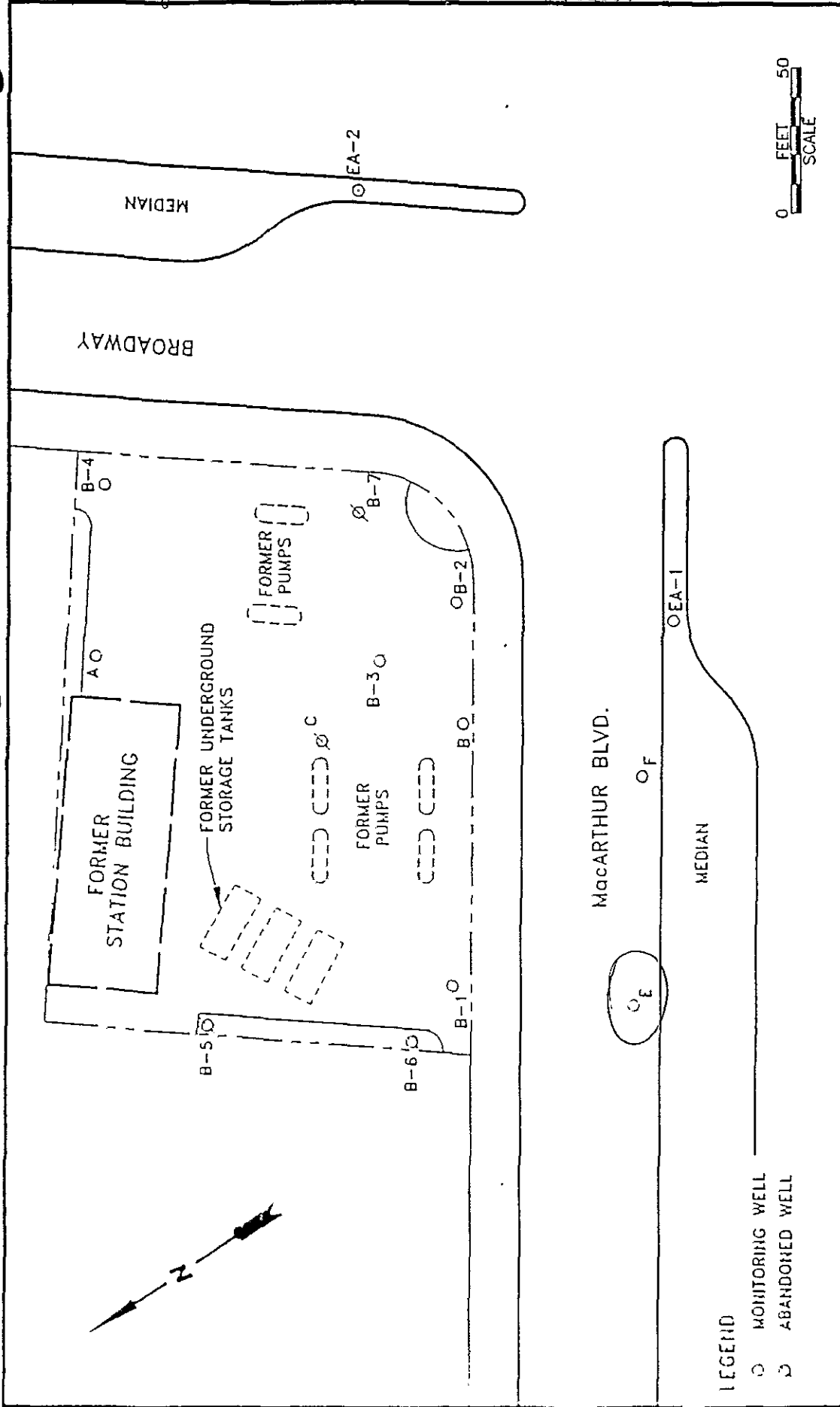
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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P. 2 of 4

403110

15/4W 2AN 18



SITE PLAN			
	GROUNDWATER TECHNOLOGY 4057 PORT CHICAGO HWY CONCORD, CA 94520 (510) 671-2387		LOCATION: 3701 BROADWAY OAKLAND, CALIFORNIA
	CLIENT: CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-1026	PE/RC <i>JAW</i>	DESIGNED TW
PM <i>JAW</i>	REV. NO.: 0	DATE: 12/28/92	PROJECT NO.: 020202782
			FIGURE: 2

- LEGEND**
- MONITORING WELL
 - ⊙ ABANDONED WELL

15/4W 24N18
Monitoring Well MW-E



GROUNDWATER TECHNOLOGY

Drilling Log

Monitoring Well MW-E

Project CHV/3701 Broadway Owner Chevron U.S.A. Products Co.
 Location Oakland, California Project No. 02320 2782 Date drilled 10/14/92
 Surface Elev. 70.53 ft. Total Hole Depth 35 ft. Diameter 8.5 inches
 Top of Casing 70.07 ft. Water Level Initial NA Static 12.2 ft.
 Screen: Dia 2 in. Length 15 ft. Type/Size 0.020 in.
 Casing: Dia 2 in. Length 20 ft. Type SCH 40 PVC
 Filter Pack Material Clementia #3 sand Rig/Core Type Mobile B-51
 Drilling Company Kvilhaug Well Drilling Method Hollow Stem Auger Permit # 92285
 Driller Mike Crocker Log By Craig Robertson
 Checked By David Kleesattel License No. RG# 5136 *David Kleesattel*

See Site Map For Boring Location

COMMENTS:

Original well was 20-foot deep. Lithology is from original boring by Kleinfelder & Associates, Groundwater Monitoring Well Installation Report, Candie's Chevron Station, Oakland, California April 6, 1982.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						This well is a replacement for the original "E" well. The original well was abandoned by extracting the casing and reaming out the annulus. The boring was then extended to 35 feet and a monitoring well constructed as shown in the well completion diagram.
2					CH	
4						
6						Dark brown silty CLAY (trace of fine sand, moist and medium stiff) Grades yellow brown
8					CL	
10						
12						Hard drilling through stiff clay at 11 to 12 feet
14						
16					SC	Yellow to olive brown fine sandy CLAY to clayey SAND (saturated and medium dense)
18						
20						
22						
24						The extended portion of the soil boring was not logged.

Drilling Log

Monitoring Well MW-E



GROUNDWATER TECHNOLOGY

Project CHV/3701 Broadway Owner Chevron U.S.A. Products Co.
Location Oakland, California Project No. 02320 2782 Date drilled 10/14/92

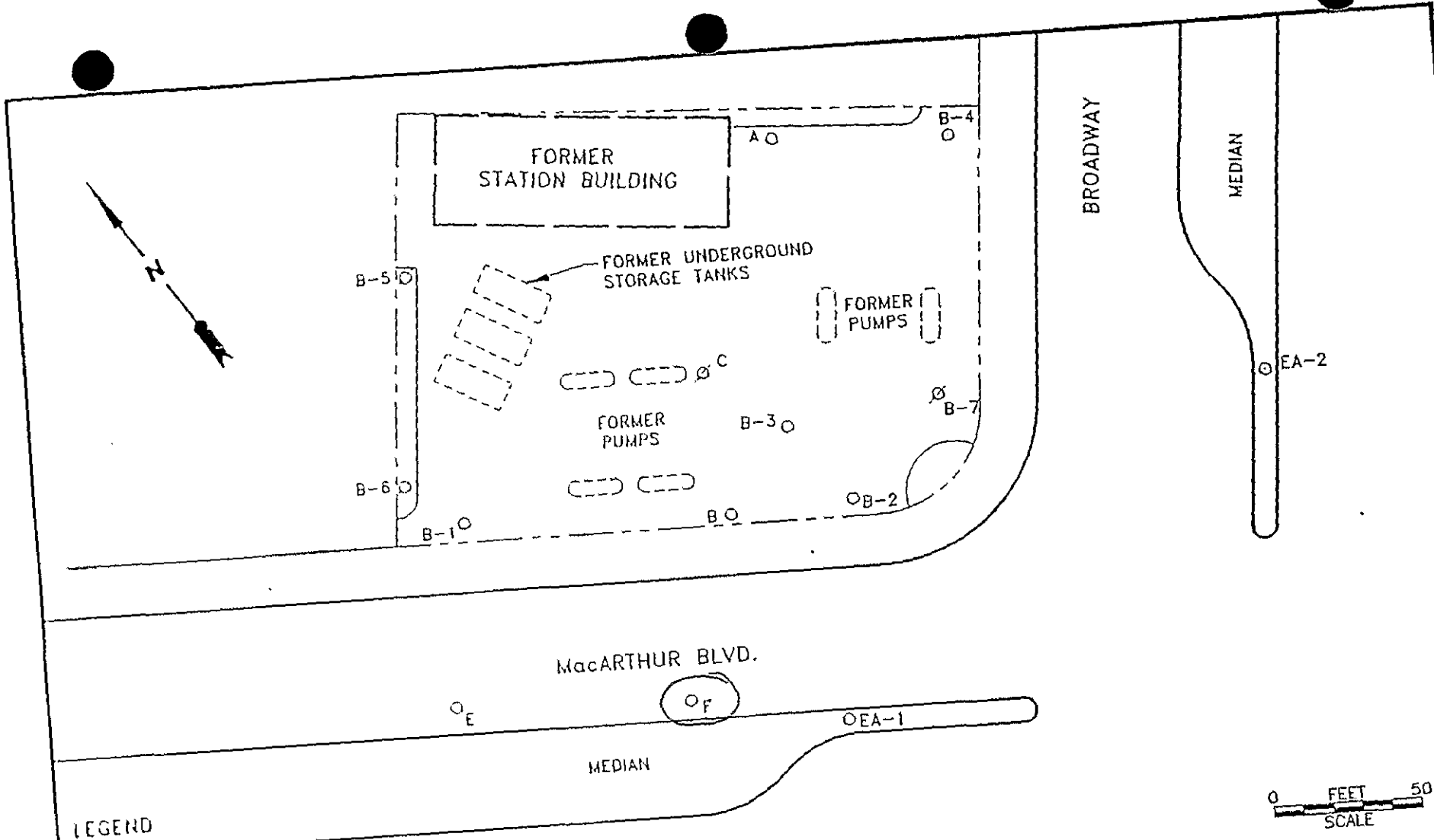
Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	
24							
26							
28							
30							
32							
34							
35							
36							
38							
40							
42							
44							
46							
48							
50							
52							
54							
56							

End of boring. Constructed monitoring well.

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED



P. J. 2084

403109

LEGEND
 ○ MONITORING WELL
 ◻ ABANDONED WELL

GROUNDWATER TECHNOLOGY				4057 PORT CHICAGO HWY CONCORD, CA 94520 (510) 671-2387		
CLIENT: CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-1026			LOCATION: 3701 BROADWAY OAKLAND, CALIFORNIA		REV. NO.: 0	DATE: 12/28/92
PM <i>JAW</i>	PE/RG <i>ARK</i>	DESIGNED TW	DETAILED CSY	ACAD FILE: SP1292	PROJECT NO.: 020202782	FIGURE: 2

15/4w 24 N 19

P-3 of 4

403109

15/4w 24N 19

Drilling Log

Monitoring Well MW-F



GROUNDWATER
TECHNOLOGY

Project CHV/3701 Broadway Owner Chevron U.S.A. Products Co.
 Location Oakland, California Project No. 02320 2782 Date drilled 10/14/92
 Surface Elev. 72.45 ft. Total Hole Depth 30 ft. Diameter 8.5 inches
 Top of Casing 71.72 ft. Water Level Initial NA Static 14.85 ft.
 Screen: Dia 2 in. Length 15 ft. Type/Size 0.020 in.
 Casing: Dia 2 in. Length 15 ft. Type SCH 40 PVC
 Filter Pack Material Clementia #3 sand Rig/Core Type Mobile B-51
 Drilling Company Kvilhaug Well Drilling Method Hollow Stem Auger Permit # 92285
 Driller Mike Crocker Log By Craig Robertson
 Checked By Dave Kleesattel License No. RG# 5136 *Dave Kleesattel*

See Site Map
For Boring Location

COMMENTS:

Original well was 20 feet deep. Lithology is from original boring by Kleinfelder & Associates, Groundwater Monitoring Well Installation Report, Candie's Chevron Station, Oakland, California April 6, 1982.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						This well is a replacement for the original well identified as MW-F on the site map. The original well was abandoned by extracting the casing and reaming out the annulus. The boring was then extended to 30 feet and a monitoring well constructed as shown in the well completion diagram.
2					CL	Dark brown silty CLAY (trace of fine sand, moist and stiff)
4						
6						
8						
10					CL	Light brown silty CLAY (fine sand, moist and stiff)
12						
14						
16						
18					SC	Yellow brown sandy CLAY to clayey SAND (very moist to saturated)
20						
22						
24						The extended portion of the soil boring was not logged.

4
P. 3 + 4

403109

IS/KW 2A N 19



GROUNDWATER
TECHNOLOGY

Drilling Log

Monitoring Well MW-F

Project CHV/3701 Broadway Owner Chevron U.S.A. Products Co.
Location Oakland, California Project No. 02320 2782 Date drilled 10/14/92

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ & Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24						
26						
28						
30						
32						
34						
36						
38						
40						
42						
44						
46						
48						
50						
52						
54						
56						

End of soil boring. Constructed monitoring well.

120077

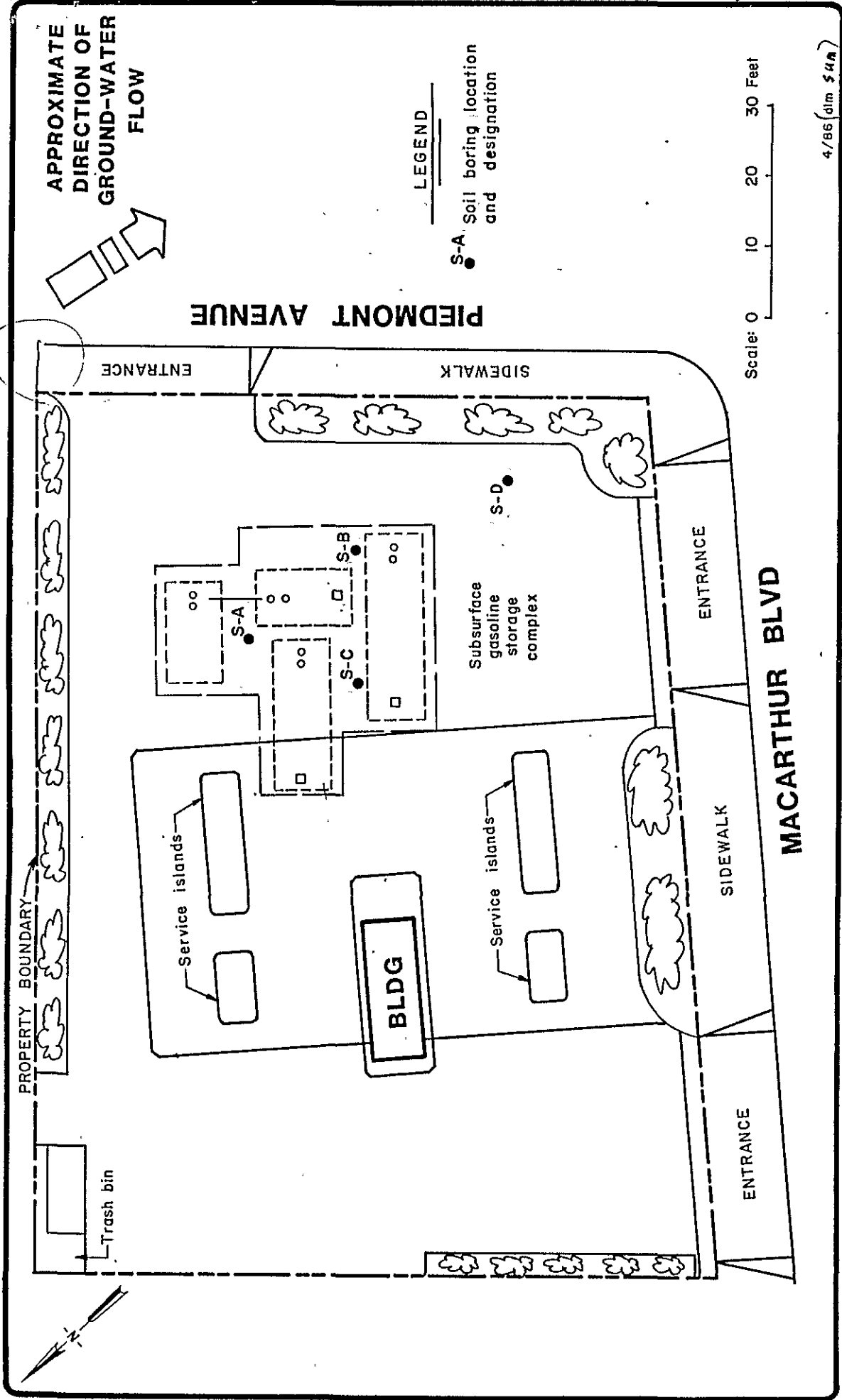


FIGURE 1
PROJECT NO. 800-41.01

GETTLER-RYAN INC.
SUBSURFACE HYDROGEOLOGIC INVESTIGATION
SHELL STATION, 230 MACARTHUR BLVD
OAKLAND, CALIFORNIA

SITE PLAN

EMCON
Associates

DRILLER: BAYLAND

LOG OF EXPLORATORY BORING

PROJECT NUMBER 800-41.01

BORING NO. S-A

PROJECT NAME Gettler-Ryan, Shell, 230 MacArthur Blvd, Oakland PAGE 1 OF 1

BY MF DATE 4/14/86

SURFACE ELEV. 75±

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				0			ASPHALT and GRAVEL - Fill.
				3	1	GP	GRAVEL - Fill; dark olive gray (5Y, 3/2); pea gravel; trace fine sand; trace fines; loose; moist to wet; moderate product odor.
				10	2	SP	SAND - Fill; dark olive gray (5Y, 3/2); fine grained; trace coarse sand; trace gravel; loose; moist; strong product odor.
	2.5	29		13.2	3	ML	SILT; gray (5Y, 5/1); slightly clayey; very stiff; wet; strong product odor.
				15	4	ML/SW-GW	SANDY SILT and GRAVELLY SAND to SANDY GRAVEL - Interbedded; moist to wet; moderate product odor; SILT: dark brown (10YR, 4/3); 10-20% medium to coarse sand; hard; GRAVELLY SAND to SANDY GRAVEL olive (5Y, 4/4); fine to coarse grained; 30-60% fine to medium gravel; very dense.
				20	5	CL-ML	CLAY to SILT: pale brown (10YR, 6/3); very clayey; hard; moist to wet; no product odor.
2.7		48		20			BOTTOM OF BORING AT 20½ FEET.

REMARKS Drilled by 5-inch continuous-flight, solid-stem auger to 3 feet. 8-inch hollow-stem auger to total depth: samples collected with 2-inch California modified split-spoon sampler. Borehole backfilled with bentonite to 16 feet, soil cuttings to ½ foot, concrete to surface.



GP# 86077

01-141B

DRAFT 15/4W24P

LOG OF EXPLORATORY BORING

PROJECT NUMBER 800-41.01

BORING NO. S-B

PROJECT NAME Gettler-Ryan, Shell, 230 MacArthur Blvd., Oakland

PAGE 1 OF 1

BY MF DATE 4/14/86

SURFACE ELEV. 75±

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				0			ASPHALT and GRAVEL-FILL.
				5			
				6	1		SAND-FILL; dark olive gray (5Y, 3/2) with greenish hue; fine to medium grained; loose; moist to wet; strong product odor
				9	2		@8': 5-10% coarse grained sand; strong product odor.
				10			@10': visible product in auger returns. SILT; gray (5Y, 5/1); slightly clayey; stiff; moist; faint product odor.
	1.5	74	▽ 13.8'		3		SILT and SAND-Interbedded; olive (5Y, 4/4); wet; strong product odor; SILT: as above; SAND: fine to medium grained; 5-15% gravel; very dense.
				15			@17': gravel layer.
				20	4		CLAY to SILT; pale brown (10YR, 6/3); very clayey; hard; wet; no product odor. BOTTOM OF BORING AT 20 FEET.

REMARKS Drilled by 5-inch continuous-flight, solid-stem auger to 4 feet, 8-inch hollow-stem auger to total depth; samples collected with 2-inch California modified split-spoon sampler. Borehole backfilled with bentonite to 18 feet, soil cuttings; to 1/2 foot, concrete to surface.



DRILLER:

PLATE B

LOG OF EXPLORATORY BORING

PROJECT NUMBER 800-41.01

BORING NO. S-C

PROJECT NAME Gettler-Ryan, Shell, 230 MacArthur Blvd., Oakland PAGE 1 OF 1

BY MF DATE 4-14-86

SURFACE ELEV. 75±

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				0		ASPHALT and GRAVEL-FILL.	
					SP		SAND-FILL; yellowish brown (10YR, 5/6); fine grained; 5% medium grained; loose; moist; no product odor.
	3.5	60		5	1		SANDY SILT; dark brown (10YR, 4/3); 10-20% medium to coarse sand; very stiff; moist; slight product odor. @7': 5-15% sand; very stiff; faint product odor.
	2.5	50			2		
	2.1	62		10	3	ML/SW-GW	SANDY SILT and GRAVELLY SAND to SANDY GRAVEL-Interbedded; olive (5Y, 4/4); moist; moderate product odor. SANDY SILT: as above; GRAVELLY SAND to SANDY GRAVEL: fine to coarse grained; 30 to 60% fine to medium gravel; very dense. @13½': wet; moderate product odor.
	2.5	54		15	4		@16': augers covered with product film.
	2.3	65		20	5	CL-ML	CLAY to SILT; grayish brown (10YR, 5/2); very silty; hard; very stiff; no product odor. BOTTOM OF BORING AT 20 FEET.

REMARKS Drilled by 5-inch continuous-flight, solid-stem auger to 4 feet, 8-inch hollow-stem auger to total depth; samples collected with 2-inch California modified split-spoon sampler. Borehole backfilled with bentonite to 12 feet, soil cuttings to ½ foot, concrete to surface.



DRILLER: BAYLAND

PLATE C



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EXPLORATORY BORING LOG

IS 14W 24P7
01-445J Page 1 of 2

PROJECT NAME: Shell Oil Company
230 MacArthur Blvd.
Oakland, CA

BORING NO. MW-4

DATE DRILLED: 1/9/90

PROJECT NUMBER: 1847-2G

LOGGED BY: J.M.

DEPTH (ft.)	SAMPLE No	BLOYS/FOOT	UNIFIED SOIL CLASSIFICATION	SOIL DESCRIPTION	WATER LEVEL	OYA READING ppm
1	MW-4-1	64	CL	SANDY CLAY, light olive brown (2.5Y 5/6), 30-40% rounded to subangular fine to medium grained sand, ~ 10% coarse gravel to 2", iron stain, black mottling, hard, very low plasticity, dry to damp		0
2						
3						
4						
5						
6						
7	MW-4-2	40	SW	SAND, light olive brown (2.5Y 5/6), fine to medium grained sand, 30% clay, rounded to subangular, poorly sorted, medium dense		0
8						
9						
10						
11	MW-4-3	27	CL	SANDY CLAY, light olive brown (2.5Y 5/6), 35-45% sand, rounded to subangular, fine to medium grained, iron stain, very stiff, low plasticity, damp Silty lenses		0
12						
13						
14	MW-4-3	27	SP	SAND, olive gray (5Y 4/2), fine to medium grained sand, well sorted, rounded to subrounded, some iron stain, clay 10-20%, silt 10-20%, loose, moist		0
15						
16	MW-4-4	33	CL	SILTY CLAY, brown (10YR 5/3), silt ~ 40%, black and gray mottling, iron stain, root holes and organic matter, very stiff, low plasticity, moist to damp		0
17						
18						
19						
20						
21						

REVIEWED BY R.G./C.E.G.

Driller: Enesco

EXPLORATORY BORING LOG

01-445J Page 2 of 2



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environmental
services, Inc.

PROJECT NAME: Shell Oil Company
230 MacArthur Blvd.
Oakland, CA

BORING NO. MW-4

DATE DRILLED: 1/9/90

PROJECT NUMBER: 1847-2G

LOGGED BY: J.M.

DEPTH (ft.)	SAMPLE No	BLOWS/FOOT	UNIFIED SOIL CLASSIFICATION	SOIL DESCRIPTION	WATER LEVEL	OVM READING ppm
22						
23						
24			CL	same as above		
25	MW-4-5	33				0
26				Bottom of Boring = 25.5 feet		
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						
41						
42						

REVIEWED BY R.G./C.E.G.

Monitoring Well Detail

01-445J

PROJECT NUMBER 1847-2G
 PROJECT NAME Shell -Oakland
 COUNTY Alameda
 WELL PERMIT NO. 90116

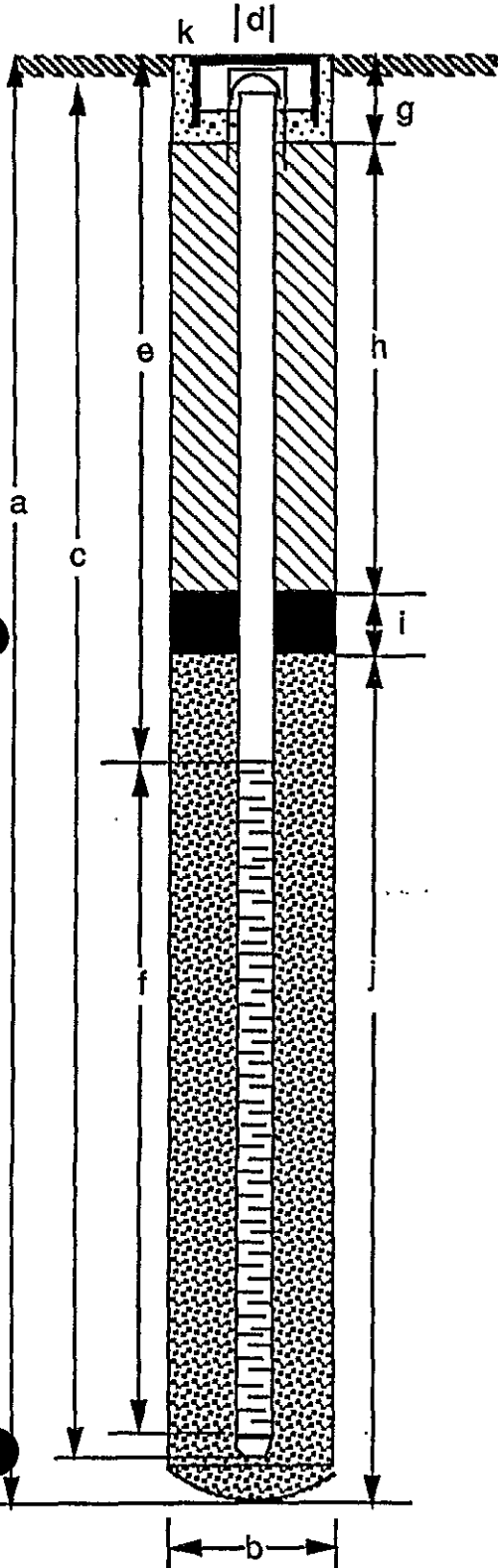
BORING / WELL NO. MW-4
 TOP OF CASING ELEV. 73.83
 GROUND SURFACE ELEV. 74.46
 DATUM 72.96

EXPLORATORY BORING

- a. Total depth 25.5 ft.
 b. Diameter 12 in.
 Drilling method Hollow stem auger

WELL CONSTRUCTION

- c. Casing length 25 ft.
 Material schedule 40 PVC
 d. Diameter 4 in.
 e. Depth to top perforations 15 ft.
 f. Perforated length 10 ft.
 Perforated interval from 15 to 25 ft.
 Perforation type slotted screen
 Perforation size 0.020 in.
 g. Surface seal 1 ft.
 Seal material concrete
 h. Backfill 12 ft.
 Backfill material neat cement grout
 i. Seal 1 ft.
 Seal material bentonite
 j. Gravel pack 11 ft.
 Pack material clean sand
 k. _____

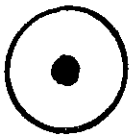


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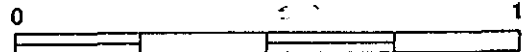
01-4455



LEGEND:




SITE LOCATION



SCALE IN MILES

BASE: USGS 7.5 MINUTE TOPOGRAPHIC SHEET

 <p>ensco environmental services, inc.</p>	SITE LOCATION MAP		REVIEWED BY:	APPROVED BY:
	SHELL SERVICE STATION		<i>K.P.</i>	<i>TAB</i>
	230 MacARTHUR BOULEVARD		JOB #: 1847G	DRAWN BY: SLS
	OAKLAND, CALIFORNIA		DATE: 9-16-88	DRAWING #: FIG: 1



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EXPLORATORY BORING LOG

PROJECT NAME: Shell Oil Company
230 MacArthur, Oakland

01-445K
1S/4W 24P

BORING NO. SB1

DATE DRILLED: 8/16/89

PROJECT NUMBER: 1847-2G

8" diam

LOGGED BY: K.P.

DEPTH (ft.)	SAMPLE No	BLOWS/FOOT	UNIFIED SOIL CLASSIFICATION	SOIL DESCRIPTION	WATER LEVEL	OVA READING ppm
1				6 inches concrete		
				1 foot baserock		
2			GC	CLAYEY GRAVEL		
3						
4						
5	SB1-1	64	CL	SILTY CLAY, mottled reddish yellow (7.5YR 7/6) and light gray (7.5YR 7/0), iron oxide discoloration, minor organics, dry to damp, very dense		7
6						
7						
8						
9						
10	SB1-2	57	CL	SILTY CLAY, mottled gray (7.5YR 6/0) with pink (7.5YR 7/4), very dense		79
11						
12						
13						
14						
15	SB1-3	41	SM	SILTY SAND, gray (5Y 5/1), fine to medium grained, minor gravel, minor clay, dense, moist		80
16						
17				Bottom of boring = 15.5 feet		
18						
19						
20						
21						

REVIEWED BY R.G./C.E.G.



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EXPLORATORY BORING LOG

PROJECT NAME: Shell Oil Company
230 MacArthur, Oakland

01-445L
15/4W 24P
BORING NO. SB2
DATE DRILLED: 8/16/89

PROJECT NUMBER: 1847-2G

8" diam

LOGGED BY: K.P.

DEPTH (ft.)	SAMPLE No	BLOWS/FOOT	UNIFIED SOIL CLASSIFICATION	SOIL DESCRIPTION	WATER LEVEL	OVA READING ppm
1				4 inches Concrete		
				1 foot baserock		
2			GC	CLAYEY GRAVEL, dark gray (7.5YR 4/0), angular to subangular, up to 2 inches in length		
3						
4						
5						
6	SB2-1	57	G C-CL	CLAYEY GRAVEL to CLAY, mottled dark gray (7.5YR 4/0) with iron oxide stains, very dense, minor organics in clay		2.3
7						
8						
9						
10						
11	SB2-2	40	CL	CLAY, mottled gray (2.5Y 6/0) and pale yellow (2.5Y 7/4), minor organics, dense		9.2
12						
13						
14						
15						
16	SB2-3	79	GM	GRAVEL, poorly graded, angular to subangular, up to 1.5 inches in length, very dense		278
17				Bottom of boring = 16.0 feet		
18						
19						
20						
21						

REVIEWED BY R.G./C.E.G.



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EXPLORATORY BORING LOG

PROJECT NAME: Shell Oil Company
230 MacArthur, Oakland

01-445M
1S/4W 24P

BORING NO. SB3

DATE DRILLED: 8/16/89

PROJECT NUMBER: 1847-2G

8" diam

LOGGED BY: K.P.

DEPTH (ft.)	SAMPLE No	BLOWS/FOOT	UNIFIED SOIL CLASSIFICATION	SOIL DESCRIPTION	WATER LEVEL	OVA READING ppm
1				4 inches Asphalt		
2				1 foot baserock		
3						
4						
5	SB3-1	60	CL	SILTY CLAY, yellowish brown (10YR 5/4), minor grained, minor organics, very dense, dry to damp		6.8
6				Gravel lens at 6-7 feet		
7						
8						
9						
10	SB3-2	62	CL	CLAY with minor sand, mottled pale yellow (2.5YR 7/4) and gray (2.5Y 6/0), dry to damp, very dense		0.9
11						
12						
13						
14						
15	SB3-3	44	S M	SILTY SAND, mottled pale yellow (2.5Y 7/4) and gray (2.5Y 6/0), fine to medium grained, minor fine gravel, moist, dense		8.0
16						
17						
18				Bottom of boring = 15.5 feet		
19						
20						
21						

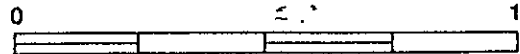
REVIEWED BY R.G./C.E.G.



LEGEND:



SITE LOCATION



SCALE IN MILES

BASE: USGS 7.5 MINUTE TOPOGRAPHIC SHEET



SITE LOCATION MAP

**SHELL SERVICE STATION
230 MacARTHUR BOULEVARD
OAKLAND, CALIFORNIA**

REVIEWED BY: <i>R.P.</i>	APPROVED BY: <i>7/18</i>
JOB #: 1847G	DRAWN BY: SLS
DATE: 9-16-88	DRAWING #: FIG: 1

01-454K

1514W 24N6

WELL CONSTRUCTION

LITHOLOGY

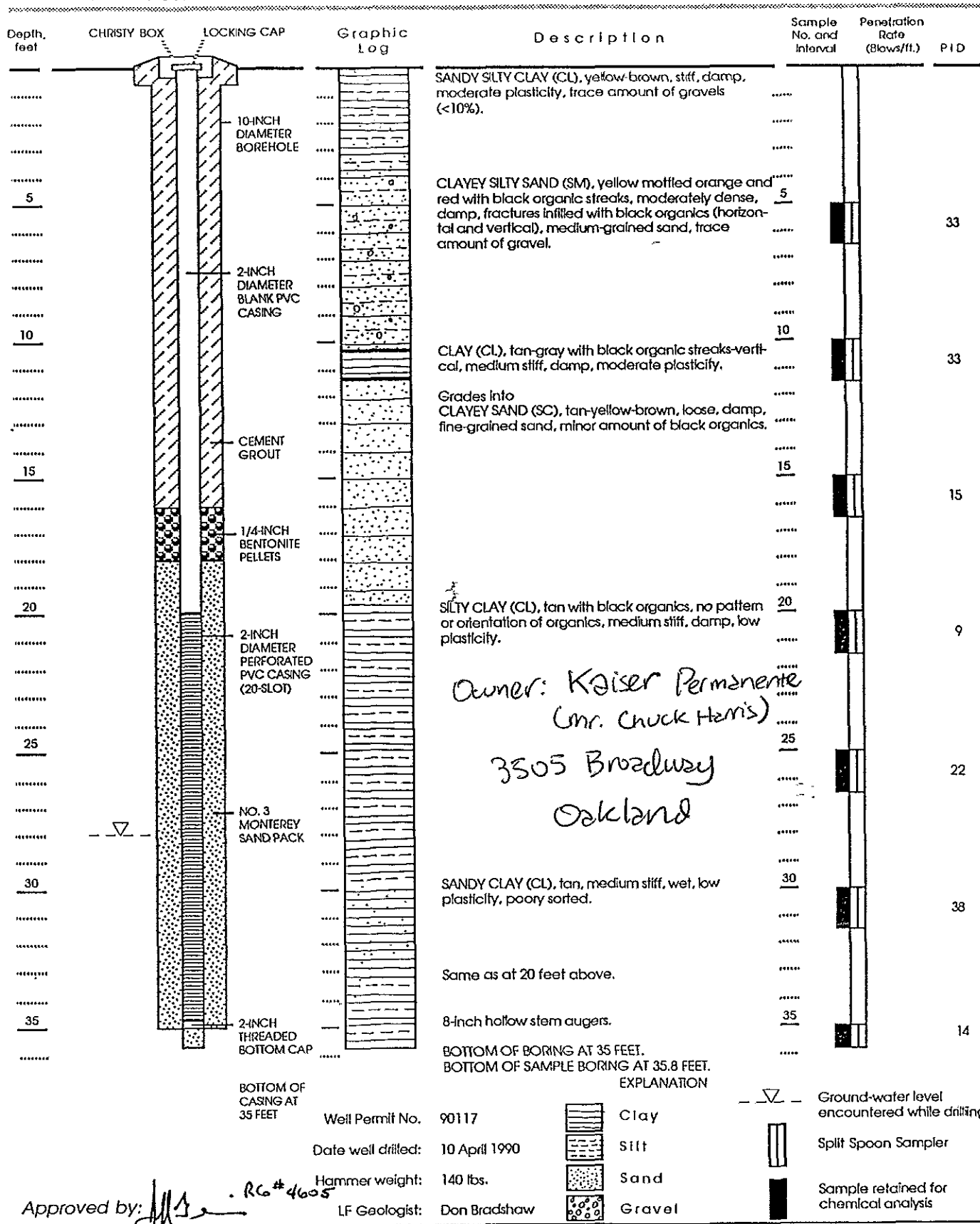


Figure : WELL CONSTRUCTION AND LITHOLOGY FOR WELL MW-4

Project No. 1547

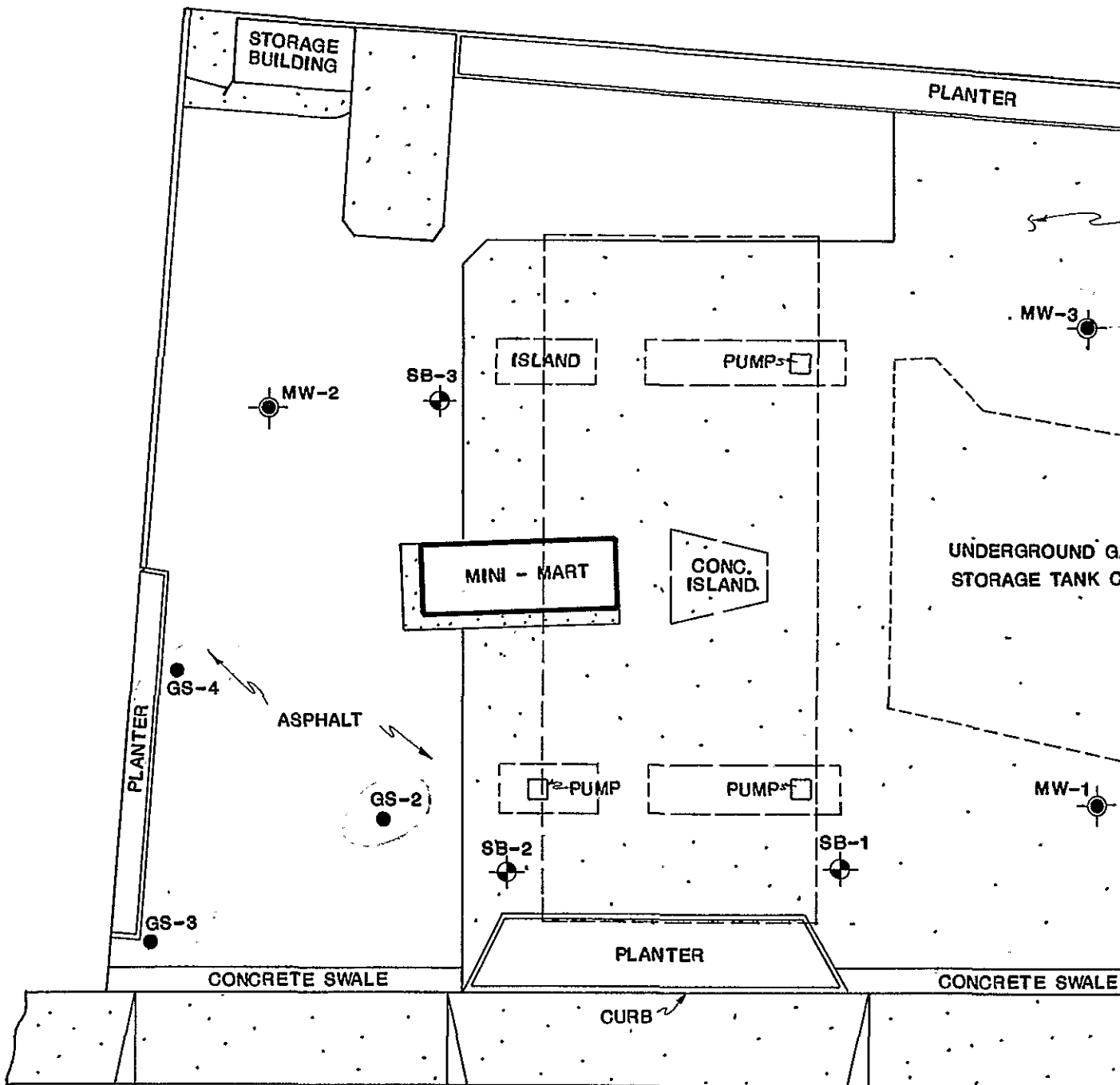
16/4W 24N6

LEVINE•FRICKE
CONSULTING ENGINEERS AND HYDROGEOLOGISTS

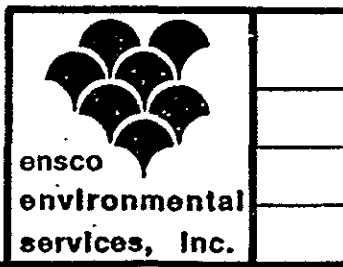
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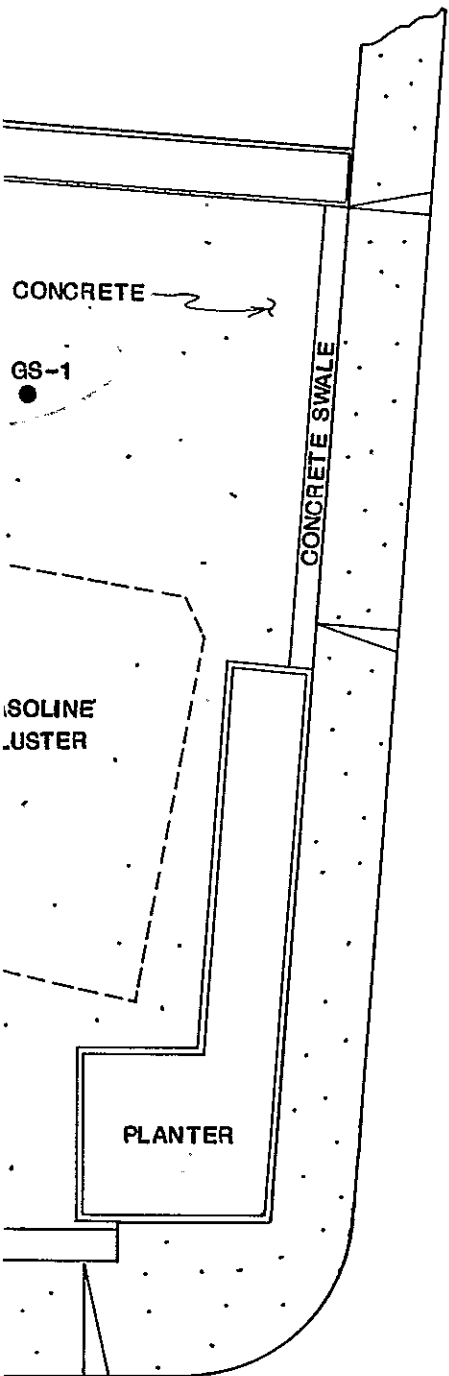
Drilling Lic # C57-834167 phone 415-652-4500

01-454L 1314W-2PF






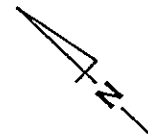
MAC ARTHUR BOULEVARD





LEGEND

-  **MW-1** GROUNDWATER MONITORING WELL
-  **SB-1** EXPLORATORY SOIL BORING
-  **GS-1** GROUNDWATER SAMPLE POINT



0 20

 APPROX. SCALE IN FEET

SITE PLAN	REVIEWED BY:	APPROVED BY:
SHELL SERVICE STATION		
230 Mac ARTHUR BOULEVARD	JOB #: 1847G	DRAWN BY: J.C.
OAKLAND, CALIFORNIA	DATE: 10-18-89	DRAWING #: FIG. 4



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PROJECT NAME: SHELL Service Station
 230 MacArthur Blvd.
 Oakland, California

BORING No.: MW-3
 DATE DRILLED: 7-12-88
 PROJECT No.: 1847 G
 LOGGED BY: SC

EXPLORATORY BORING LOG

DEPTH (ft.)	SAMPLE No	BLOWS/FOOT 140 ft./lbs.	UNIFIED SOIL CLASSIFICATION	SOIL DESCRIPTION	WATER LEVEL	OVA READING ppm
1				8" concrete		
2				FILL, pea gravel		
3						
4						
5						
6					0	
7						
8						
9						
10						
11	3-1	12	SC	CLAYEY SAND, olive grey mottled with orangish brown, 50 to 60% fine sand, trace medium to coarse sand, slight petroleum odor, medium dense, damp		120
12						
13			SW	SAND, orangish brown, fine to coarse grained with fine angular chert gravels, medium dense, damp		
14						
15					Σ	
16	3-2	13		SAND, greenish gray, well graded, fine to coarse grained 10 to 15% fine gravels (angular to subangular white, yellow, and red cherts, graywacke), very faint petroleum odor, medium dense, saturated		2
17			CL	SILTY CLAY, tannish brown, trace organic staining, 10% fine sand, rare root holes, low plasticity, stiff, moist		
18						
19			SC			
20						



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PROJECT NAME: SHELL Service Station
230 MacArthur Blvd.
Oakland, CA

BORING No.: MIVV-J 24P
DATE DRILLED: 7-12-88
PROJECT No.: 1847 G
LOGGED BY: SC

EXPLORATORY BORING LOG

DEPTH (ft.)	SAMPLE No	BLOWS/FOOT 140 ft./lbs.	UNIFIED SOIL CLASSIFICATION	SOIL DESCRIPTION	WATER LEVEL	OVA READING ppm
-20	3-3	31	SC	CLAYEY SAND, brown, 70% fine sand, medium dense, moist to wet	0	
-21			CL	SILTY CLAY, tannish brown, 10% fine sand, trace organic staining, no rootholes, low plasticity, very stiff, wet		
-22	3-4	72	SC	CLAYEY SAND, olive with minor orange staining, 60% fine sand, 10% medium to coarse sand, shell fragment, very dense, moist to wet		
-23						
-24						
-25	3-4	72	CL	SANDY CLAY to SILTY CLAY, olive, 25% fine sand (locally sand <10%), low plasticity, hard, moist		
-26						
-27	3-5	44	SP	CLAYEY SAND, olive with minor orange oxide staining, 60 to 70% fine sand, locally clay to 50%, (becomes very sandy at 30', olive to bluish gray), dense, moist		
-28						
-29						
-30				BOTTOM OF BORING 30'		
-31					0	
-32						
-33						
-34						
-35						
-36						
-37						
-38						
-39						
-40						

REVIEWED BY R.G./C.E.G.

Page 2 of 2

15/4W24P



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PROJECT NAME: SHELL Service Station
230 MacArthur Blvd.
Oakland, California

BORING No.: MW-1 24P
DATE DRILLED: 7-11-88
PROJECT No.: 1847 G
LOGGED BY: SC

EXPLORATORY BORING LOG

DEPTH (ft.)	SAMPLE No	BLOWS/FOOT 140 ft/lps.	UNIFIED SOIL CLASSIFICATION	SOIL DESCRIPTION	WATER LEVEL	OVA READING ppm
1				8" concrete over 6" pea gravel		
2			SP	CLAYEY SAND, greenish gray, predominantly fine sand 20% fine gravel, damp		
3						
4				SAND, greenish gray, predominantly fine to medium sand, 5-10% coarse sand, 10-15% fine gravel, <5% fines, very dense, damp		
5						
6	1-1	72	SP	SAND, olive brown, fine to medium grained trace silt, very dense, damp	0	
7						
8						
9						
10						
11	1-2	30	SC	CLAYEY SAND, orangish brown, fine to medium grained organic staining, 4" lens of fine to medium sand (poorly sorted, greenish gray), dense, damp	1	
12						
13						
14						
15			SW	SAND, bluish gray, fine to coarse grained <5% fines, color to brown at 15.5 feet, wet, dense	2	
16	1-3	37	CL	SANDY CLAY, yellowish brown, 30% fine sand, very moist		
17						
18			SC	CLAYEY SAND, tannish brown, predominantly fine sand, trace medium sand, 15-20% fines, rare rootholes, moist, dense		
19			SP	SAND, brown, predominantly fine sand, becomes silty at 20.5', dense, very moist to wet		
20						

REVIEWED BY R.G./C.E.G.



ensco
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services, Inc.

PROJECT NAME: SHELL Service Station
230 MacArthur Blvd.
Oakland, California

BORING No.: MW-1
DATE DRILLED: 7-11-88
PROJECT No.: 1847 G
LOGGED BY: SC

EXPLORATORY BORING LOG

DEPTH (ft.)	SAMPLE No	BLOWS/FOOT 140 ft/lbs.	UNIFIED SOIL CLASSIFICATION	SOIL DESCRIPTION	WATER LEVEL	OVA READING ppm
20	1-4	30	SP	SAND cont.	0	
21			CL	SILTY CLAY, brown, 5-10% fine sand locally to 20% disseminated, hard, very moist		
22						
23						
24						
25	1-5	48	SP-SC	SAND, light olive, fine to medium grained <10% clay fines, rare oxidation stains, dense, very moist to wet	1	
26			SC	CLAYEY SAND, light olive, predominantly fine to medium sand, 40% clay, rare organics, dense, very moist to wet		
27						
28						
29						
30	1-6	36	SP-SC	SAND, light olive, predominantly fine to medium grained, 15% coarse sand, <10% clay fines, dense, saturated		
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						

BOTTOM OF BORING 31.5'



ensco
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services, Inc.

PROJECT NAME: SHELL Service Station
230 MacArthur Blvd.
Oakland, California

BORING No.: MW-2 24P
DATE DRILLED: 7-11-88
PROJECT No.: 1847 G
LOGGED BY: SC

EXPLORATORY BORING LOG

DEPTH (ft.)	SAMPLE No	BLOWS/FOOT 140 ft/lbs.	UNIFIED SOIL CLASSIFICATION	SOIL DESCRIPTION	WATER LEVEL	OVA READING ppm
1				4" Asphalt pavement over 9" baserock		
2			SC	CLAYEY SAND, orangish brown, fine to medium sand, 20% fines, damp		
3						
4				-as above; color to dark olive gray, locally 40% fine to coarse gravel composed of angular chert fragments, rare coarse sand, dense, damp		
5						
6	2-1	44	SC			2
7						
8						
9						
10			SC	-as above, color to yellowish brown with minor olive gray staining, ~40% fines, trace organic black staining, rare rootholes, dense, damp		
11	2-2	34				1
12			CL	SANDY TO SILTY CLAY, olive beige with slight orange staining, 10 to 20% fine sand, orange staining low plasticity, hard, damp		
13						
14						
15					▽	
16	2-3	34	SP-SM	SAND, brown, predominantly fine sand, 5 to 10% silt, trace organic staining, dense, wet, fine to medium sand		0.5
17						
18						
19						
20						



ensco
environmental
services, Inc.

PROJECT NAME: SHELL Service Station
230 MacArthur Blvd.
Oakland, California

01-454W 1S74W 24P

BOHRING No.: MW-2
DATE DRILLED: 7-11-88
PROJECT No.: 1847 G
LOGGED BY: SC

EXPLORATORY BORING LOG

DEPTH (ft.)	SAMPLE No	BLOWS/FOOT 140 ft/lbs.	UNIFIED SOIL CLASSIFICATION	SOIL DESCRIPTION	WATER LEVEL	OVA READING ppm
20						
21	2-4	28	CL	SILTY CLAY, lannish brown, trace of organic staining, 10% very fine sand, low plasticity, very stiff, wet, color changes to tan in shoe		0
22						
23						
24						
25						
26	2-5	64		SILTY CLAY, light olive gray and orangish brown, organic staining common, low to moderate plasticity, hard, moist, (4" lens of sandy silt with clay, damp to moist)		0
27						
28						
29						
30	2-6	26		-- as above: becomes sandy and orangish brown, 30% fine sand, abundant silt, very stiff		0
31				BOTTOM OF BORING 30.0'		
32						
33						
34						
35						
36						
37						
38						
39						
40						

REVIEWED BY R.G./C.E.G.



ensco
environmental
services, Inc.

PROJECT NAME: SHELL Service Station
230 MacArthur Blvd.
Oakland, California

BORING No.: MW-3
DATE DRILLED: 7-12-88
PROJECT No.: 1847 G
LOGGED BY: SC

EXPLORATORY BORING LOG

DEPTH (ft.)	SAMPLE No	BLOWS/FOOT 140 ft./lbs.	UNIFIED SOIL CLASSIFICATION	SOIL DESCRIPTION	WATER LEVEL	OVA READING ppm
1				8" concrete		
2				FILL, pea gravel		
3						
4						
5						
6						
7						0
8						
9						
10						
11	3-1	12	SC	CLAYEY SAND, olive grey mottled with orangish brown, 50 to 50% fine sand, trace medium to coarse sand, slight petroleum odor, medium dense, damp		120
12						
13			SW	SAND, orangish brown, fine to coarse grained with fine angular chert gravels, medium dense, damp		
14						
15						
16	3-2	13		SAND, greenish gray, well graded, fine to coarse grained 10 to 15% fine gravels (angular to subangular white, yellow, and red cherts, graywacke), very faint petroleum odor, medium dense, saturated	2	
17						
18			CL	SILTY CLAY, tannish brown, trace organic staining, 10% fine sand, rare root holes, low plasticity, stiff, moist		
19						
20			SC			



ENSCO
 environmental
 services, Inc.

PROJECT NAME: Service Station
 230 MacArthur Blvd.
 Oakland, CA

BOHING No: 111V-3
 DATE DRILLED: 7-12-88
 PROJECT No: 1847 G
 LOGGED BY: SC

EXPLORATORY BORING LOG

DEPTH (ft.)	SAMPLE No	BLOWS/FOOT 140 ft/lps.	UNIFIED SOIL CLASSIFICATION	SOIL DESCRIPTION	WATER LEVEL	OVA READING ppm	
20	3-3	31	SC	CLAYEY SAND, brown, 70% fine sand, medium dense, moist to wet	0		
21			CL	SILTY CLAY, tannish brown, 10% fine sand, trace organic staining, no rootholes, low plasticity, very stiff, wet			
22							
23							
24	3-4	72	SC	CLAYEY SAND, olive with minor orange staining, 60% fine sand, 10% medium to coarse sand, shell fragment, very dense, moist to wet	0		
25							
26			CL	SANDY CLAY to SILTY CLAY, olive, 25% fine sand (locally sand <10%), low plasticity, hard, moist			
27							
28	3-5	44	SP	CLAYEY SAND, olive with minor orange oxide staining, 60 to 70% fine sand, locally clay to 50%, (becomes very sandy at 30', olive to bluish gray), dense, moist	0		
29							
30							
31				BOTTOM OF BORING 30'	0		
32							
33							
34							
35							
36							
37							
38							
39							
40							

01-141 E.F.G

#87064

plum up

10/11
AD ✓



gettler - ryan inc.
general contractors

15/7W24P-3

Shell Service Station
230 MacArthur Boulevard
Oakland, California

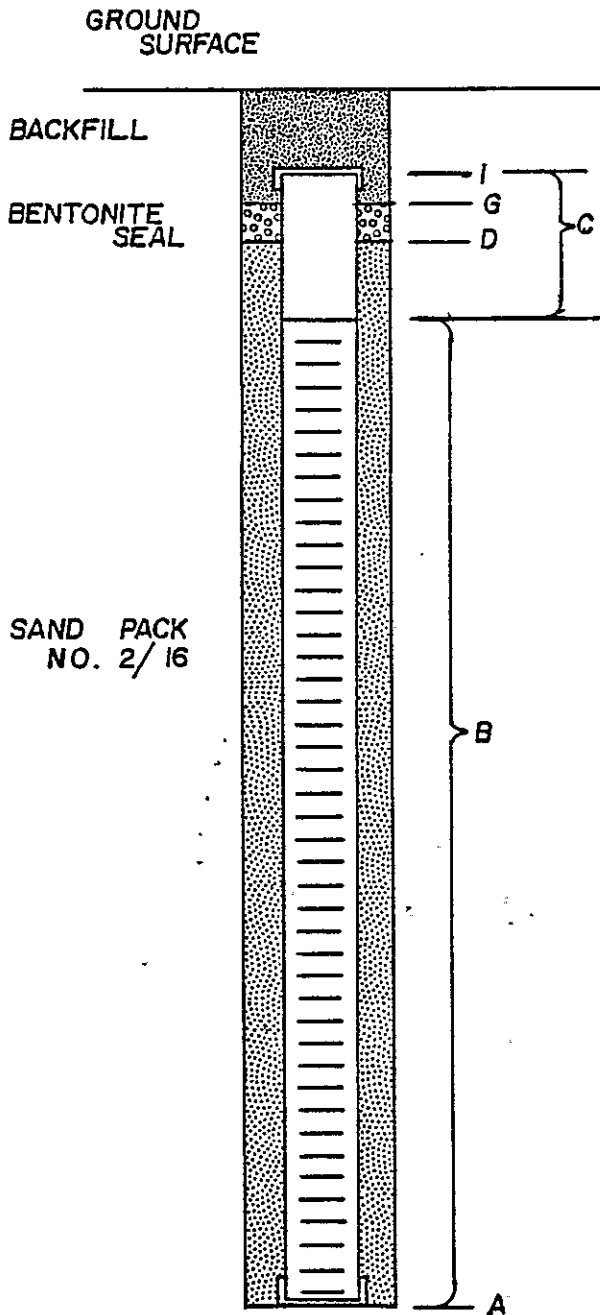
The work performed at this site under permit #87064 involved the installation of three vadose wells in approximately the same locations as borings S-A, S-B, and S-C shown on the attached site sketch. The vadose wells were constructed of four inch PVC well casing to a depth of fifteen feet. As the vadose wells were installed in approximately the same locations as the previously drilled borings, S-A, S-B, and S-C, in primarily the same tank hole backfill, these boring logs should be consistent with conditions encountered while drilling the three vadose wells. The vadose wells had a surface seal consisting of one foot of bentonite and three feet of cement.

NOTE: SAME AS 86077.
WELL NOS. ARE
15/7W24

VAPOR RECOVERY WELL

#P7064

1S/4W24P1-3



A. Total depth drilled	13 ft.
B. Length of slotted casing	10 ft.
C. Length of blank casing	2 ft.
D. Depth to top of sand fill	2 ft.
E. Footage of sand fill (A-D)	11 ft.
F. Bags of sand used	24
G. Depth to top of bentonite seal	1.5 ft.
H. Thickness of bentonite seal (D-G)	.5 ft.
I. Depth to top of casing	1 ft.
J. Depth of backfill (G-Ø)	1.5 ft.

SAND PACK
NO. 2/16

Type of casing 4" Schedule 40 PVC, .020 slotting

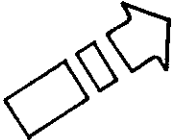
Shell Station McArthur/Piedmont, Oakland	
PROJECT NO. 86.255	FIGURE NO. 5

#P7064

01-141E, F, G

15/4W24P1-3

APPROXIMATE
DIRECTION OF
GROUND-WATER
FLOW



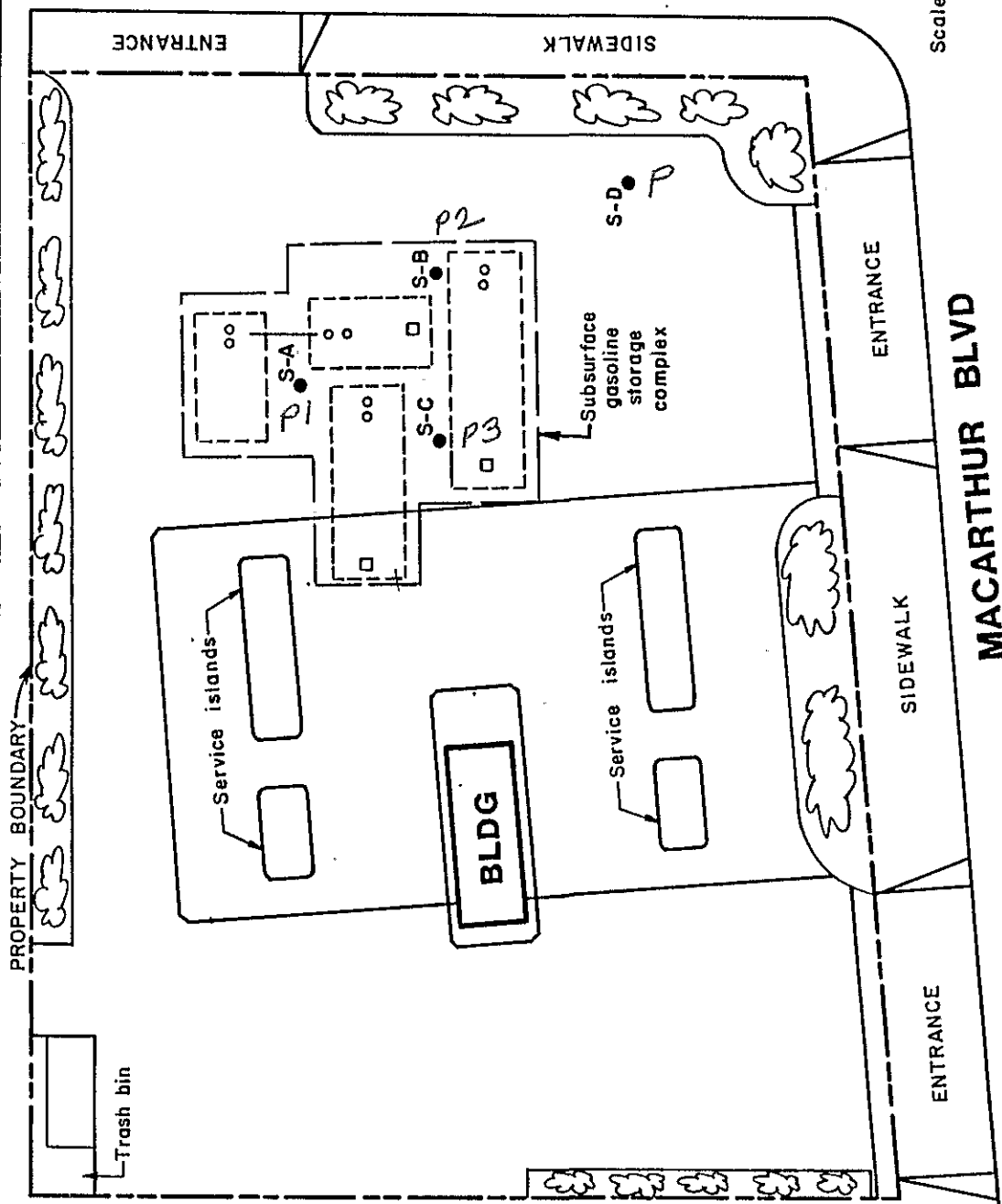
LEGEND

S-A Soil boring location
and designation

Scale: 0 10 20 30 Feet

4/86 dlm

PIEDMONT AVENUE



FIGURE

1

PROJECT NO.
800-41.01

GETTLER-RYAN INC.
SUBSURFACE HYDROGEOLOGIC INVESTIGATION
SHELL STATION, 230 MACARTHUR BLVD
OAKLAND, CALIFORNIA

SITE PLAN

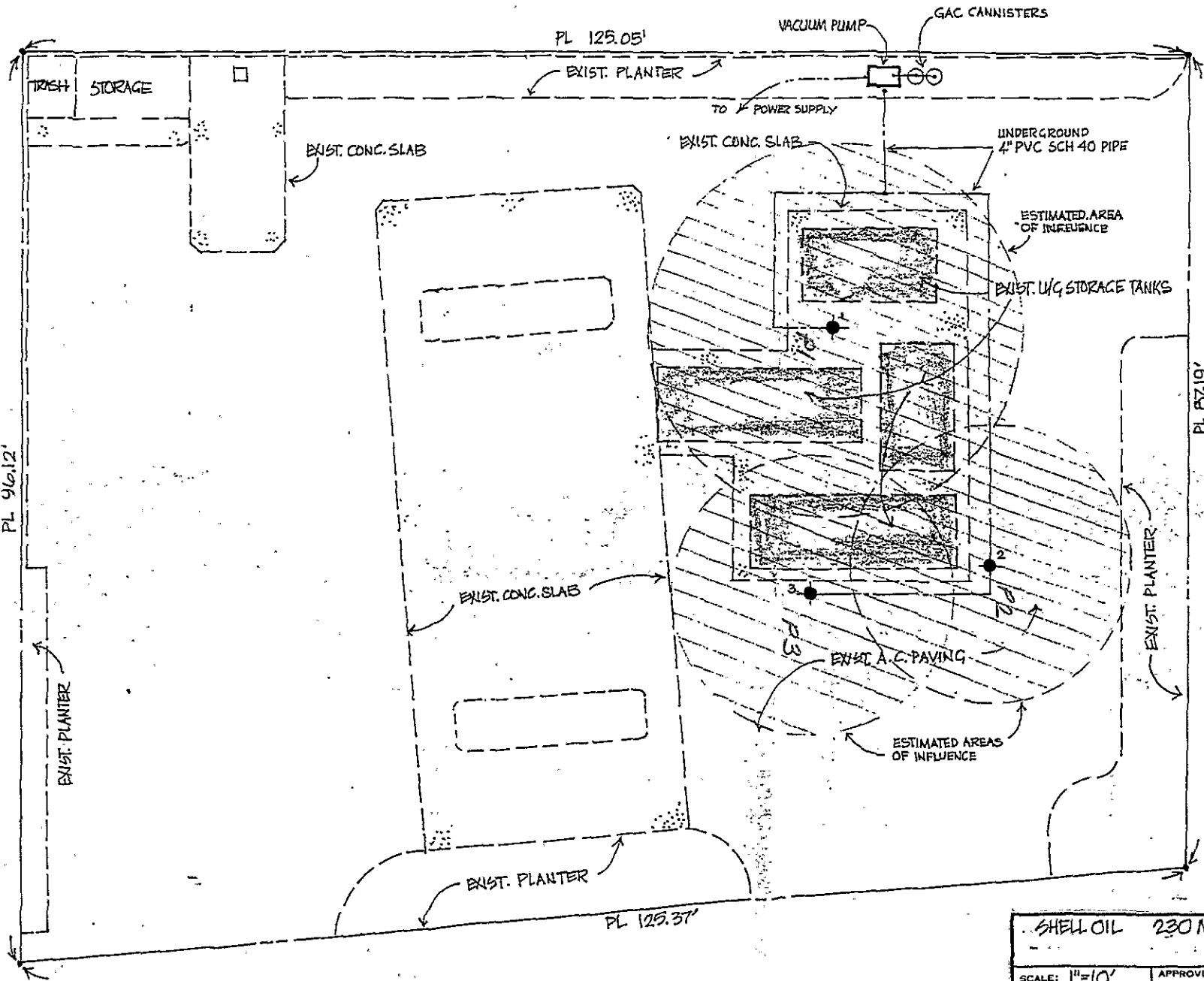
EMCON
Associates



DRILLER: BAYLAND

Permit # 87064

#P7064



KEY

APPROXIMATE LOCATIONS

SCALE

01-141 E, F, G
 IS/KW 2/KP1-3

MAC ARTHUR BLVD.

SHELL OIL 230 MACARTHUR BLVD./PIEDMONT AVE. OAKLAND, CA.	
SCALE: 1"=10'	APPROVED BY:
DATE:	
PROPOSED REMEDIAL PLAN • VACUUM PUMP W/ GAC CANNISTERS	

Handwritten signature/initials

A87064

01-141E

18FW28PA

LOG OF EXPLORATORY BORING

PROJECT NUMBER 800-41.01

BORING NO. S-A

PROJECT NAME Gettler-Ryan, Shell, 230 MacArthur Blvd, Oakland PAGE 1 OF 1

BY MF DATE 4/14/86

SURFACE ELEV. 75±

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				0			ASPHALT and GRAVEL - Fill.
				3	2	GP	GRAVEL - Fill; dark olive gray (5Y, 3/2); pea gravel; trace fine sand; trace fines; loose; moist to wet; moderate product odor.
	2.5	29		10	3	SP ML	SAND - Fill; dark olive gray (5Y, 3/2); fine grained; trace coarse sand; trace gravel; loose; moist; strong product odor.
			▽	15	4	ML/ SW- GW	SILT; gray (5Y, 5/1); slightly clayey; very stiff; moist; strong product odor. SANDY SILT and GRAVELLY SAND to SANDY GRAVEL - Interbedded; wet; moderate product odor; SILT; dark brown (10YR, 4/3); 10-20% medium to coarse sand; hard; GRAVELLY SAND to SANDY GRAVEL olive (5Y, 4/4); fine to coarse grained sand; 30-60% fine to medium gravel; very dense. @13½': moderate product odor.
	2.7	48		20	5	CL- ML	CLAY to SILT: pale brown (10YR, 6/3); very clayey; hard; moist; no product odor.
							BOTTOM OF BORING AT 20½ FEET.

REMARKS Drilled by 5-inch continuous-flight, solid-stem auger to 3 feet, 8-inch hollow-stem auger to total depth; samples collected with 2-inch California modified split-spoon sampler. Borehole backfilled with bentonite to 16 feet, soil cuttings to ½ foot, concrete to surface.



01-141E

LOG OF BORING

1S/AW27P1

Drill Rig: Bucket Rig	Boring Diameter: 24 inch	Boring Elevation:	Boring Number
Date Drilled: 3/12/87	This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location there may be consequential changes in conditions.		B-1

Sample		Depth Feet	Soil/Rock Symbol	Soil/Rock Type	Description and Remarks
Tube	Bulk				
		5	SM		AC AB Silty SAND: fine-to medium-grained, gray, damp, dense; trace of clay; abundant gravel; layer of silty clay from 10 to 11 feet; moist below 11 feet; color change at 11 feet to green gray; occasional very thin layers of medium-grained sand and gravel.
		10			ALLUVIUM
		15			
		20			
		25			
		30			
		35			
		40			
		45			
		50			

- Notes:
1. Bottom of boring at 13 feet.
 2. No groundwater encountered.
 3. Casing installed to 13 feet.

Shell Station McArthur/Piedmont, Oakland	
Project No.: 86.255	Figure No.: 2

AP7067

01-141F

15/KW2492

LOG OF EXPLORATORY BORING

PROJECT NUMBER 800-41.01

BORING NO. S-B

PROJECT NAME Gettler-Ryan, Shell, 230 MacArthur Blvd., Oakland

PAGE 1 OF 1

BY MF DATE 4/14/86

SURFACE ELEV. 75±

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				0			ASPHALT and GRAVEL-FILL.
				5			
		6			1		SAND-FILL; dark olive gray (5Y, 3/2) with greenish hue; fine to medium grained; loose; moist to wet; strong product odor
				9	2		@8': 5-10% coarse grained sand; strong product odor.
				10			@10': visible product in auger returns. SILT; gray (5Y, 5/1); slightly clayey; stiff; moist; faint product odor.
	1.5	74	▽		3		@12½': wet.
				15			SILT and SAND-Interbedded; olive (5Y, 4/4) wet; strong product odor; SILT: as above; SAND: fine to medium grained; 5-15% gravel; very dense.
							@17': gravel layer.
				20	4		CLAY to SILT; pale brown (10YR, 6/3); very clayey; hard; moist; no product odor. BOTTOM OF BORING AT 20 FEET.

REMARKS Drilled by 5-inch continuous-flight, solid-stem auger to 4 feet, 8-inch hollow-stem auger to total depth; samples collected with 2-inch California modified split-spoon sampler. Borehole backfilled with bentonite to 18 feet, soil cuttings; to ½ foot, concrete to surface.



#8706X

01-141F

LOG OF BORING

1S/4W2/P2

Drill Rig: Bucket Rig	Boring Diameter: 24 inch	Boring Elevation:	Boring Number
Date Drilled: 3/12/87	This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location there may be consequential changes in conditions.		B-2

Sample		Depth Feet	Soil/ Rock Symbol	Soil/ Rock Type	Description and Remarks
Tube	Bulk				
				SM	AC
		5		ML	Silty SAND: fine-to medium-grained, green gray, damp, dense; slightly mottled; abundant gravel; occasional cobbles; less gravel, and moist below 1.5 feet.
		10		SM	Clayey SILT: yellow brown, moist, stiff; slightly mottled; occasional decaying organics.
		15			Silty SAND: fine-grained, green gray, moist, dense; some gravel and cobbles below 12 feet.
		20			
		25			
		30			
		35			
		40			
		45			
		50			

ALLUVIUM

ALLUVIUM

ALLUVIUM

- Notes:
1. Bottom of boring at 13 feet.
 2. No groundwater encountered.
 3. Casing set to 13 feet.

Shell Station
McArthur/Piedmont, Oakland

Project No.: 86.255

Figure No.: 3

#87067

01-1419

15/FW2973

LOG OF EXPLORATORY BORING

PROJECT NUMBER 800-41.01

BORING NO. S-C

PROJECT NAME Gettler-Ryan, Shell, 230 MacArthur Blvd., Oakland

PAGE 1 OF 1

BY MF DATE 4-14-86

SURFACE ELEV. 75½

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				0			ASPHALT and GRAVEL-FILL.
					SP		SAND-FILL; yellowish brown (10YR, 5/6); fine grained; 5% medium grained; loose; moist; no product odor.
	3.5	60		5	1		SANDY SILT; dark brown (10YR, 4/3); 10-20% medium to coarse sand; very stiff; moist; slight product odor.
	2.5	50			2		@7': 5-15% sand; very stiff; faint product odor.
	2.1	62		10	3	ML/SW-GW	SANDY SILT and GRAVELLY SAND to SANDY GRAVEL-Interbedded; olive (5Y, 4/4); moist; moderate product odor. SANDY SILT: as above; GRAVELLY SAND to SANDY GRAVEL: fine to coarse grained; 30 to 60% fine to medium gravel; very dense.
	2.5	54		15	4		@12½': wet; moderate product odor.
	2.3	65		20	5	CL-ML	CLAY to SILT; grayish brown (10YR, 5/2); very silty; hard; very stiff; moist; no product odor. BOTTOM OF BORING AT 20 FEET.

REMARKS Drilled by 5-inch continuous-flight, solid-stem auger to 4 feet, 8-inch hollow-stem auger to total depth; samples collected with 2-inch California modified split-spoon sampler. Borehole backfilled with bentonite to 12 feet, soil cuttings to ½ foot, concrete to surface.



#P7064

01-1419

LOG OF BORING

1S/4W27P3

Drill Rig: Bucket Rig	Boring Diameter: 24 inch	Boring Elevation:	Boring Number
Date Drilled: 3/12/87	This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location there may be consequential changes in conditions.		B-3

Sample		Depth Feet	Soil/Rock Symbol	Soil/Rock Type	Description and Remarks
Tube	Bulk				
				SM	AC
		5		SM	Silty SAND: fine-to medium-grained, yellow brown, damp, dense; slightly mottled; abundant gravel; occasional cobbles.
		10			ALLUVIUM
		15			Clayey SILT: yellow brown, moist, stiff; trace of fine-grained sand; mottled; occasional very thin layers of silty clay; color change at 17 feet to green black.
		20			ALLUVIUM
		25			
		30			
		35			
		40			
		45			
		50			

- Notes:
1. Bottom of boring at 13 feet.
 2. No groundwater encountered.
 3. Casing set to 13 feet.

Shell Station
McArthur/Piedmont, Oakland

Project No.: 86.255

Figure No.: 4

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

No 115966

State Well No. 5712404

Other Well No.

ORIGINAL File with DWR

STATE OF CALIFORNIA THE RESOURCES AGENCY DEPARTMENT OF WATER RESOURCES WATER WELL DRILLERS REPORT

(1) OWNER: Name PACIFIC GAS & ELECTRIC CO. Address 4801 Oakport Street Oakland, CA 94601

(2) LOCATION OF WELL: County Alameda Owner's number, if any Township, Range, and Section Oakland Distance from cities, roads, railroads, etc. Moutell Street 75' w/o Robley Terrace

(3) TYPE OF WORK (check): New Well [X] Deepening [] Reconditioning [] Destroying [] If destruction, describe material and procedure in Item 11.

(4) PROPOSED USE (check): Domestic [] Industrial [] Municipal [] Irrigation [] Test Well [] Other [] CATHODIC PROTECTION

(5) EQUIPMENT: Rotary [X] Cable [] Other []

(6) CASING INSTALLED: Table with columns for From ft., To ft., Diam., Gage or Wall, Diameter of Bore, From ft., To ft. Includes 'If gravel packed' and 'STEEL: OTHER:' options.

Size of shoe or well ring: Size of gravel: Describe joint:

(7) PERFORATIONS OR SCREEN: Table with columns for From ft., To ft., Perf. per row, Rows per ft., Size in. x in.

(8) CONSTRUCTION: Was a surface sanitary seal provided? Yes [X] No [] To what depth 120 ft. Were any strata sealed against pollution? Yes [X] No [] If yes, note depth of strata From 0 ft. to 95 ft. Method of sealing Concrete

(9) WATER LEVELS: Depth at which water was first found, if known ft. Standing level before perforating, if known ft. Standing level after perforating and developing ft.

(10) WELL TESTS: Was pump test made? Yes [] No [] If yes, by whom? gal./min. with ft. drawdown after hrs. Temperature of water Was a chemical analysis made? Yes [] No [] Was electric log made of well? Yes [] No [] If yes, attach copy

(11) WELL LOG: Total depth 120 ft. Depth of completed well 120 ft. Formation: Describe by color, character, size of material, and structure. 0' - 30' - Clay, 30' - 41' - Sand & gravel, 41' - 68' - Clay & rock, 68' - 74' - Sand, 74' - 108' - Clay & rock, 108' - 120' - Sand & clay

P. # 111

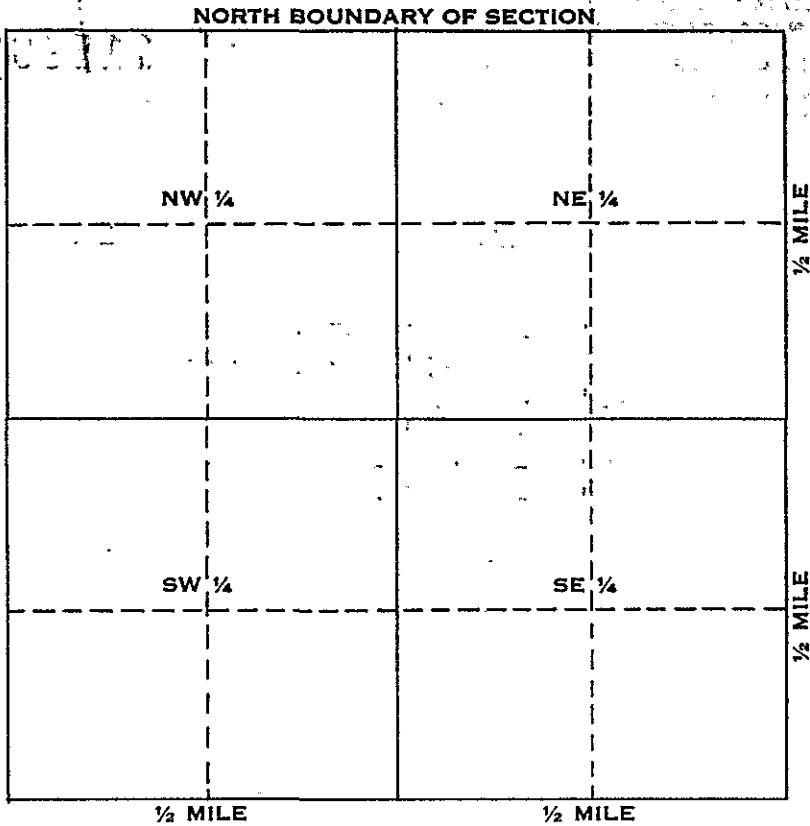
Water Code Sec. 13752

Work started 6/25 1974, Completed 6/26 1974. WELL DRILLER'S STATEMENT: This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief. NAME PITCHER DRILLING CO. Address Daly City, California 94014 [SIGNED] [Signature] (Well Driller) License No. State Contractors Dated 7/3 1974

SKETCH LOCATION OF WELL ON REVERSE SIDE License No. 68038 C-57

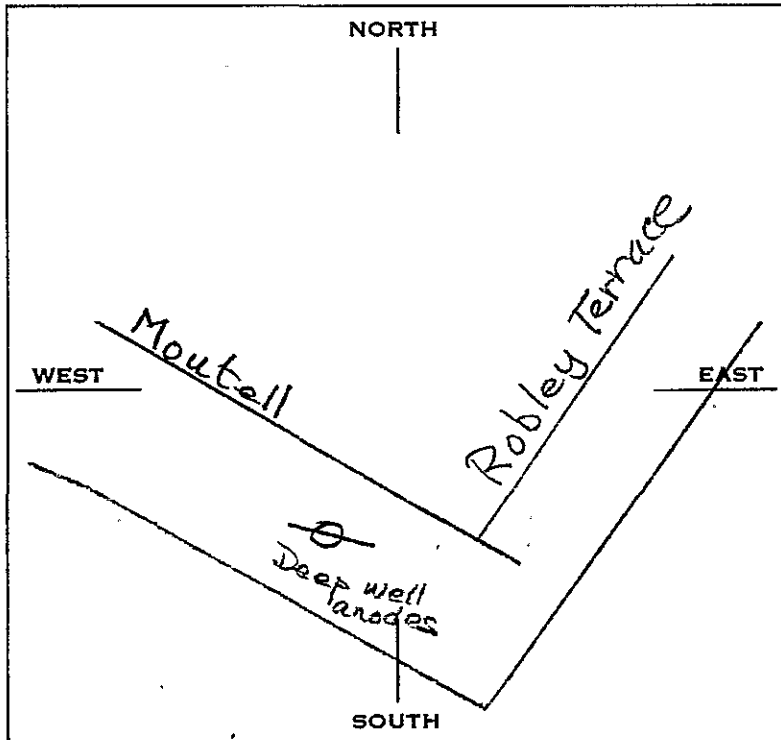
WELL LOCATION SKETCH

115966



Township _____ N/S
 Range _____ E/W
 Section No. _____

A. Location of well in sectionized areas.
 Sketch roads, railroads, streams, or other features as necessary.



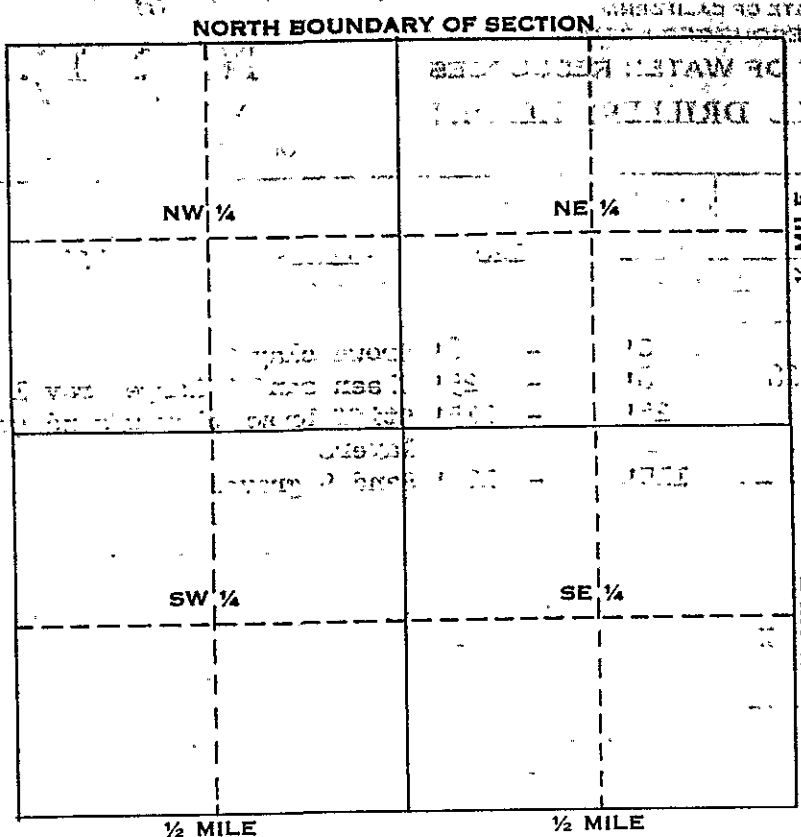
B. Location of well in areas not sectionized.
 Sketch roads, railroads, streams, or other features as necessary.
 Indicate distances.

1974 JUL 12 AM 11 01

DEPT. OF WATER RESOURCES

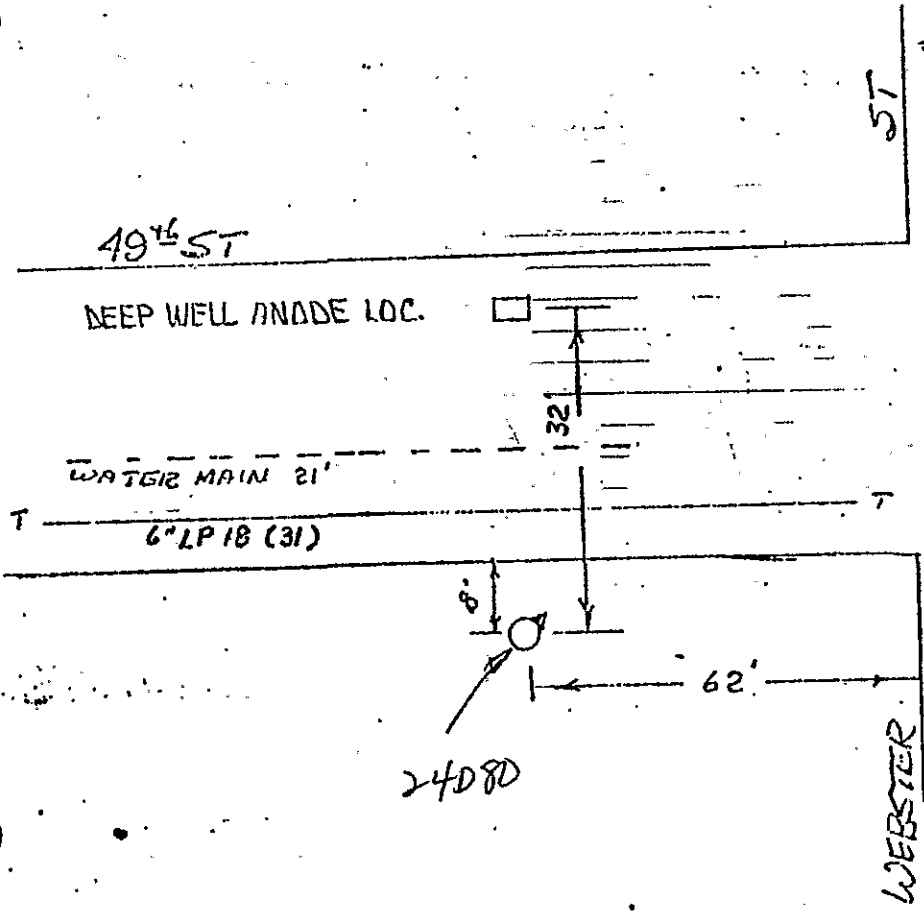
WELL LOCATION SKETCH

141710



Township 1 N(S)
 Range 4 E(W)
 Section No. 24 D 80

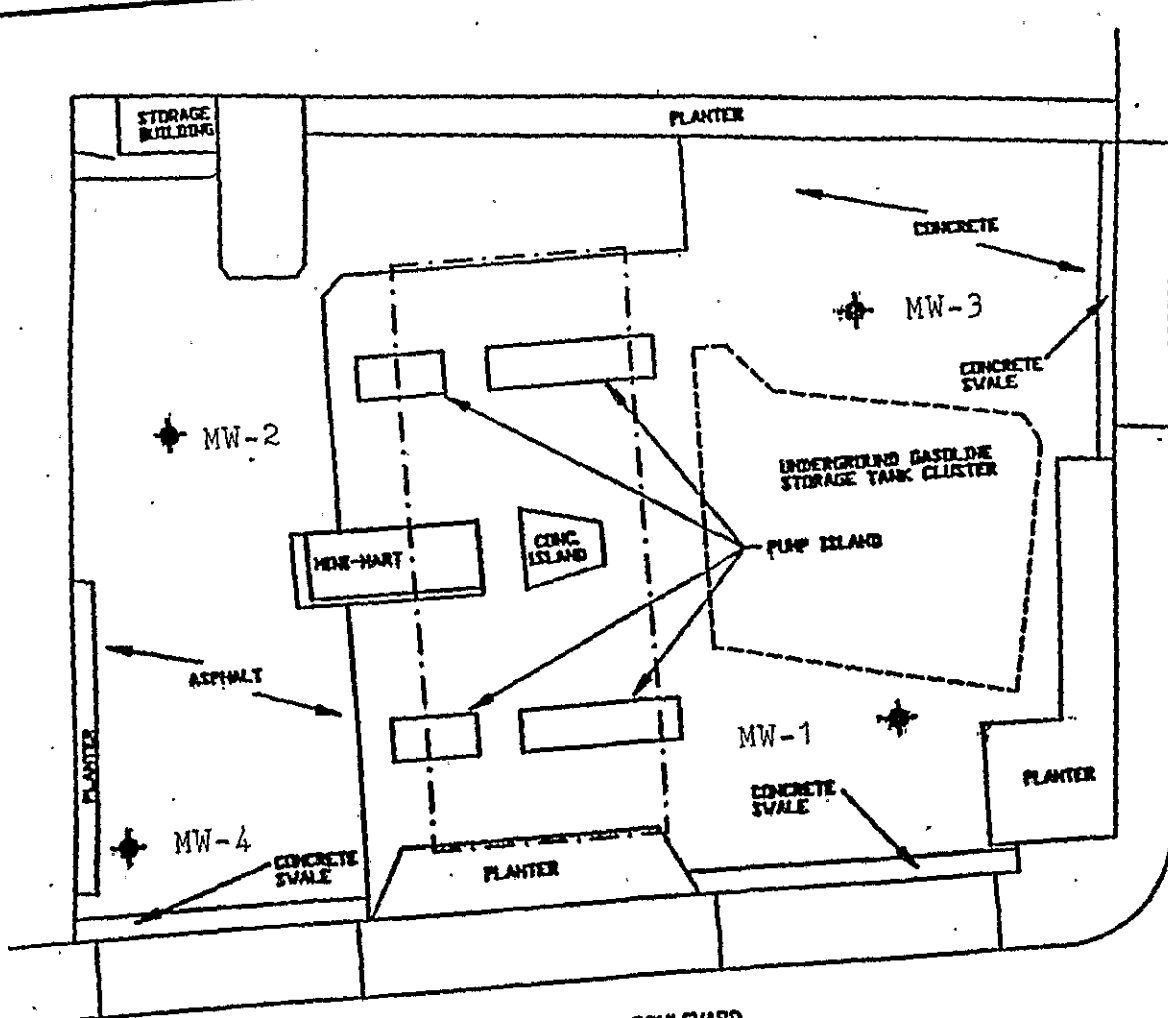
A. Location of well in sectionized areas.
 Sketch roads, railroads, streams, or other features as necessary.



1976 SEP 2 PM 1 31
 DEPARTMENT OF WATER RESOURCES
 LAMEDA WORKS
 DEPARTMENT

Fig 1
 (Supplied by Pacific Environmental Group)

15/4W 2401-4
 Mb/SI



LEGEND

- MW-1 GROUNDWATER MONITORING WELL
- CANOPY

0 10 20
 SCALE IN FEET

01-875
 15/4W-2401-4
 Drawn by
 Date

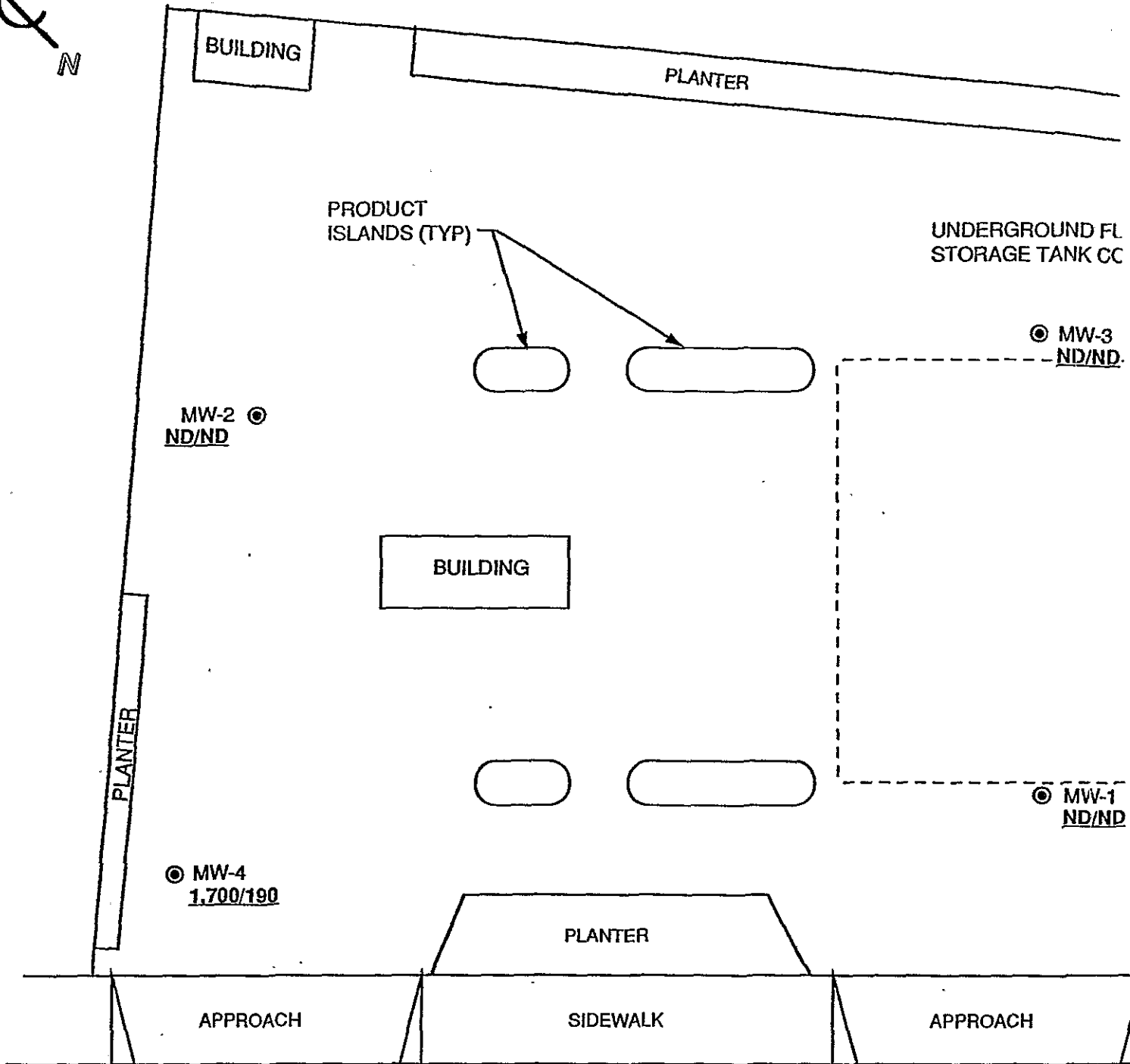
Mac ARTHUR BOULEVARD

Site Map

SHELL SERVICE STATION
 230 Mac ARTHUR BOULEVARD
 OAKLAND, CALIFORNIA

REVIEWED BY	APPROVED BY
DRAWN BY	DRAWING #
DATE	

1504W 24P.1-4 01-875

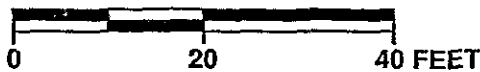


MAC ARTHUR BOULEVARD

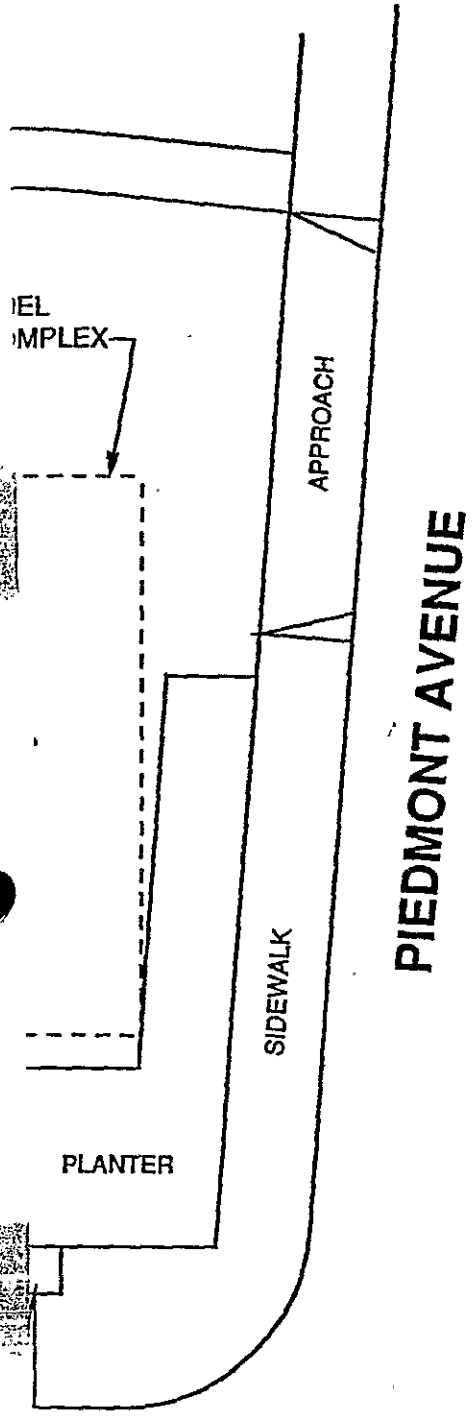


PACIFIC ENVIRONMENTAL GROUP, INC.

SCALE



15/4w 24P1-4
01-895



LEGEND

MW-1  GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION

1.700/190 GASOLINE/BENZENE CONCENTRATION IN GROUNDWATER, IN PARTS PER BILLION, 6-3-92

ND NOT DETECTED



APPROXIMATE DIRECTION OF GROUNDWATER FLOW

SHELL SERVICE STATION
230 West MacArthur Boulevard at Piedmont Avenue
Oakland, California

GASOLINE/BENZENE CONCENTRATION MAP

FIGURE:
3

PROJECT:
305-85.01

07/13/92

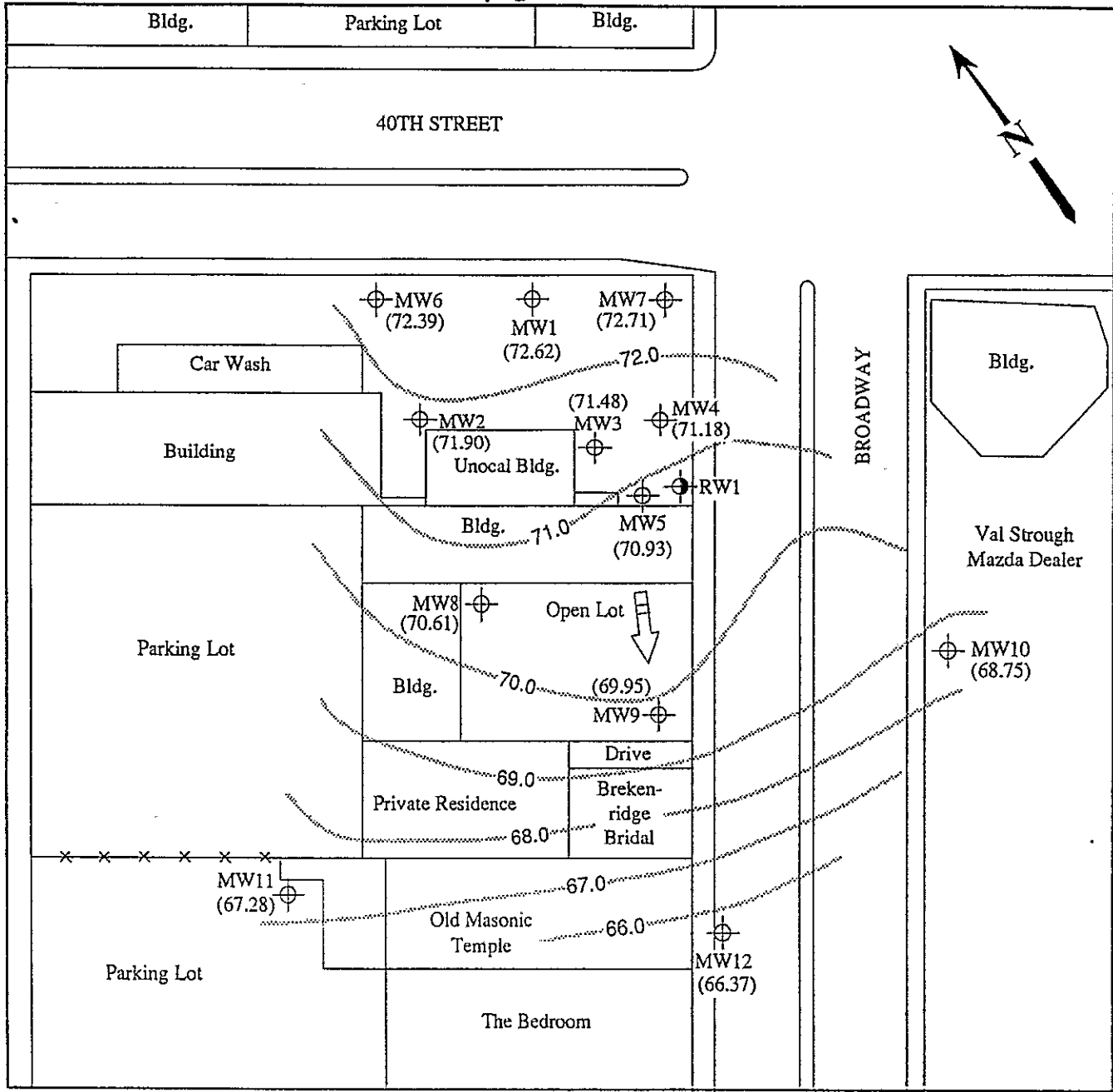
CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

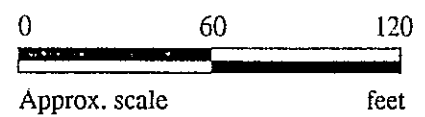
15/4W 24 L19E, 28

413608A-B



LEGEND

- Monitoring well
- 6-inch diameter recovery well
- () Ground water elevation in feet above Mean Sea Level
- Direction of ground water flow
- Contours of ground water elevation



POTENTIOMETRIC SURFACE MAP FOR THE AUGUST 25, 1992 MONITORING EVENT

**KAPREALIAN ENGINEERING
 INCORPORATED**

**UNOCAL SERVICE STATION #0746
 3943 BROADWAY
 OAKLAND, CA**

**FIGURE
 1**

413608A

15/4W 24219

BORING LOG

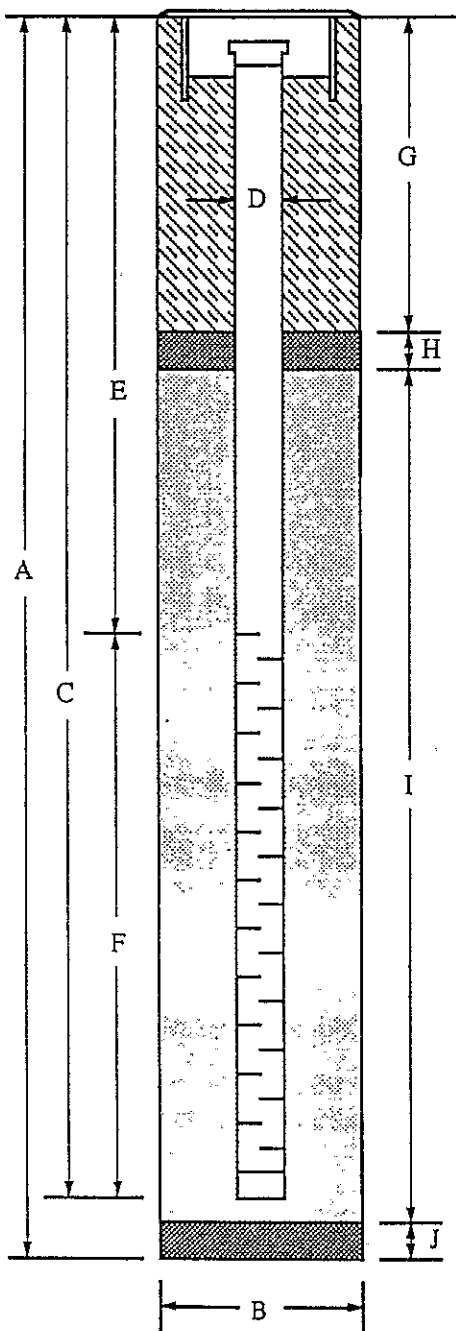
Project No. KEI-P89-0805		Boring & Casing Diameter 8' 2'	Logged By <i>JGG</i> D.L. <i>CEG 1633</i>
Project Name Unocal S/S #0746 3943 Broadway, Oakland		Well Cover Elevation	Date Drilled 6/26/92
Boring No. MW12		Drilling Method Hollow-stem Auger	Drilling Company Woodward Drilling

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
		0		Concrete pavement.
				Clayey sand and gravel and disturbed soil (fill).
			SC	Clayey sand with trace silt, medium dense, moist, dark greenish gray.
2/3/5		5	MH	Clayey silt, trace fine grained sand, firm, very moist, black.
			CL/SC	Sandy clay, firm, moist, dark greenish gray, lensed with clayey sand.
4/7/10			CH	Clay, estimated at 10-15% gravel to 1/2 inch in diameter, trace sand, stiff to very stiff, moist, black with root holes.
11/22/19		10	GC	Clayey gravel with sand, angular to rounded gravel to 1-1/2 inches in diameter, dense, moist, very dark grayish brown.
6/9/13				Clayey gravel with sand as above, except dark grayish brown and olive brown, mottled.
5/7/12				Sandy clay, trace gravel to 1/4 inch in diameter, very stiff, moist, dark yellowish brown and olive brown, mottled.
		15	CL	Clay, trace gravel to 3/8 inch in diameter, stiff to very stiff, moist, olive and light olive brown, mottled.
9/14/20				Clay, as above, stiff to very stiff, friable.
TOTAL DEPTH 17.5'				
		20		

WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal S/S #0746, 3943 Broadway, Oakland WELL NO. MW12
 PROJECT NUMBER: KEI-P89-0805
 WELL PERMIT NO.: _____

Flush-mounted Well Cover



- A. Total Depth : 17.5'
- B. Boring Diameter: 8"
 Drilling Method: Hollow Stem Auger
- C. Casing Length: 17.5'
 Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 5'
- F. Perforated Length: 12.5'
 Perforation Type: Machined Slot
 Perforation Size: 0.010"
- G. Surface Seal: 2'
 Seal Material: Neat Cement
- H. Seal: 1.5'
 Seal Material: Bentonite
- I. Filter Pack: 14'
 Pack Material: RMC Lonestar Sand
 Size: #2/12
- J. Bottom Seal: None
 Seal Material: N/A

413608B

15/4w 24220

BORING LOG				
Project No. KEI-P89-0805		Boring & Casing Diameter 13.5' 6'		Logged By D.L. JGG LEG 1633
Project Name Unocal S/S #0746 3943 Broadway, Oakland		Well Cover Elevation		Date Drilled 6/25/92
Boring No. RW1		Drilling Method Hollow-stem Auger		Drilling Company Woodward Drilling
Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
		0		A.C. pavement over sand and gravel base.
				Clayey sand and gravel with cobbles to 10 inches in diameter, very stiff, moist (fill).
			CH	Sandy clay, stiff, moist, dark greenish gray.
			SC	Clayey sand with trace silt, medium dense, moist, dark greenish gray.
		5	MH	Clayey silt, trace fine grained sand, very stiff, moist, black, with organic matter.
			CH	Clay, estimated at 10-15% gravels to 4 inches in diameter, trace sand, stiff to very stiff, moist, dark olive gray and very dark grayish brown, mottled.
		10	SC	Grades to gravelly clay with sand, gravels to 1 inch in diameter, very stiff, moist, dark olive gray and very dark grayish brown mottled.
			GC	Clayey sand, estimated at 10-15% gravel to 1 inch in diameter, medium dense, moist, dark greenish gray and dark olive gray mottled.
				Clayey gravel with sand, gravels to 3-1/2 inches in diameter, medium dense, moist, dark greenish gray.
		15	CL	Clay, estimated at 10-15% gravel, stiff, moist, olive brown and dark greenish gray, mottled, fissured.
				Silty clay, trace fine-grained sand, stiff, moist, olive brown and dark greenish gray mottled, fissured.
			SC	Clayey sand, minor silt, medium dense, moist, olive brown and dark greenish gray, mottled.
				TOTAL DEPTH 17.5'
				No ground water encountered.
		20		

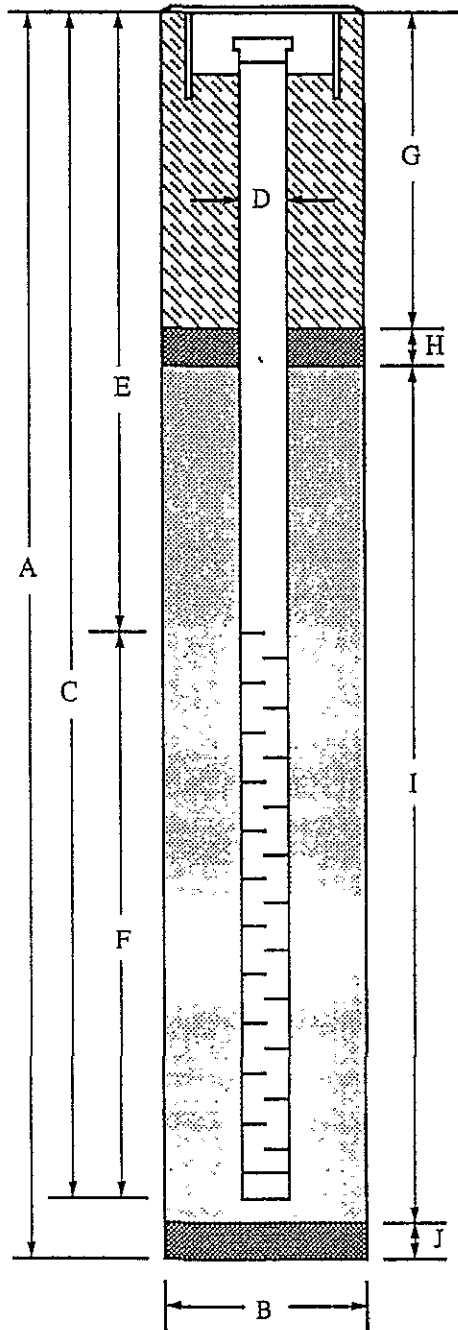
No blow count data - samples continuously cored

No recovery from 11.25 to 12.5 feet.

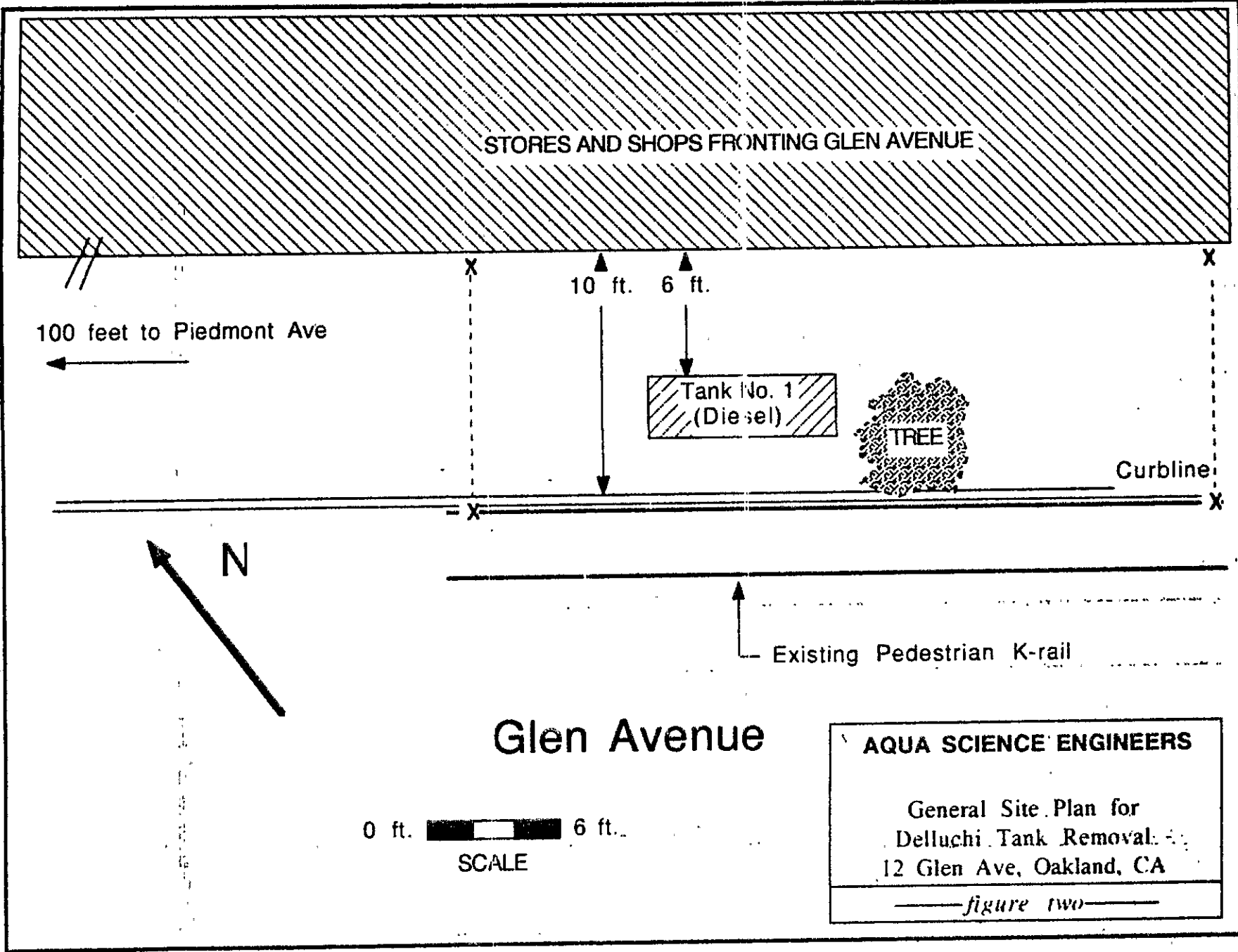
WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal S/S #0746, 3943 Broadway, Oakland WELL NO. RW1
 PROJECT NUMBER: KEI-P89-0805
 WELL PERMIT NO.: ACFC & WCD 92270

Flush-mounted Well Cover



- A. Total Depth : 17.5'
- B. Boring Diameter* : 13.5"
 Drilling Method: Hollow Stem Auger
- C. Casing Length: 17'
 Material: Schedule 40 PVC
- D. Casing Diameter: OD = 6.625"
ID = 6.065"
- E. Depth to Perforations: 5'
- F. Perforated Length: 10' (2' Blank on bottom)
 Perforation Type: Machined Slot
 Perforation Size: 0.010"
- G. Surface Seal: 3'
 Seal Material: Neat Cement
- H. Seal: 1'
 Seal Material: Bentonite
- I. Filter Pack: 13'
 Pack Material: RMC Lonestar Sand
 Size: #2/12
- J. Bottom Seal: 6"
 Seal Material: Bentonite



2 of 3







01-5254-5

15/4w 242

343

01-525H

15/4W 24L

PROJECT: 14 GLEN AVENUE, OAKLAND, CA		LOG OF BORING# SB-1A			
DEPTH FEET	SOILS/ROCK DESCRIPTION	GRAPHIC LOG	BACKFILL DETAILS	REMARKS	
0-				6.25" ID HSA	
1-	3" asphalt, 8" baserock, sand well graded 40%		Bent. Portland / Bent. seal		
2-	Clayey gravels, poorly graded gravel - sand				
3-	Clay Mixtures				
4-	Slight odor				
5-	No discoloration of soil				
6-					
7-					
8-			Cap		
9-					
10-	lt brown Clayey Silt, poorly graded sand, very fine 40%, clayey silts with slight plasticity				soil sample 10-11.5'
11-	ML				7/10/14
12-	Strong odor				
13-					
14-					
15-	brown Silt and Clay, cmf sand well graded 40%,			soil sample 15-16.5'	
16-	ML			21/20/23	
17-	Slight odor				
18-					
19-					
20-	Inorganic Clays of medium plasticity, sandy and silty			soil sample 20-21.5'	
21-	clays with moderate plasticity			14/20/12	
22-	CL				
23-	No odor				
24-	Sealed off saturation zone				
25-	No odor CH			soil sample 25-26.5'	
Total Depth 25'				12/16/31	


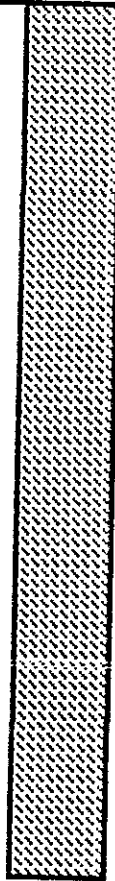
























Logged by: C. Hertz Date Logged: 7/7/92
 Rig/Driller: S. M. 50, McCully - WESTHAZMAT

AQUA SCIENCE ENGINEERS, INC.

3-93

01-525I

15/4W 242#

PROJECT: 14 GLEN AVENUE, OAKLAND, CA		LOG OF BORING# SB-2B		
DEPTH FEET	SOILS/ROCK-DESCRIPTION	GRAPHIC LOG	BACKFILL DETAILS	REMARKS
0-				6.25" ID HSA
1-	3" asphalt, 8" baserock, sand well graded 40%		 Bent. Portland / Bent. seal	
2-	Clayey gravels, poorly graded gravel - sand			
3-	Clay Mixtures			
4-	ML			
5-	No odor			
6-	No discoloration of soil			
7-				
8-				
9-				
10-	lt brown Clayey Silt, poorly graded sand, very fine 40%, clayey silts with slight plasticity			
11-	ML			
12-	No odor			
13-				
14-				
15-	brown Silt and Clay, cmf sand well graded 40%,			
16-	ML			
17-	No odor			
18-				
19-				
20-	Inorganic Clays of medium plasticity, sandy and silty clays with moderate plasticity			
21-	CL			
22-	No odor			
23-				
24-				
25-				
Total Depth 20'				
Logged by: C. Hertz Date Logged: 7/7/92 Rig/Driller: S. M. 50, McCully - WESTHAZMAT AQUA SCIENCE ENGINEERS, INC.				

373

01-5255

15/4W 24L23

PROJECT: 14 GLEN AVENUE, OAKLAND, CA

LOG OF WELL# MW-3C

DEPTH FEET	SOILS/ROCK DESCRIPTION	GRAPHIC LOG	BACKFILL DETAILS	REMARKS
0-1	3" asphalt, 8" baserock, sand well graded 40%		asphalt patch	
2-3	Clayey gravels, poorly graded gravel - sand Clay Mixtures			
4-5	No odor No discoloration of soil			
6-6.5	☒			soil sample 5-6.5 12/12/13
7-8				
9-10				
10-11.5	☒ Lt brown clayey silt, poorly graded sand, very fine 40%, clayey silts with slight plasticity ML no Odor			soil sample 10-11.5' 8/11/11
12-13				
14-15				
15-16.5	☒ Brown Clayey silt, cmf sand well graded 40% ML Slight odor			soil sample 15-16.5 12/13/15
17-18				
19-20				
20-21.5	☒ EOB 20'			soil sample 20-21.5' 13/18/17
21-23	Inorganic clays of medium plasticity, sandy and silty clays with moderate plasticity CL No Odor			
24-25	Groundwater - Saturation Zone			
26-27				
28-29				
30-31.5	☒ Inorganic clays and silts of high plasticity Very fine sands (10%) and minor amounts of Silt No odor or discoloration. MH			soil sample 30-31.5' 19/22/23
32-33				
34-35				

2" PVC W/ .02" SLOT AND #2/12 SAND IN ANNULAR SPACE

Portland Cement / Bentonite Grout

Logged by: C. Hertz Date Logged: 7/7/92
Rig/Driller: S. M. 50, McCully- West Hazmat

AQUA SCIENCE ENGINEERS, INC.

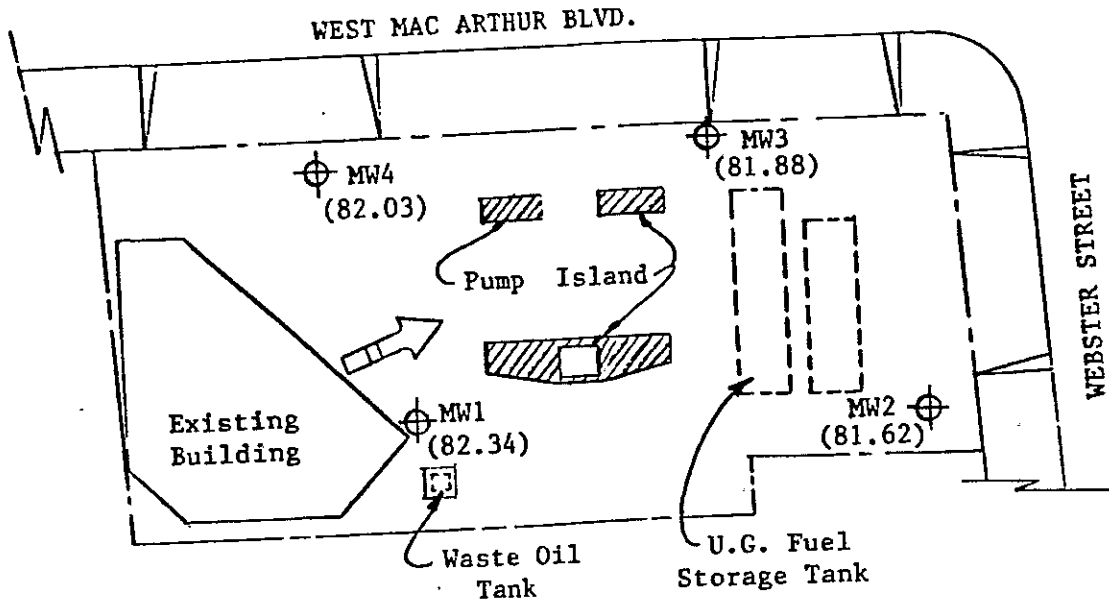


KAPREALIAN ENGINEERING, INC.

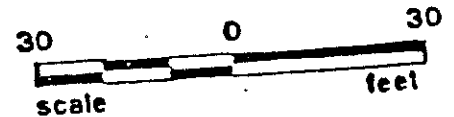
Consulting Engineers
P. O. BOX 913
BENICIA, CA 94510
(707) 746-6915

01-4420-X

IS/4W 24M1-4



SITE PLAN



⊕ Monitoring Well

() Ground water elevation in feet on 9/15/89. Surface elevation at top of MW2 assumed 100' as datum.

➔ Ground water flow direction

Unocal S/S #3538
411 W. MacArthur Blvd.
Oakland, California

11/17/22
ADD

15/4W 24M1

BORING LOG

01-442U

Project No. KEI-P89-0703	Boring & Casing Diameter 9" 2"	Logged By D.L.
Project Name Unocal, Oakland/MacArthur	Well Head Elevation N/A	Date Drilled 9/7/89
Boring No. MW1	Drilling Method Hollow-stem Auger	Drilling Company EGI Bruce McCall

Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
		0		A.C. Pavement Sand and Gravel: fill.
11/17/22		5		Clay, high plasticity, stiff, moist, very dark grayish brown.

32/17/20		10		Gravelly clay with sand, stiff, moist, dark yellowish brown. Sand clay, high plasticity, stiff, moist, olive, trace gravel.
			CH	Clay, high plasticity, very stiff, moist, pale olive, with greenish gray stained root holes.

13/17/19		15		Sandy clay, moderate to high plasticity, stiff, moist, olive to light yellowish brown.
10/17/20	▼	20	SC	Clayey sand, dense, very moist to wet, yellowish brown.

B O R I N G L O G

01-442 U

Project No. KEI-P89-0703		Boring & Casing Diameter 9" 2"	Logged By D.L.
Project Name Unocal, Oakland/MacArthur		Well Head Elevation N/A	Date Drilled 9/7/89
Boring No. MW1		Drilling Method Hollow-stem Auger	Drilling Company EGI <i>Bruce McCall</i>

Penetra- tion blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
			SC	Clayey sand, as above.
		25	SP	Poorly graded sand, yellowish brown.
			CH	Clay, high plasticity, very stiff, moist, yellowish brown.
		30		
		35		
		40		
				TOTAL DEPTH 29'

01-4424

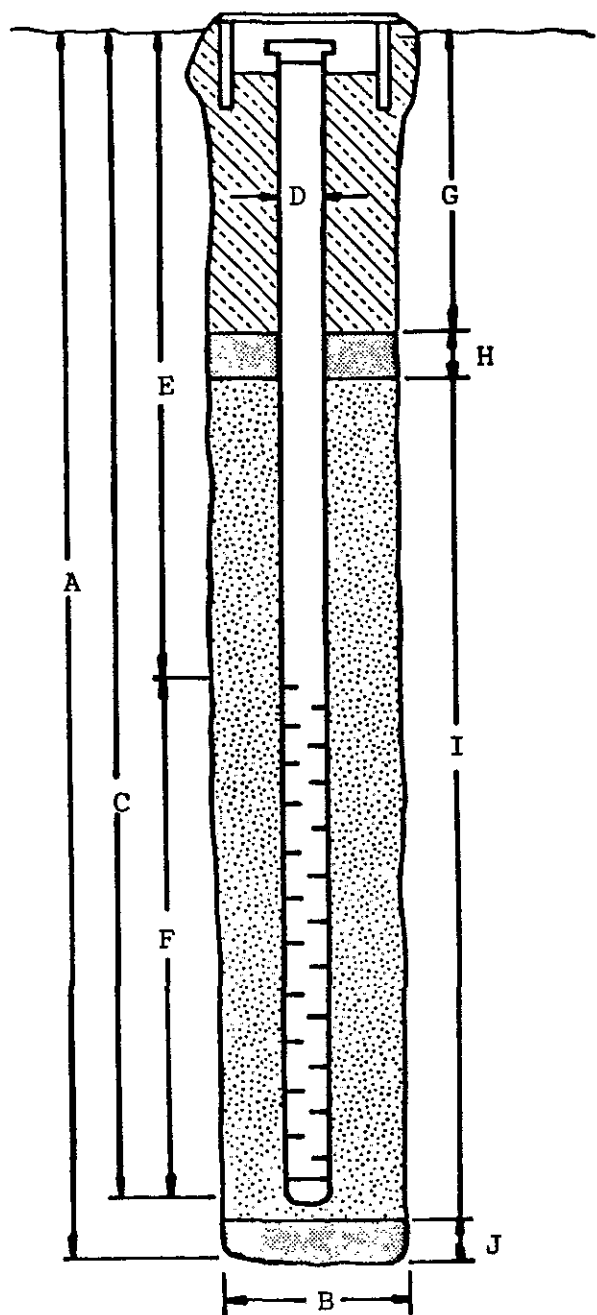
WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal - Oakland, MacArthur BORING/WELL NO. MW1

PROJECT NUMBER: KEI-P89-0703

WELL PERMIT NO.: _____

Flush-mounted Well Cover



- A. Total Depth: 29'
- B. Boring Diameter*: 9"
- Drilling Method: Hollow Stem Auger
- C. Casing Length: 29'
- Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 5'
- F. Perforated Length: 24'
- Perforation Type: Machined Slot
- Perforation Size: 0.020"
- G. Surface Seal: 3'
- Seal Material: Concrete
- H. Seal: 1'
- Seal Material: Bentonite
- I. Gravel Pack: 25'
- Pack Material: RMC Lonestar Sand
- Size: #3
- J. Bottom Seal: None
- Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

INV ✓
ADD ✓

1S/4W 24M2

BORING LOG

01-442V

Project No. EI-P89-0703	Boring & Casing Diameter 9" 2"	Logged By D.L.
Project Name Unocal, Oakland/MacArthur	Well Head Elevation N/A	Date Drilled 9/6/89
Boring No. MW2	Drilling Method Hollow-stem Auger	Drilling Company EGI Bruce McCell

Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
		0		Concrete Pavement Sand and Gravel: Fill
9/14/21		5	CH	Clay, high plasticity, with silt, firm to stiff, moist, dark olive gray, black from 1.5 to 4 feet.
13/15/28		10	GC	Clayey gravel with sand, dense, moist, yellowish brown, gravel to 3/4".
9/15/19			CH	Sandy clay, high plasticity, 15-45% sand, stiff, moist, light yellowish brown and greenish gray, mottled, lensed with clayey sand.
10/15/23			SC	Clayey sand, dense to very dense, moist, olive and greenish gray.
8/10/15		15		
9/12/16			CH	Silty clay, moderate to high plasticity, firm, moist, olive.
3/37/46	▼	20	SW	Well graded sand with gravel, dense, wet, brown, silty from 19.5 feet.

BORING LOG

01-442V

Project No. KEI-P89-0703	Boring & Casing Diameter 9" 2"	Logged By D.L.
Project Name Unocal, Oakland/MacArthur	Well Head Elevation N/A	Date Drilled 9/6/89
Boring No. MW2	Drilling Method Hollow-stem Auger	Drilling Company EGI <i>Bruce McCall</i>

Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
			GP- GM	Poorly graded gravel with silt and sand, very dense, wet, dark yellowish brown.
25/37/45		25	GP	Poorly graded gravel with sand, very dense, wet, dark, yellowish brown.
25/29/35		30	CH	Clay, high plasticity, trace sand, very stiff, moist, yellowish brown.
		35		
		40		
				TOTAL DEPTH 30.5'

01-442 v

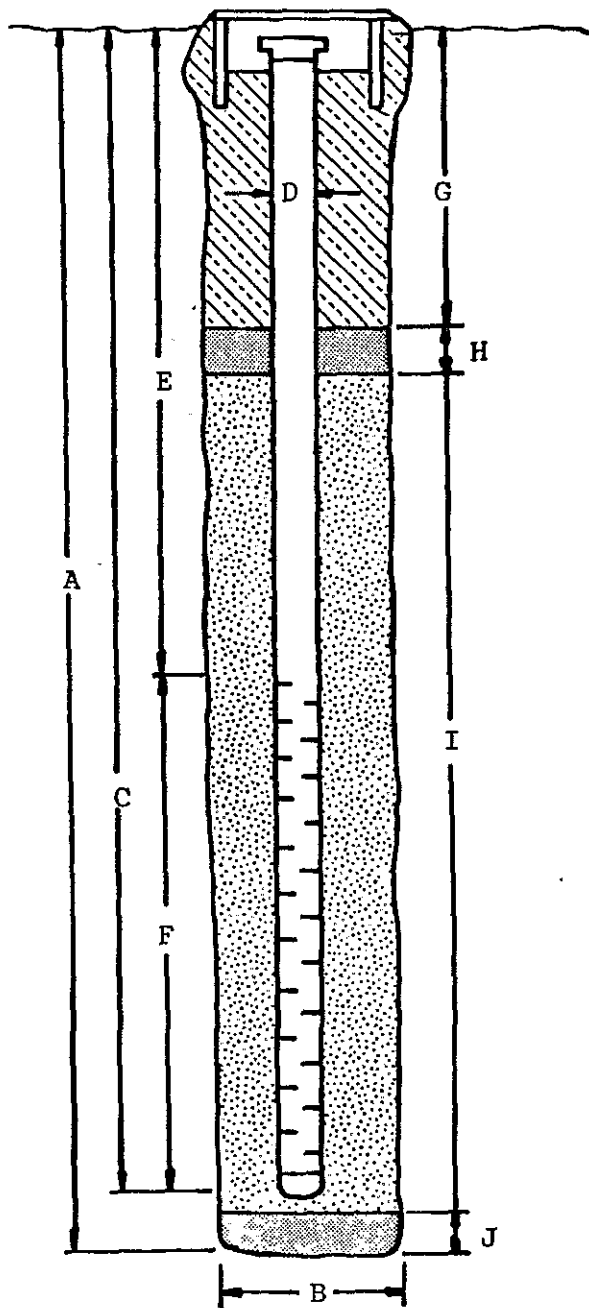
WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal - Oakland, MacArthur BORING/WELL NO. MW2

PROJECT NUMBER: KEI-P89-0703

WELL PERMIT NO.: _____

Flush-mounted Well Cover



A. Total Depth: 30'

B. Boring Diameter*: 9"

Drilling Method: Hollow Stem Auger

C. Casing Length: 28.5'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"

ID = 2.067"

E. Depth to Perforations: 3.5'

F. Perforated Length: 25'

Perforation Type: Machined Slot

Perforation Size: 0.020"

G. Surface Seal: 2'

Seal Material: Concrete

H. Seal: 1'

Seal Material: Bentonite

I. Gravel Pack: 27'

Pack Material: RMC Lonestar Sand

Size: #3

J. Bottom Seal: None

Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

ADD

1S/4W 24M3

BORING LOG

01-4425W

Project No. KEI-P89-0703	Boring & Casing Diameter 9" 2"	Logged By D.L.
Project Name Unocal, Oakland/MacArthur	Well Head Elevation N/A	Date Drilled 9/7/89
Boring No. MW3	Drilling Method Hollow-stem Auger	Drilling Company EGI Bruce McCall

Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
		0		Concrete Pavement
9/15/21		5	CH	Clay, high plasticity, with silt, stiff, moist, dark olive gray, very dark grayish brown above 4'.
14/17/23		10		Clay, high plasticity, very stiff, moist, pale olive, with dark greenish gray stained root holes.
15/23/33		15	CL	Sandy clay, low to moderate plasticity, 25-40% sand, stiff, moist, olive and greenish gray, mottled, lensed with clayey sand.
10/17/24	▼	20	CH	Sandy clay, moderate to high plasticity, stiff, moist, olive.

B O R I N G L O G

01-442W

Project No. KEI-P89-0703	Boring & Casing Diameter 9" 2"	Logged By D.L.
Project Name Unocal, Oakland/MacArthur	Well Head Elevation N/A	Date Drilled 9/7/89
Boring No. MW3	Drilling Method Hollow-stem Auger	Drilling Company EGI <i>Bruce McCall</i>

Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
37/50- 5-1/2"			GP- GC	Sandy clay, as above. Poorly graded gravel with clay and sand, very dense, wet, dark yellowish brown.
			GC	Clayey gravel, very dense, moist, yellowish brown.
		40		
				TOTAL DEPTH 29'

01-442W

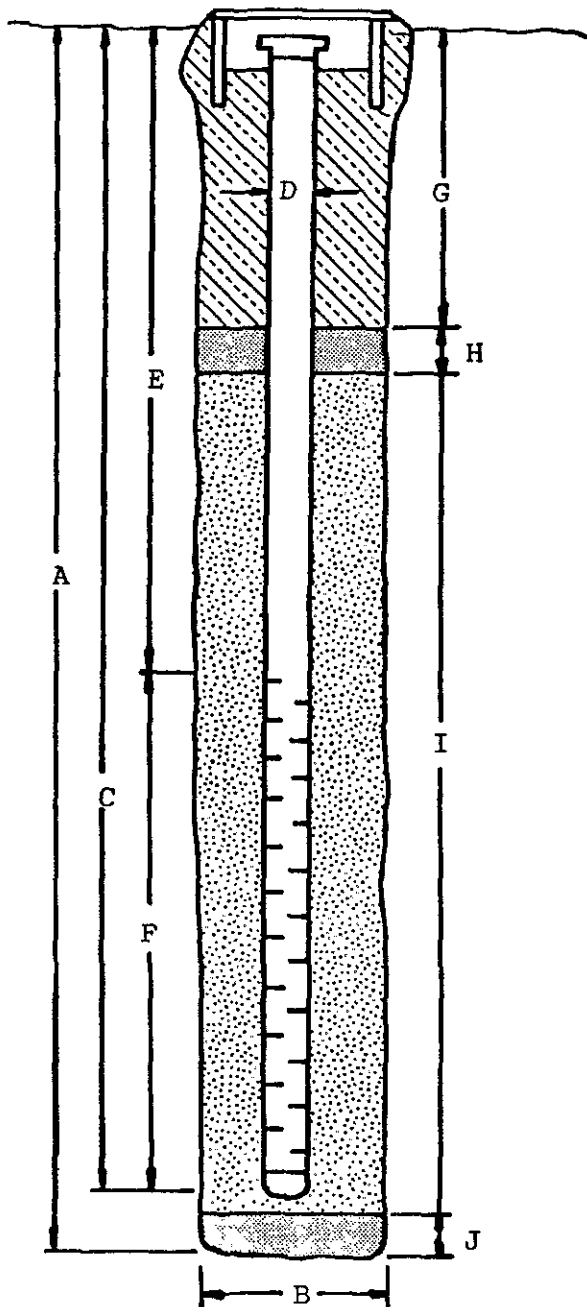
WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal - Oakland, MacArthur BORING/WELL NO. MW3

PROJECT NUMBER: KEI-P89-0703

WELL PERMIT NO.: _____

Flush-mounted Well Cover



A. Total Depth: 29'

B. Boring Diameter*: 9"

Drilling Method: Hollow Stem Auger

C. Casing Length: 29'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"

ID = 2.067"

E. Depth to Perforations: 5'

F. Perforated Length: 24'

Perforation Type: Machined Slot

Perforation Size: 0.020"

G. Surface Seal: 3'

Seal Material: Concrete

H. Seal: 1'

Seal Material: Bentonite

I. Gravel Pack: 25'

Pack Material: RMC Lonestar Sand

Size: #3

J. Bottom Seal: None

Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

BORING LOG

01-442 X

Project No. KEI-P89-0703	Boring & Casing Diameter 9" 2"	Logged By D.L.
Project Name Unocal, Oakland/MacArthur	Well Head Elevation N/A	Date Drilled 9/6/89
Boring No. MW4	Drilling Method Hollow-stem Auger	Drilling Company EGI <i>Bruce McCall</i>

Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
			SW	finest, dense, wet, dark yellowish brown.
		25	GP- GC	Poorly graded gravel with clay and sand, dense, wet, dark yellowish brown, clay content, increasing with depth.
		30	CH	Gravelly clay, high plasticity, 5-10% sand, very stiff, moist, dark yellowish brown.
		35		
		40		
				TOTAL DEPTH 29'

01-442x

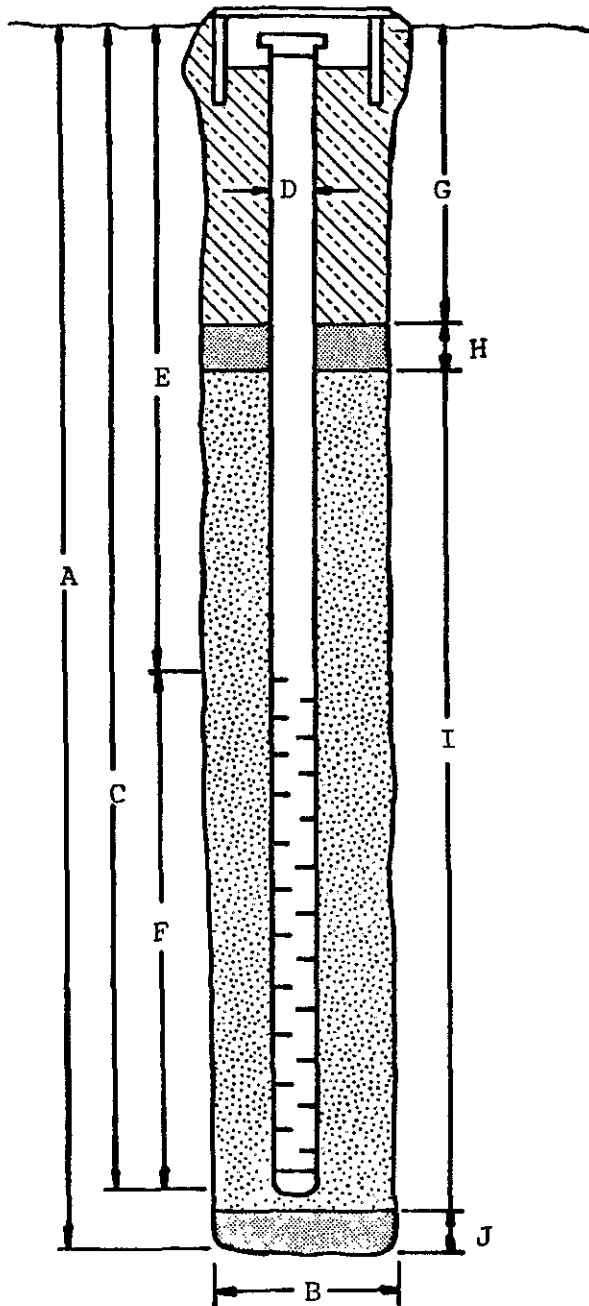
WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal - Oakland, MacArthur BORING/WELL NO. MW4

PROJECT NUMBER: KEI-P89-0703

WELL PERMIT NO.: _____

Flush-mounted Well Cover



A. Total Depth: 29'

B. Boring Diameter*: 9"

Drilling Method: Hollow Stem

Auger

C. Casing Length: 29'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"

ID = 2.067"

E. Depth to Perforations: 5'

F. Perforated Length: 24'

Perforation Type: Machined Slot

Perforation Size: 0.020"

G. Surface Seal: 3'

Seal Material: Concrete

H. Seal: 1'

Seal Material: Bentonite

I. Gravel Pack: 25'

Pack Material: RMC Lonestar Sand

Size: #3

J. Bottom Seal: None

Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

CONFIDENTIAL

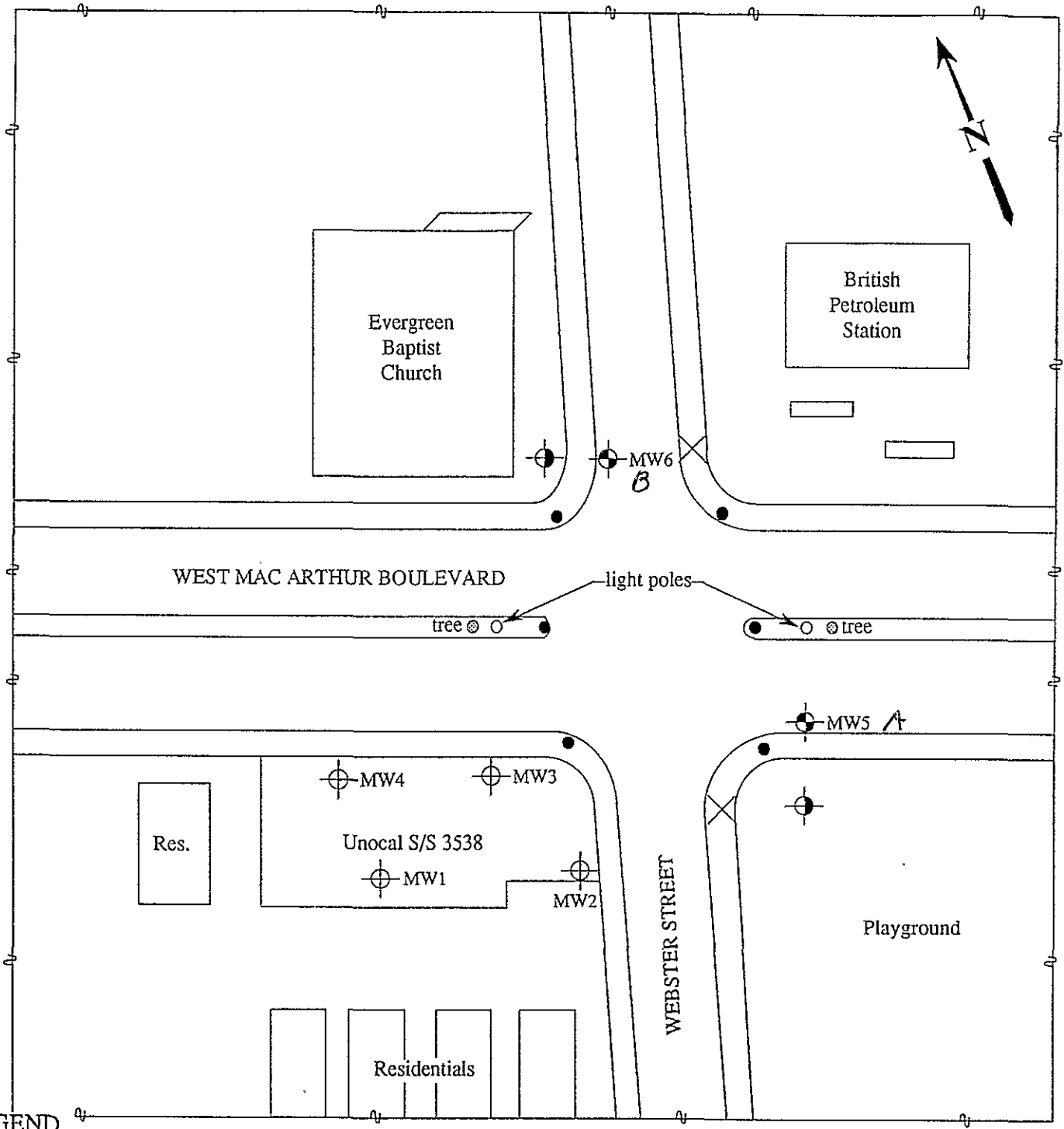
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

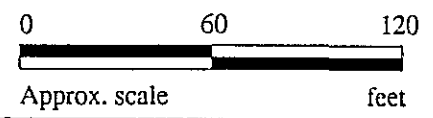
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED



LEGEND

- ⊕ Monitoring well (existing)
- Monitoring well (original proposed location)
- Monitoring well (proposed relocation)
- ⊗ Utility pole and overhead lines
- Traffic lights



LOCATIONS OF PROPOSED OFF-SITE MONITORING WELLS



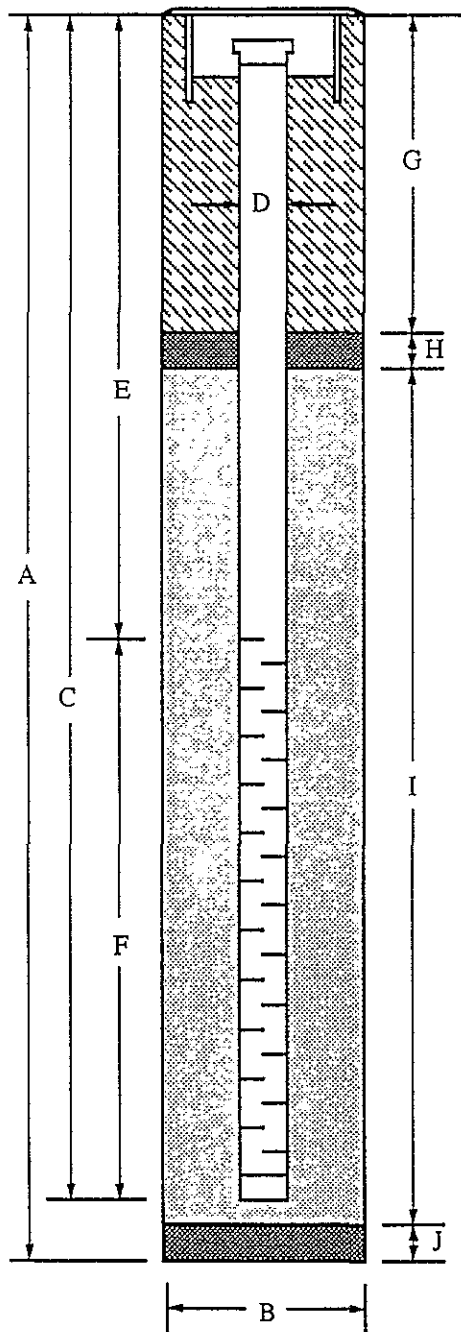
UNOCAL SERVICE STATION # 3538
411 W. MACARTHUR BOULEVARD
OAKLAND, CA

FIGURE
3

413649 A-B

WELL COMPLETION DIAGRAM
(SCHEMATIC)

Flush-mounted Well Cover



WELL DETAILS*

1. Well will be terminated 10 to 15 feet into the first encountered ground water, unless an aquitard five feet or greater in thickness is encountered below the water table, in which case the bottom of the boring will be backfilled with bentonite pellets and the well terminated at the top of this aquitard [A].
2. Boring diameter [B] is 8 inches for 2 inch wells, 10 inches for 4 inch wells, and 12 inches for 6 inch wells.
3. Perforated interval [F] will extend from bottom of casing to five feet above the first encountered ground water table (unless water <5 feet deep).
4. Schedule 40 PVC casing, 2 inch in diameter [D], will be used. Screen is 0.020 or 0.010 inch factory machined slots, depending on filter pack grain size.
5. Filter pack will be placed from bottom of casing to two feet above perforated interval [I]. (Bottom seal [J] is not installed unless required.) One to two feet of bentonite [H] will be placed above the filter pack. Concrete grout [G] will be placed from top of bentonite seal to the surface (unless modified due to shallow water). Blank casing [E] will extend from the top of the perforated casing to the top of the hole.
6. The well will be installed with a waterproof cap, padlock and a flush-mounted well cover.

* See text for additional information.

413649A

01S04W24M06

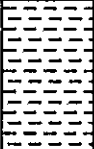
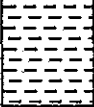


BORING LOG

Project No. KEI-P89-0703	Boring Diameter	9"	Logged By JGG W.W. CEG 1633
	Casing Diameter	2"	
Project Name Unocal S/S #3538 411 West MacArthur Blvd., Oakland	Well Cover Elevation	Date Drilled 11/18/92	
Boring No. MW5	Drilling Method	Hollow-stem Auger	Drilling Company Woodward Drilling Co.

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
		0		Six inches of concrete pavement over sand and gravel base.
			CL	Silty clay, estimated at 35% silt, moist, black, strong brown staining in pores.
8/13/17		5		Silty clay, estimated at 15% silt, 5% sand, and trace gravel to 3/8 inch in diameter, hard, moist, yellowish brown (10YR 5/4) and light brownish gray (10YR 6/2) mottled, trace pores.
			ML	Clayey silt, estimated at 15-20% clay and 5% fine-grained sand, very stiff, moist, pale yellow (2.5Y 7/3), trace pores.
8/11/16		10		
6/10/17		15		Silt, estimated at 5-10% clay, very stiff, moist to very moist, pale yellow (2.5Y 7/3) with slight yellowish brown (10YR 5/6) mottling, trace sand and pores.
			CL	Silt, trace clay, hard, very moist, very pale brown (10YR 7/3) and strong brown (7.5YR 5/6) mottled, slightly micaceous.
10/20/24		20		Silty clay, estimated at 35-40% silt, hard, moist, very pale brown (10YR 5/4) mottled.
8/13/25			ML	Clayey silt, estimated at 15% clay and 5-10% sand, hard, very moist, pale yellow (2.5Y 7/3).

413649A

BORING LOG

Project No. KEI-P89-0703		Boring Diameter 9" Casing Diameter 2"		Logged By JGG W.W. CEG 1633	
Project Name Unocal S/S #3538 411 West MacArthur Blvd., Oakland		Well Cover Elevation		Date Drilled 11/18/92	
Boring No. MW5		Drilling Method Hollow-stem Auger		Drilling Company Woodward Drilling Co.	
Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description	
9/20/36		25	ML		Clayey silt, estimated at 15% clay and 5-10% sand, hard, very moist, pale yellow (2.5Y 7/3).
					Clayey silt, estimated at 20-25% clay and 5% sand, hard, moist, very pale brown (10YR 7/3).
13/19/28		30	CL		Silty clay, estimated at 15-20% fine-grained silt and 5% sand, hard, moist, very pale brown (10YR 7/3), trace organic matter.
					Silty clay, estimated at 15% silt, 5-10% sand, and trace gravel, hard, moist, very pale brown (10YR 7/3).
TOTAL DEPTH: 30'					

413649A

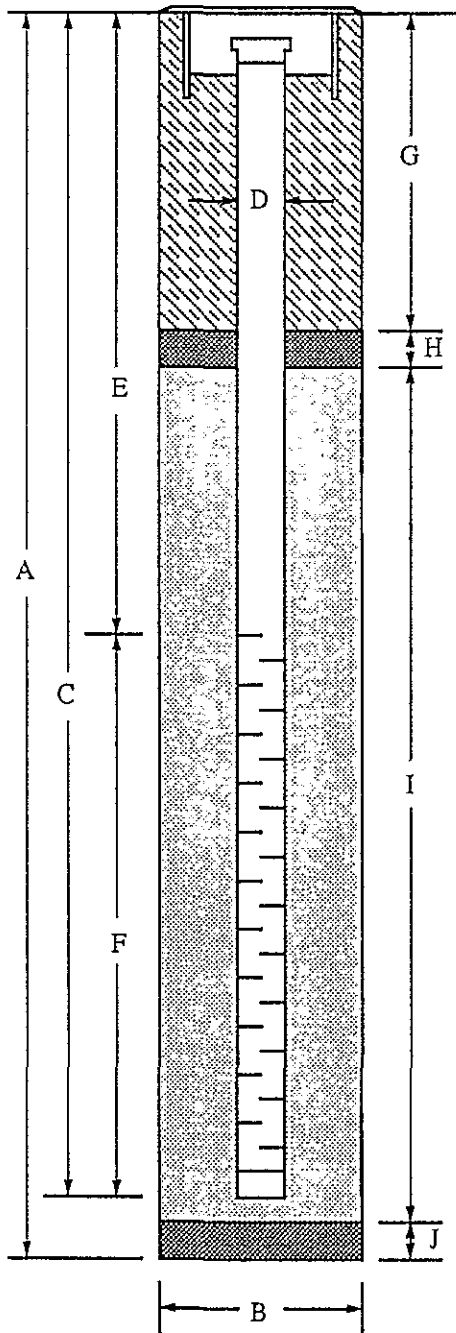
WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal S/S #3538, 411 West MacArthur Blvd., Oakland WELL NO. MW5

PROJECT NUMBER: KEI-P89-0703

WELL PERMIT NO.: 91185


Flush-mounted Well Cover



- A. Total Depth : 30'
- B. Boring Diameter: 9"
- Drilling Method: Hollow Stem Auger
- C. Casing Length: 30'
- Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 13'
- F. Perforated Length: 17'
- Perforation Type: Machined Slot
- Perforation Size: 0.010"
- G. Surface Seal: 9'
- Seal Material: Neat Cement
- H. Seal: 2'
- Seal Material: Bentonite
- I. Filter Pack: 19'
- Pack Material: RMC Lonestar Sand
- Size: 2/12
- J. Bottom Seal: None
- Seal Material: N/A

BORING LOG

Project No. KEI-P89-0703		Boring Diameter 9" Casing Diameter 2"	Logged By JGG W.W. CEG/633
Project Name Unocal S/S #3538 411 West MacArthur Blvd., Oakland		Well Cover Elevation	Date Drilled 11/18/92
Boring No. MW6		Drilling Method Hollow-stem Auger	Drilling Company Woodward Drilling Co.

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati-graphy USCS	Description
		0		Fifteen inches of asphalt pavement.
18/30/34		5	CL	Silty clay, estimated at 20% silt and trace sand, moist, very dark gray. Silty clay, estimated at 20-25% silt and 5% sand, hard, moist, greenish gray (5GY 5/1). Silty clay with sand and gravel, estimated at 15-20% silt. 15% gravel to 2 inches in diameter, and 10-15% sand, hard, moist, greenish gray (5GY 5/1) with strong brown (7.5YR 4/6) staining.
19/23/35		10		Silty clay, estimated at 15% silt and trace sand, hard, moist, greenish gray (5GY 6/1) with slight light yellowish brown (10YR 6/4) mottling.
13/22/27		15		Silty clay, estimated at 20% silt, hard, moist, light yellowish brown (10YR 6/4) with slight light gray (5Y 7/1) staining in pores, trace organic matter.
12/18/20		20	ML	Clayey silt, estimated at 15% clay and 5-10% very fine-grained sand, hard, very moist, light yellowish brown (10YR 6/4).

413649B

BORING LOG

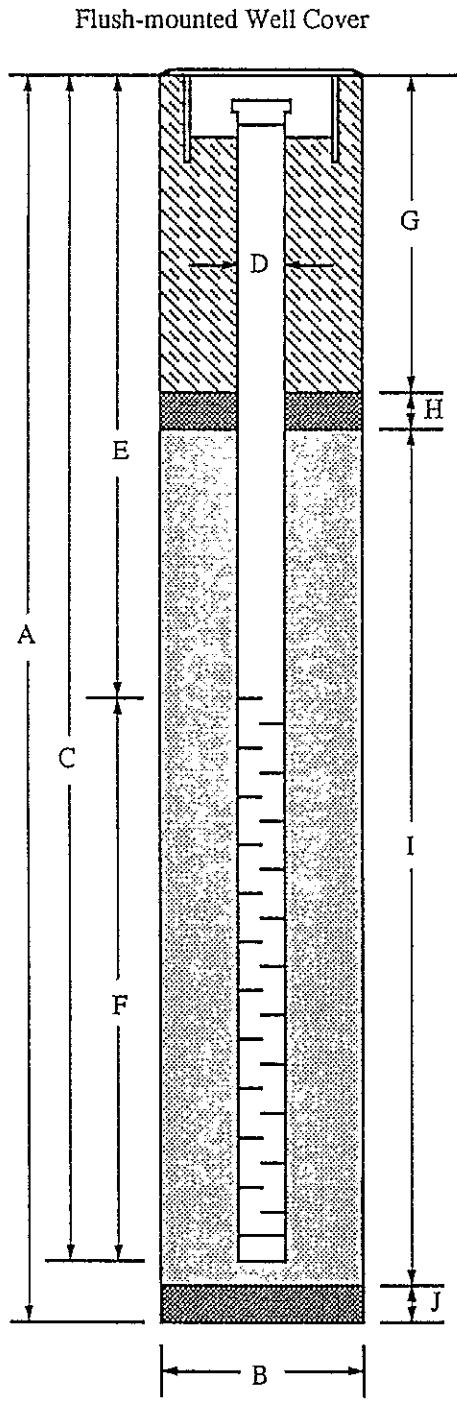
Project No. KEI-P89-0703		Boring Diameter 9" Casing Diameter 2"	Logged By JGG W.W. CEG1633
Project Name Unocal S/S #3538 411 West MacArthur Blvd., Oakland		Well Cover Elevation	Date Drilled 11/18/92
Boring No. MW6		Drilling Method Hollow-stem Auger	Drilling Company Woodward Drilling Co.

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
7/10/13		25	ML	Clayey silt, estimated at 15% clay and trace sand, very stiff. very moist, light yellowish brown.
			CL	Silty clay, estimated at 20-30% slightly elastic silt, very stiff. moist, very pale brown.
8/15/21		30		Silty clay, estimated at 20-25% silt and trace gravel, hard. moist, light yellowish brown (10YR 6/4).
				TOTAL DEPTH: 30'
		35		
		40		

413649B

WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal S/S #3538, 411 West MacArthur Blvd., Oakland WELL NO. MW6
 PROJECT NUMBER: KEI-P89-0703
 WELL PERMIT NO.: 91185

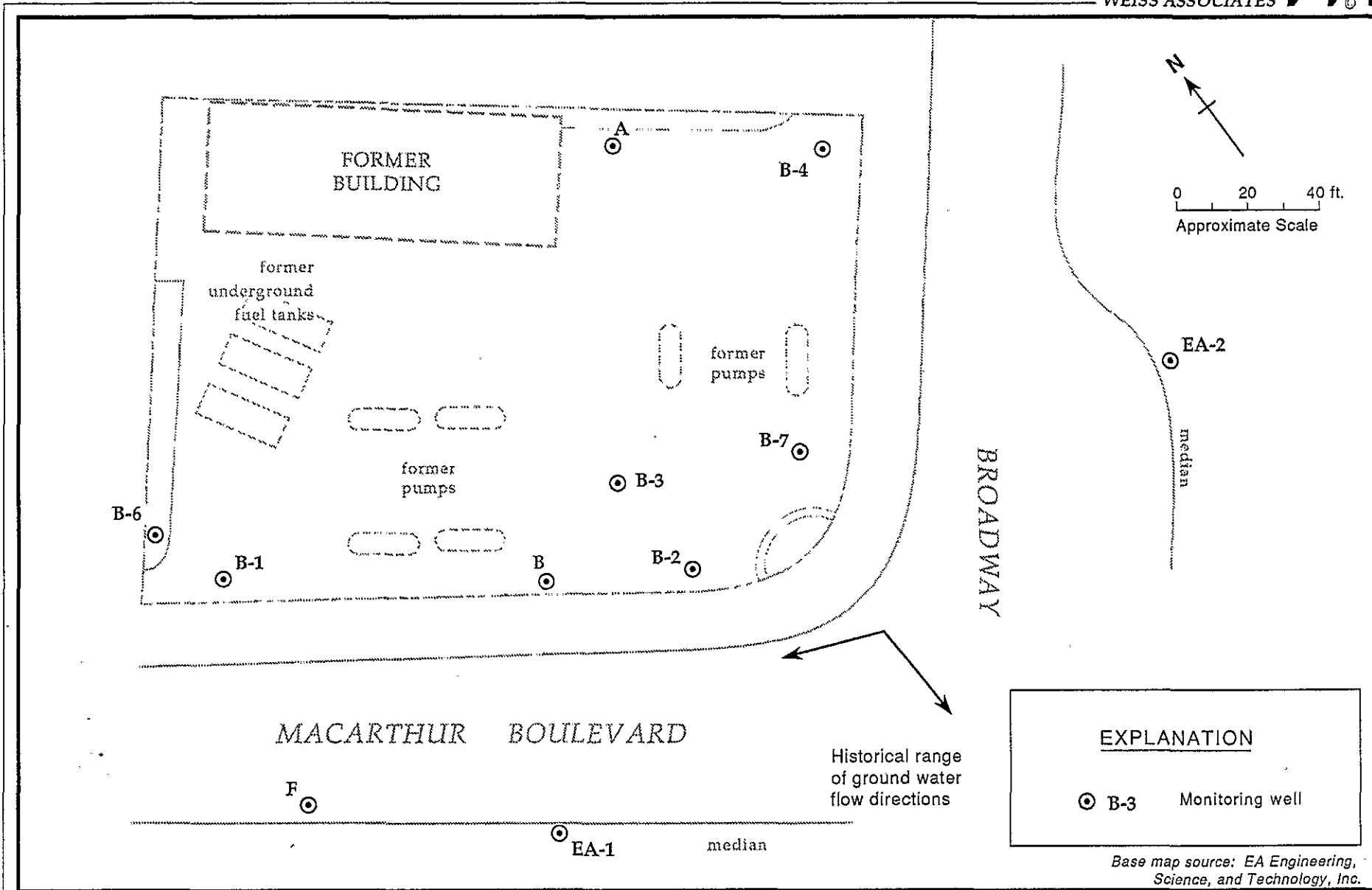


- A. Total Depth : 30'
- B. Boring Diameter: 9"
 Drilling Method: Hollow Stem Auger
- C. Casing Length: 30'
 Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 13'
- F. Perforated Length: 17'
 Perforation Type: Machined Slot
 Perforation Size: 0.010"
- G. Surface Seal: 9'
 Seal Material: Neat Cement
- H. Seal: 2'
 Seal Material: Bentonite
- I. Filter Pack: 19'
 Pack Material: RMC Lonestar Sand
 Size: 2/12
- J. Bottom Seal: None
 Seal Material: N/A

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED



EXPLANATION	
⊙ B-3	Monitoring well

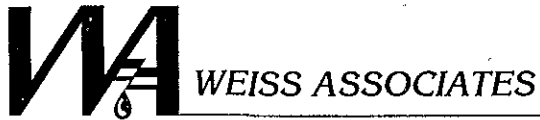
Base map source: EA Engineering, Science, and Technology, Inc.

Monitoring Well Locations - Former Chevron Service Station #9-1026, 3701 Broadway, Oakland, California

925191

15/40 2ANI-2, 14

325191



Geologic and Environmental Services

Fax: 415-547-5043

15/4W 24 N (122?)

Phone: 415-547-5420

5500 Shellmound Street, Emeryville, CA 94608

91277
PERMIT 91289

June 25, 1991

Ms. Nancy Vukelich
Chevron USA
P.O. Box 5004
San Ramon, CA 94583-0804

Re: Former Chevron Service Station #9-1570
3701 Broadway
Oakland, California
WA Job #4-418-01


Dear Ms. Vukelich:

This letter documents Weiss Associates' (WA) destruction of monitoring wells B-6 and B-7, and the reconstruction of monitoring well B at the site referenced above. The well destruction and reconstruction activities were performed by Soils Exploration Services of Vacaville, California (license No. C-57 582696) under the direction of WA Staff Geologist Robert E. Kitay and the supervision of James W. Carmody, Certified Engineering Geologist No. 1576.

Monitoring wells B-6 and B-7, constructed of corrugated steel casing, were destroyed by pressure grouting Portland Type I,II cement mixed with 3 to 5% bentonite powder by volume into the wells. The upper portions of the corrugated steel casings could not be removed and were left in place. Therefore, we extended the grout to the ground surface and completely sealed the existing concrete vaults with neat cement.

Monitoring well B was reconstructed by installing a smaller diameter casing inside the existing 12-inch diameter well. The new well was screened with 4-inch diameter 0.02-inch slotted schedule 40 PVC casing from 15 to 35 ft depth. The upper 15 ft of well consists of 4-inch diameter blank PVC casing. The annular space between the existing and the new well was filled with #3 Lonestar Monterey sand from 13 to 35 ft depth, a hydrated bentonite layer from 11 to 13 ft depth, and a sanitary seal consisting of Portland Type I, II cement mixed with 3 to 5% bentonite powder by volume from 11 ft to the ground surface. The existing concrete vault was not changed since this well may be used for ground water extraction and the wellhead and vault may be modified in the future.

325191

15/4W 24/N14
15/4W 24/N1-2
WEISS ASSOCIATES 

Ms. Nancy Vukelich
June 25, 1991

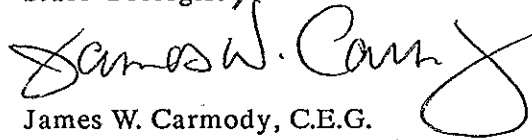
2

We are pleased to provide hydrogeologic consulting services to Chevron and trust that this letter meets your needs. If you have any questions, please feel free to call.

Sincerely,
Weiss Associates,



Robert E. Kitay
Staff Geologist



James W. Carmody, C.E.G.
Senior Project Hydrogeologist

C:\WP51\REK\CHEVRON\LETTERS\418L1JN1.WP

cc: Mr. Wyman Hong, Alameda County Flood Control and Water Conservation District -
Zone 7, 5997 Parkside Drive, Pleasanton, CA 94588

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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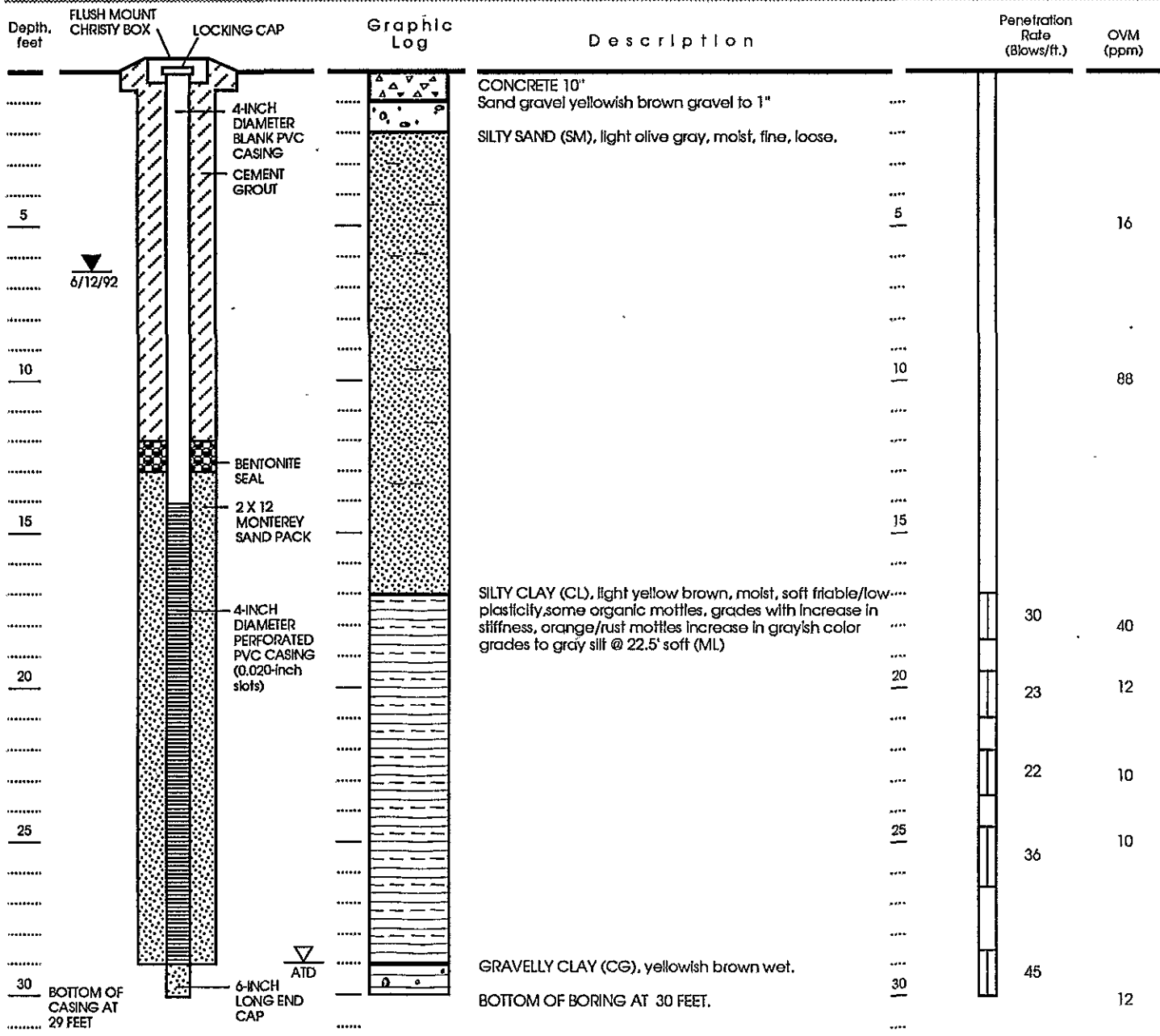
292

905226

WELL CONSTRUCTION

LITHOLOGY

SAMPLE DATA



EXPLANATION

- Clay
- Silt
- Sand
- Gravel

- Split Spoon Sampler
- Water level at time of drilling
- ATD
- OVM Organic Vapor Meter reading in parts per million (ppm)

Well Permit No.: 92411
 Date well drilled: August 27, 1992
 Sampling method: 5' Core Split Spoon
 Hammer weight: 140 lbs.
 LF Geologist: Ron Golubow

Approved by:

Figure : WELL CONSTRUCTION AND LITHOLOGY FOR WELL LF5-R

Project No. 1547.04

LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

REG 10 NOV 92 JMLF5-R

phs 1-510 - 6524500

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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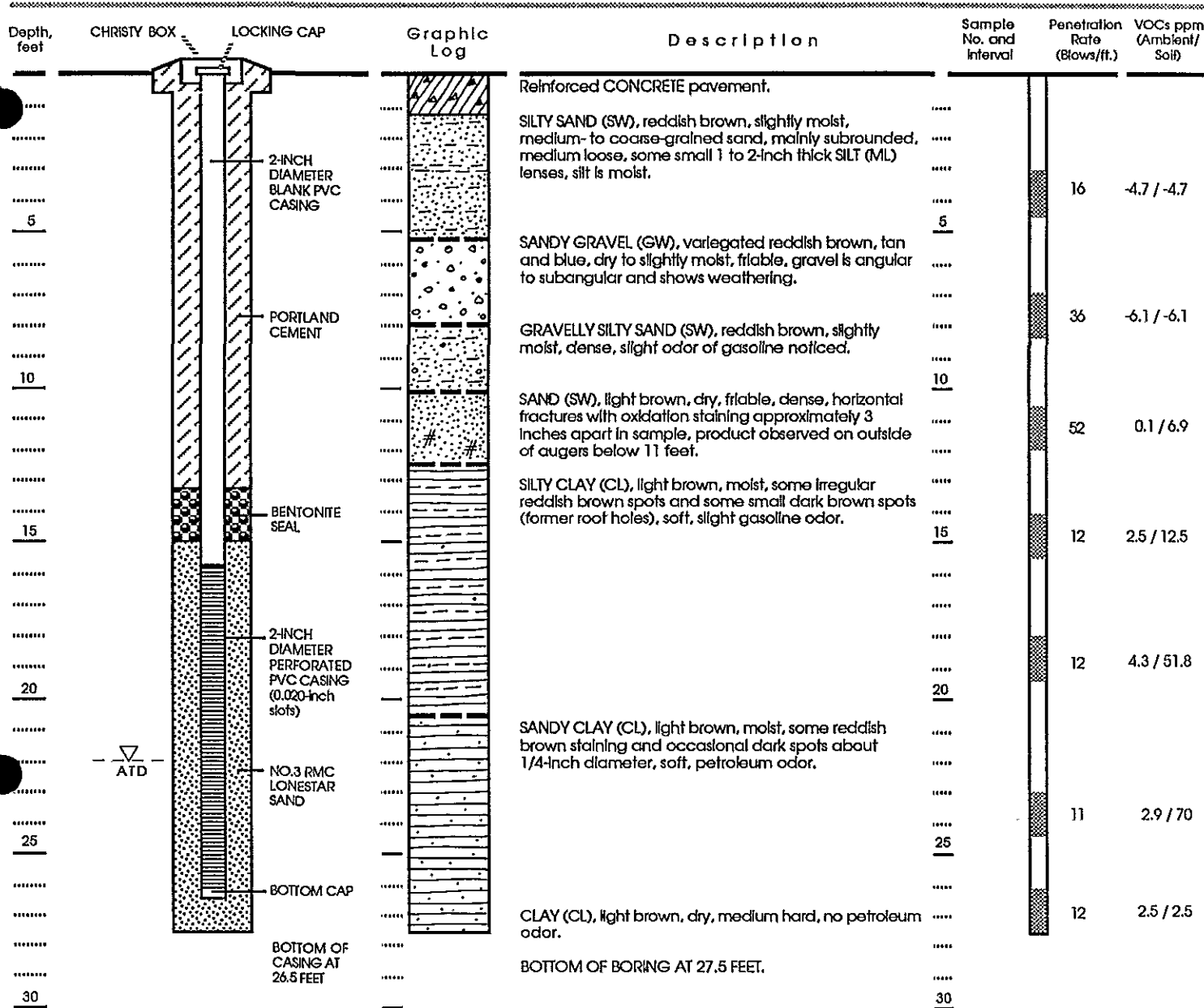
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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

WELL CONSTRUCTION

LITHOLOGY



Well Permit No. 89505

Date well drilled: 30 September 1989

Date water level measured:

Well elevation: 98.405 feet

LF Geologist: John Sturman

EXPLANATION

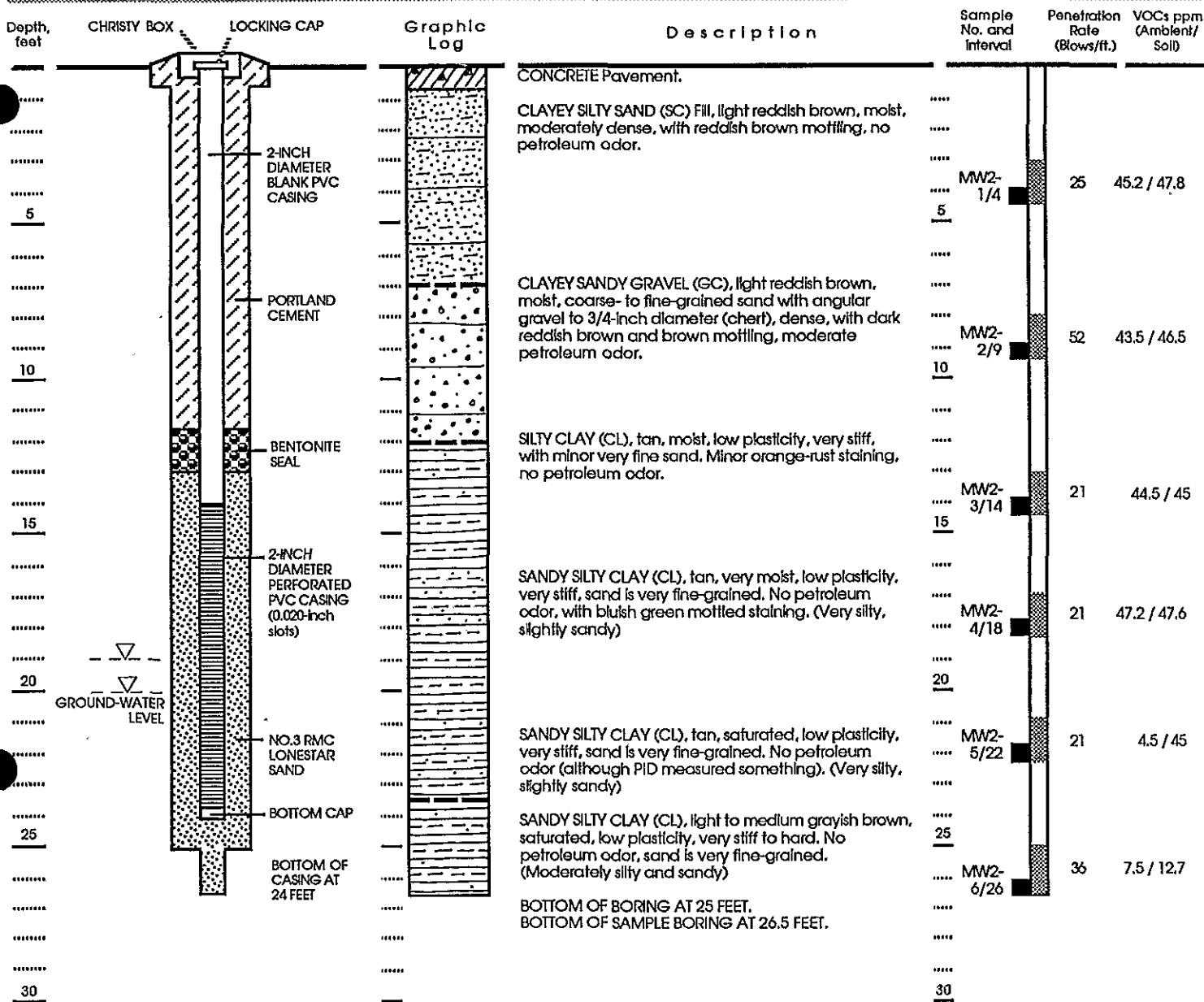
- Clay
- Silt
- Sand
- Gravel
- Modified California Sampler
- ATD At Time of Drilling

Approved by: *[Signature]*
RG 4605

Figure : WELL CONSTRUCTION AND LITHOLOGY FOR WELL MW-1

WELL CONSTRUCTION

LITHOLOGY



Well Permit No. 89505

Date well drilled: 6 November 1989

Date water level measured:

Well elevation: 96.875 feet

LF Geologist: Julie Sharp

EXPLANATION

- Clay
- Silt
- Sand
- Gravel
- Modified California Sampler
- Sample retained for analysis

Approved by: *[Signature]*
R.G. 4605

Figure : WELL CONSTRUCTION AND LITHOLOGY FOR WELL MW-2

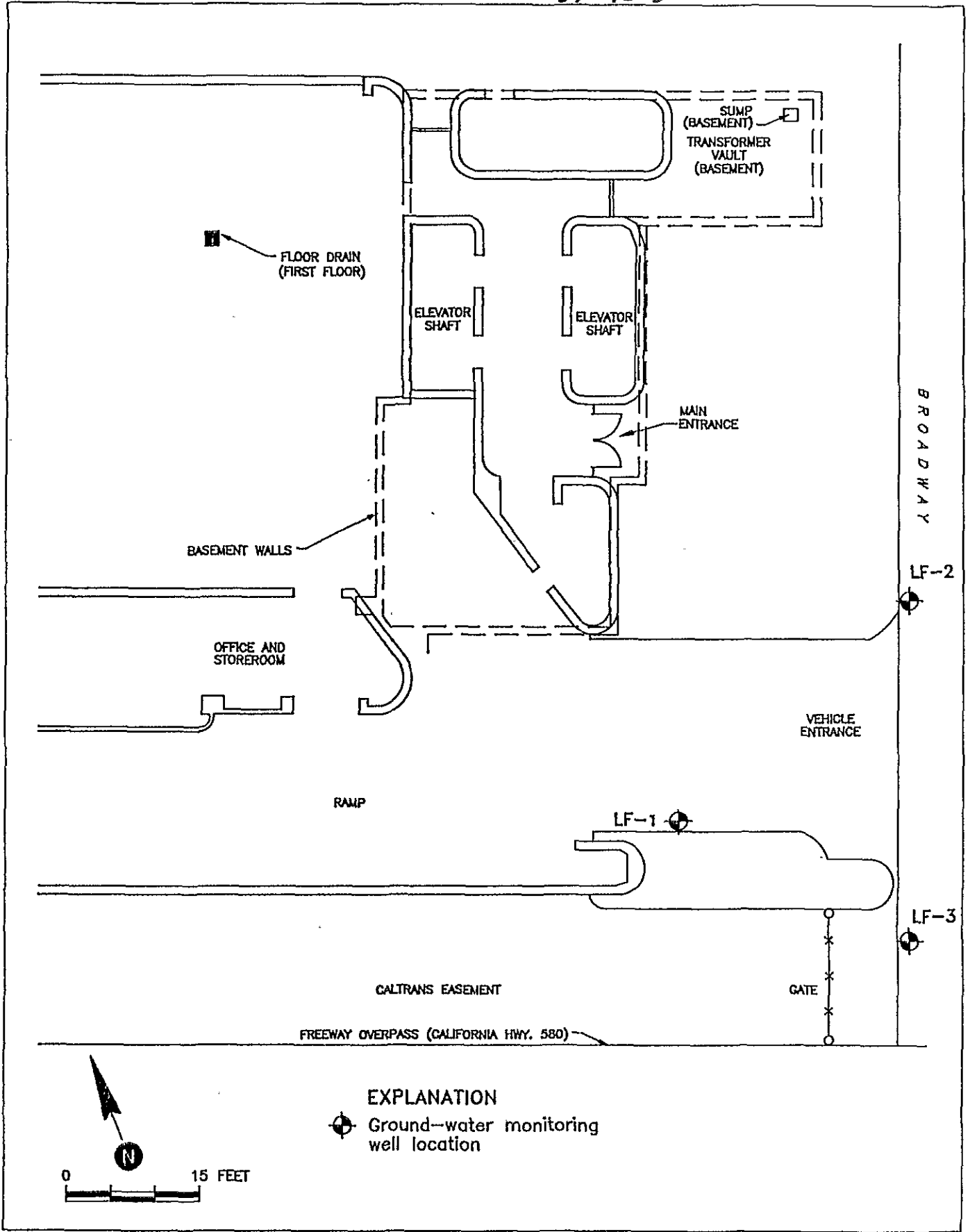
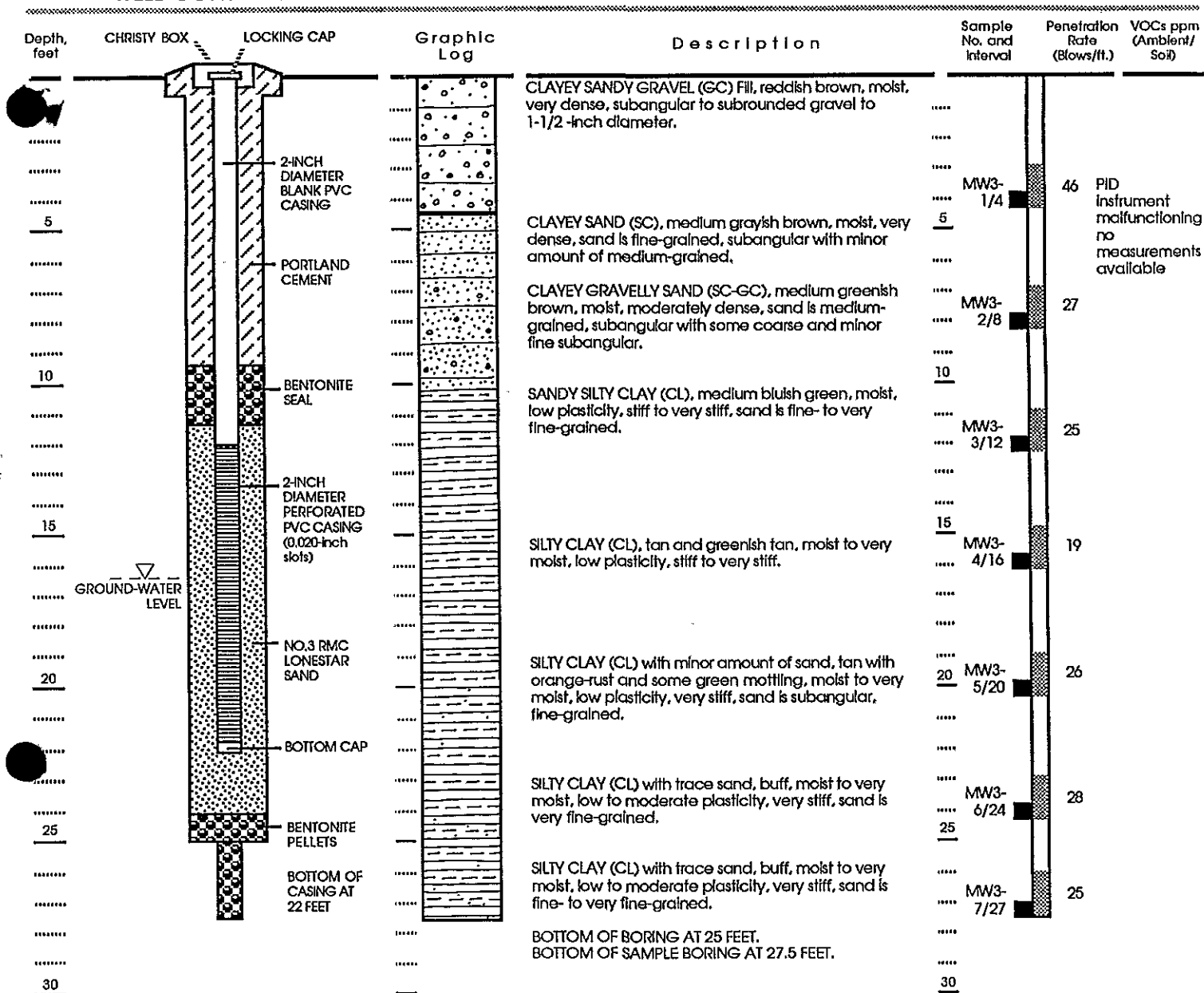


Figure 2 : SITE PLAN AND MONITORING WELL LOCATIONS

WELL CONSTRUCTION

LITHOLOGY



Well Permit No. 89505







Date well drilled: 6 November 1989

Date water level measured:

Well elevation: 95.980 feet

LF Geologist: Julie Sharp

EXPLANATION

-  Clay
-  Silt
-  Sand
-  Gravel
-  Modified California Sampler
-  Sample retained for analysis

Approved by: *[Signature]*
RG 4605

Figure : WELL CONSTRUCTION AND LITHOLOGY FOR WELL MW-3

01-430C

15/4W 24N5

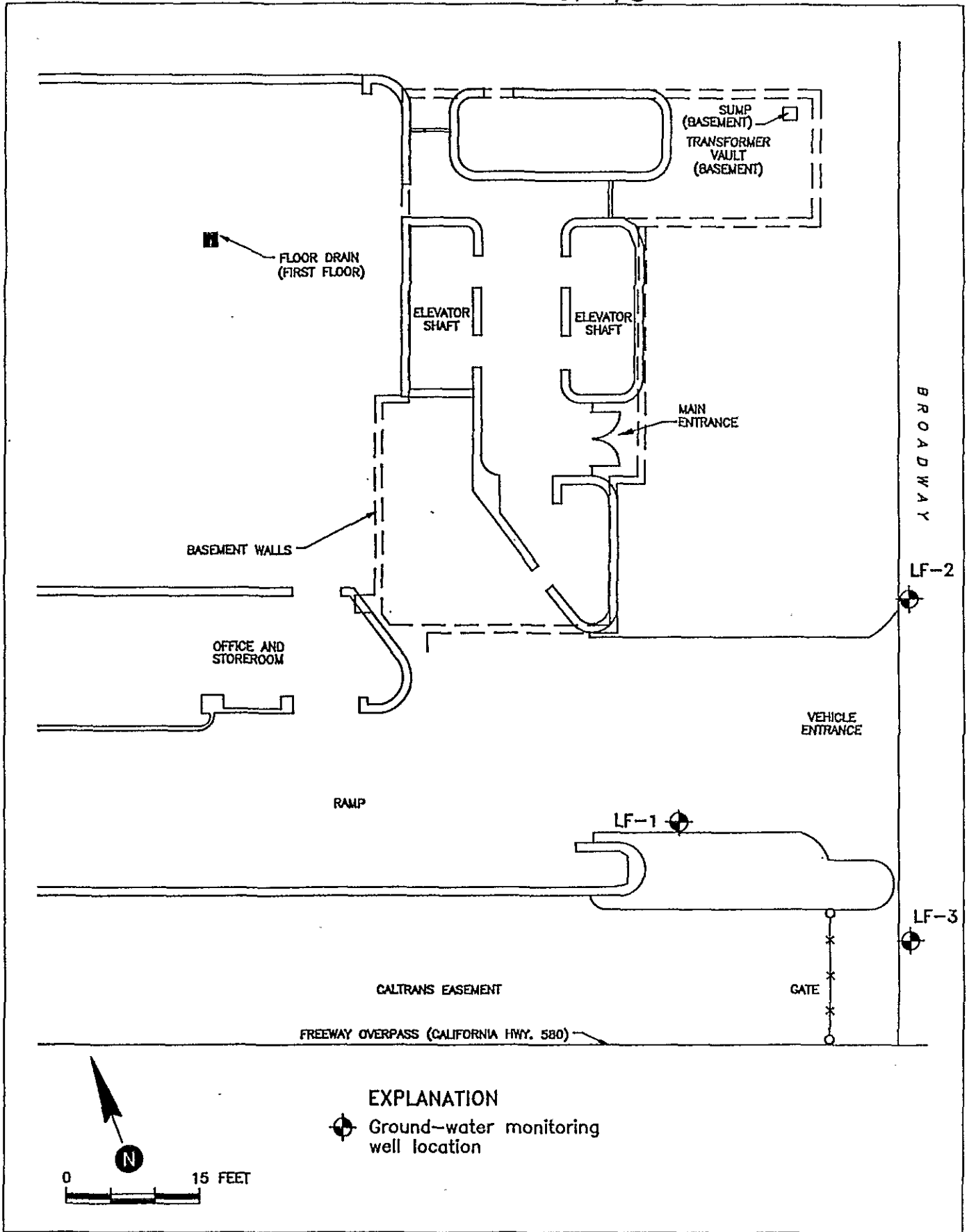


Figure 2: SITE PLAN AND MONITORING WELL LOCATIONS

15/4W

24N7

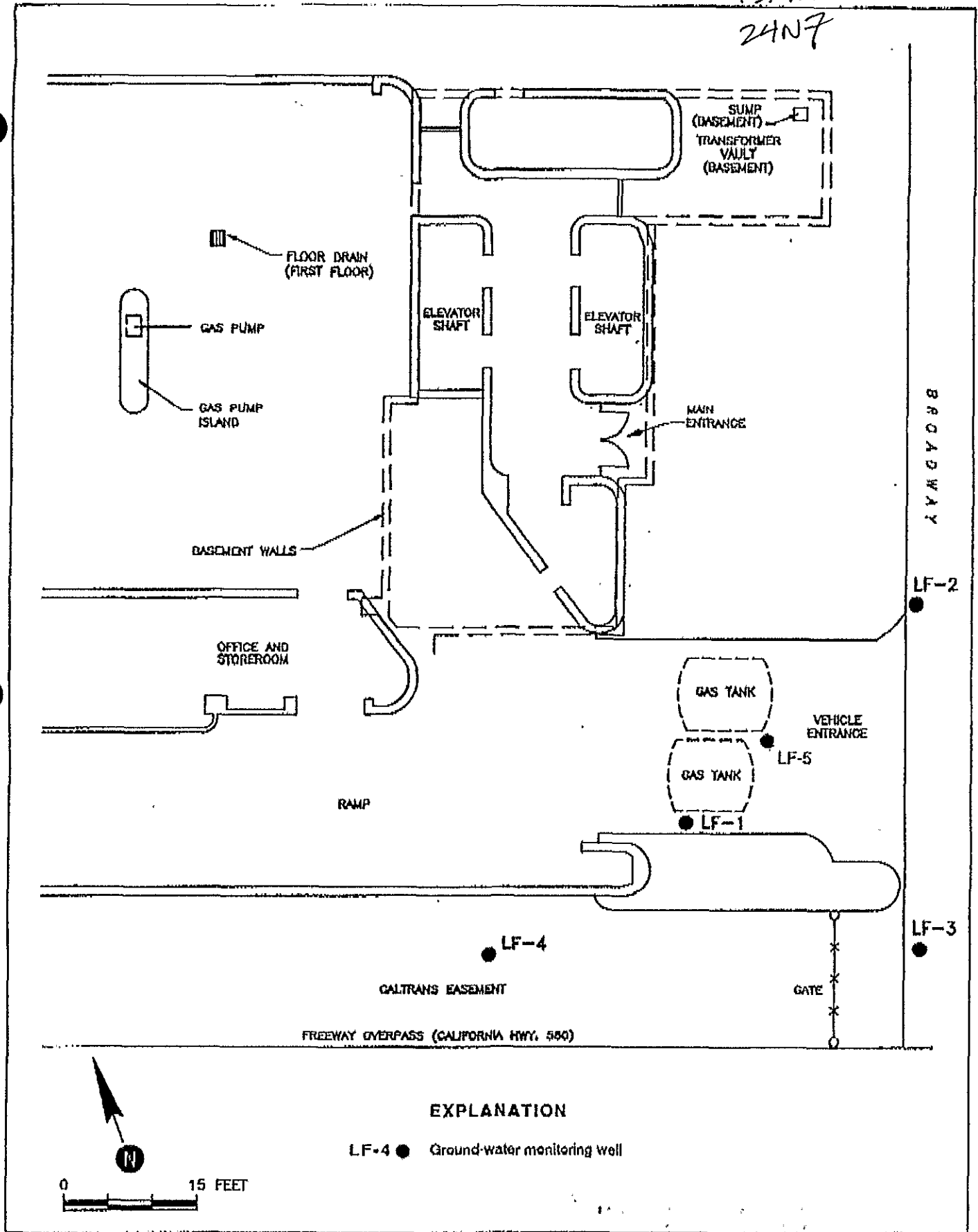
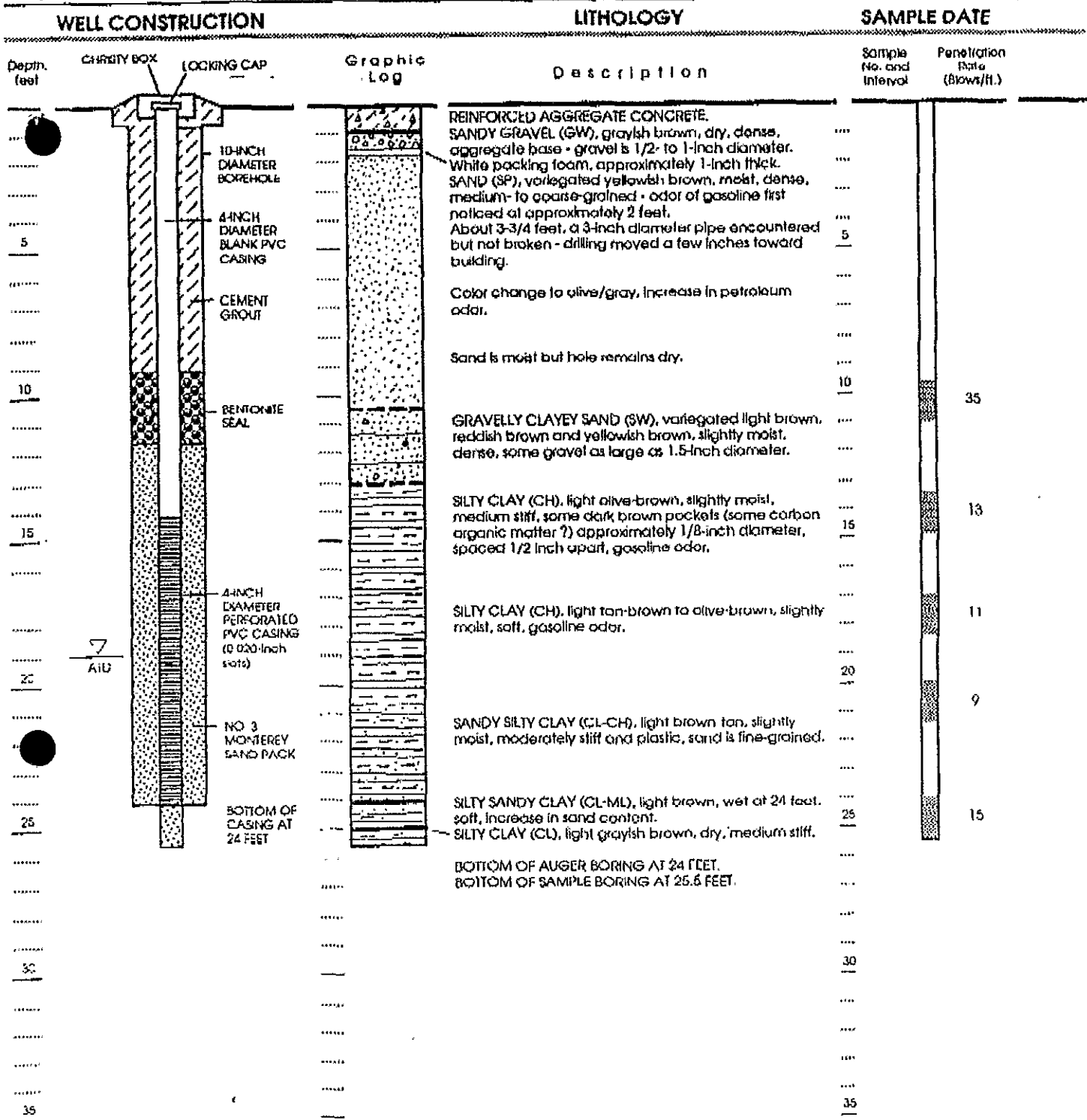


Figure 2 : SITE LOCATION MAP



EXPLANATION

- Clay
- Silt
- Sand
- Gravel

Date well drilled: December 16, 1990
 Well elevation: 18.46 feet
 Hammer weight: 140 lbs/30-inch
 U Geologists: John Sturman & Ron Golubow

Modified California Sampler

Water level at time of drilling

Approved: *[Signature]* RG #4605

Figure : WELL CONSTRUCTION AND LITHOLOGY FOR WELL LF-5

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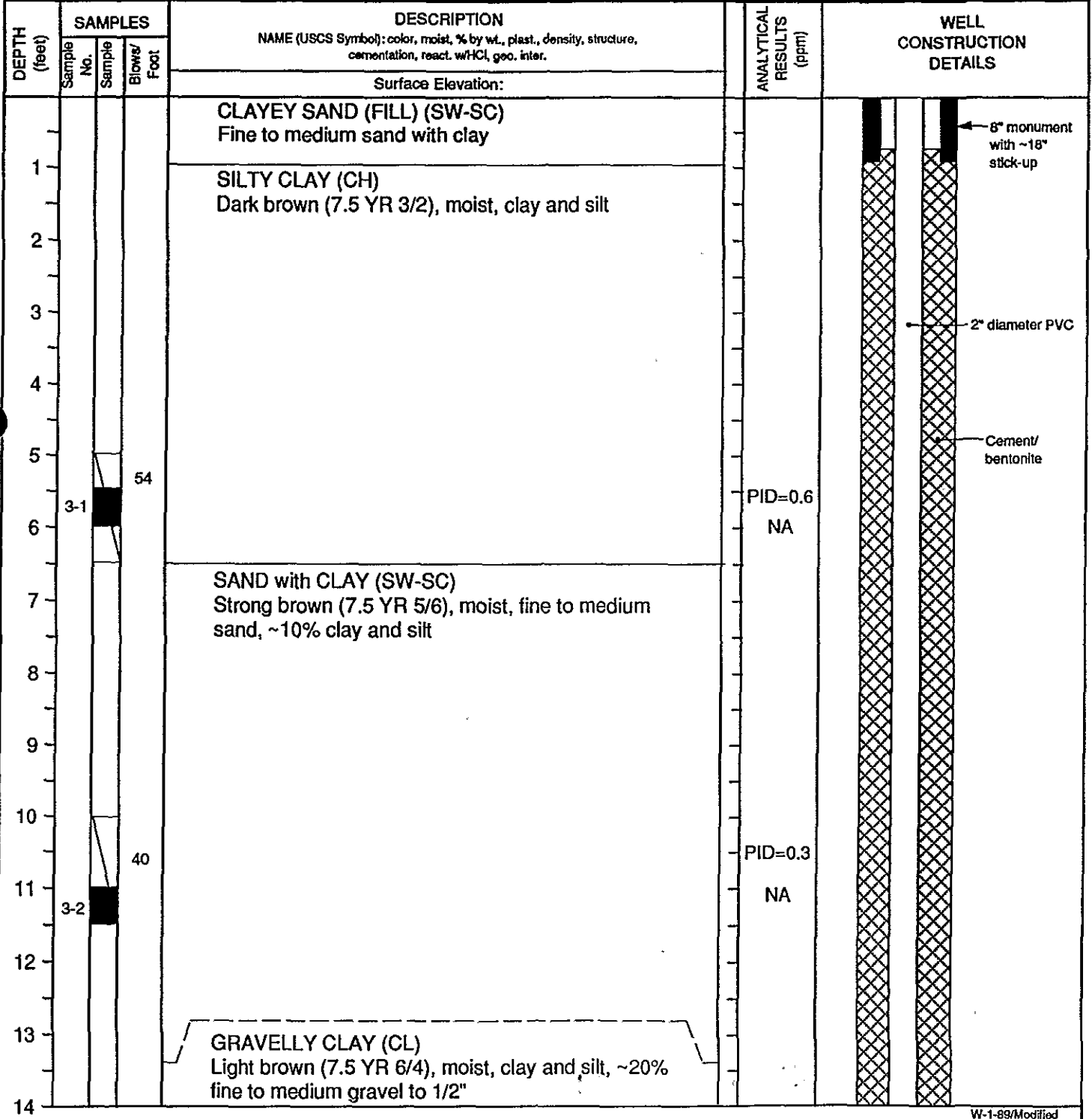
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

343406

15/4W 24N8

PROJECT: KAISER Oakland, California		Log of Well No. MW-3	
BORING LOCATION: Picnic area at top of slope		ELEVATION AND DATUM: 102.04 feet City of Oakland	
DRILLING CONTRACTOR: Weeks		DATE STARTED: 11/15/90	DATE FINISHED: 11/15/90
DRILLING METHOD: 8" Hollow stem auger		TOTAL DEPTH: 43.5 feet	SCREEN INTERVAL: 38 - 41
DRILLING EQUIPMENT: Mobil		DEPTH TO WATER ATD: NA	CASING: 2" diameter SCH 40 PVC
SAMPLING METHOD: 2 1/2" California		LOGGED BY: D. Wuthrich	
HAMMER WEIGHT: 140 lbs.	DROP: 30 inches	RESPONSIBLE PROFESSIONAL: J.D. Gallinatti	REG. NO. CEG 1335



W-1-89/Modified

343406

154W 24N8

PROJECT: KAISER
Oakland, California

Log of Well No. MW-3 (cont'd.)

DEPTH (feet)	SAMPLES			DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	ANALYTICAL RESULTS (ppm)	WELL CONSTRUCTION DETAILS
	Sample No.	Sample	Blows/Foot			
15						
16	3-3		50	Gradational over 1 foot SANDY CLAY (CL) Light brown (7.5 YR 6/4), moist, clay and silt, ~20% fine to medium sand, no gravel	PID=0 NA	2" diameter PVC
17						
18						
19						
20				Gradational over 1 foot		
21			65	SILTY CLAY (CL) Light brown (7.5 YR 6/4), moist, clay and silt	PID=0 NA	Cement grout
22	3-4					
23			56			
24			45			
25				~25% fine sand		
26			95 for 11"		Mineral spirits <10	
27	3-5			SAND (SP) Light brown (7.5 YR 6/4), moist, fine to medium sand, ~5% silt and clay		
28			70			
29			55			
30				CLAYEY SAND (SC) Light brown (7.5 YR 6/4), moist, fine, subrounded sand, ~25% to 50% silt and clay		
31						

W-2-89/Modified

PROJECT: KAISER
Oakland, California

Log of Well No. MW-3 (cont'd.)

DEPTH (feet)	SAMPLES			DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	ANALYTICAL RESULTS (ppm)	WELL CONSTRUCTION DETAILS
	Sample No.	Sample	Blows/ Foot			
32	3-6		68	SILTY CLAY (CL) Brownish yellow (10 YR 6/6), moist, clay and silt	PID=0.3 Mineral spirits <10	Cement grout 2" diameter PVC
33			43			
34			40			
35						
36			75			Bentonite pellets, 1/4" diameter
37			40		PID=0	
38	3-7			SANDY SILT (ML) Brownish yellow (10 YR 6/6), silt, ~50% fine to very fine sand, ~5% clay	Mineral spirits <10	Lonestar #3 sand 2" diameter PVC, screened, flush threaded, 0.020" slot
39			50			
40						
41			90	SILTY CLAY (CL) Brownish yellow (10 YR 6/6), moist, clay and silt		Bentonite pellets, 1/4" diameter, hydrated
42			30			
43	3-8			Bottom of hole at 43.5 feet	Mineral spirits <10	
44						
45						
46						
47						
48						

W-2-89/Modified

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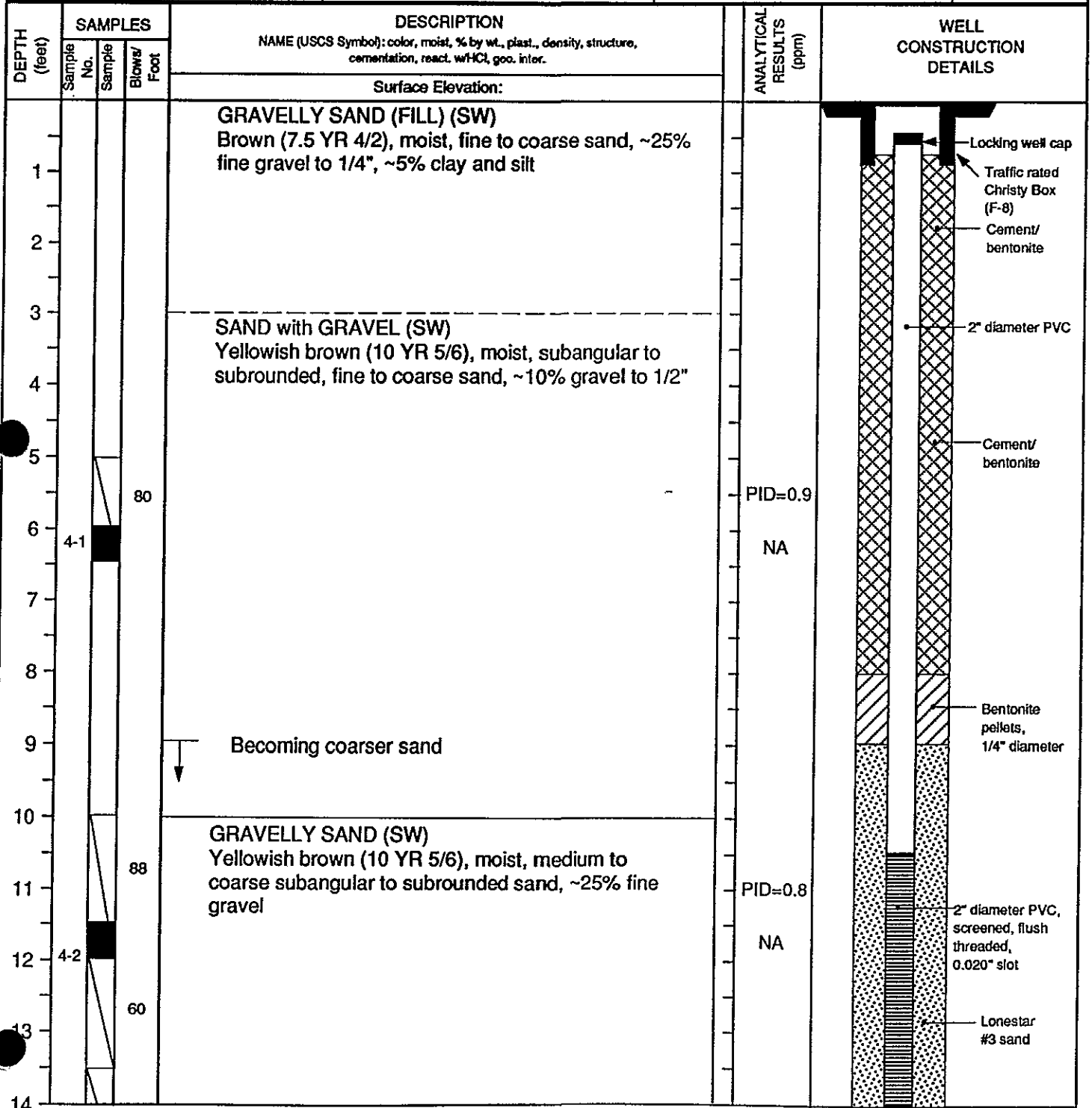
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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343407

154W 24N9

PROJECT: KAISER Oakland, California		Log of Well No. MW-4	
BORING LOCATION: At northeast end of new building		ELEVATION AND DATUM: 82.57 feet City of Oakland	
DRILLING CONTRACTOR: Weeks		DATE STARTED: 11/16/90	DATE FINISHED: 11/16/90
DRILLING METHOD: 8" Hollow stem auger		TOTAL DEPTH: 22 feet	SCREEN INTERVAL: 10.5 - 20.5
DRILLING EQUIPMENT: Mobil		DEPTH TO WATER ATD: N/A	CASING: 2" diameter SCH 40 PVC
SAMPLING METHOD: 2 1/2" California		LOGGED BY: D. Wuthrich	
HAMMER WEIGHT: 140 lbs.	DROP: 30 inches	RESPONSIBLE PROFESSIONAL: J.D. Gallnatti	REG. NO. CEG 1335



PROJECT: KAISER
Oakland, California

Log of Well No. MW-4 (cont'd.)

Depth (feet)	SAMPLES			DESCRIPTION NAME (USCS Symbol); color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	ANALYTICAL RESULTS (ppm)	WELL CONSTRUCTION DETAILS
	Sample No.	Sample	Blews/ Foot			
15	4-3		65	Subangular gravel to 1/4", ~30% coarse sand	Mineral spirits <10	
16			90	Very fine sand, no gravel, ~50% silt		
17			40	SILTY SAND (SW-SM) Light yellowish brown (10 YR 6/4), moist, very fine to fine subrounded sand, ~10 - 25% silt, ~5% clay	Mineral spirits <10	
18			48			
19			48	SILTY CLAY (CL) Pale brown (10 YR 6/3), moist, clay and silt, no sand	Mineral spirits <10	
20	4-4		73			
21			73	Bottom of hole at 22 feet	Mineral spirits <10	
22	4-5					
23						
24						
25						
26						
27						
28						
29						
30						
31						

W-2-89/Modified

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

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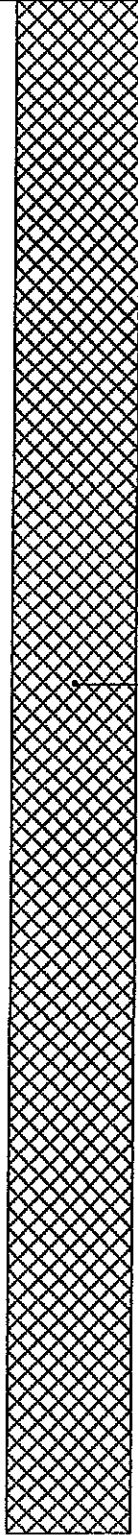
IS/4W/24N10

PROJECT: KAISER Oakland, California		Log of Well No. MW-1	
BORING LOCATION: End of corridor, boiler room		ELEVATION AND DATUM: 71.78 feet City of Oakland	
DRILLING CONTRACTOR: Clearheart		DATE STARTED: 11/7/90	DATE FINISHED: 11/8/90
DRILLING METHOD: 6" Hollow stem auger		TOTAL DEPTH: 30 feet	SCREEN INTERVAL: 3.5 - 7.5
DRILLING EQUIPMENT: Giddings Probe		DEPTH TO WATER ATD: 6 1/2 feet	CASING: 2" diameter SCH 40 PVC
SAMPLING METHOD: 2 1/2" California (CA), 2" split-spoon (2"), standard pen (p)		LOGGED BY: D. Wuthrich	
HAMMER WEIGHT: 140 lbs.	DROP: 30 inches	RESPONSIBLE PROFESSIONAL: J.D. Gallinatti	REG. NO. CEG 1335

DEPTH (feet)	SAMPLES			DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	ANALYTICAL RESULTS (ppm)	WELL CONSTRUCTION DETAILS
	Sample No.	Sample	Blows/Foot			
Surface Elevation: _____						
1	CA		4	6" concrete		
2				SAND with CLAY (SW-SC) Brown (7.5 YR 5/4), moist, fine to coarse subangular sand, ~10% clay and silt, ~5% gravel	Mineral spirits <10	
3	2"		6			
4	1-1					
5	p		7	SANDY GRAVEL with CLAY (GC) Light brown (7.5 YR 6/4), moist, angular medium gravel, (chert, lithic fragments) to 1/2" - 3/4", ~25% medium to coarse sand, ~10% silt and clay	Mineral spirits <10	
6	CA		33			
7	2"		39			
8	1-2			SILTY CLAY (CL) Yellowish brown (10 YR 5/4), dry, no sand	Mineral spirits <10	
9	p		24			
10						
11	CA		33	Black mottling		
12	2"		34			
13	1-3				NA	

PROJECT: KAISER
Oakland, California

Log of Well No. MW-1 (cont'd.)

DEPTH (feet)	SAMPLES			DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	ANALYTICAL RESULTS (ppm)	WELL CONSTRUCTION DETAILS
	Sample No.	Sample	Blows/ Foot			
14	p		14	Mottled gray color		 <p>Neat cement</p>
15						
16	CA		41	SILTY SAND (SM) Yellowish brown (10 YR 5/4) with black mottling, dry to moist, very fine to fine subrounded sand, ~25% silt, ~5% clay		
17	2"		29		Mineral spirits <10	
18	1-4					
19	p		20			
20						
21	CA		41	SILTY CLAY (CL) Brown (10 YR 5/3), dry to moist, clay and silt, no sand		
22	2"		47		NA	
23	1-5					
24	p		28	5 - 10% angular gravel to 1/4"		
25						
26	CA		49			
27	2"		95 for 11"	CLAYEY GRAVEL with SAND (GC) Reddish brown (2.5 YR 5/4), moist, medium to fine gravel, ~20% clay and 10% medium sand	NA	
28	1-5					
29	p		68			
30				Bottom of hole at 30 feet		

W-2-89/Modified

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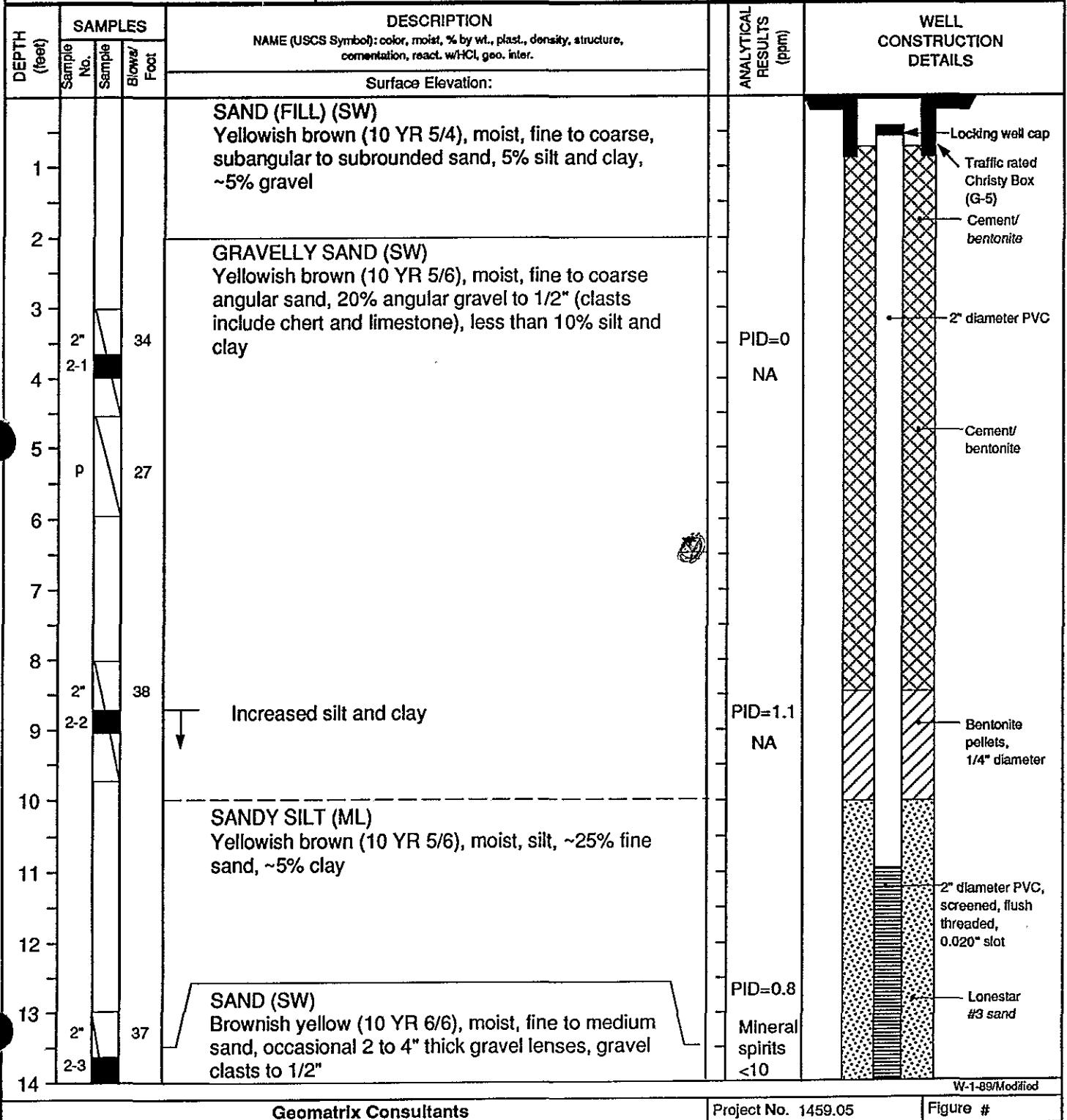
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

343405

15/4W 24N11

PROJECT: KAISER Oakland, California		Log of Well No. MW-2	
BORING LOCATION: Top of stairs, at 2 cooling towers		ELEVATION AND DATUM: 82.10 feet City of Oakland	
DRILLING CONTRACTOR: Clearheart		DATE STARTED: 11/8/90	DATE FINISHED: 11/8/90
DRILLING METHOD: 6" Hollow stem auger		TOTAL DEPTH: 22 feet	SCREEN INTERVAL: 11 - 21
DRILLING EQUIPMENT: Giddings Probe		DEPTH TO WATER ATD: 19.7 feet	CASING: 2" diameter SCH 40 PVC
SAMPLING METHOD: 2 1/2" California (CA), 2" split-spoon (2"), standard pen (p)		LOGGED BY: D. Wuthrich	
HAMMER WEIGHT: 140 lbs.	DROP: 30 inches	RESPONSIBLE PROFESSIONAL: J.D. Gallinatti	REG. NO. CEG 1335



343405 15/4W-24NH

PROJECT: KAISER
Oakland, California

Log of Well No. MW-2 (cont'd.)

DEPTH (feet)	SAMPLES			DESCRIPTION NAME (USCS Symbol); color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	ANALYTICAL RESULTS (ppm)	WELL CONSTRUCTION DETAILS
	Sample No.	Sample	Blows/ Foot			
15						<p>2" diameter PVC, screened, flush threaded, 0.020" slot</p> <p>Lonestar #3 sand</p> <p>Slough</p>
16	CA		44		Mineral spirits <10	
17	2"		42	SANDY GRAVEL Yellowish brown (10 YR 5/4), moist, gravel to 1/2", ~30% fine to coarse sand		
18	2-4					
19	p		19	SAND (SW) Brownish Yellow (10 YR 6/6), moist, fine to medium angular sand, ~5% silt and clay, ~5% gravel to 1/4"		
20						
21	CA		31	SILTY CLAY (CL) Light yellowish brown 910 yr 6/4), moist, clay and silt, no sand		
22				Bottom of hole at 22 feet		
23						
24						
25						
26						
27						
28						
29						
30						
31						

W-2-89/Modified

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

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**STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)**

REMOVED

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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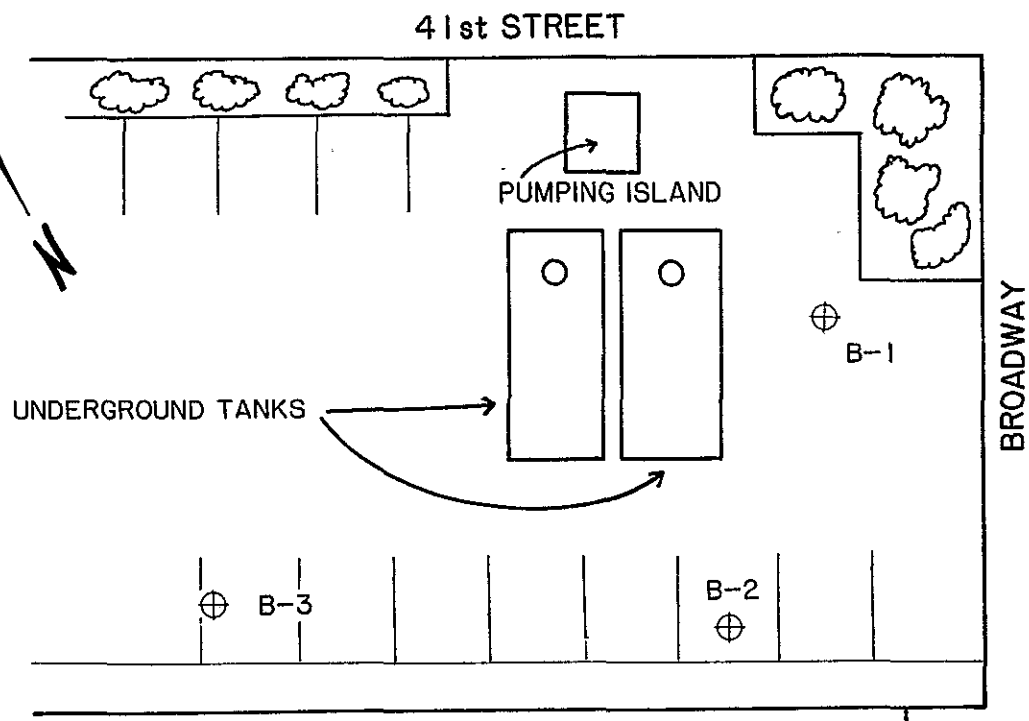
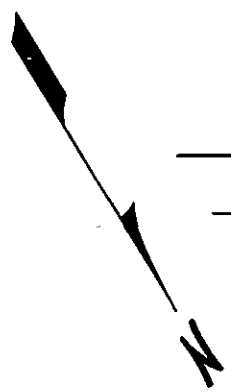
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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LEGEND

SCALE 1" = 15ft.

B-1
 ⊕ BOREHOLE LOCATION

J.H. KLEINFELDER & ASSOCIATES
 GEOTECHNICAL CONSULTANTS • MATERIALS TESTING
 LAND AND WATER RESOURCES



SOUTHLAND CORPORATION
 7-11
 4100 BROADWAY, OAKLAND

PLATE

2

PROJECT NO. B-1628-1

GENERAL SITE PLAN

Depth In Feet	Blow/ Ft.	Sample No.	USCS	DESCRIPTION	WELL CONST.
0				Asphalt - 6 inches	
2			CL	CLAY - black to green, moist, medium plasticity, firm, NOSC	
4					
6	--	S-5-1			
8			SC	CLAYEY SAND - reddish-brown, moist, medium to coarse sand, some clay, medium dense, NOSC	
10					
12	--	S-10-1		SILTY SAND - greenish-brown, becoming wet, loose to medium dense, fine to medium sand, few subrounded gravels to 1/2-inch diameter, NOSC	
14			SM		
16	--	S-15-1			
18					
20	--	---	SW/GW	GRAVELLY SAND - vari-colored, poorly sorted, wet, medium sand, gravels sub-rounded to 1/2-inch diameter, NOSC	
22					
24					
26	--	---	ML	CLAYEY SILT - light brown, moist, stiff, minor fine sand, NOSC	
28					
30				Total Depth of Borehole = 30 feet Drilled by Steve Fox 9/17/86	
32					



Blow/ Ft.	Sample No.	USCS	DESCRIPTION	WELL CONST.
0			Asphalt - Concrete 1.5 feet	
2			SILTY CLAY - dark grey to green, moist, medium plasticity, firm, NOSC.	
4		CL		
6	S-5-2			
8			SILT - light brown, minor fine sand, moist, firm, NOSC	▼ =
10	S-10-2	ML		
12			SILTY SAND - reddish-brown, very moist to wet, fine sand, medium dense, few sub- rounded gravel to 1/4-inch diameter, NOSC.	
14		SM		
16	S-15-2			
18			SAND - wet; no sample recovery	
20		SW		
22				
24			CLAY - light brown, moist, medium plasticity, stiff, NOSC	
26		CL		
28			Total Depth of Borehole - 27 feet Drilled by Steve Fox 9/17/86	
30				
32				

Blow/ Ft.	Sample No.	USCS	DESCRIPTION	WELL CONST.
0			Asphalt - 6 inches	▼ =
2		---	FILL - brown, coarse gravel	
4		ML	SANDY SILT - brown, moist, coarse sand, NOSC	
6	S-5-3	CL	SILTY CLAY - grey to brown, moist, firm, medium plasticity, NOSC	
8				
10			SILTY SAND - light brown to grey, becoming more wet, fine to medium sand, NOSC	
12	S-10-3	SM	- becoming more dense	
14				
16	S-15-3	SP	GRAVELLY SAND - light brown, wet, medium sand, gravel sub-rounded to 1/4-inch, NOSC	
18				
20			- becoming more loose, less gravel	
22		CL	CLAY - light brown, stiff, medium plasticity, NOSC	
24				
26			Total Depth of Borehole - 23 feet Drilled by Steve Fox 9/17/86	
28				
30				
32				

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

15/4W 24L2

BORING LOG				308393A
Project No. KEI-P89-0805		Boring & Casing Diameter 9" 2"		Logged By D.L. <i>Don Brown</i> CEG 1310
Project Name Unocal Oakland - Broadway		Well Head Elevation N/A		Date Drilled 1-26-90
Boring No. MW4		Drilling Method Hollow-stem Auger		Drilling Company EGI
Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
		0		A.C. Pavement. Sand and gravel: Fill Clay
			SW- SC	Well graded sand with clay and silt medium dense, moist, dark greenish gray.
6/5/11		5	MH	Clayey elastic silt, 5-10% sand, stiff, moist, black.
16/21/24			CH	Clay, with gravel, 10-15% sand gravel to 1/4", very stiff, moist, very dark grayish brown and black, mottled with root holes.
15/24/28		10	GC	Clayey gravel with sand, 15-20% clay, gravel to 3/4", medium dense, moist, dark greenish gray.
8/10/11	▼		CH	Clay, olive brown and dark greenish gray, mottled.
8/7/14			GC	Clayey gravel with with sand, olive brown and dark greenish gray.
10/16/21		15	CH	Clay high plasticity, with silt, 5-10% sand, very stiff, moist, dark yellowish brown and light olive brown, mottled.
10/10/14				Silty clay, high plasticity, 5-10% sand stiff, moist, light olive brown.
		20		TOTAL DEPTH: 20'

15/AW 24L2

308393A

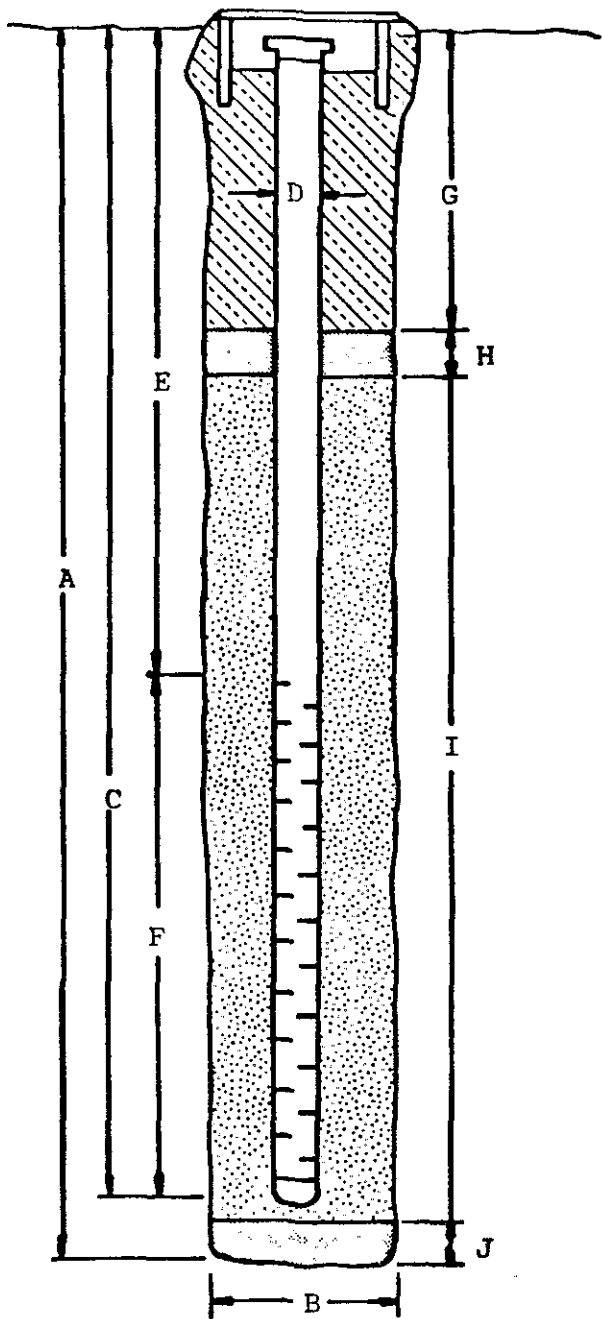
WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal - Oakland - Broadway BORING/WELL NO. MW4

PROJECT NUMBER: KEI-P89-0805

WELL PERMIT NO.: _____

Flush-mounted Well Cover



- A. Total Depth: 20'
- B. Boring Diameter*: 9"
Drilling Method: Hollow Stem Auger
- C. Casing Length: 20'
Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 5'
- F. Perforated Length: 15'
Perforation Type: Machined Slot
Perforation Size: 0.020"
- G. Surface Seal: 2'
Seal Material: Neat Cement
- H. Seal: 2'
Seal Material: Bentonite
- I. Gravel Pack: 16'
Pack Material: RMC Lonestar Sand
Size: #3
- J. Bottom Seal: None
Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

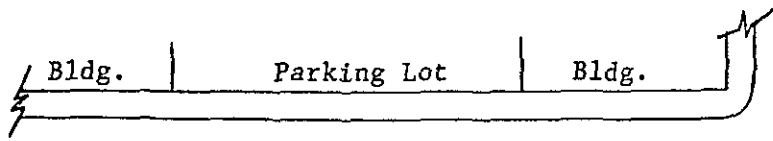


KAPREALIAN ENGINEERING, INC.

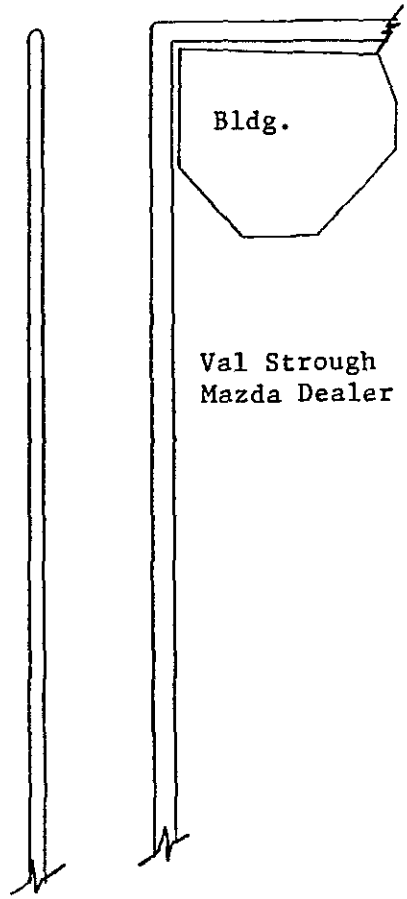
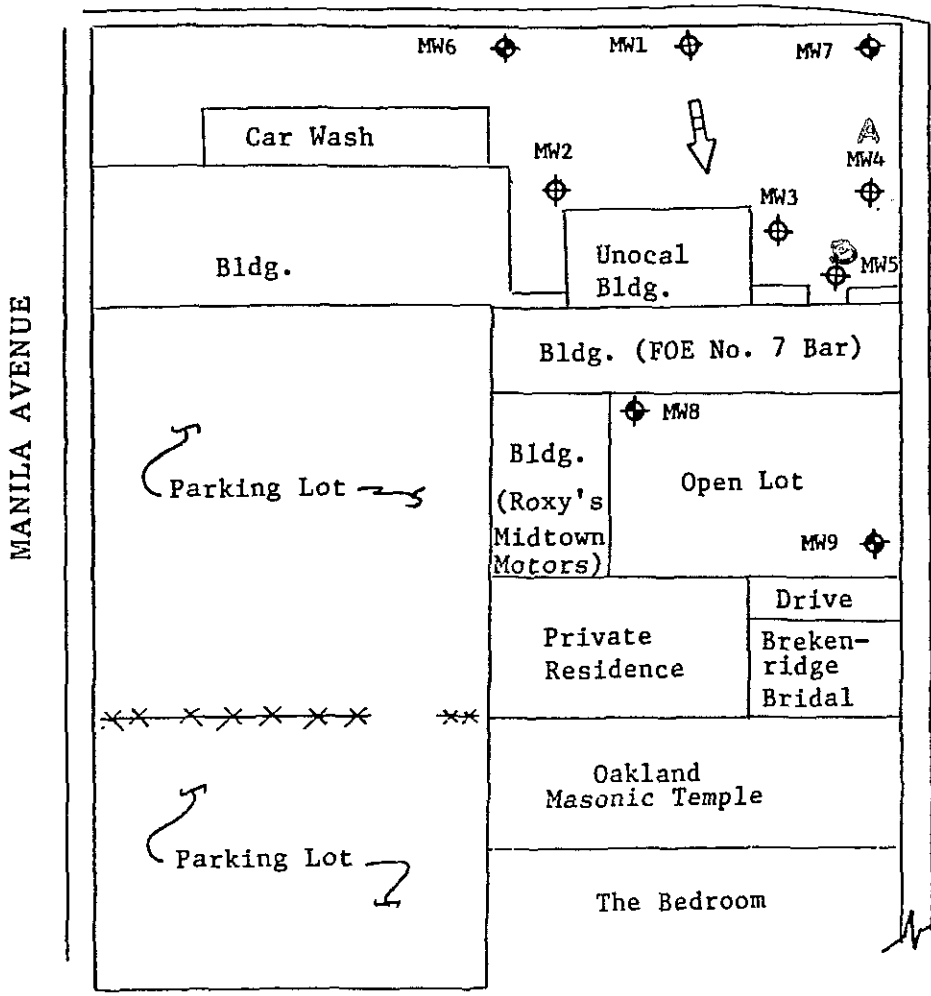
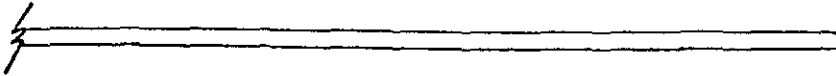
Consulting Engineers

P.O. BOX 996 • BENICIA, CA 94510
 (707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581

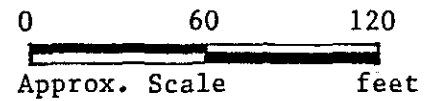
308393 A.8



40th STREET



SITE VICINITY MAP



LEGEND

- Monitoring Well (existing)
- Monitoring Well (proposed)
- Direction of Ground Water Flow

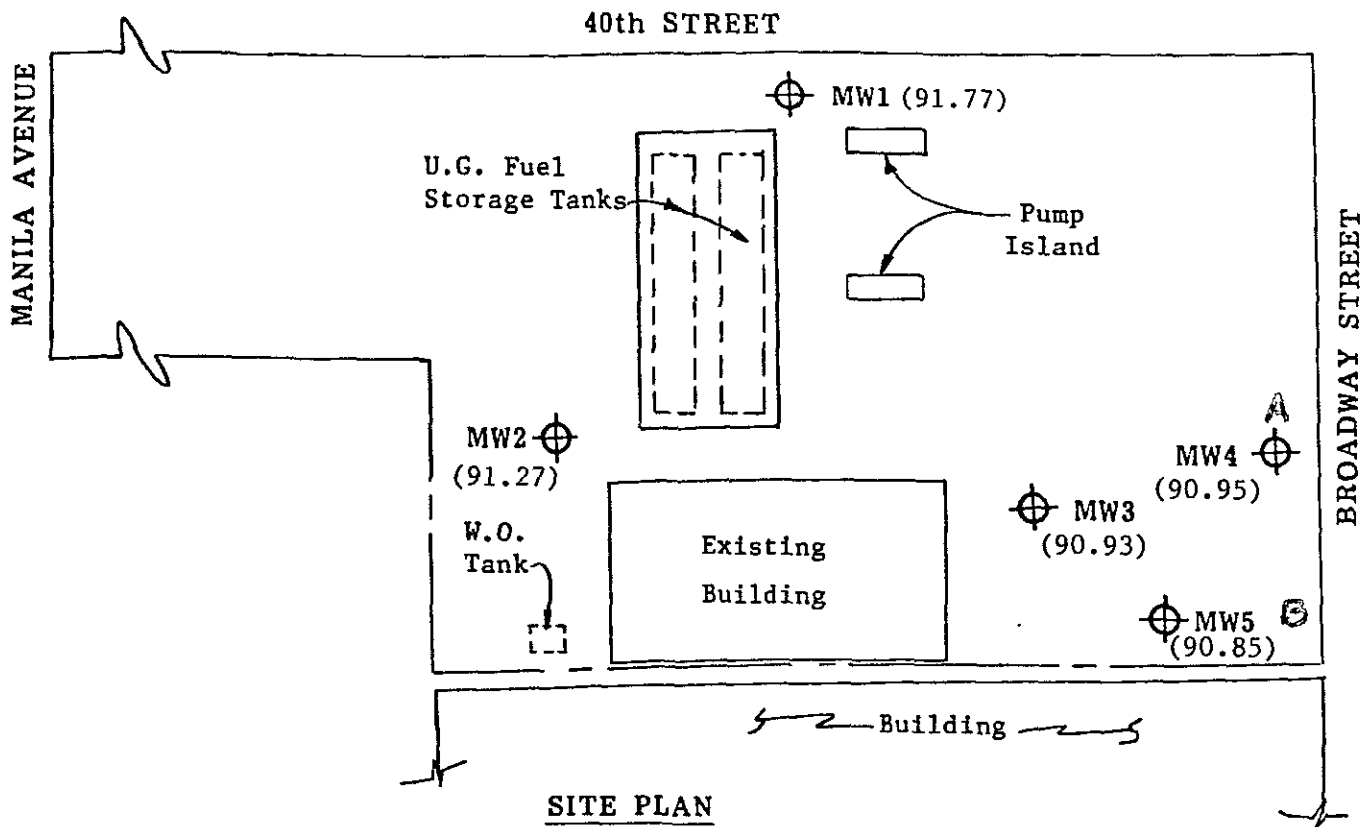
Unocal S/S #0746
 3943 Broadway
 Oakland, California



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
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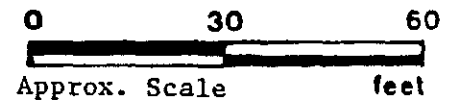


SITE PLAN

LEGEND

-  Monitoring Well (Existing)
-  Ground water surface elevation on 2/15/90. Top of MW1 well cover assumed 100.00 feet as datum.

 Direction of ground water flow



Unocal Service Station #0746
3943 Broadway Street
Oakland, California

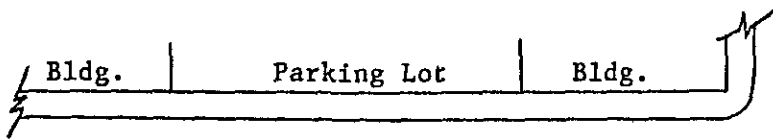


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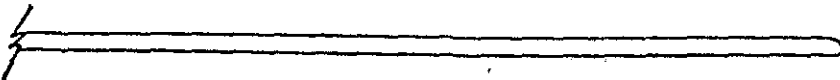
Consulting Engineers

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(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581

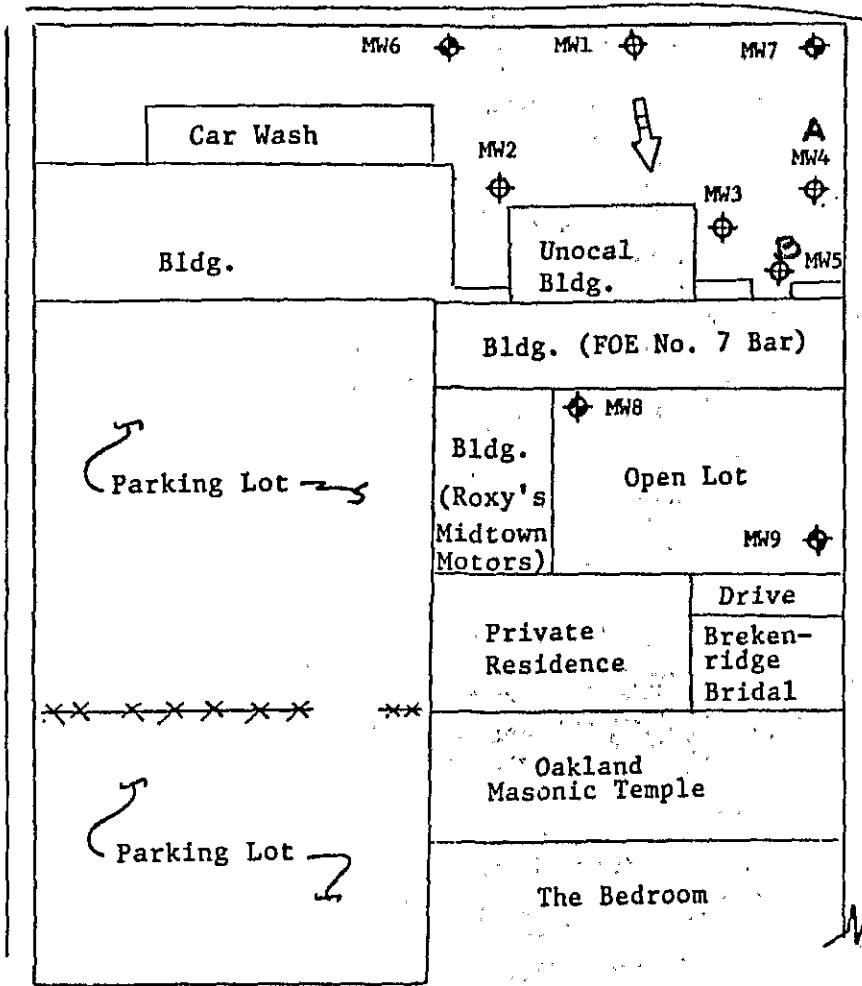
308393 A.B



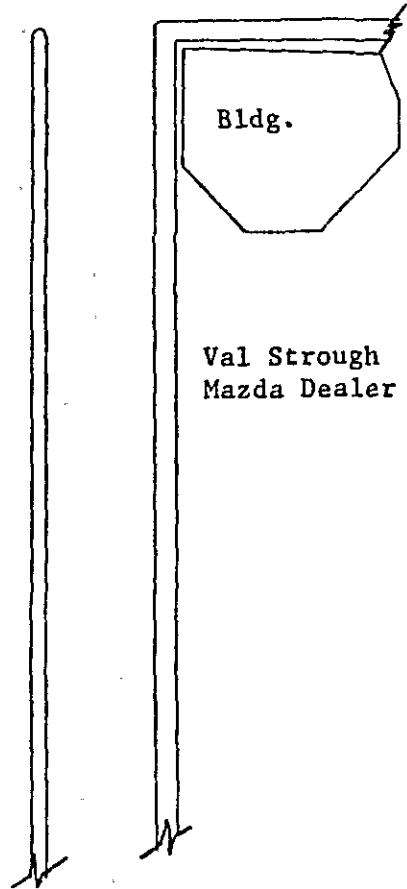
40th STREET



MANILA AVENUE






BROADWAY



SITE VICINITY MAP

0 60 120
Approx. Scale feet

LEGEND

-  Monitoring Well (existing)
-  Monitoring Well (proposed)
-  Direction of Ground Water Flow

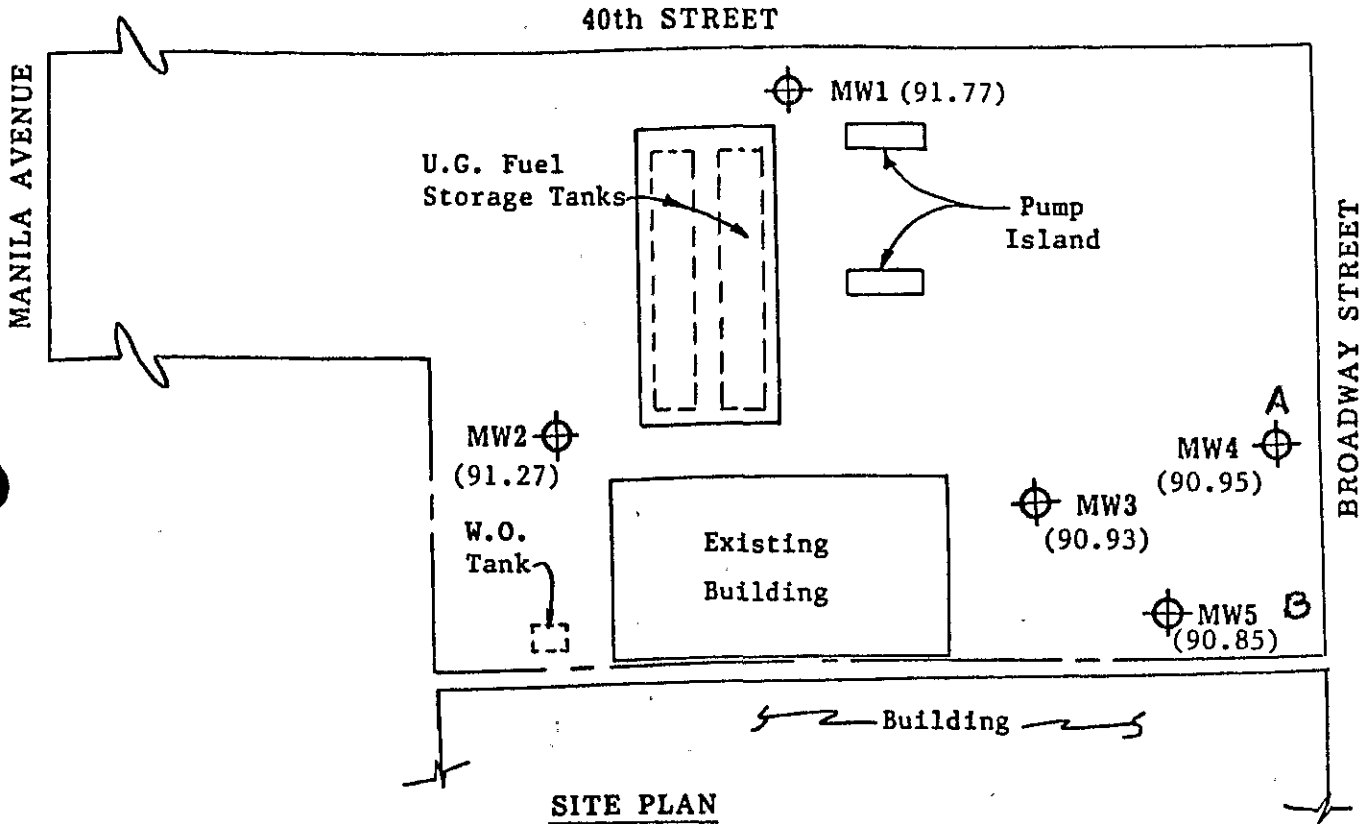
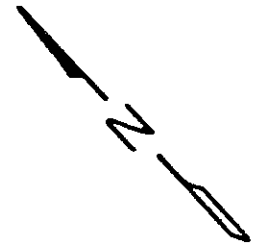
Unocal S/S #0746
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Oakland, California



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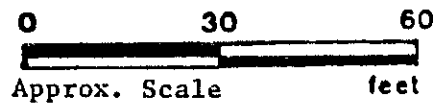
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308393A.B



LEGEND

- Monitoring Well (Existing)
- () Ground water surface elevation on 2/15/90. Top of MW1 well cover assumed 100.00 feet as datum.
- Direction of ground water flow



Unocal Service Station #0746
3943 Broadway Street
Oakland, California

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)


REMOVED

15/4W 29L3

BORING LOG

308393 B

Project No. KEI-P89-0805	Boring & Casing Diameter 9" 2"	Logged By D.L. <i>John P. Brown</i> CFG 1310
Project Name Unocal Oakland - Broadway	Well Head Elevation N/A	Date Drilled 1-26-90
Boring No. MW5	Drilling Method Hollow-stem Auger	Drilling Company EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
		0		A.C. Pavement. Sand and gravel to 9": Fill
			CH	Silty clay, high plasticity, 5-15% sand stiff, moist, dark greenish gray and black, mottled.
5/4/5		5	MH	Clayey elastic silt, 5-10% sand, firm, very moist black.
			CH	Silty clay, high plasticity 10-15% sand stiff, moist, dark olive gray.
8/17/24				Clay, high plasticity, with gravel, 15-30% gravel to 1/2", trace silt, very stiff, moist, dark brown and black, mottled, with root holes.
8/15/23		10		Sandy below 10 feet, olive gray grades to clayey sand.
7/10/12			SC	Clayey sand, 10-15% silt, dense, moist to very moist, dark greenish gray and olive gray, mottled with gravel below 13'.
6/10/18				
6/10/11		15	GW-GC	Well graded gravel with clay and sand, medium dense, wet, dark greenish gray, gravel to >2" diameter.
8/15/18			CH	Clay, high plasticity, trace silt, stiff, moist, dark greenish gray and light olive brown, mottled, dark greenish gray in voids/fissures. Silty clay, high plasticity, stiff, moist to wet, light olive brown and dark greenish gray, mottled, olive greenish gray below 19.5 feet.
		20		TOTAL DEPTH: 20'

15/4W 24L3

308393B

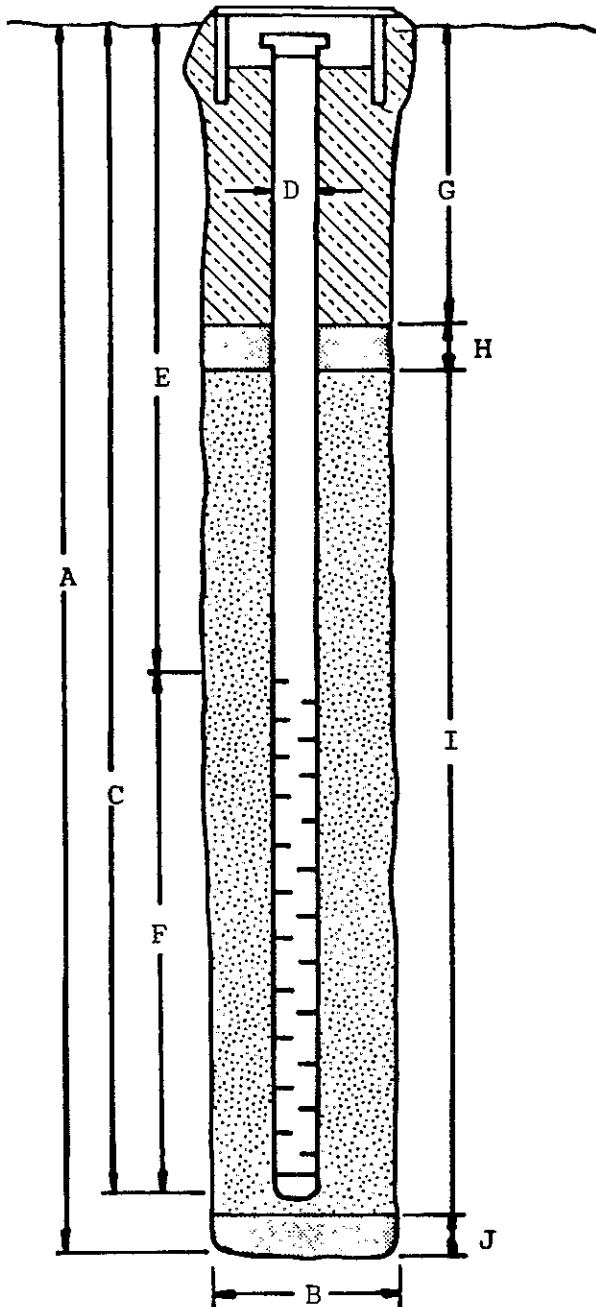
W E L L C O M P L E T I O N D I A G R A M

PROJECT NAME: Unocal - Oakland - Broadway BORING/WELL NO. MW5

PROJECT NUMBER: KEI-P89-0805

WELL PERMIT NO.: _____

Flush-mounted Well Cover



A. Total Depth: 20'

B. Boring Diameter*: 9"

Drilling Method: Hollow Stem Auger

C. Casing Length: 20'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"

ID = 2.067"

E. Depth to Perforations: 5'

F. Perforated Length: 15'

Perforation Type: Machined Slot

Perforation Size: 0.020"

G. Surface Seal: 2'

Seal Material: Neat Cement

H. Seal: 2'

Seal Material: Bentonite

I. Gravel Pack: 16'

Pack Material: RMC Lonestar Sand

Size: #3

J. Bottom Seal: None

Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

15/4W 2424

BORING LOG

01-4495

Project No. KEI-P89-0805	Boring & Casing Diameter 9" 2"	Logged By D.L.
Project Name Unocal Oakland - Broadway	Well Head Elevation N/A	Date Drilled 10/17/89
Boring No. MW1	Drilling Method Hollow-stem Auger	Drilling Company EGI

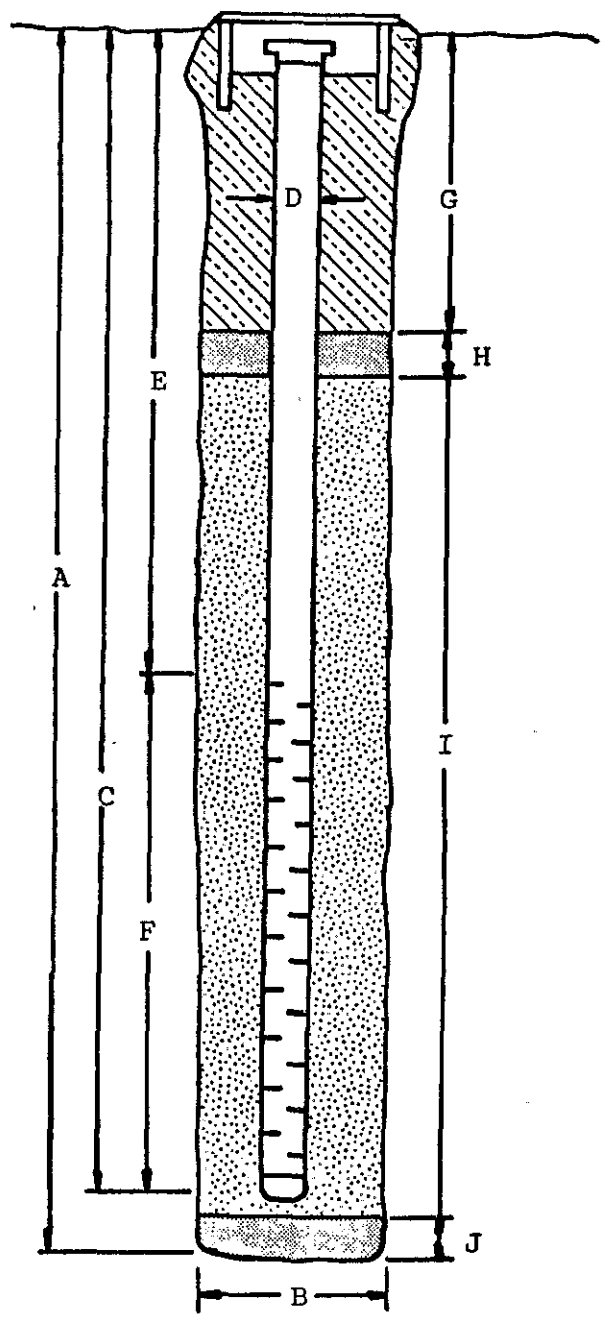
Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
		0		A.C. Pavement Clay, sand and gravel: fill.
5/7/15		5	CH	Silty clay, high plasticity, very stiff, moist, black, trace gravel. Sandy clay, high plasticity, trace gravel, very stiff, moist, dark olive gray.
7/10/16		10	SC	Clayey sand, 30-40% clay, medium dense, very moist, grayish brown, mottled.
10/15/12			GC	Clayey gravel with sand, medium dense, very moist, olive brown and strong brown, mottled.
			GP/ GC	Poorly graded gravel with clay and sand, medium dense, wet, dark yellowish brown.
11/17/23		15	CH	Clay, high plasticity, very stiff, moist, greenish gray and olive brown.
			CH	Clayey gravel with sand, very dense, moist, dark greenish gray, gravel to 1".
10/16/19		20	GC MH	Clayey silt, very stiff, moist, dark greenish gray. TOTAL DEPTH 20'

15/4W 24L4
01-449J

W E L L C O M P L E T I O N D I A G R A M

PROJECT NAME: Unocal - Oakland - Broadway BORING/WELL NO. MW1
PROJECT NUMBER: KEI-P89-0805
WELL PERMIT NO.: 89456

Flush-mounted Well Cover



- A. Total Depth: 20'
- B. Boring Diameter*: 9"
Drilling Method: Hollow Stem Auger
- C. Casing Length: 20'
Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 5'
- F. Perforated Length: 15'
Perforation Type: Machined Slot
Perforation Size: 0.020"
- G. Surface Seal: 2'
Seal Material: Concrete
- H. Seal: 2'
Seal Material: Bentonite
- I. Gravel Pack: 16'
Pack Material: RMC Lonestar Sand
Size: #3
- J. Bottom Seal: None
Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

15/4W 24L4
01-449J



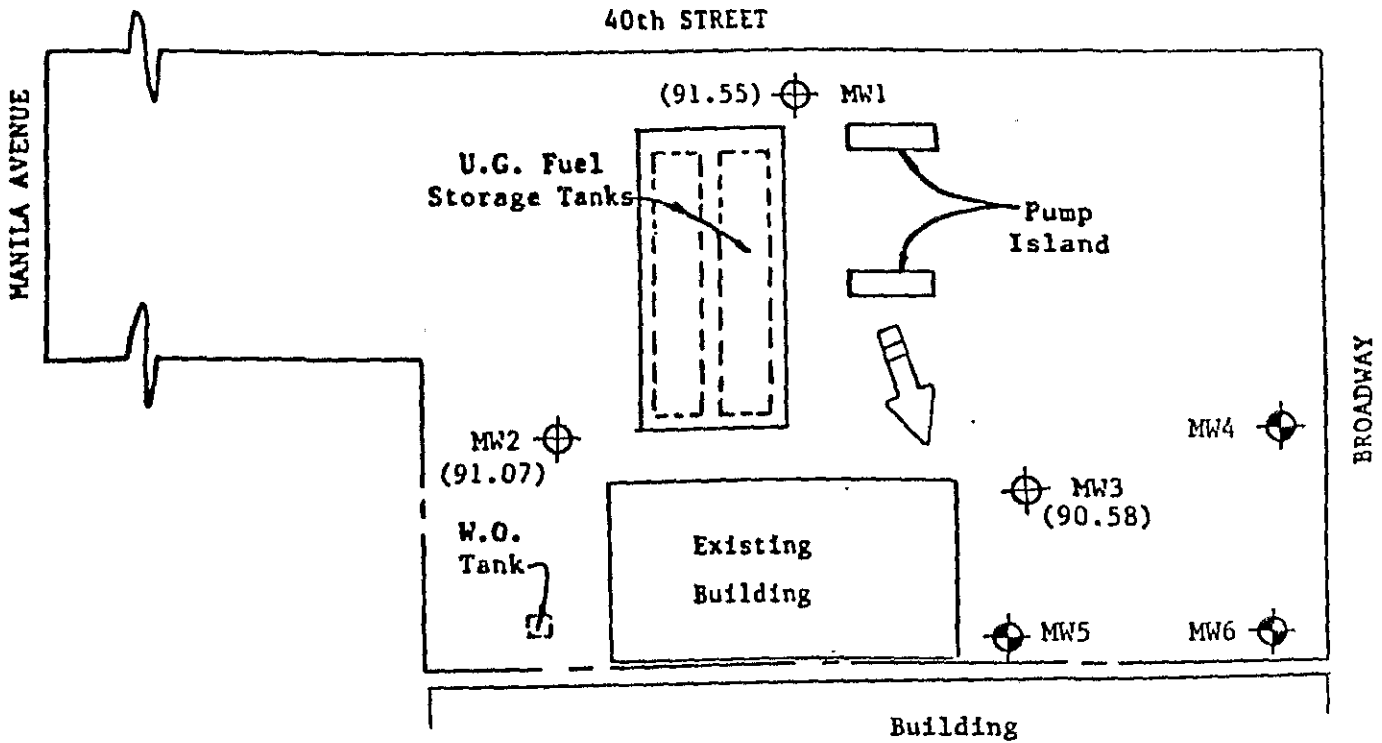
KAPREALIAN ENGINEERING, INC.

Consulting Engineers

P.O. BOX 813

BENICIA, CA 94510

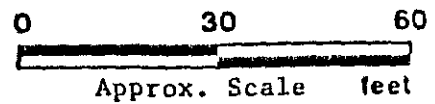
(707) 746-6915



SITE PLAN

LEGEND

- Monitoring Well (Proposed)
- Monitoring Well (Existing)
- Ground water surface elevation on 11/1/89. MW1 well cover assumed 100.00' as datum.
- Direction of ground water flow on 11/1/89.



Unocal Service Station #0746
3943 Broadway Street
Oakland, California

1S/4W 24L5

BORING LOG

01-449K

Project No. KEI-P89-0805	Boring & Casing Diameter 9" 2"	Logged By D.L.
Project Name Unocal Oakland - Broadway	Well Head Elevation N/A	Date Drilled 10/17/89
Boring No. MW2	Drilling Method Hollow-stem Auger	Drilling Company EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
		0		A.C. Pavement Clay, sand and gravel: fill.
6/9/15		5	CH	Silty clay, high plasticity, stiff, moist, black, organic odor, trace - 15% gravel below 3.5 feet.
				Sandy clay, 5-10% gravel, very stiff, moist, dark olive gray.
7/8/11		10	CL/ CH	Gravelly clay, 15-30% gravel to 5/8", stiff to very stiff, moist, dark brown.
6/7/10			SC	Clayey sand, medium dense, moist to very moist, olive brown and strong brown, mottled.
12/22/28	▽		GW/ GC	Well graded gravel with clay and sand, gravel to 2 1/2", dense to very dense.
		15		Clay, very stiff to hard, olive brown to yellowish brown, mottled.
			CL/ CH	Clay, as above, yellowish brown, 10% silt, trace - 15% sand.
9/20/18		20		TOTAL DEPTH 20'

15/4W 24LS
01-449K

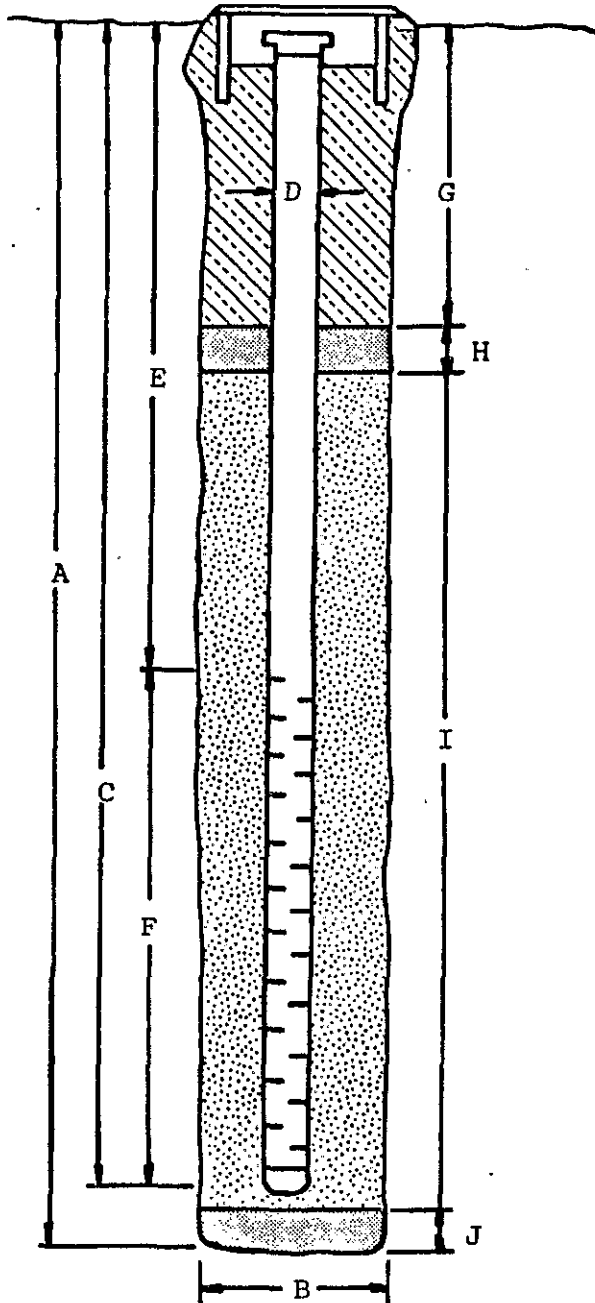
WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal - Oakland - Broadway BORING/WELL NO. MW2

PROJECT NUMBER: KEI-P89-0805

WELL PERMIT NO.: 89456

Flush-mounted Well Cover



A. Total Depth: 20'

B. Boring Diameter*: 9"

Drilling Method: Hollow Stem

Auger

C. Casing Length: 20'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"

ID = 2.067"

E. Depth to Perforations: 5'

F. Perforated Length: 15'

Perforation Type: Machined Slot

Perforation Size: 0.020"

G. Surface Seal: 2'

Seal Material: Concrete

H. Seal: 2'

Seal Material: Bentonite

I. Gravel Pack: 16'

Pack Material: RMC Lonestar Sand

Size: #3

J. Bottom Seal: None

Seal Material: N/A

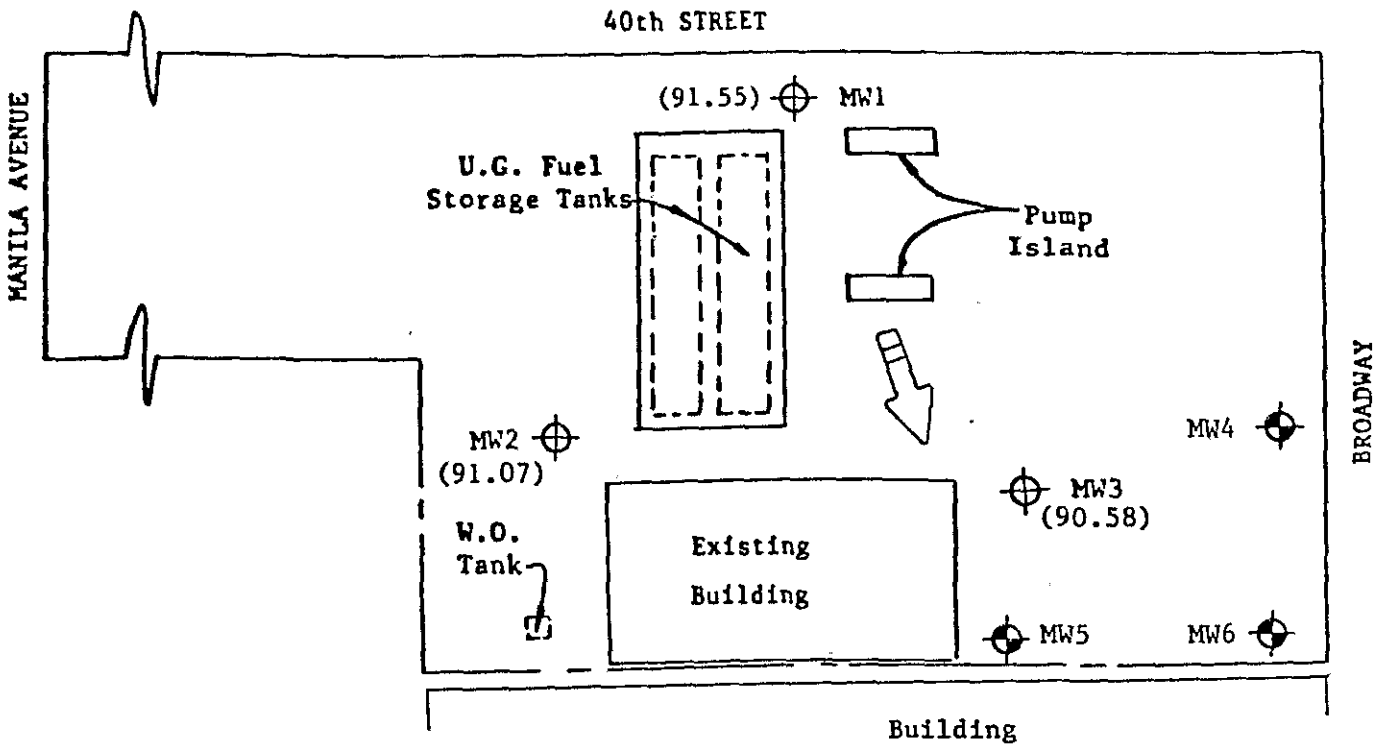
*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

15/4W 24LS
01-449K



KAPREALIAN ENGINEERING, INC.

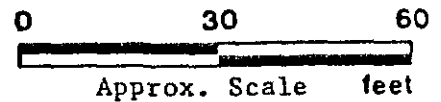
Consulting Engineers
P. O. BOX 913
BENICIA, CA 94510
(707) 746-6915



SITE PLAN

LEGEND

- Monitoring Well (Proposed)
- Monitoring Well (Existing)
- () Ground water surface elevation on 11/1/89. MW1 well cover assumed 100.00' as datum.
- Direction of ground water flow on 11/1/89.



Unocal Service Station #0746
3943 Broadway Street
Oakland, California

15/4W 24L6

BORING LOG					01-449L
Project No. KEI-P89-0805		Boring & Casing Diameter 9" 2"		Logged By D.L.	
Project Name Unocal Oakland - Broadway		Well Head Elevation N/A		Date Drilled 10/17/89	
Boring No. MW3		Drilling Method Hollow-stem Auger		Drilling Company EGI	
Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description	
		0		A.C. Pavement Clay, sand and gravel: fill.	
5/5/11		5	CH	Sandy clay, high plasticity with gravel, firm, moist, olive gray and black, mottled with debris, disturbed.	
			CL/ CH	Silty clay, high plasticity, 5-10% sand, firm, moist, black.	
5/7/12		10		Gravelly clay, 30% gravel to 1/2", firm, moist, very dark grayish brown, gray root holes.	
3/9/11	▽		SC	Sandy clay, stiff, moist, olive brown and gray, mottled.	
6/17/16				Clayey sand, medium dense, very moist, 40% clay, olive gray and olive brown, mottled.	
7/9/13		15		Clayey sand w/gravel, 15% clay, dense, very moist.	
			CL/ CH	Clay, very stiff, moist, grayish green and olive brown, mottled. brown, mottled.	
9/11/14		20		Clay, as above, greenish gray and light olive brown.	

1S/4W 24L6

B O R I N G L O G

01-449L

Project No. KEI-P89-0805	Boring & Casing Diameter 9" 2"	Logged By D.L.
Project Name Unocal Oakland - Broadway	Well Head Elevation N/A	Date Drilled 10/17/89
Boring No. MW3	Drilling Method Hollow-stem Auger	Drilling Company EGI

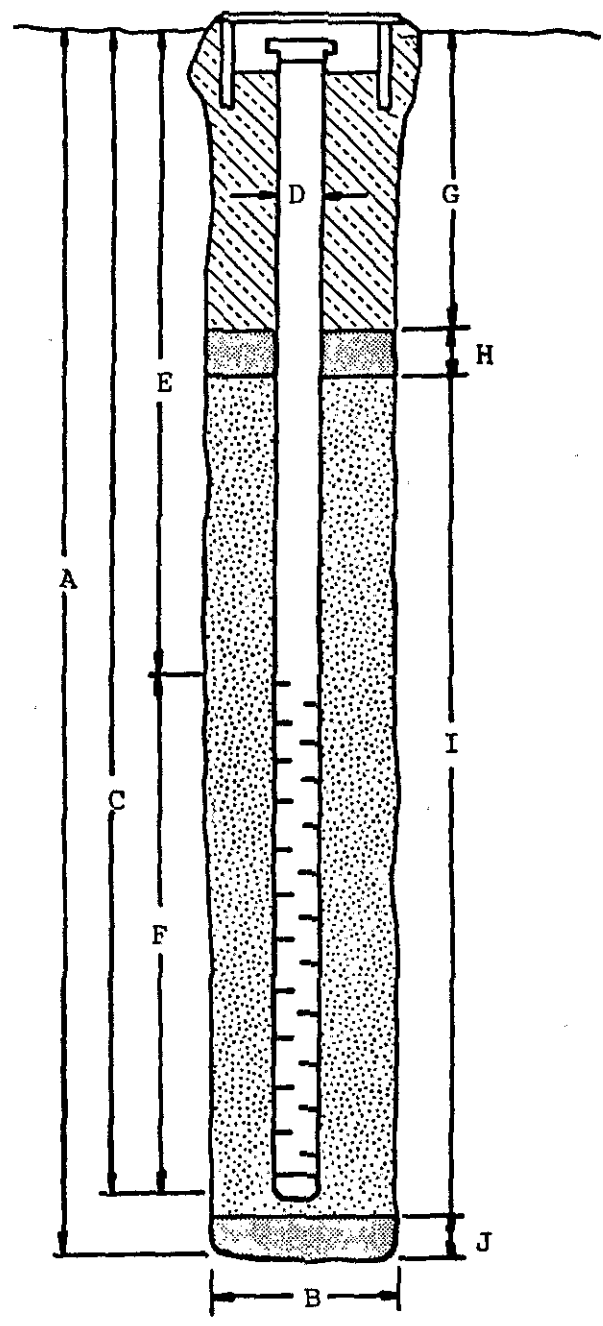
Penetra- tion blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
9/12/15			CL/ CH	<p>Sandy clay, with gravel to 1/2", very stiff, moist, light olive brown.</p> <hr/> <p>Clay with silt, high plasticity, very stiff, moist light olive brown.</p>
				TOTAL DEPTH 22.5'

15/4W 24LG
01-449L

WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal - Oakland - Broadway BORING/WELL NO. MW3
PROJECT NUMBER: KEI-P89-0805
WELL PERMIT NO.: 89456

Flush-mounted Well Cover



- A. Total Depth: 22.5'
- B. Boring Diameter*: 9"
Drilling Method: Hollow Stem Auger
- C. Casing Length: 22.5'
Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 5'
- F. Perforated Length: 17.5'
Perforation Type: Machined Slot
Perforation Size: 0.020"
- G. Surface Seal: 2'
Seal Material: Concrete
- H. Seal: 2'
Seal Material: Bentonite
- I. Gravel Pack: 18.5'
Pack Material: RMC Lonestar Sand
Size: #3
- J. Bottom Seal: None
Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

15/4W 24L6

01-449L



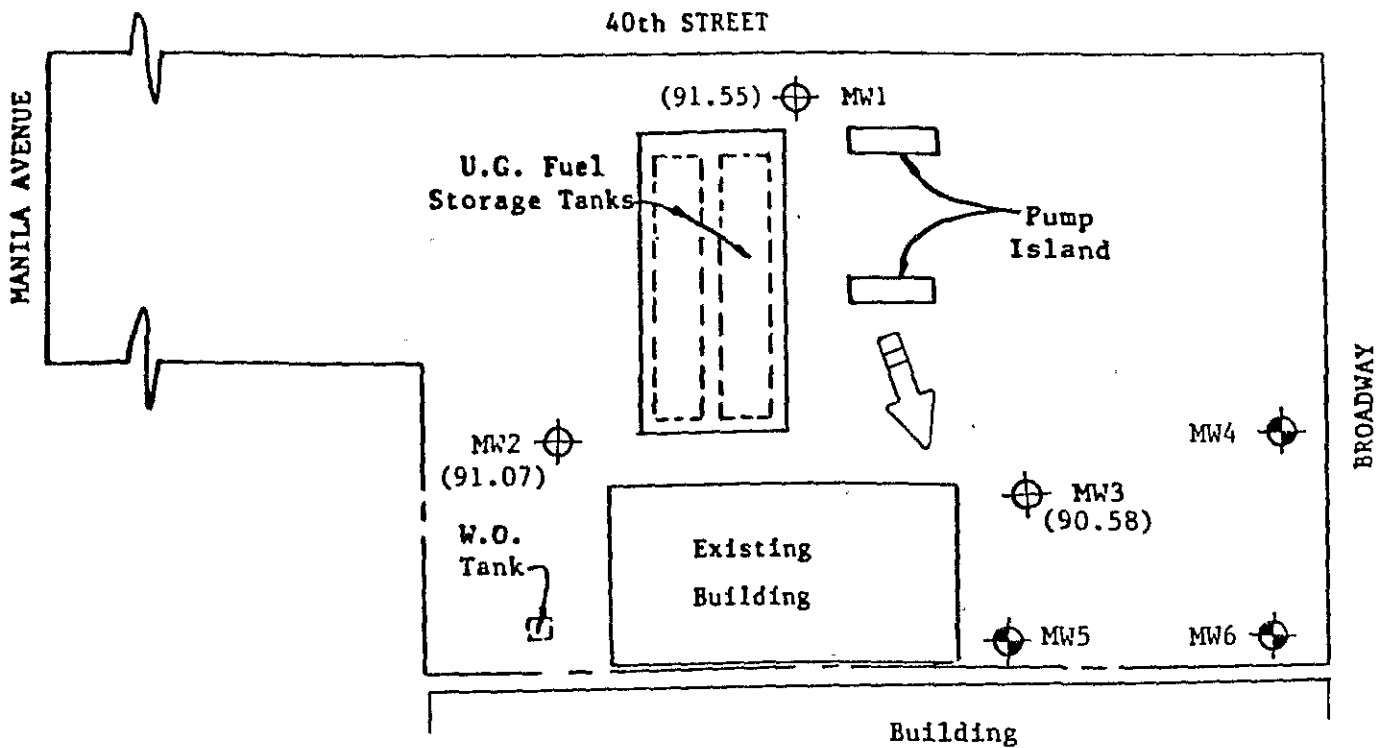
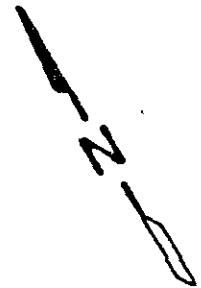
KAPREALIAN ENGINEERING, INC.

Consulting Engineers

P. O. BOX 913

BENICIA, CA 94510

(707) 746-6915

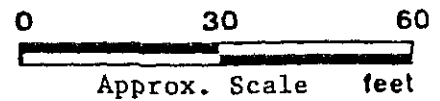


SITE PLAN

LEGEND

- Monitoring Well (Proposed)
- Monitoring Well (Existing)
- () Ground water surface elevation on 11/1/89. MW1 well cover assumed 100.00' as datum.

Direction of ground water flow on 11/1/89.



Unocal Service Station #0746
3943 Broadway Street
Oakland, California

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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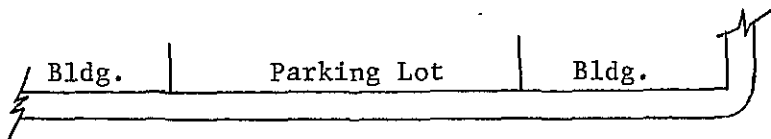
KAPREALIAN ENGINEERING, INC.

Consulting Engineers

P.O. BOX 996 • BENICIA, CA 94510
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581

364640 A-D

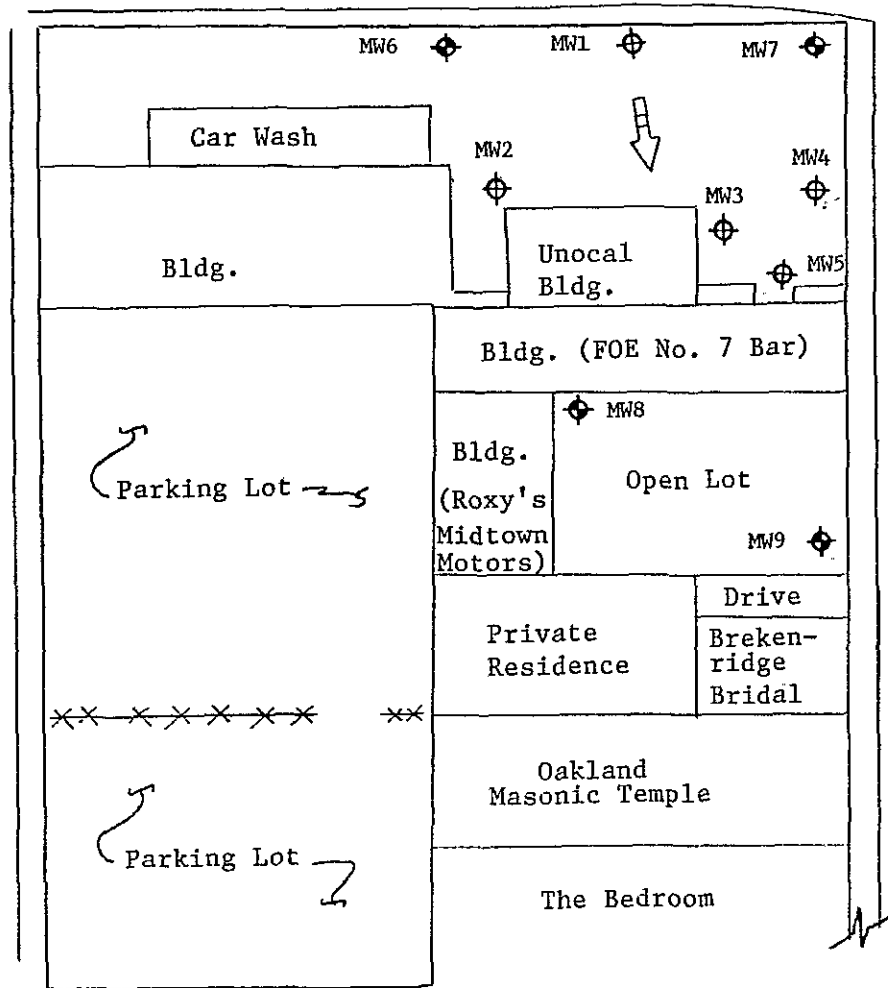
15/4W 2417-10



40th STREET

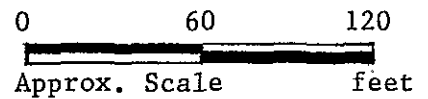


MANILA AVENUE



BROADWAY

SITE VICINITY MAP




LEGEND

- Monitoring Well (existing)
- Monitoring Well (proposed)
- Direction of Ground Water Flow

Unocal S/S #0746
3943 Broadway
Oakland, California

BORING LOG

15/4W 2417

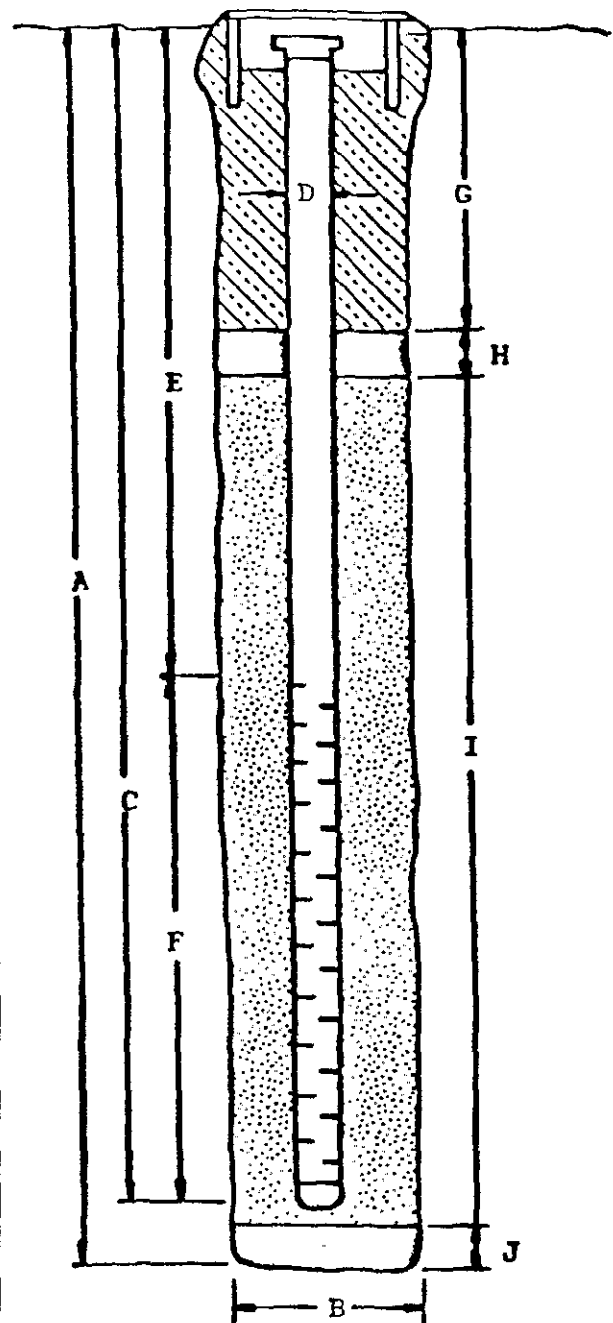
Project No. KEI-P89-0805		Boring & Casing Diameter 9" 2"		Logged By W.W.	
Project Name Unocal 3943 Broadway, Oaklnd		Well Head Elevation N/A		Date Drilled 10/22/90	
Boring No. MW6		Drilling Method Hollow-stem Auger		Drilling Company EGI	
Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description	
		0		Asphalt over sand and gravel base.	
			CL/ CH	Silty clay, trace fine sand, moist, stiff, orange brown. Base of Fill Materials	
			CH	Silty clay, trace fine sand, moist, moist, firm, black.	
4/9/13		5	CL/ CH	Clay, 5% silt, trace rootlets, moist, very stiff, dark grayish brown, trace gravel to 3/8" diameter.	
8/10/15			GC	Clayey gravel, trace sand, subangular gravel to 1-1/8" diameter, moist, very stiff, dark grayish brown, trace orange brown.	
5/6/12		10	CL/ CH	Clay, trace gravel to 3/8" diameter, trace very fine sand, trace organic matter, moist to very moist, very stiff, light yellowish brown with trace pale olive mottling.	
4/7/11		15		Clay, 5% silt, trace organic matter, trace caliche, slightly moist, very moist, very stiff, light yellowish brown.	
5/8/14			ML/ MH	Clayey silt, trace sand, saturated, very stiff, light yellowish brown light yellowish brown mottled with orange brown and light greenish gray.	
		20		TOTAL DEPTH: 20'	

364640A
15/4W 24L 7

WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal - 3943 Broadway St., Oakland BORING/WELL NO. MW6
 PROJECT NUMBER: KEI-P89-0805
 WELL PERMIT NO.: _____

Flush-mounted Well Cover



- A. Total Depth: 20'
- B. Boring Diameter*: 9"
 Drilling Method: Hollow Stem Auger
- C. Casing Length: 20'
 Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 5'
- F. Perforated Length: 15'
 Perforation Type: Machined Slot
 Perforation Size: 0.020"
- G. Surface Seal: 2'
 Seal Material: Neat Cement
- H. Seal: 2'
 Seal Material: Bentonite
- I. Gravel Pack: 16'
 Pack Material: RMC Lonestar Sand
 Size: #3
- J. Bottom Seal: None
 Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

364640 B
15/4W 2AL8

BORING LOG					
Project No. KEI-P89-0805		Boring & Casing Diameter 9" 2"		Logged By W.W.	
Project Name Unocal 3943 Broadway, Oaklnd		Well Head Elevation N/A		Date Drilled 10/22/90	
Boring No. MW7		Drilling Method Hollow-stem Auger		Drilling Company EGI	
Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description	
		0		Asphalt over sand and gravel base with cobbles to 6" diameter.	
			CL/ CH	Silty clay with gravel, trace sand, gravel to 1-1/4" diameter, moist, firm, brown. Clay, 5-10% fine sand, trace silt, moist, stiff, dark yellowish brown. Base of fill?	
3/4/5		5	CH	Silty clay, highly organic, trace subangular gravel to 1" diameter, moist, firm to stiff, moist, black.	
5/10/12			CL/ CH	Clay, trace rootlets, trace silt, trace sand, moist, very stiff, olive brown.	
		10	SC	Clayey sand, trace gravel to 3/8" dia., fine to medium grained, very moist, medium dense, bluish gray.	
6/9/15			GW	Sandy gravel, 5% clay, trace rootlets, gravel to 1" diameter, saturated, medium dense, yellowish brown.	
			GC	Clayey gravel with sand, slight odor, gravel to 1" diameter, saturated, medium dense, bluish gray.	
		15	ML/ MH	Clayey silt, 5% very fine sand, trace organic matter, stiff to very stiff, very moist to saturated, pale olive mottled with light olive brown.	
4/7/9		20		TOTAL DEPTH: 20'	

364640B
15/4W 2/28

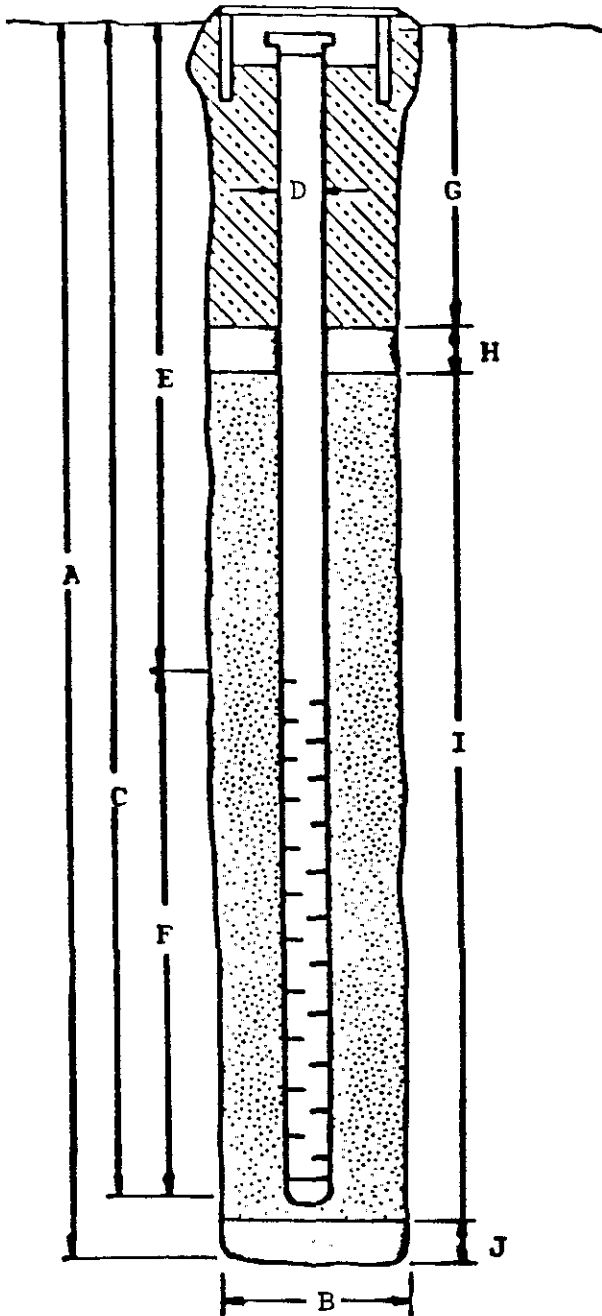
WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal - 3943 Broadway St, Oakland BORING/WELL NO. MW7

PROJECT NUMBER: KEI-P89-0805

WELL PERMIT NO.: _____

Flush-mounted Well Cover



A. Total Depth: 20'

B. Boring Diameter*: 9"

Drilling Method: Hollow Stem
Auger

C. Casing Length: 20'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"

ID = 2.067"

E. Depth to Perforations: 5'

F. Perforated Length: 15'

Perforation Type: Machined
Slot

Perforation Size: 0.020"

G. Surface Seal: 2'

Seal Material: Neat Cement

H. Seal: 2'

Seal Material: Bentonite

I. Gravel Pack: 16'

Pack Material: RMC Lonestar
Sand

Size: #3

J. Bottom Seal: None

Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

364640C

15/4W 24L9

BORING LOG

Project No. KEI-P89-0805		Boring & Casing Diameter 9" 2"		Logged By W.W./J.E.
Project Name Unocal 3943 Broadway, Oaklnd		Well Head Elevation N/A		Date Drilled 10/22/90
Boring No. MW8		Drilling Method	Hollow-stem Auger	Drilling Company EGI - Dave Yager

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
		0		6" concrete slab over sand and gravel.
				Clayey gravel with concrete cobbles, moist, reddish brown.
				Base of fill materials.
3/3/5		5	CL/ CH	Silty clay, trace organic matter, trace gravel, stiff, very dark brown to black, moist.
12/13/15		10	GC	Clayey gravel, highly weathered sand- stone, trace sand, medium dense, mottled, light brown to dark brown, very moist to wet.
5/10/13		15	CL/ CH	Gravelly clay, gravel is subrounded to rounded, very stiff, trace sand, gray to light brown, grading to sandy clay, moist.
5/9/14		20		Sandy clay, trace gravel, very stiff light brown, moist.

364640C

1S/4W 2#L9

BORING LOG

Project No. KEI-P89-0805		Boring & Casing Diameter 9" 2"		Logged By W.W./J.E.
Project Name Unocal 3943 Broadway, Oaklnd		Well Head Elevation N/A		Date Drilled 10/22/90
Boring No. MW8		Drilling Method Hollow-stem Auger	Drilling Company EGI - Dave Yager	
Penetration blows/6"	G. W. level	Depth (feet) Samples	Stratigraphy USCS	Description
			CL/ CH	Sandy clay, trace gravel, very stiff, moist, light brown.
				TOTAL DEPTH: 22'

364640C

WELL COMPLETION DIAGRAM

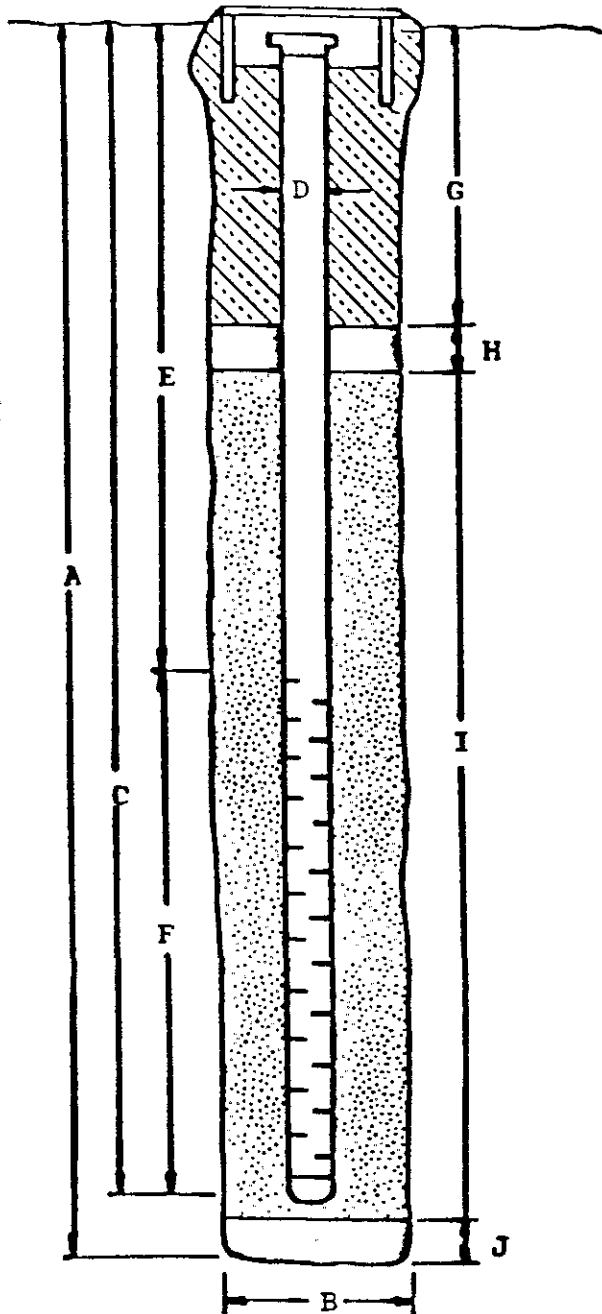
15/11/24L9

PROJECT NAME: Unocal, 3943 Broadway St., Oakland BORING/WELL NO. MW8

PROJECT NUMBER: KEI-P89-0805

WELL PERMIT NO.: _____

Flush-mounted Well Cover



A. Total Depth: 22'

B. Boring Diameter*: 9"

Drilling Method: Hollow Stem Auger

C. Casing Length: 22'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"

ID = 2.067"

E. Depth to Perforations: 5'

F. Perforated Length: 17'

Perforation Type: Machined Slot

Perforation Size: 0.020"

G. Surface Seal: 2'

Seal Material: Neat Cement

H. Seal: 2'

Seal Material: Bentonite

I. Gravel Pack: 18'

Pack Material: RMC Lonestar Sand

Size: #3

J. Bottom Seal: None


Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

364640D
IS/4W 24L10

BORING LOG

Project No. KEI-P89-0805		Boring & Casing Diameter 9" 2"		Logged By W.W.
Project Name Unocal 3943 Broadway, Oaklnd		Well Head Elevation N/A		Date Drilled 10/23/90
Boring No. MW9		Drilling Method Hollow-stem Auger	Drilling Company EGI	

Penetration blows/6"	G. W. level	Depth (feet) Samples	Stratigraphy USCS	Description
		0		Asphalt over sand and gravel baserock.
			GC	Clayey gravel with asphalt and concrete cobbles, moist, brown.
3/4/6		5	MH	Clayey silt, 5% fine sand, trace coarse sand, very moist, stiff, pale brown. Base of fill material.
			CL/CH	Silty clay, trace fine sand, trace gravel to 3/8" diameter, moist, stiff, very dark brown to black, trace of red iron oxide staining.
5/9/14		10		Clay, trace silt and sand, trace organic matter, moist, very stiff, slight odor, dark grayish brown mottled with dark yellowish brown.
5/9/12			GC	Clayey gravel with sand, gravel to 3/4" diameter, some highly weathered, trace organic matter, strong odor, very moist to saturated, greenish gray and bluish gray.
		15		
			CL/CH	Sandy clay, trace silt, trace gravel to 3/8" diameter, very moist, very stiff, pale olive to pale yellow.
6/9/15		20		

364640D

BORING LOG

15/4W 24L10

Project No. KEI-P89-0805		Boring & Casing Diameter 9" 2"		Logged By W.W.
Project Name Unocal 3943 Broadway, Oaklnd		Well Head Elevation N/A		Date Drilled 10/23/90
Boring No. MW9		Drilling Method	Hollow-stem Auger	Drilling Company EGI
Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
			CL/ CH	Sandy clay, trace silt, trace gravel to 3/8" diameter, very moist, very stiff, pale olive to pale yellow.
		25		
		30		
		35		
		40		
				TOTAL DEPTH: 22'

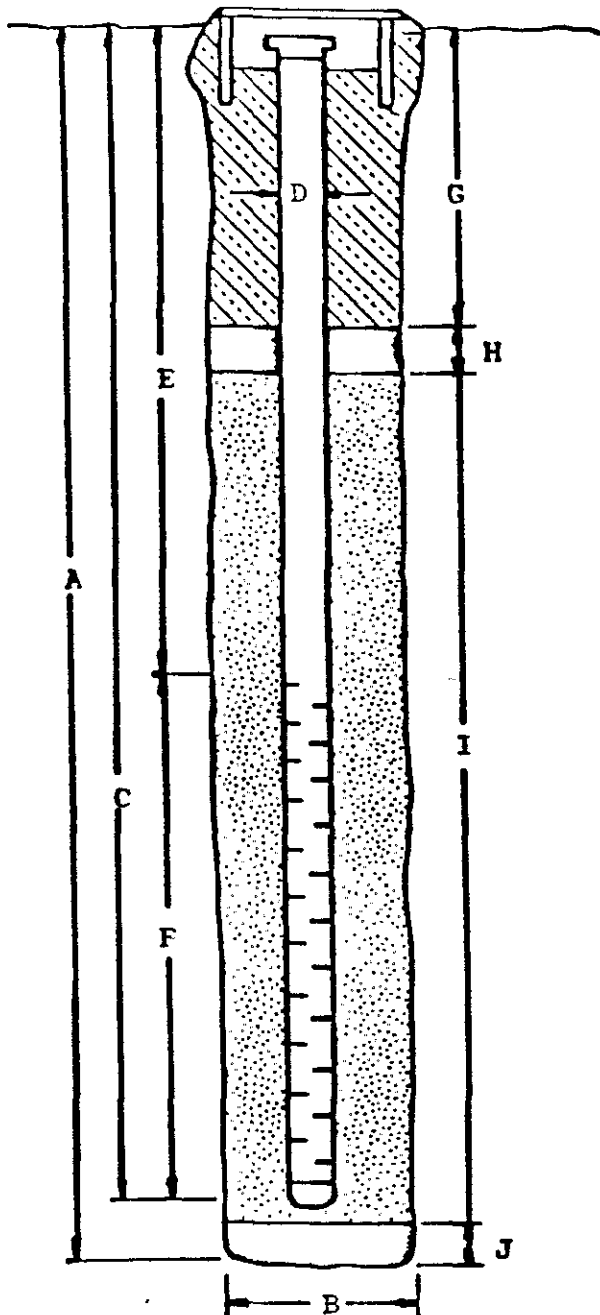
1S/4W 24L10

WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal, 3943 Broadway St., Oakland BORING/WELL NO. MW9PROJECT NUMBER: KEI-P89-0805

WELL PERMIT NO.: _____

Flush-mounted Well Cover



- A. Total Depth: 22'
- B. Boring Diameter*: 9"
 Drilling Method: Hollow Stem Auger
- C. Casing Length: 22'
 Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 5'
- F. Perforated Length: 17'
 Machined Perforation Type: Slot
 Perforation Size: 0.020"
- G. Surface Seal: 2'
 Seal Material: Neat Cement
- H. Seal: 2'
 Seal Material: Bentonite
- I. Gravel Pack: 18'
 RMC Lonestar
 Pack Material: Sand
 Size: #3
- J. Bottom Seal: None
 Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

427920

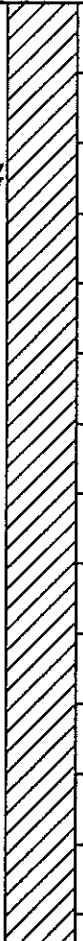

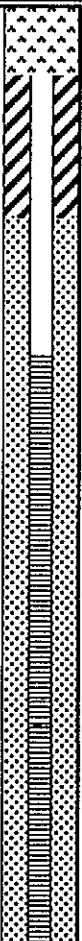






ols o/d 2/25


DRILL RIG	CME 55 HSA	SURFACE ELEVATION		LOGGED BY	MJ		
DEPTH TO GROUNDWATER	31.0 FEET	BORING DIAMETER		DATE DRILLED	1/28/92		
DESCRIPTION AND CLASSIFICATION		DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	PID READING	REMARKS	WELL CONSTRUCTION
DESCRIPTION AND REMARKS		SOIL TYPE					
<p>3" Asphalt</p> <p>3" GRAVEL (GW), gray, sandy, fill material</p> <p>CLAY (CL), tan-red, damp, very stiff, silty, with some sand (fine-grained), light gray silt mottling, moderate to high plasticity, no odor</p> <p>Same as above, with black rootlets, red flecks, very stiff</p> <p>Silty Clay turning gray with tan-red mottling, black oxidation flecks</p> <p>Same as above, becoming moist, with sand (fine-grained)</p>				<p>18</p> <p>26</p> <p>26</p> <p>20</p>	<p>0</p> <p>0</p> <p>0</p> <p>0</p>	<p>Well Construction Details</p> <p>Cement grout surface seal with steel, traffic rated cover</p> <p>2-inch PVC, Schedule 40 solid casing</p>	
<p>Kaldveer Associates Geoscience Consultants A California Corporation</p>		EXPLORATORY BORING LOG					
		<p>3810 BROADWAY Oakland, California</p>					
		PROJECT NO.	DATE	BORING NO.		MW-2	
KE1355-1A-1140	February 1992						

427920

01504W24L13

DRILL RIG	CME 55 HSA	SURFACE ELEVATION		LOGGED BY	MJ
DEPTH TO GROUNDWATER	31.0 FEET	BORING DIAMETER	2-inch	DATE DRILLED	1/28/92

DESCRIPTION AND CLASSIFICATION		DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	PTID READING	REMARKS	WELL CONSTRUCTION
DESCRIPTION AND REMARKS	SOIL TYPE						
Tan-red Silty clay turning tan-brown, slight smell		25		30	0	Bentonite pellet plug	
Same as above, grading sandy (fine-grained), red mottling, moist, black oxidation specks, no odor		30		22	5	2/12 washed sand filter pack 2-inch PVC, Schedule 40 slotted (0.010-inch) casing	
SAND (SM/SC), tan-brown, fine-grained, with clay and silt, wet		35		N.C.	0		
Bottom of Boring = 35 feet. Notes: 1. The stratification lines represent the approximate boundaries between soil types and the transition may be gradual. 2. For an explanation of penetration resistance values marked with an asterisk (*), see first page Appendix A. 3. Ground water level was measured at 31 feet at time of drilling. After 24 hours, ground water level was measured at 22.5 feet.							

 Kaldveer Associates Geoscience Consultants A California Corporation	EXPLORATORY BORING LOG		
	3810 BROADWAY Oakland, California		
	PROJECT NO.	DATE	BORING NO
KE1355-1A-1140	February 1992	MW-2	

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

15/4W 24L11
427903

DRILL RIG	CME 55 HSA	SURFACE ELEVATION	At Grade	LOGGED BY	MJ
DEPTH TO GROUNDWATER	31.0	BORING DIAMETER	2-inch	DATE DRILLED	10/17/91

DESCRIPTION AND CLASSIFICATION		DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	PTID READING	REMARKS	WELL CONSTRUCTION
DESCRIPTION AND REMARKS	SOIL TYPE						
GRAVEL (GW), red-gray, dry, loose, sandy,	FILL	5				Well Construction Details Cement grout surface seal with steel, traffic rated cover	
GRAVEL (GP), tan, dry, loose, pea-size subround gravel, not crushed, no odor							
Gravel and sampler becoming wet with depth, perched water at the bottom of tank excavation	FILL	10		20		2-inch PVC, Schedule 40 solid casing	
CLAY (CL), tan, with red mottling, dry, very stiff, silty, plastic, no odor							
Black oxidation mottling throughout sample, very stiff Grading some sand (fine-grained)		15		31			



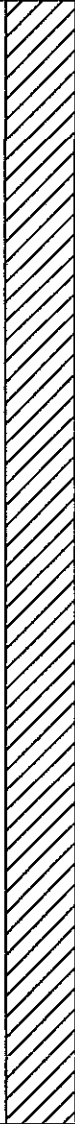


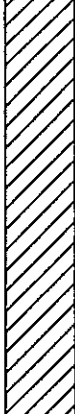

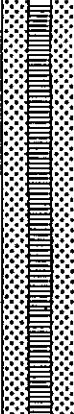
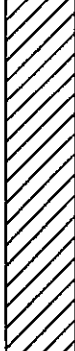

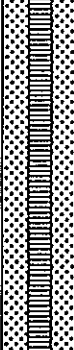






Kaldveer Associates
Geoscience Consultants
A California Corporation

EXPLORATORY BORING LOG

3810 BROADWAY
Oakland, California

PROJECT NO.	DATE	BORING NO.	MW-1
KE1355-1-1009	November 1991		

15/4w 24L11
427903

DRILL RIG	CME 55 HSA	SURFACE ELEVATION	At Grade	LOGGED BY	MJ		
DEPTH TO GROUNDWATER	31.0	BORING DIAMETER	2-inch	DATE DRILLED	10/17/91		
DESCRIPTION AND CLASSIFICATION		DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	PID READING	REMARKS	WELL CONSTRUCTION
DESCRIPTION AND REMARKS	SOIL TYPE						
Sand lens (fine-grained) throughout sample, very stiff, dry				29		Bentonite pellet plug	
Clay grades to brown, moist, very stiff		25		21		2/12 washed sand filter pack	
Very stiff		30		27		2-inch PVC, Schedule 40 slotted (0.020-inch) casing	
Sandy silty/Silty sand lens (fine-grained)				30			
Grading some sand (fine-grained), moist, very stiff		35		30			
Notes: 1. The stratification lines represent the approximate boundaries between soil types and the transition may be gradual. 2. Ground water was measured at 31 feet at time of drilling. After 5 hours, ground water was measured at 11.8 feet. 3. N.S. = Not Surveyed							



Kaldveer Associates
Geoscience Consultants
A California Corporation

EXPLORATORY BORING LOG

3810 BROADWAY
Oakland, California

PROJECT NO.	DATE	BORING NO
KE1355-1-1009	November 1991	MW-1

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

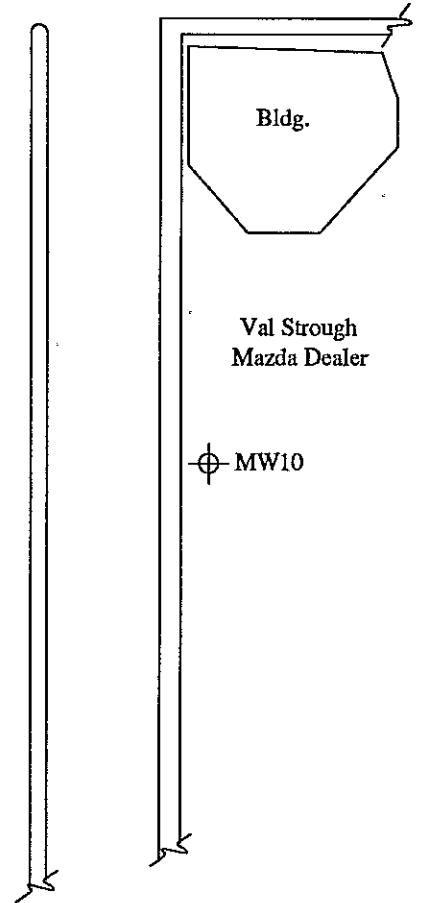
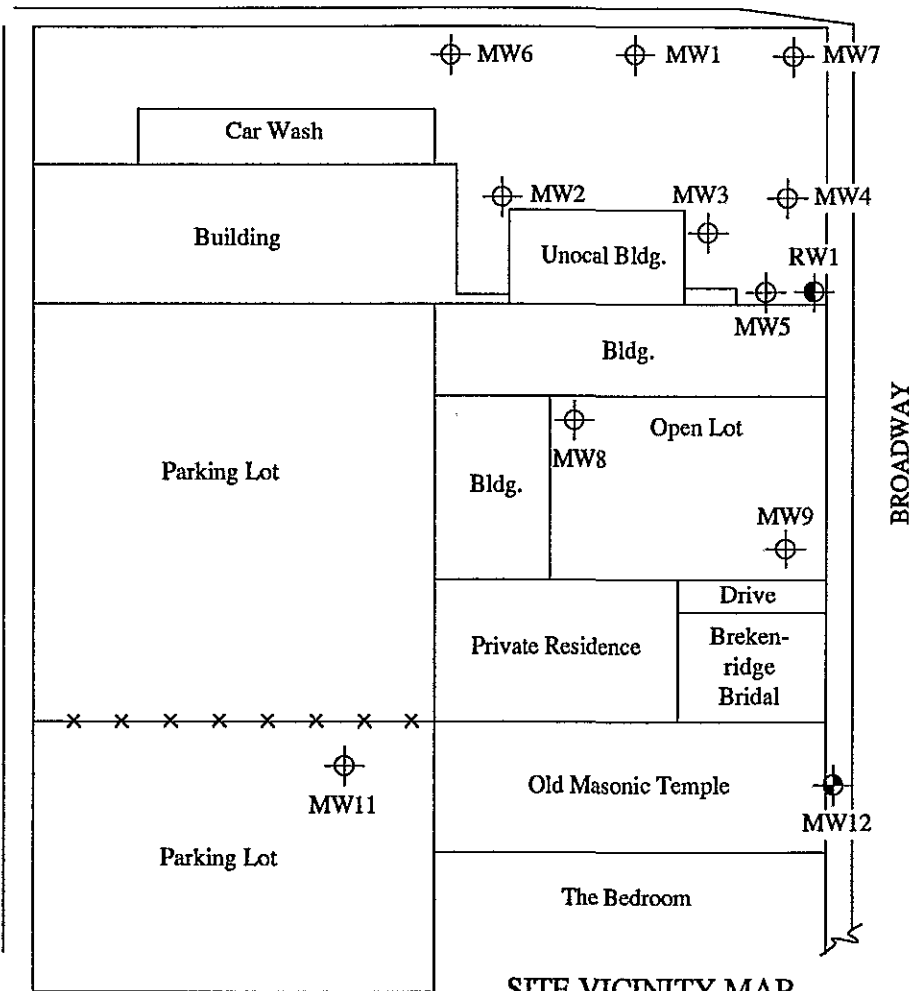
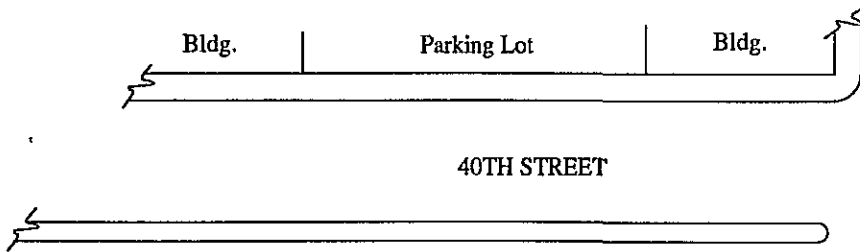
422134A1B 015 04W 24L14
L15



KAPREALIAN ENGINEERING, INC.

Consulting Engineers

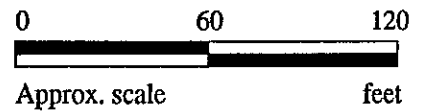
P.O. BOX 996 • BENICIA, CA 94510
(707) 746-6915 • (707) 746-6916 • FAX (707) 746-5581



SITE VICINITY MAP


LEGEND

- Monitoring well (existing)
- 2-inch diameter Monitoring well (proposed)
- 6-inch diameter Recovery well (proposed)



Unocal Service Station #0746
3943 Broadway
Oakland, CA

422134A OIS OAW 24214

BORING LOG				
Project No. KEI-P89-0805		Boring & Casing Diameter 9" 2"		Logged By D.L.
Project Name Unocal Oakland, Broadway		Well Cover Elevation		Date Drilled 1/7/92
Boring No. MW10		Drilling Method Hollow-stem Auger	Drilling Company Woodward Drilling	
Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
		0		Asphalt pavement over sand and gravel.
				Silty clay with minor sand, stiff, moist, dark greenish gray and black mottled (fill).
				Clayey sand with gravel, very stiff, moist, brown, pocketed with silty clay as above (fill).
8/11/14		5	SM	Silty sand with gravel, estimated at 5 to 10% clay content, gravel is angular to rounded, to 3/4" diameter, medium dense, moist, brown.
11/12/14				
6/11/19			CH	Sandy clay, variable clay content estimated at 15 to 30%, trace gravel below 9', very stiff, moist, olive brown,
7/16/24		10	GC	Clayey gravel with sand, gravel to 1" diameter, some gravel is decomposed, medium dense to dense, moist, dark yellowish brown.
11/17/32				Gravelly clay with sand, gravel to 3/4" diameter, hard, moist, brown.
		15	CL	Clay with silt and trace sand, clay is slickensided, hard, moist, olive.
13/20/20				Sandy clay with trace gravel, very stiff, moist, pale olive.
				Silty clay with organic matter, very stiff to hard, moist, pale olive, locally grades to clayey silt.
7/11/17		20	ML	Sandy silt, stiff, moist, olive brown.
			SC	Clayey sand, est. at 15 to 20% clay, med. dense, moist, olive brown, lenses of well graded sand, gravel at 20'. TOTAL DEPTH: 22'

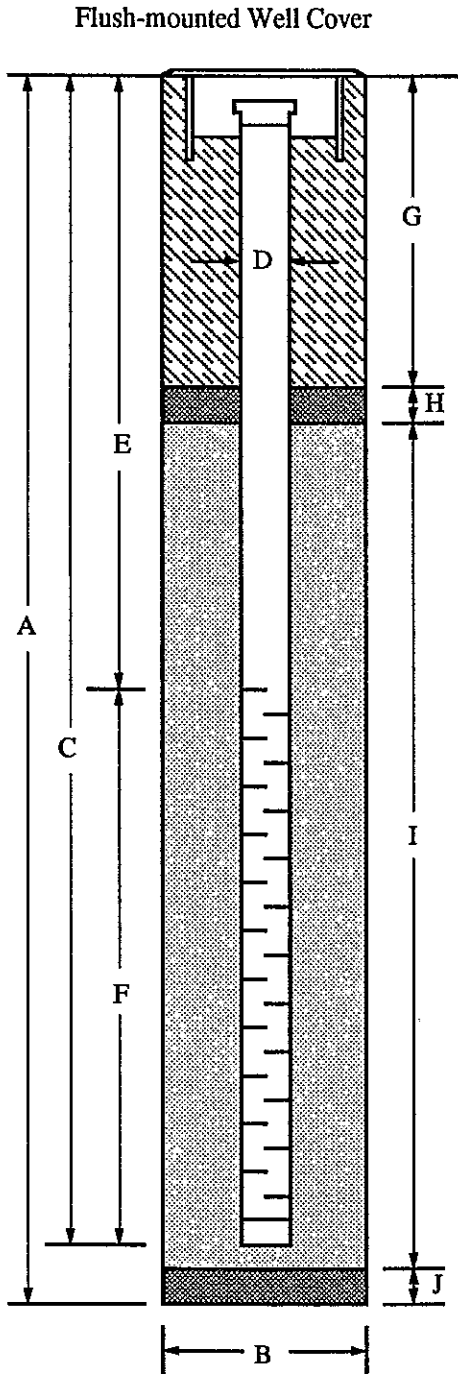
472734A
 OIS 04/24/14

WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal - Oakland, Broadway WELL NO. MW10

PROJECT NUMBER: KEI-P89-0805

WELL PERMIT NO.: ACFD&WCD 91219



- A. Total Depth : 22'
- B. Boring Diameter* : 9"
 Drilling Method: Hollow Stem Auger
- C. Casing Length: 22'
 Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 6'
- F. Perforated Length: 16'
 Perforation Type: Machined Slot
 Perforation Size: 0.010"
- G. Surface Seal: 2'
 Seal Material: Neat Cement
- H. Seal: 2'
 Seal Material: Bentonite
- I. Filter Pack: 18'
 Pack Material: RMC Lonestar Sand
 Size: #2/16
- J. Bottom Seal: none
 Seal Material: N/A

* Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

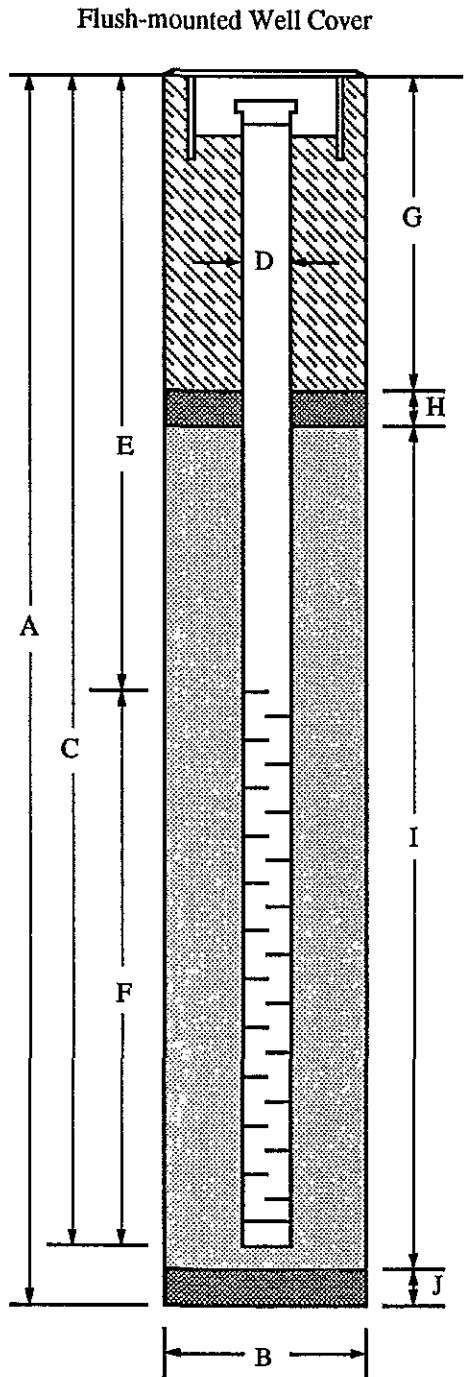
422134B OIS 04/24/15

BORING LOG				
Project No. KEI-P89-0805		Boring & Casing Diameter 9" 2"		Logged By D.L.
Project Name Unocal Oakland, Broadway		Well Cover Elevation		Date Drilled 1/7/92
Boring No. MW11		Drilling Method Hollow-stem Auger	Drilling Company Woodward Drilling	
Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
		0		Asphalt pavement over sand and gravel.
				Silty gravel with sand, bricks and concrete, dense, moist to very moist, black (fill).
9/14/19		5	CH	Sandy clay, estimated at 5 to 10% gravel to 1-1/4" diameter, very stiff, very moist, very dark grayish brown.
			SC	Clayey sand with gravel, estimated at 15 to 20% clay, sand is coarse- to fine-grained, dense, moist, very dark grayish brown and dark brown, mottled.
5/11/14		10	GC	Clayey gravel with sand, angular gravel to 1-1/2" diameter, medium dense, moist to very moist, dark greenish gray and olive brown.
4/8/14				Clay, high plasticity, trace silt and sand, stiff to very stiff, moist, olive brown and dark yellowish brown.
6/13/29		15	CH	Silty clay with trace organic matter, very stiff to hard, moist, olive and olive brown mottled.
13/16/21				Clay, with trace organic matter, slickensided, very stiff to hard, moist, olive and olive brown mottled.
9/17/28		20	SW/ SM	Well graded sand with silt and gravel, estimated at 15 to 20% gravel to 1/4" diameter, medium dense to dense, wet, dark yellowish brown. TOTAL DEPTH: 21'

015 04W 24/15
422/34B

WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal - Oakland, Broadway WELL NO. MW11
PROJECT NUMBER: KEI-P89-0805
WELL PERMIT NO.: ACFD&WCD 91219



- A. Total Depth : 21'
- B. Boring Diameter*: 9"
Drilling Method: Hollow Stem Auger
- C. Casing Length: 19'
Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 5'
- F. Perforated Length: 14'
Perforation Type: Machined Slot
Perforation Size: 0.010"
- G. Surface Seal: 2'
Seal Material: Neat Cement
- H. Seal: 2'
Seal Material: Bentonite
- I. Filter Pack: 15'
Pack Material: RMC Lonestar Sand
Size: #2/16
- J. Bottom Seal: 2'
Seal Material: Bentonite

* Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

154W - 23A

15/4W

01-751

4701

Job #795. Yosemite Laundry Compa
Drilling Well Emeryville

LOG OF WELL.

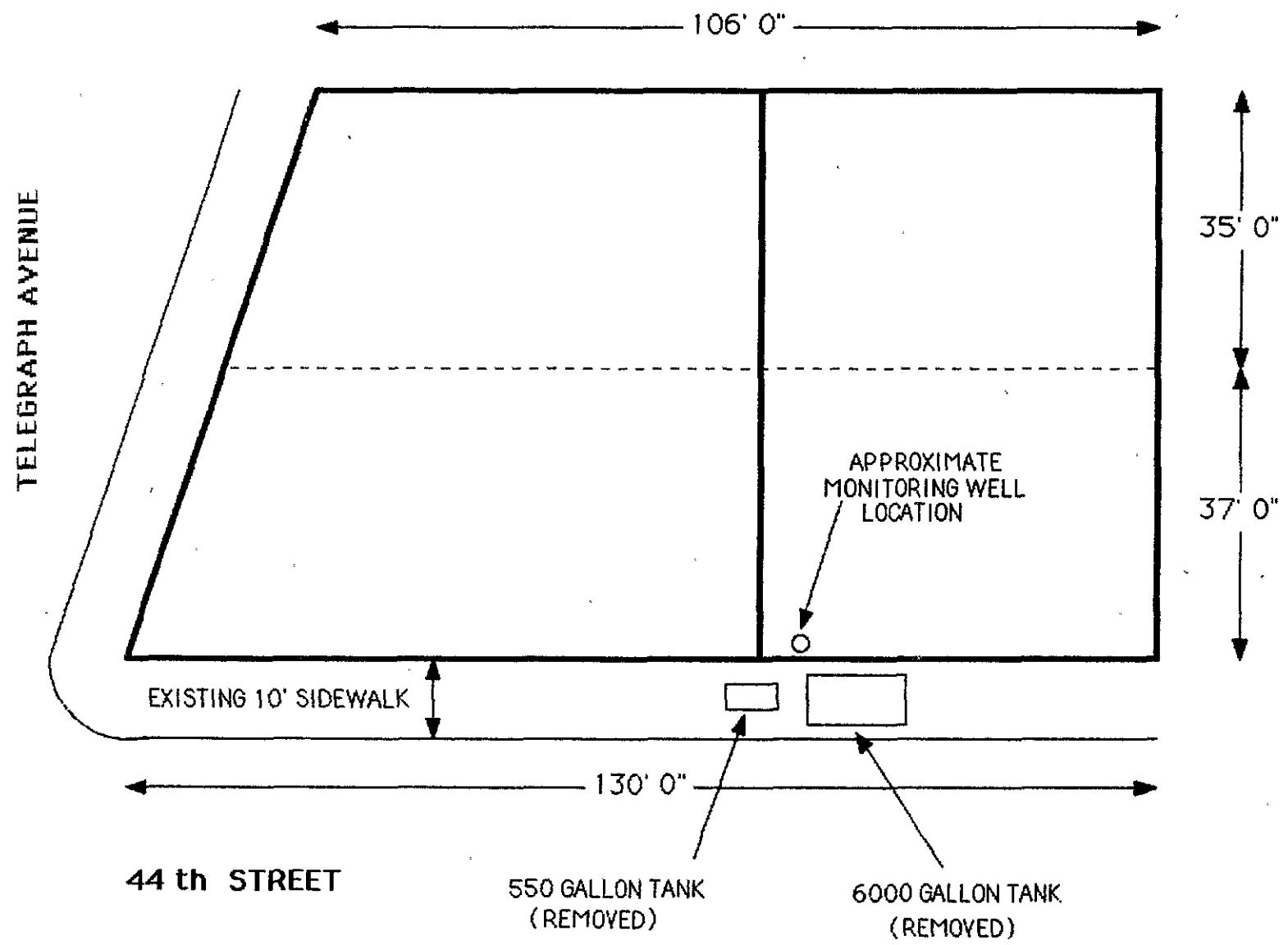
Surface soil		4 feet
Sandy yellow clay	4 to 20	"
Dry Gravel	20 "	26 "
Sandy clay	26 "	50 "
Cement gravel	50 "	60 "
Yellow clay	60 "	115 "
Cement gravel	115 "	120 "
Yellow clay	120 "	160 "
Sandy yellow clay	160 "	225 "
Blue clay	225 "	235 "
Decomposed sandstone	235 "	270 "
Sandy clay	270 "	285 "
Sandstone	285 "	300 "
Blue clay	300 "	310 "
Sandy clay	310 "	330 "
Blue shale	330 "	335 "
Yellow cementy clay	335 "	385 "
Blue sand & clay	385 "	398 "
Water gravel	398 "	400 "
Yellow sandy clay	400 "	470 "
Yellow sand	470 "	490 "

12" cng *Cancelled 300'*
16" " *466'*

J.M. Ough.
1201 E 12th St.

WAYNE KELLEY
PLOT PLAN - KELLEY AUTO PARTS, 4400 TELEGRAPH AVE, OAKLAND, CA

SCALE: 1" = 20'

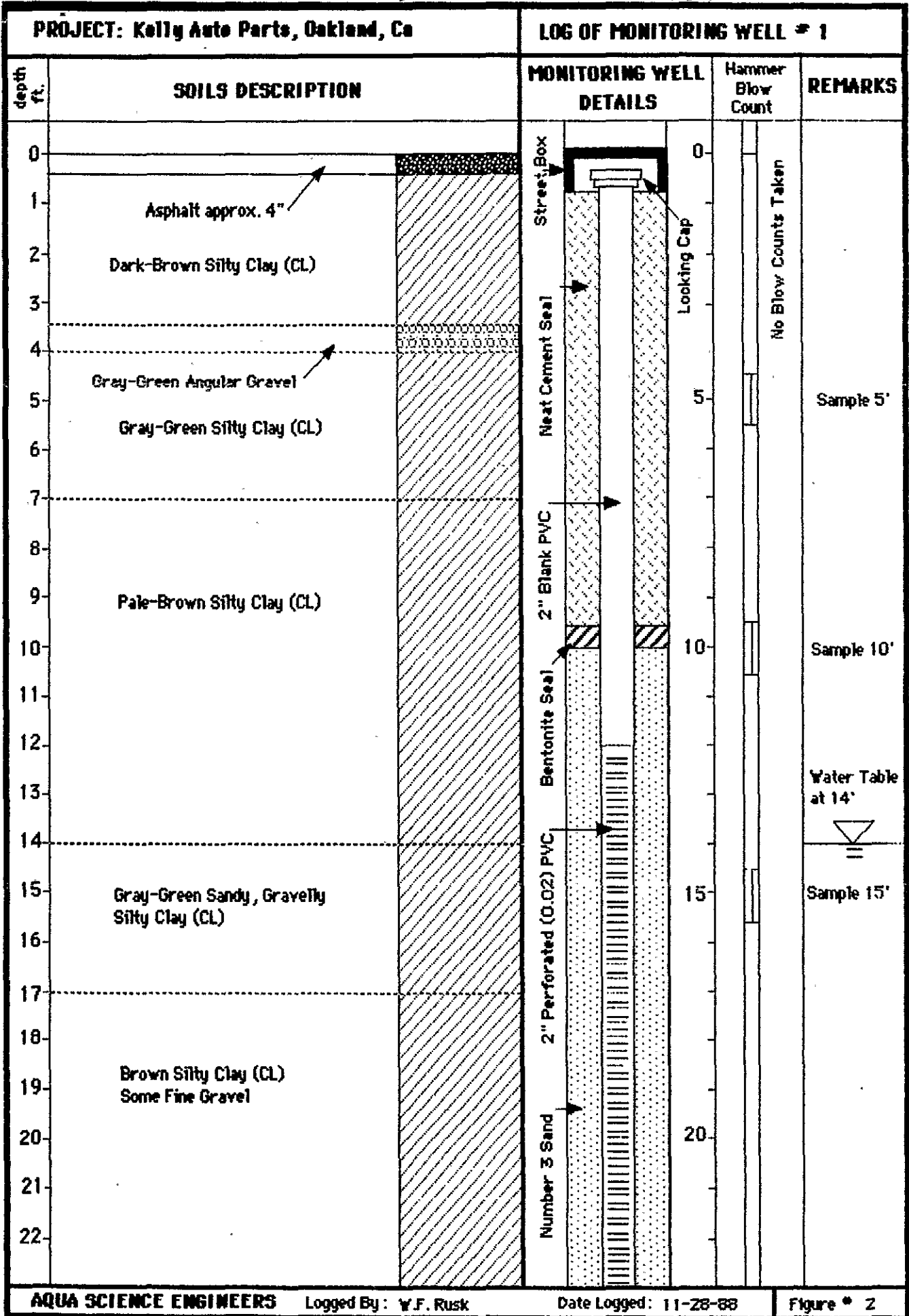


ADDY
Surv
15/01/01
23 & 1
01-422257

01-4225

Inval Addr

1514W 23A1



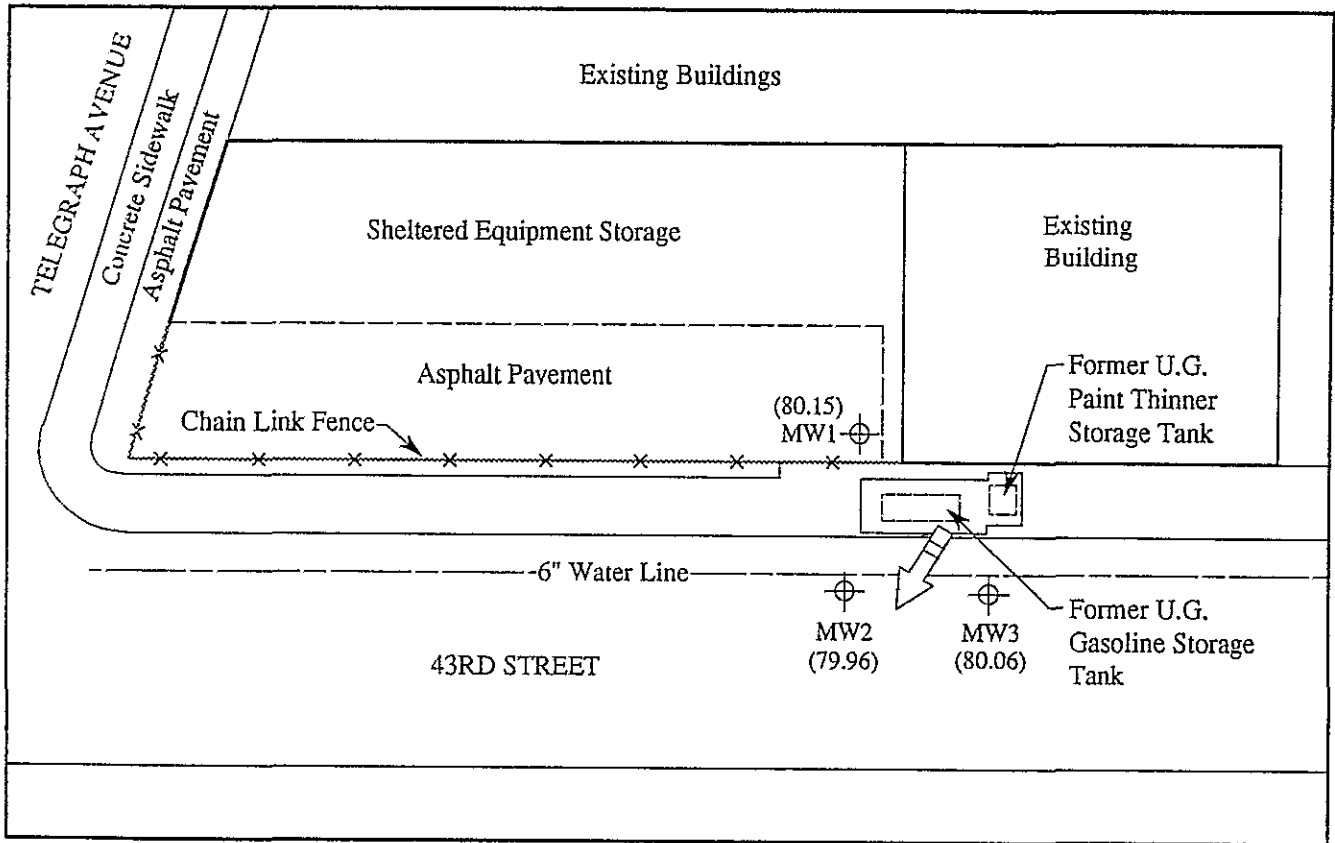
01-422J
1S/4W-23A1

PROJECT: Kelly Auto Parts, Oakland, Ca		LOG OF MONITORING WELL # 1			
depth ft	SOILS DESCRIPTION	MONITORING WELL DETAILS		Hammer Blow Count	REMARKS
23	Brown Silty Clay (CL) Some Gravel	Number 3 Sand	2" Perforated (0.01) PVC	23	
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35	E.O.H.	PVC Cap			
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					

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WELL COMPLETION REPORT
(WELL LOGS)

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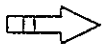
LEGEND



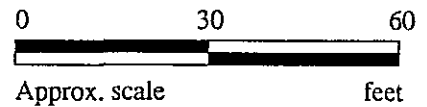
Monitoring well



Ground water elevation in feet above Mean Sea Level



Direction of ground water flow



GROUND WATER FLOW DIRECTION MAP FOR THE APRIL 29, 1993 MONITORING EVENT


**KAPREALIAN ENGINEERING
 INCORPORATED**

**WELLS FARGO BANK
 (WALTER BLUMERT CO, INC.)
 490 43RD STREET
 OAKLAND, CALIFORNIA**

**FIGURE
 1**

BORING LOG

Project No. KEI-P91-1201	Boring Diameter	8"	Logged By D.L.	JGG
	Casing Diameter	2"		LEG 1633
Project Name Wells Fargo Bank 490 43rd. Street, Oakland	Well Cover Elevation		Date Drilled April 12, 1993	
	Boring No. MW1	Drilling Method Hollow-stem Auger	Drilling Company Great Sierra Exploration	


Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
		0		Asphalt pavement over sand and gravel base.
			ML	Clayey silt, trace fine-grained sand, stiff, moist, black.
			CL	Silty clay, estimated at 10-15% sand and trace gravel, very stiff, moist, dark brown with iron oxide staining.
6/11/13		5	ML	Silt with sand, estimated at 10-15% clay and trace gravel, very stiff, moist, brown.
			GC	Clayey gravel with sand, gravel to 2 inches in diameter, dense to very dense, moist, dark greenish gray and olive brown, mottled.
14/23/35		10	GM	Silty gravel with sand, trace clay, gravel to 5/8 inch in diameter, very dense, very moist, olive gray.
15/28/42	▼		ML	Gravelly silt, estimated at 10-15% sand, gravel to 1 inch in diameter, hard, friable, moist to very moist, dark greenish gray and olive brown.
16/33/41				Gravelly silt as above, except olive brown only.
		15		Sandy silt, estimated at 10-15% gravel to 1 inch in diameter, hard, moist, olive gray and dark greenish gray, mottled.
7/11/14			GM	Silty gravel with sand, estimated at 15% silt and 5% clay, gravel to 1 inch in diameter, medium dense, wet, dark olive gray, grades to dark yellowish brown.
7/11/14		20	ML	Sandy silt, estimated at 10-15% gravel, sand is predominantly fine-grained, very stiff, wet, olive brown.
11/			SM	Silty sand, estimated at 10-15% gravel, medium dense, wet, cohesive, olive brown.

495481A

01504W23A02

BORING LOG

Project No. KEI-P91-1201	Boring Diameter 8"	Logged By <i>JGG</i> D.L. <i>CEG 1633</i>
	Casing Diameter 2"	
Project Name Wells Fargo Bank 490 43rd. Street, Oakland	Well Cover Elevation	Date Drilled April 12, 1993
Boring No. MW1	Drilling Method Hollow-stem Auger	Drilling Company Great Sierra Exploration

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
17/23			SM 	Silt with fine-grained sand, trace gravel to 3/8 inch in diameter, very stiff, moist, olive brown and dark yellowish brown, mottled.
				TOTAL DEPTH: 23'

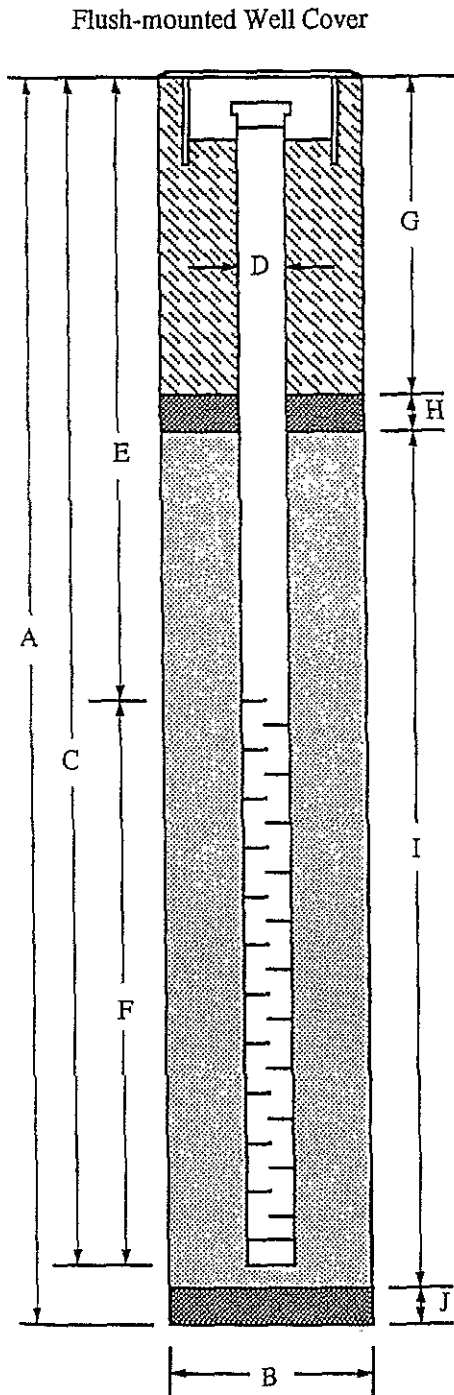
WELL CONSTRUCTION DIAGRAM

PROJECT NAME: Wells Fargo Bank, 490 43rd. Street, Oakland

WELL NO.: MW1

PROJECT NUMBER: KEI-P91-1201

WELL PERMIT NO.: ACFC&WCD #53077



- A. Total Depth : 23'
- B. Boring Diameter: 8"
Drilling Method: Hollow Stem Auger
- C. Casing Length: 23'
Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 6'
- F. Perforated Length: 17'
Perforation Type: Machined Slot
Perforation Size: 0.010"
- G. Surface Seal: 2'
Seal Material: Neat Cement
- H. Seal: 2'
Seal Material: Bentonite
- I. Filter Pack: 19'
Pack Material: RMC Lonestar Sand
Size: #2/12
- J. Bottom Seal: None
Seal Material: N/A

495481B

01504W23A03

BORING LOG

Project No. KEI-P91-1201		Boring Diameter 8"		Logged By JGG	
Project Name Wells Fargo Bank 490 43rd. Street, Oakland		Casing Diameter 2"		D.L. LEG 1633	
Boring No. MW2		Drilling Method Hollow-stem Auger		Date Drilled April 12, 1993	
Drilling Company Great Sierra Exploration		Well Cover Elevation		Date Drilled April 12, 1993	
Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description	
		0		Asphalt pavement over sand and gravel base.	
			ML	Clayey silt, trace sand and gravel, very stiff, moist, black.	
			CL	Silty clay, estimated at 10-15% sand, trace gravel, very stiff, moist, dark brown, with iron oxide staining.	
7/8/11		5	ML	Clayey silt, estimated at 10-15% sand, very stiff, moist, dark brown, with iron oxide staining.	
			CL	Silty clay, very stiff, moist, dark brown, mottled, dark gray.	
			ML	Silt with fine-grained sand, stiff, moist, olive gray.	
7/9/11			GC	Clayey gravel with sand, estimated at 5-10% silt, gravel to 1-1/2 inches in diameter, medium dense, moist, dark olive gray.	
14/9/15		10	GM	Clayey gravel as above, except very moist to wet.	
7/12/13	▼		GM	Silty gravel with sand, medium dense, very moist, dark olive gray.	
			SM	Silty sand, estimated at 15-20% silt and trace gravel to 1/2 inch in diameter, medium dense, moist, dark greenish gray.	
12/14/13		15	GM	Silty gravel with sand, trace clay, medium dense, very moist to wet, olive to olive gray.	
			ML	Silt with clay, estimated at 10-15% fine-grained sand, very stiff, moist, yellowish brown.	
10/10/10			GM	Silty gravel with sand, medium dense, wet, dark yellowish brown.	
			ML	Silt with sand, estimated at 5-10% clay, very stiff, moist, yellowish brown.	
8/10/12		20	ML	Silt with clay, estimated at 10-15% fine-grained sand, very stiff, moist yellowish brown.	

TOTAL DEPTH: 22'

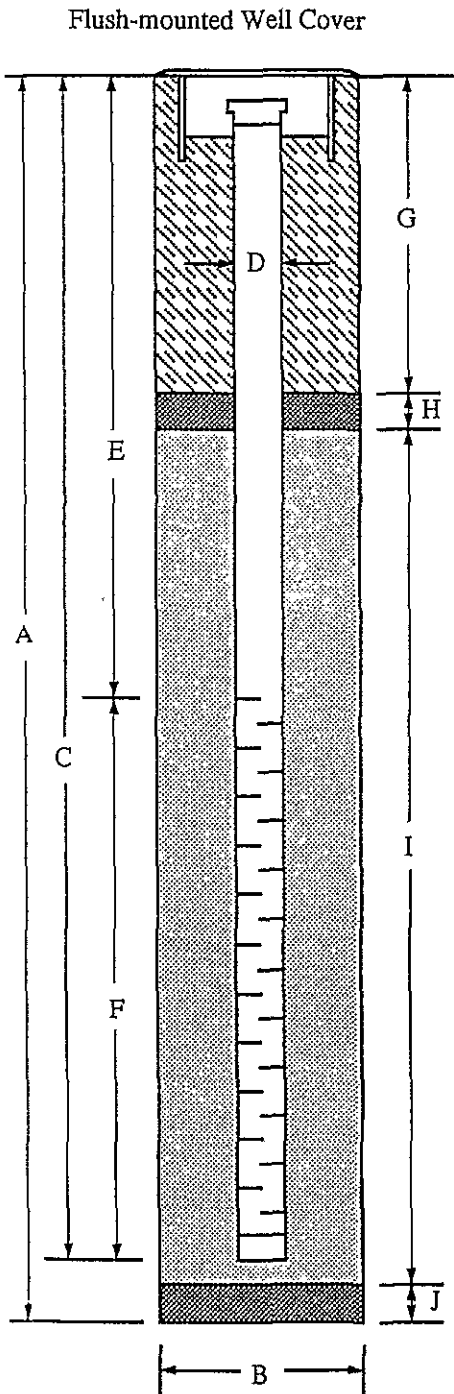
WELL CONSTRUCTION DIAGRAM

PROJECT NAME: Wells Fargo Bank, 490 43rd. Street, Oakland

WELL NO.: MW2

PROJECT NUMBER: KEI-P91-1201

WELL PERMIT NO.: ACFC&WCD #53077



- A. Total Depth : 22'
- B. Boring Diameter: 8"
Drilling Method: Hollow Stem Auger
- C. Casing Length: 22'
Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 6'
- F. Perforated Length: 16'
Perforation Type: Machined Slot
Perforation Size: 0.010"
- G. Surface Seal: 3'
Seal Material: Neat Cement
- H. Seal: 2'
Seal Material: Bentonite
- I. Filter Pack: 17'
Pack Material: RMC Lonestar Sand
Size: #2/12
- J. Bottom Seal: None
Seal Material: N/A

4954810

01504W23A04

BORING LOG

Project No. KEI-P91-1201	Boring Diameter	8"	Logged By JGG D.L. CEG 1633
	Casing Diameter	2"	
Project Name Wells Fargo Bank 490 43rd. Street, Oakland	Well Cover Elevation	Date Drilled April 12, 1993	
Boring No. MW3	Drilling Method	Hollow-stem Auger	Drilling Company Great Sierra Exploration

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
		0		Asphalt pavement over sand and gravel base.
				Clayey silt, trace sand and gravel, very stiff, moist, very dark grayish brown and black, mottled (fill).
6/7/8		5	CL	Silty clay, estimated at 10-15% sand and trace gravel, very stiff, moist, dark brown with iron oxide staining, disturbed soil.
			SC	Clayey sand, estimated at 10-15% silt and trace gravel, medium dense, moist, dark brown with iron oxide staining, poor recovery.
9/11/14		10	SM	Silty sand with gravel, trace clay, medium dense, moist to wet, cohesive, dark greenish gray.
6/11/14	▼		ML	Gravelly silt, estimated at 10-15% fine-grained sand, very stiff, moist, olive gray and deep greenish gray, mottled. Sandy silt, very stiff, moist, dark greenish gray and olive, mottled, sand is fine-grained.
9/14/26		15	SM	Silty sand with gravel, estimated at 15-25% silt, gravel to 1-1/2 inch in diameter, olive brown, trace clay below 15.5 feet.
8/8/8			ML	Silt with sand, trace gravel, stiff, moist, light yellowish brown. Clayey silt, trace fine-grained sand, stiff, moist, light yellowish brown.
14/36/30		20		Silt with fine-grained sand, trace gravel to 3/8 inch in diameter, very stiff, moist, olive brown and dark yellowish brown, mottled.

TOTAL DEPTH: 22'

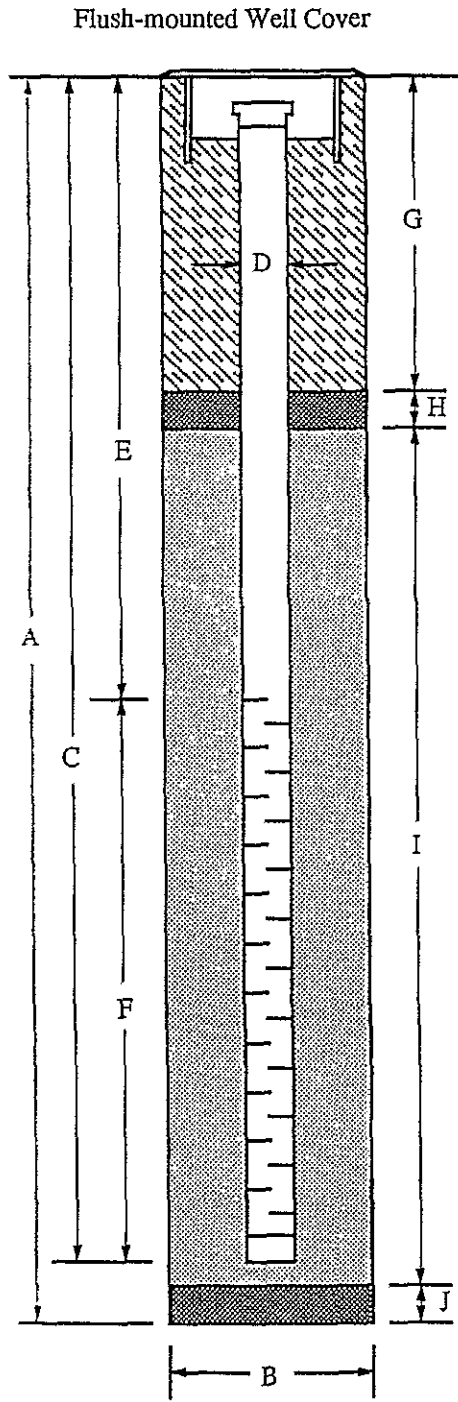
WELL CONSTRUCTION DIAGRAM

PROJECT NAME: Wells Fargo Bank, 490 43rd. Street, Oakland

WELL NO.: MW3

PROJECT NUMBER: KEI-P91-1201

WELL PERMIT NO.: ACFC&WCD #53077



- A. Total Depth : 22'
- B. Boring Diameter: 8"
- Drilling Method: Hollow Stem Auger
- C. Casing Length: 22'
- Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 6'
- F. Perforated Length: 16'
- Perforation Type: Machined Slot
- Perforation Size: 0.010"
- G. Surface Seal: 3'
- Seal Material: Neat Cement
- H. Seal: 2'
- Seal Material: Bentonite
- I. Filter Pack: 17'
- Pack Material: RMC Lonestar Sand
- Size: #2/12
- J. Bottom Seal: None
- Seal Material: N/A

ORIGINAL File with DWR

CONFIDENTIAL LOG Water Code Sec. 1

DEPARTMENT OF WATER RESOURCES WATER WELL DRILLERS REPORT

No 91502

State Well No. Other Well No. 15/4W-23D

(1) OWNER:

Name PACIFIC GAS & ELECTRIC COMPANY Address 4801 Oakport Street Oakland, CA. 94601

(2) LOCATION OF WELL:

County Alameda Owner's number, if any #1-Job892 Township, Range, and Section Oakland Distance from cities, roads, railroads, etc. 44th St. 41' so. east Adeline

(11) WELL LOG:

Table with columns: Total depth, ft., Depth of completed well, ft., Formation: Describe by color, character, size of material, and structure, ft. to, ft.

(3) TYPE OF WORK (check):

New Well [X] Deepening [] Reconditioning [] Destroying [] If destruction, describe material and procedure in Item 11.

(4) PROPOSED USE (check):

Domestic [] Industrial [] Municipal [] Irrigation [] Test Well [] Other [] Cathodic Protection

(5) EQUIPMENT:

Rotary [X] Cable [] Other []

(6) CASING INSTALLED:

STEEL: SINGLE [] DOUBLE [] OTHER: []

If gravel packed

Table with columns: From ft., To ft., Diam., Gage or Wall, Diameter of Bore, From ft., To ft.

Size of shoe or well ring:

Size of gravel:

Describe joint

(7) PERFORATIONS OR SCREEN:

Type of perforation or name of screen

Table with columns: From ft., To ft., Perf. per row, Rows per ft., Size in. x in.

(8) CONSTRUCTION:

Was a surface sanitary seal provided? Yes [X] No [] To what depth 120 ft.

Were any strata sealed against pollution? Yes [X] No [] If yes, note depth of strata

From ft. to ft.

From ft. to ft.

Method of sealing Concrete

(9) WATER LEVELS:

Depth at which water was first found, if known ft.

Standing level before perforating, if known ft.

Standing level after perforating and developing ft.

(10) WELL TESTS:

Was pump test made? Yes [] No [] If yes, by whom?

Yield: gal./min. with ft. drawdown after hrs.

Temperature of water Was a chemical analysis made? Yes [] No []

Was electric log made of well? Yes [] No [] If yes, attach copy

Work started 5/16 1973, Completed 5/16 1973

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Pitcher Drilling Company (Person, firm, or corporation) (Typed or printed)

Address 6825 Mission Street Daly City, CA. 94014

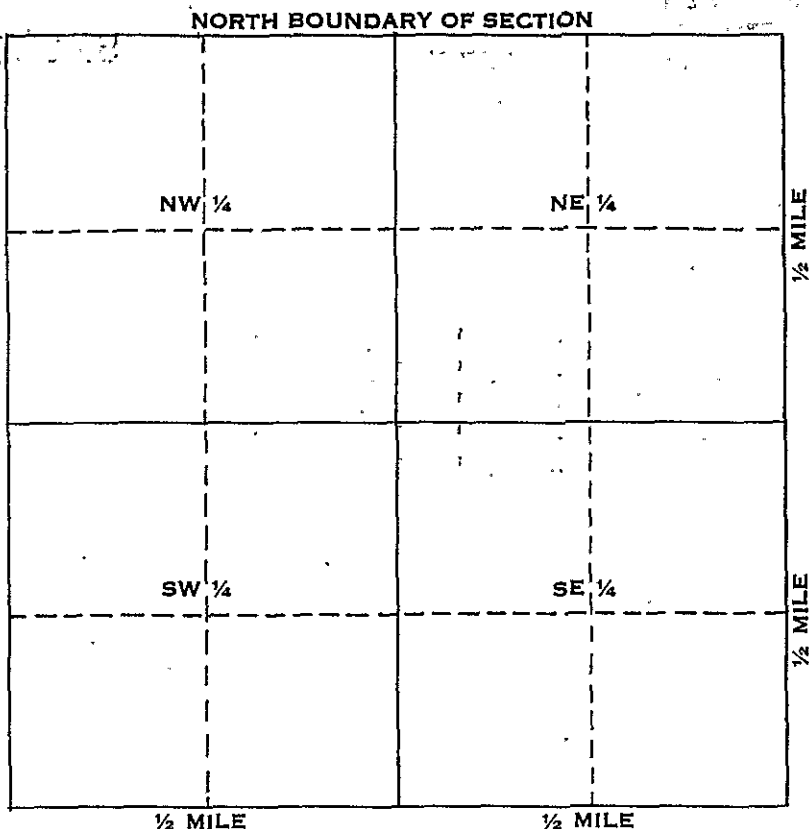
[SIGNED] Anita Pitcher (Well Driller)

License No. 263085 Dated 6/21, 1973

SKETCH LOCATION OF WELL ON REVERSE SIDE

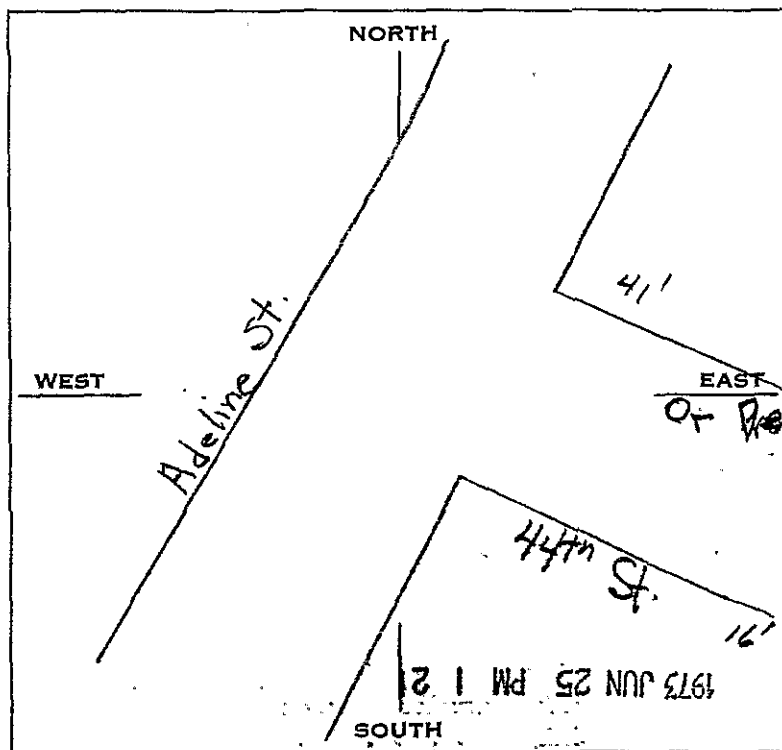
WELL LOCATION SKETCH

91502



Township 1 ~~N/S~~
 Range 4 ~~E/W~~
 Section No. 23 D

A. Location of well in sectionized areas.
 Sketch roads, railroads, streams, or other features as necessary.



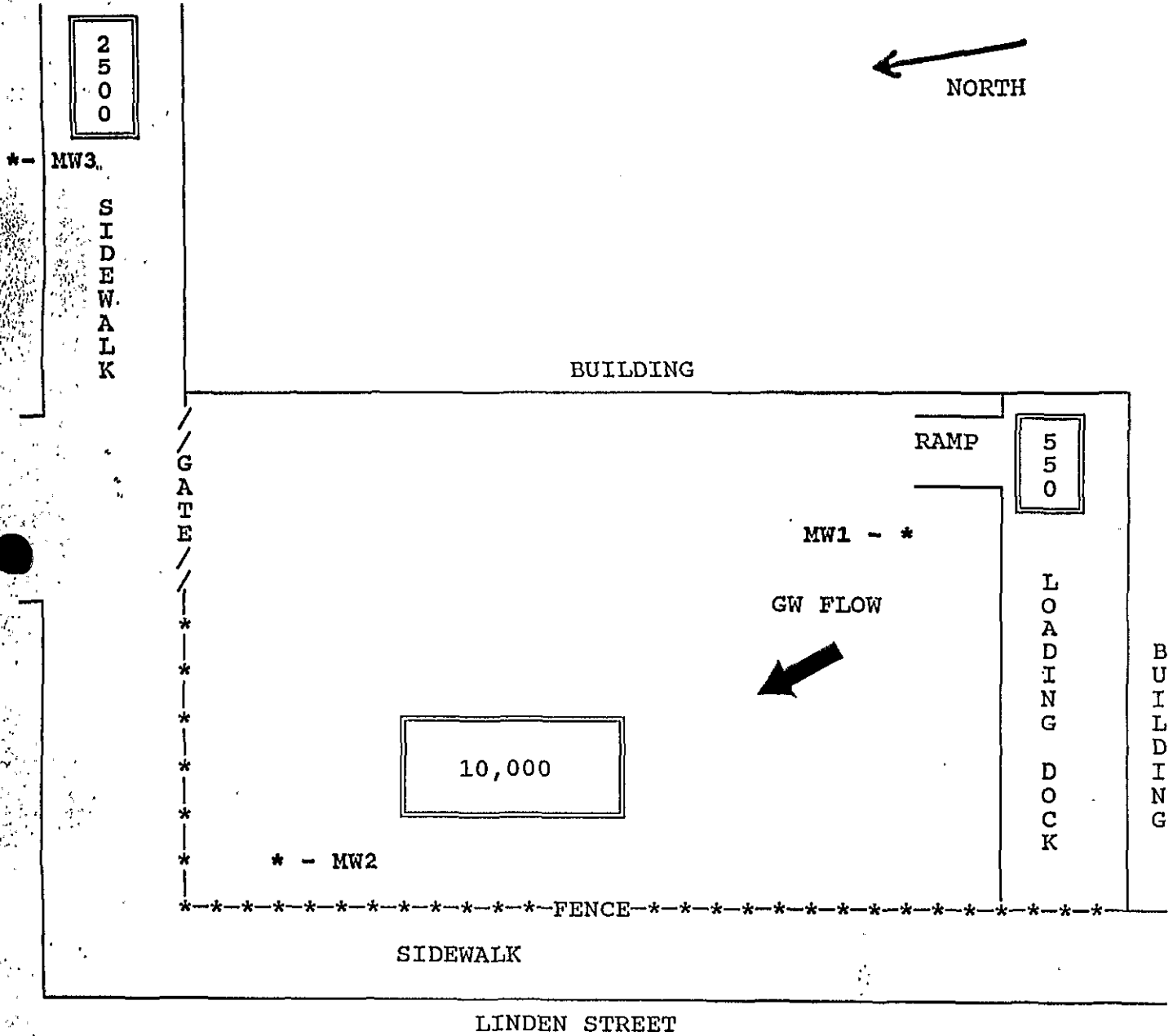
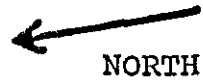
B. Location of well in areas not sectionized.
 Sketch roads, railroads, streams, or other features as necessary.
 Indicate distances.

DEPT. OF WATER
 RESOURCES
 1973 JUN 25 PM 1 21

FIGURE 1

01-445G

SITE PLAN - CALIFORNIA LINEN
989 41st STREET, OAKLAND, CA



10'

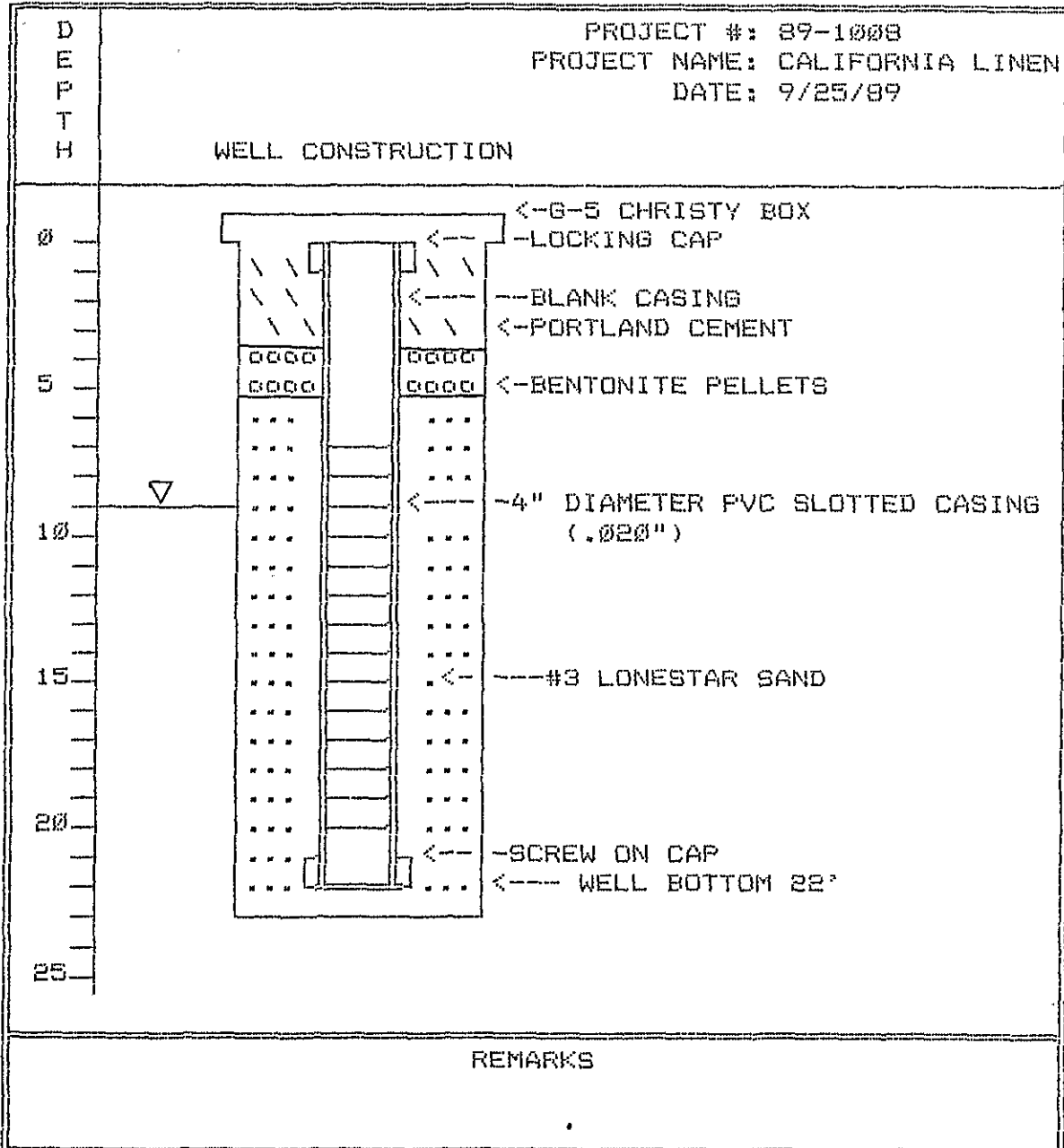
* - Monitoring well location

01-4459

MILLER ENVIRONMENTAL COMPANY

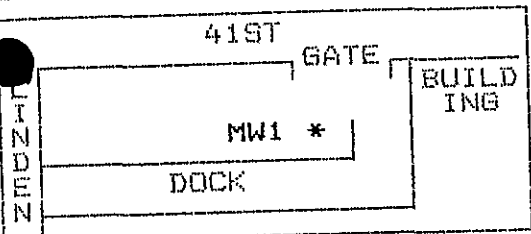
WELL CONSTRUCTION LOG

BORING # MW1



BORING # MW1

PROJECT # 89-1008 PROJECT NAME: CAL LINEN
 LOCATION: 989 41ST STREET, OAKLAND, CA
 LOGGED BY: REINHARD RUMRE
 CONTRACTOR: HEW DRILLING
 DRILLING METHODS: 8 1/4" HOLLOW STEM AUGER
 SAMPLING METHODS: SPLIT SPOON SAMPLER
 START TIME: 9:15 DATE: 9/25/89
 STOP TIME: 12:15 DATE: 9/25/89
 TOTAL DEPTH: 22"



SITE MAP

DEPTH	SAMPLE #	RECOVERY	TIME	BLOWS	DESCRIPTION	USCS	SYMBOL
0					ASPHALT		
					DARK GRAY TO BLACK PEBBLY, SLIGHTLY SILTY CLAY; ORGANIC SMELL; STIFF.		
5	MW1A	18"	9:35	4-8-12	OLIVE GREEN-GRAY CLAY; SLIGHTLY OXIDIZED.		CL
					OLIVE-GREEN PEBBLY CLAY; STIFF; MOIST.		
10	MW1B	18"	9:45	6-9-11			▽
					LIGHT BROWN SILTY CLAY; WET.		CL
15							
20							
25					END OF BORING;		

REMARKS

01-445G

surveyed on October 12, 1989 by a California licensed surveyor. The water levels and conversions to elevations are given in Table 1 below.

TABLE 1
WATER LEVEL DEPTHS AND ELEVATIONS IN FEET. OCT 11, 1989

<u>Well</u>	<u>TOC Elev.</u>	<u>Depth</u>	<u>Elevation</u>
→ MW1	53.89	7.70	46.19
MW2	54.06	9.25	44.81
MW3	52.79	7.00	45.79

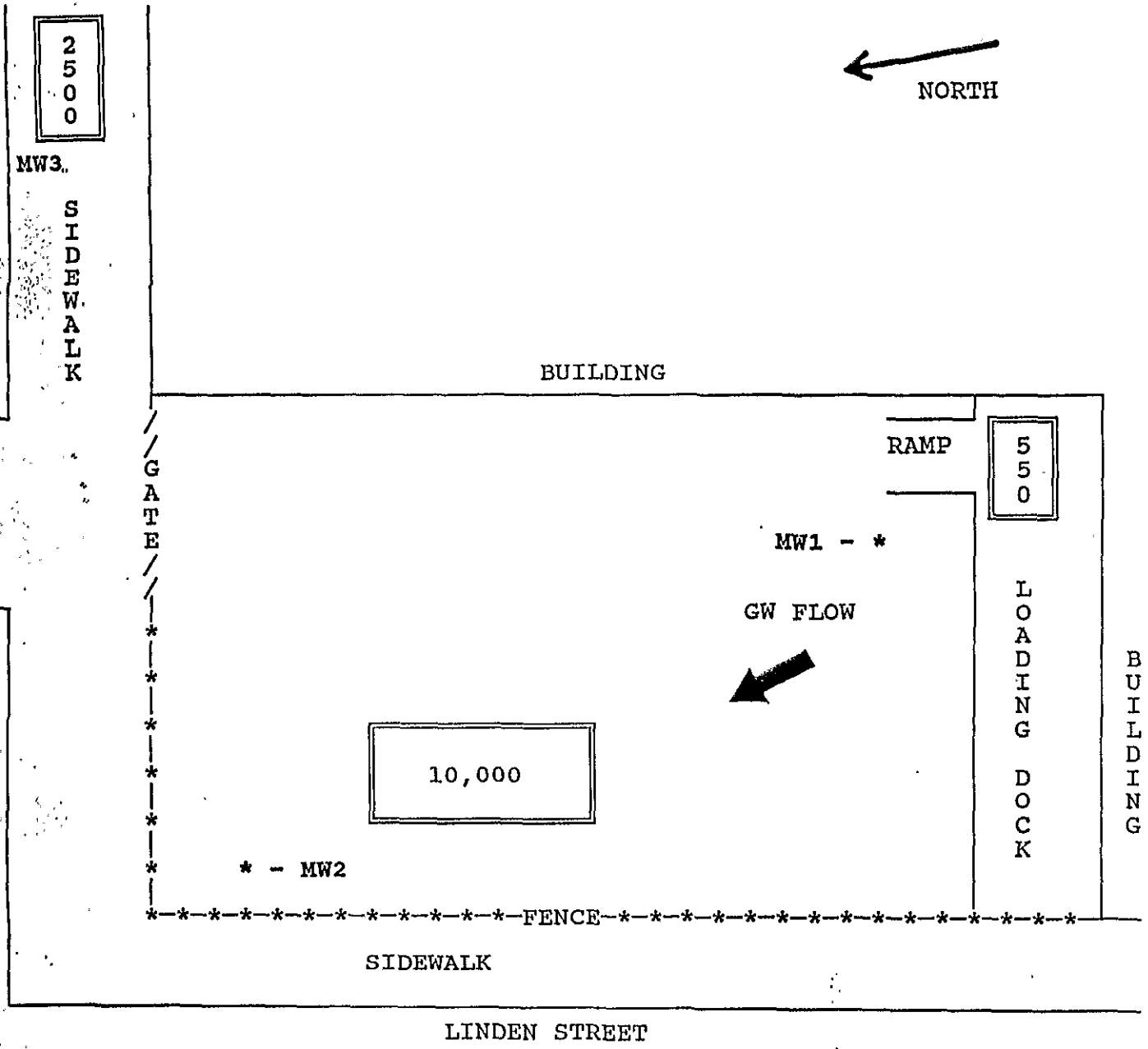
TOC=Top of casing

Based on the present data ground water is flowing in a north-northwest direction towards the intersection of 41st and Linden Streets. This data is shown on Figure 1.

FIGURE 1

01-445H

SITE PLAN - CALIFORNIA LINEN
989 41st STREET, OAKLAND, CA

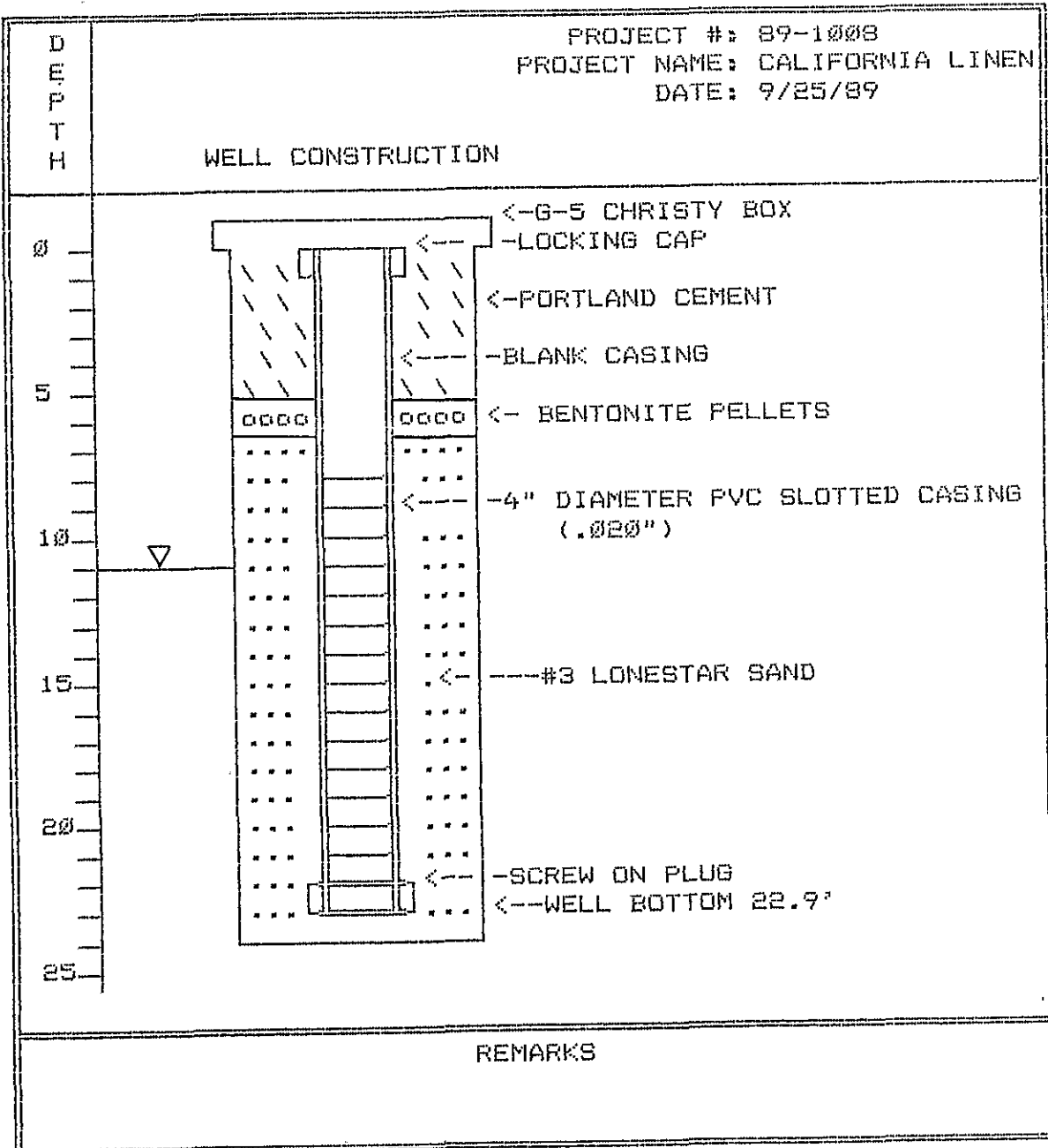


* - Monitoring well location

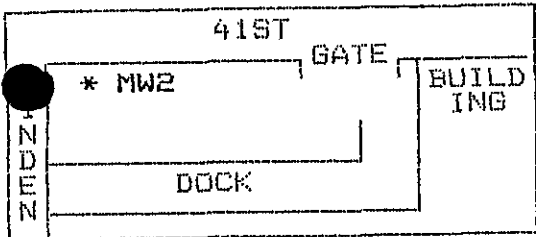
MILLER ENVIRONMENTAL COMPANY

WELL CONSTRUCTION LOG

BORING # MW2



BORING # MW2



PROJECT # 89-1008 PROJECT NAME: CAL LINEN
 LOCATION: 989 41ST STREET, OAKLAND, CA
 LOGGED BY: REINHARD RUMKE
 CONTRACTOR: HEW DRILLING
 DRILLING METHODS: 8 1/4" HOLLOW STEM AUGER
 SAMPLING METHODS: SPLIT SPOON SAMPLER
 START TIME: 12:30 DATE: 9/25/89
 STOP TIME: 4:00 DATE: 9/25/89
 TOTAL DEPTH: 23'

SITE MAP

DEPTH	SAMPLE #	RECOVERY	TIME	BLOWS	DESCRIPTION	U.S.C.S.	SYMBOL
0					ASPHALT		
					BLACK PEBBLY CLAY; STIFF; DRY.		
5	MW2A	18"	12:50	3-4-4	BROWN SILTY CLAY WITH PEBBLES.	CL	
					OLIVE-GRAY SILTY CLAY WITH PEBBLES; STIFF.		
10	MW2B	18"	1:45	3-5-7	LIGHT BROWN SILTY CLAY; WET.	CL	▽
					MORE DENSE		
20					END OF BORING;		
25							

REMARKS

01-445H

surveyed on October 12, 1989 by a California licensed surveyor. The water levels and conversions to elevations are given in Table 1 below.

TABLE 1
WATER LEVEL DEPTHS AND ELEVATIONS IN FEET. OCT 11, 1989

<u>Well</u>	<u>TOC Elev.</u>	<u>Depth</u>	<u>Elevation</u>
MW1	53.89	7.70	46.19
→ MW2	54.06	9.25	44.81
MW3	52.79	7.00	45.79

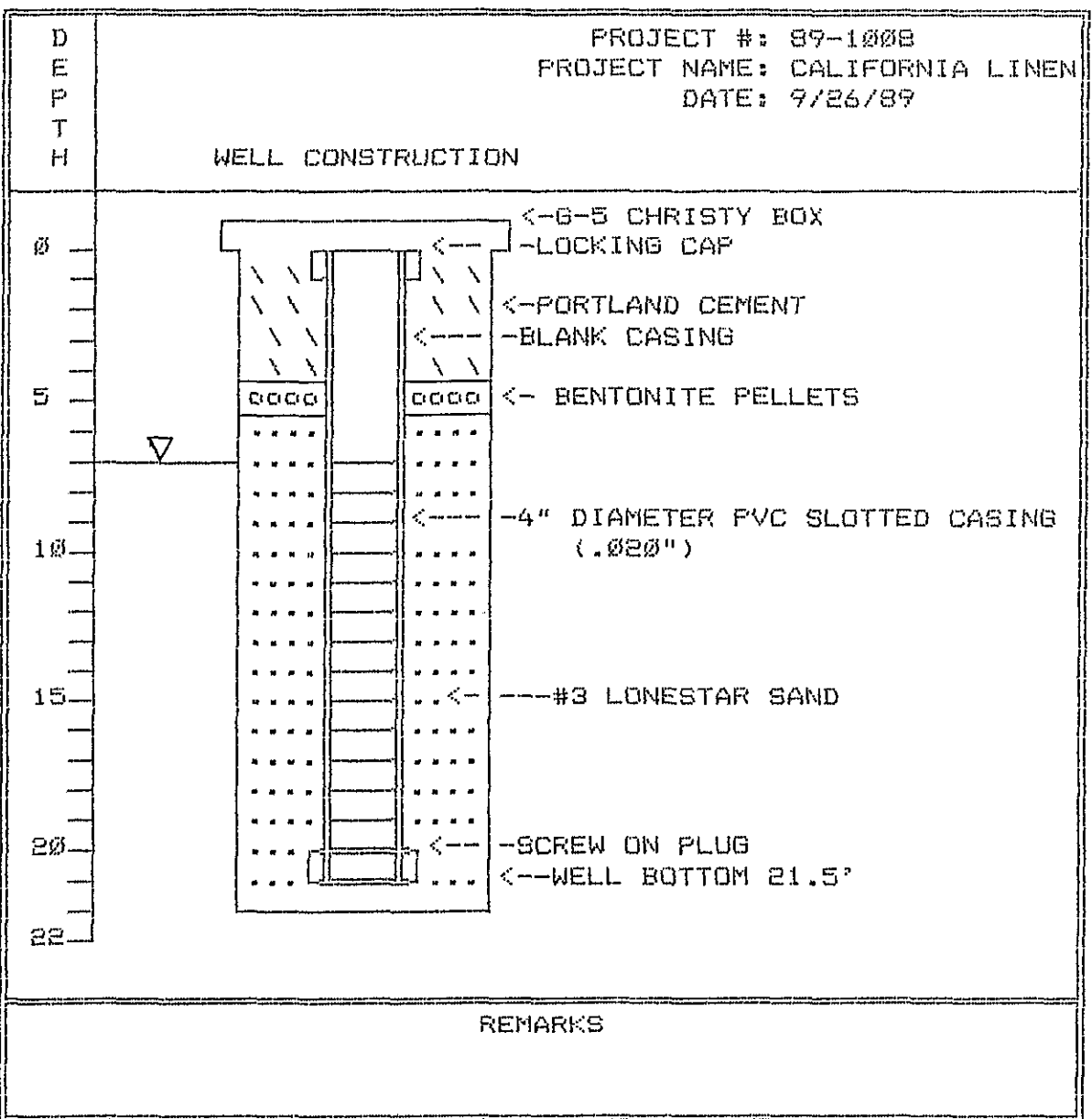
TOC=Top of casing

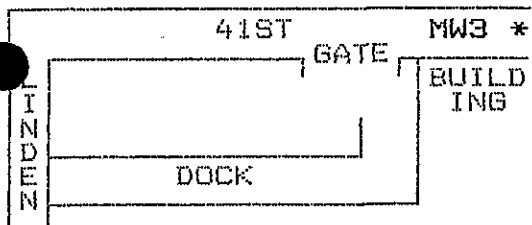
Based on the present data ground water is flowing in a north-northwest direction towards the intersection of 41st and Linden Streets. This data is shown on Figure 1.

MILLER ENVIRONMENTAL COMPANY

WELL CONSTRUCTION LOG

BORING # MW3





PROJECT # 89-1008 PROJECT NAME: CAL LINEN
 LOCATION: 989 41ST STREET, OAKLAND, CA
 LOGGED BY: REINHARD ROHMKE
 CONTRACTOR: HEW DRILLING
 DRILLING METHODS: 3 1/4" HOLLOW STEM AUGER
 SAMPLING METHODS: SPLIT SPOON SAMPLER
 START TIME: 8:45 DATE: 9/26/89
 STOP TIME: 12:15 DATE: 9/26/89
 TOTAL DEPTH: 21.5'

SITE MAP

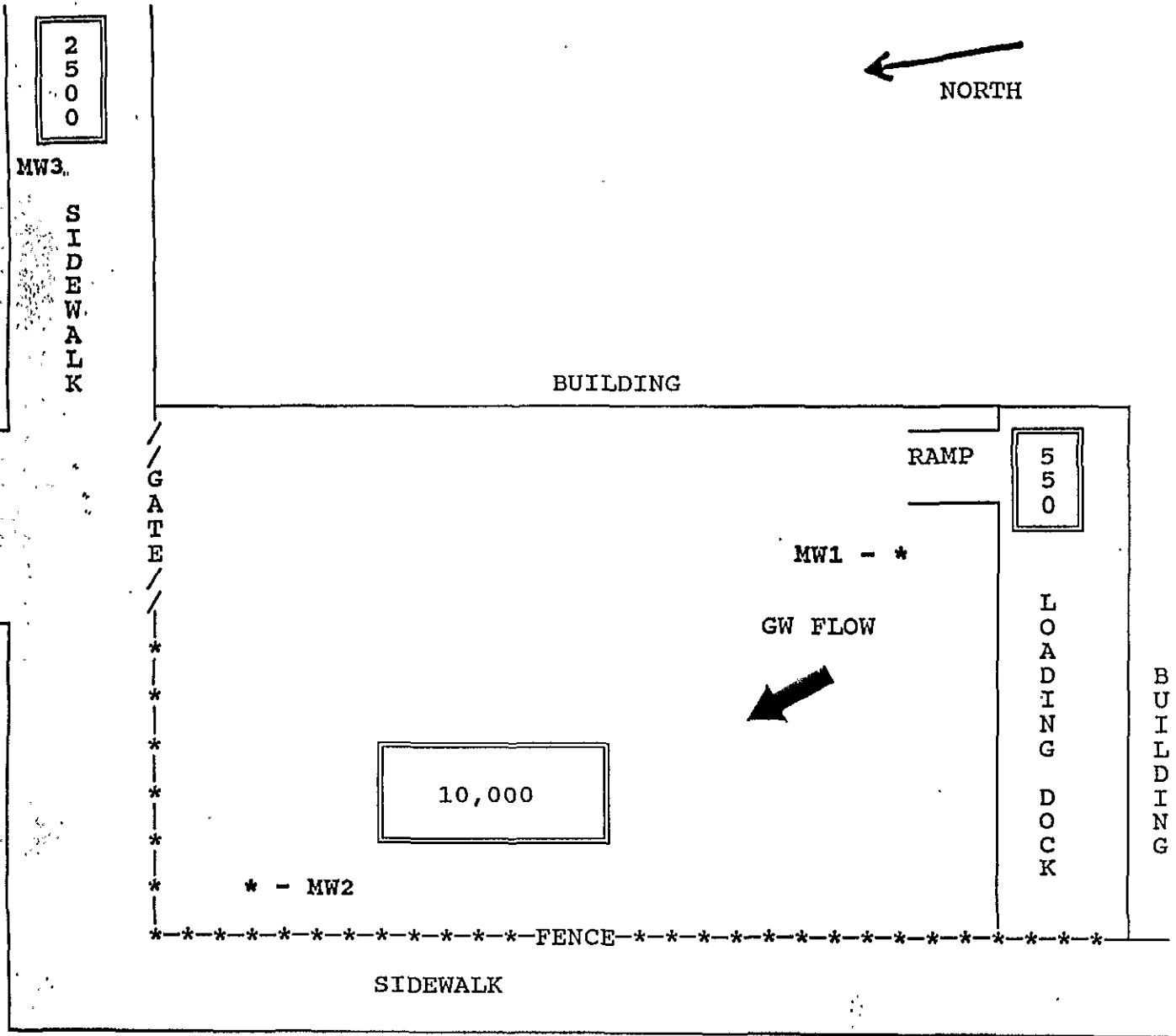
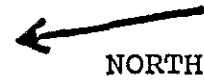
DEPTH	SAMPLE #	RECOVERY	TIME	BLOWS	DESCRIPTION	USCS	SYMBOL
0					3" ASPHALT 3" GRAVEL BASE ROCK DARK BROWN-BLACK SILTY CLAY; DRY.	CL	
					BROWN PEBBLY FINE SAND; LOOSE; DRY; WELL-SORTED; LITTLE CLAY.	SP	
5	MW3A	18"	9:00	3-2-3	BROWN SILTY CLAY.		
							▽
	MW3B	18"	9:15	5-6-7	DARK GRAY-BROWN SILTY CLAY; WET.		
10					LIGHT BROWN SILTY CLAY WITH PEBBLES.	CL	
15					LIGHT BROWN SILTY CLAY.		
20					END OF BORING;		
25							

REMARKS

FIGURE 1

01-445I

SITE PLAN - CALIFORNIA LINEN
989 41st STREET, OAKLAND, CA



LINDEN STREET

10'

* - Monitoring well location

01-445I

surveyed on October 12, 1989 by a California licensed surveyor. The water levels and conversions to elevations are given in Table 1 below.

TABLE 1
WATER LEVEL DEPTHS AND ELEVATIONS IN FEET. OCT 11, 1989

<u>Well</u>	<u>TOC Elev.</u>	<u>Depth</u>	<u>Elevation</u>
MW1	53.89	7.70	46.19
MW2	54.06	9.25	44.81
MW3	52.79	7.00	45.79

TOC=Top of casing

Based on the present data ground water is flowing in a north-northwest direction towards the intersection of 41st and Linden Streets. This data is shown on Figure 1.

18/100

01-738

Job #1047. Toscani Bakery, 899 - 40th.St

LOG OF WELL

Took over well at -----	50	to	50	feet
Sandy clay -----	50	"	60	"
Yellow clay -----	60	"	82	"
Cement gravel -----	82	"	83	"
Yellow clay -----	83	"	90	"
Sandy clay -----	90	"	97	"
Gravel -----	97	"	102	"
Sandy clay -----	102	"	106	"
Clay -----	106	"	108	"

About 54' of 10" casing put in by Hall.

108 feet of 8" No. 14 R. H. Collar Casing with
50 feet of machine perforations & Welded reband.

Foreman J. Carrere.

Well finished May 8 - 1928.

Job #926.

City of Paris Laundry.

LOG OF WELL.

	6 feet	
Top soil	6 to	20 "
Sandy clay	20 "	25 "
Cement gravel	25 "	35 "
Yellow clay	35 "	43 "
Loose gravel	43 "	48 "
Yellow clay	48 "	65 "
Cement gravel	65 "	70 "
Yellow clay	70 "	120 "
Dry cement gravel	120 "	125 "
Cement gravel (wet)	125 "	150 "
Yellow clay	150 "	175 "
Cement gravel	175 "	198 "
Yellow clay	198 "	210 "
Cement gravel	210 "	240 "
Yellow clay	240 "	285 "
Cement gravel	285 "	295 "
Sand rock	295	

275 feet of 12" #14 R. H. Double casing.

- 1 - 12" #14 Dbl. Starter 22' long
- 18 - feet of machine perforations
- 1 - 12 Shoe 1/2" x 4"

Extra Perforations 125'-150'
 178'-198'
 210'-240'

Foreman J. Carrere.
 Finished April 30 - 1927.

Drill shaft 41'
12" #14
WELL
1927

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

154W-23F1

Do Not Fill In

No 120159

State Well No. 154W 23F1 10235

Other Well No. TOI INT

STATE OF CALIFORNIA THE RESOURCES AGENCY DEPARTMENT OF WATER RESOURCES WATER WELL DRILLERS REPORT

ORIGINAL File with DWR

(1) OWNER:

Name Pacific Gas & Electric Co. Address 4801 Oakport St Oakland

(2) LOCATION OF WELL:

County Alameda Owner's number, if any Township, Range, and Section Distance from cities, roads, railroads, etc. Market St & Apgar St Oakland

(3) TYPE OF WORK (check):

New Well [] Deepening [] Reconditioning [] Destroying [] If destruction, describe material and procedure in Item 11.

(4) PROPOSED USE (check):

Domestic [] Industrial [] Municipal [] Irrigation [] Test Well [] Other [] Cathodic X

(5) EQUIPMENT:

Rotary [X] Cable [] Other []

(6) CASING INSTALLED:

STEEL: SINGLE [] DOUBLE [] OTHER: []

If gravel packed

Table with columns: From ft., To ft., Diam., Gage or Wall, Diameter of Bore, From ft., To ft. Content: None

Size of shoe or well ring: Size of gravel: Describe joint

(7) PERFORATIONS OR SCREEN:

Table with columns: From ft., To ft., Perf. per row, Rows per ft., Size in. x in. Content: None

(8) CONSTRUCTION:

Was a surface sanitary seal provided? Yes [X] No [] To what depth 99 ft. Were any strata sealed against pollution? Yes [] No [] If yes, note depth of strata

Method of sealing

(9) WATER LEVELS:

Depth at which water was first found, if known 11 ft. Standing level before perforating, if known ft. Standing level after perforating and developing ft.

(10) WELL TESTS:

Was pump test made? Yes [] No [X] If yes, by whom? Field: gal./min. with ft. drawdown after hrs. Temperature of water Was a chemical analysis made? Yes [] No [] Was electric log made of well? Yes [] No [] If yes, attach copy

(11) WELL LOG:

Table with columns: Total depth 120 ft. Depth of completed well, Formation: Describe by color, character, size of material, and structure. Rows: 0" to 2" Asphalt, 2" to 1 foot Base rock, 1' to 100 feet Combination of clays, silts and sands, 100' to 120' Brown stiff clay. Includes D.P.W, E.M. ft., A.E.M. ft., P.&R, C&M, ENG, R.E., W.P., F.I.S., O.E.S., FILE.

Water Code Sec. 13752

Work started April 19 1974, Completed April 19 1974

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Laufenberg Brothers, Inc. (Person, firm, or corporation) (Typed or printed)

Address 1218-7th St Berkeley 94710

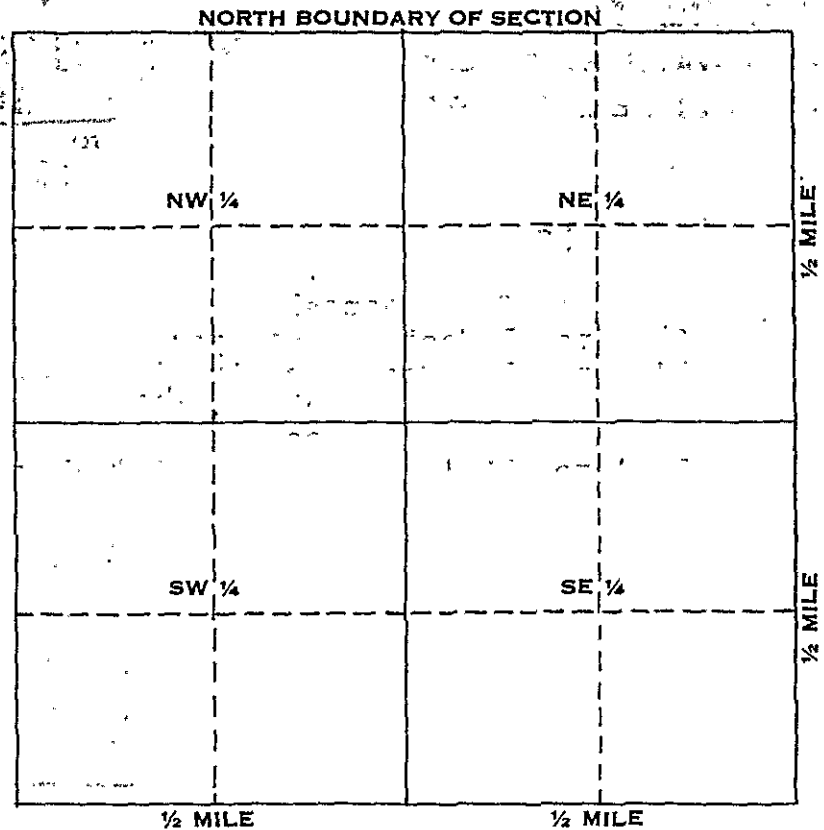
[SIGNED] R.O. Laufenberg (Well Driller)

License No. 177218 Date May 4 1974

SKETCH LOCATION OF WELL ON REVERSE SIDE

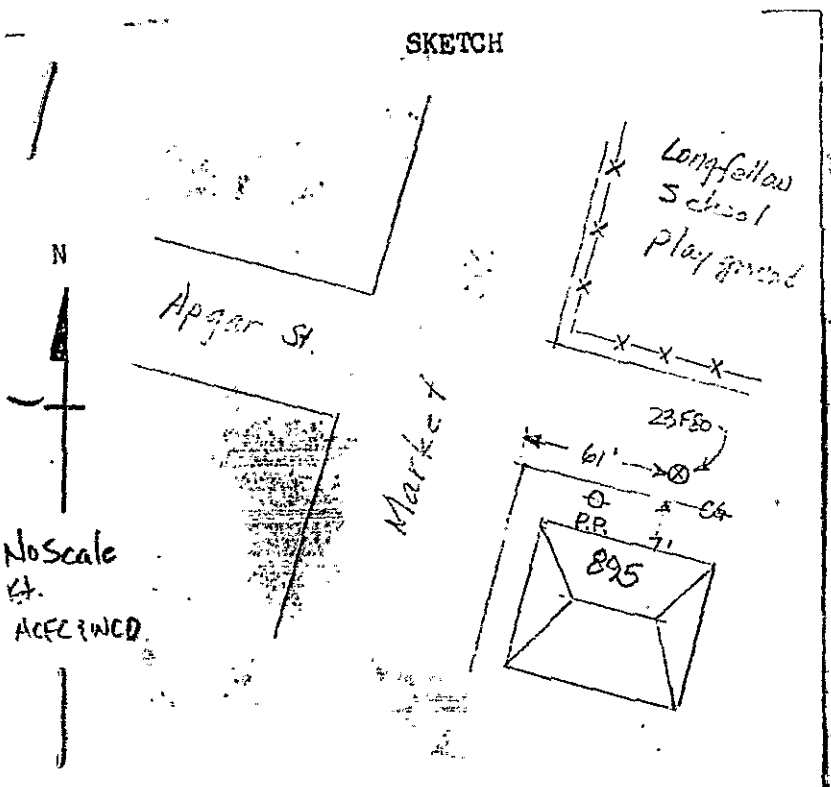
WELL LOCATION SKETCH

~~12159~~
120159



Township _____ N/S
Range _____ E/W
Section No. _____

A. Location of well in sectionized areas.
Sketch roads, railroads, streams, or other features as necessary.



B. Location of well in areas not sectionized.
Sketch roads, railroads, streams, or other features as necessary.
Indicate distances.

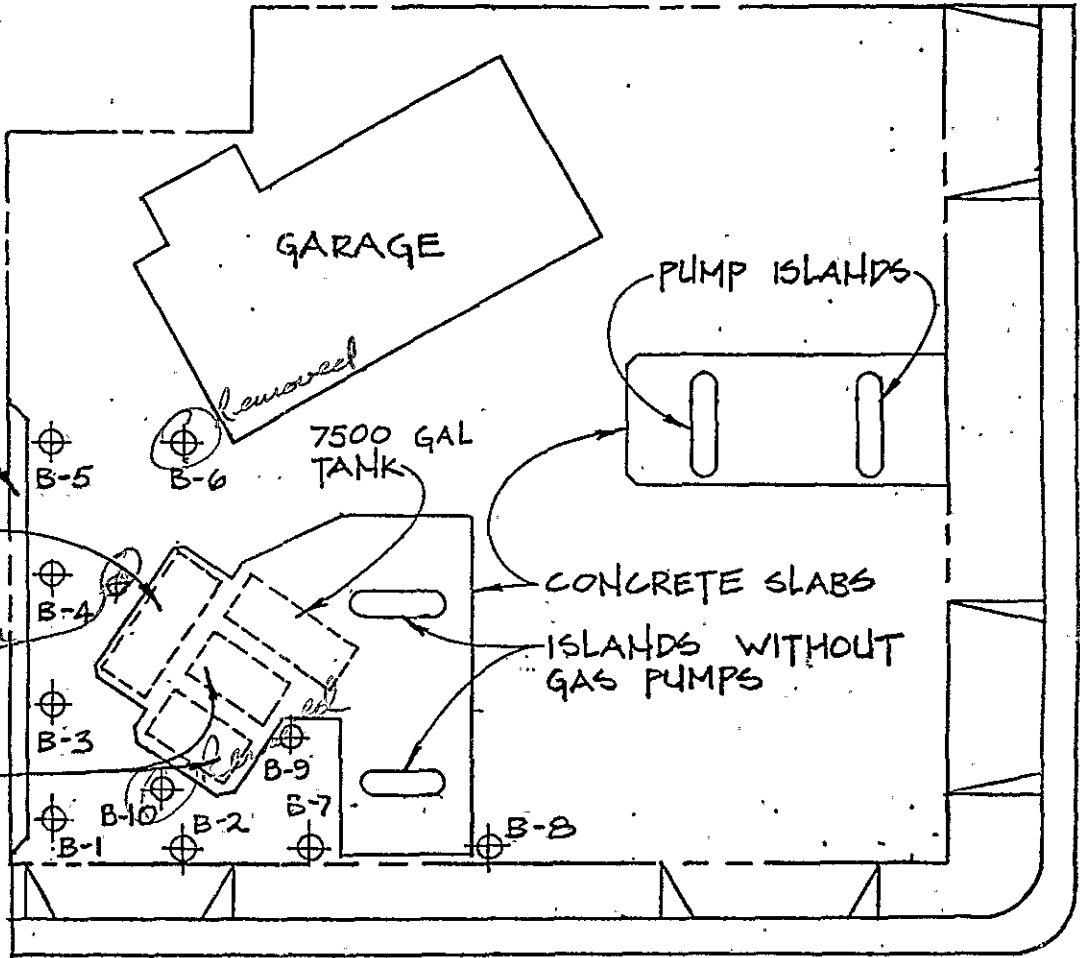
1974 JUL 12 AM 11 01

LETL OF WATER
RESOURCES

1-3532-A01002-0

Wells numbered B-1, B-2, B-3, B-4, B-5, B-7 + B-8 are remaining at the site

MM



15/50MA/51

TELEGRAPH AVE.

*862-59
B6258*

*15/4M 23H
S. Dennis
T. J. 8/81*


01-728

LEGEND

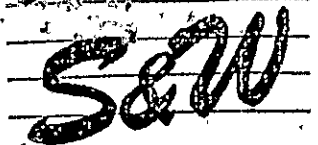
⊕ MONITORING WELL

228-8000

40TH STREET

 ENVIROSCIENCE	MONITORING WELL LOCATIONS SHELL OIL 500 40TH STREET OAKLAND, CA. 94609		FIGURE 2
	DESIGNED BY : PROJECT NO : 1-3532	DRAWN BY : C. HEINRITZ SCALE : 1"=30'-0"	DATE : 7-19-82

September 30, 1986



S&W
OIL AND WATER
LABORATORY

Soil Fertility—Plant Tissue
Pollution and Residue Control
Drinking Water

14072 W. Park Avenue
Boulder Creek, CA 95006

(408) 338-3053

Blaine Technical Services
P.O. Box 5745
San Jose, California 95150

Jack Quarla
40th and Telegraph
Oakland, CA

LABORATORY REPORT

Total Hydrocarbon Analysis : Gasoline

Procedure: EPA Method 5020 for Headspace Analysis

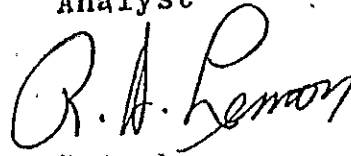
Detection Limit: 1 ppm

Received: September 25, 1986

Analyzed: September 25, 1986

S&W ID	Client ID	Concentration ppm
268B6-1	86268F1 1 soil, gas	99
268B6-2	86268F1 2 soil, gas	8
268B6-3	86268F1 3 soil, gas	27
268B6-4	86268F1 4 soil, gas	74
268B6-5	86268F1 5 soil, gas	86

Analyst



R.A. Lemon

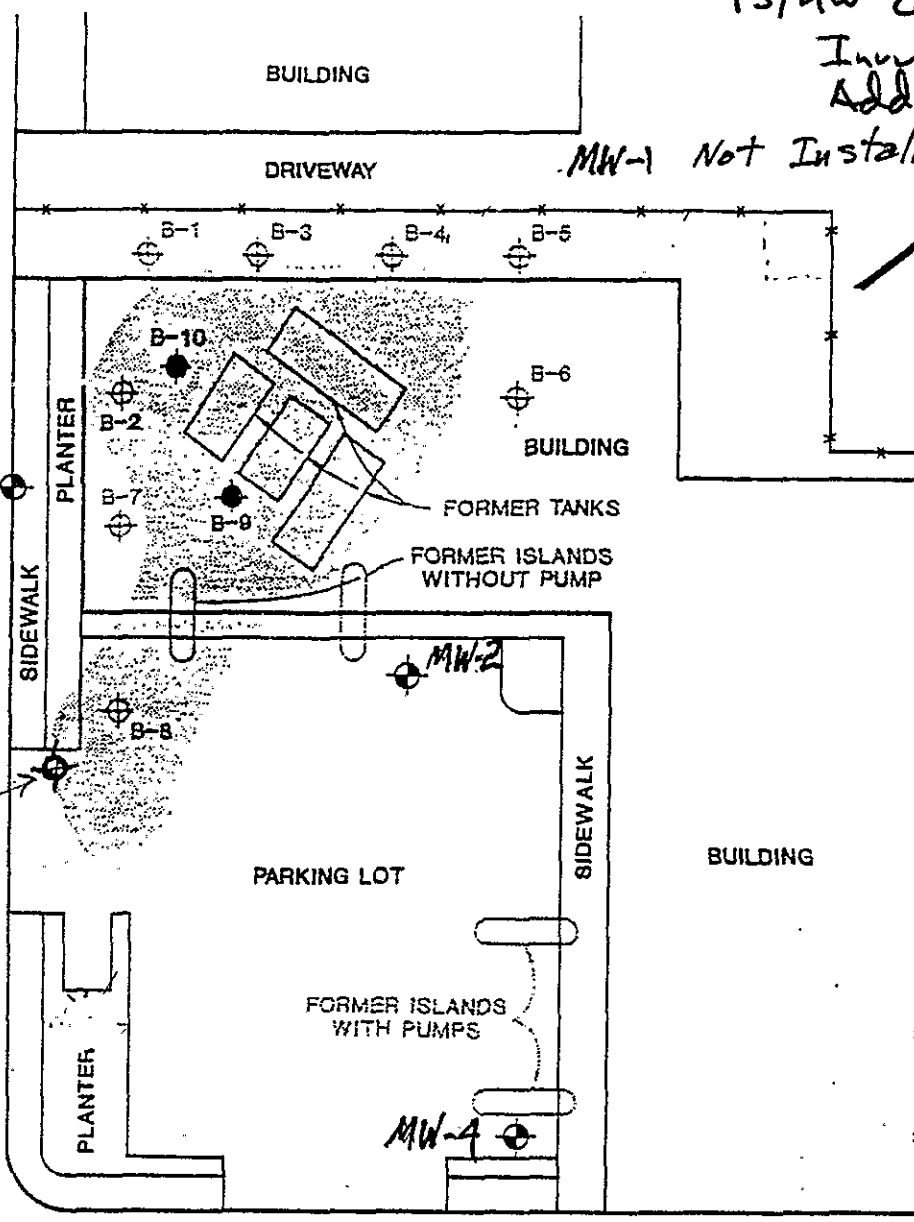
01-434 P-R / S/UW 2341-3

Inn ✓
Add ✓

MW-1 Not Installed

GROUNDWATER
FLOW DIRECTION

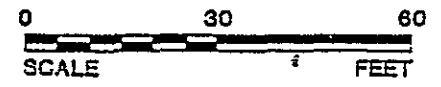
40th STREET



TELEGRAPH AVENUE

LEGEND

- ABANDONED 1982 WELLS (IT)
- ⊕ WELLS PAVED OVER BUT NOT ABANDONED
- ⊕ PROPOSED WELLS



SOURCE: Pacific Environmental Group, Inc.

SITE PLAN

SHELL OIL COMPANY
500 40th Street
Oakland, California

Scale	Project No.
1" 30'	88-44-361-01
Prepared by	Date
LQL	2-24-89
Checked by	Drawing No.
RBM/MIY	1
Approved by	
DWC	



Converse Environmental
Consultants California



1S/4W 23 H 1 01-434P

FIELD LOG OF BORING NO. MW 2

SHEET NO. 1 OF 2

PROJECT NO. 88-44-361-01

DATE(S) 5/22/89 ELEVATION _____

PROJECT NAME 500 40th ST O2K

REFERENCE _____

FIELD ENGINEER D. Coy

LOCATION _____

ASSISTANT _____

WATER LEVEL _____ AFTER _____ MIN/HOURS _____

DRILLING CO. All Terrain

TIME _____

DRILLING METHOD & DIAM. 8 X 3 3/4

SETUP 140 START _____ STOP _____
DRIVING WEIGHT _____ AVERAGE DROP 30

auto hammer

DEPTH	BLOWS PER LENGTH - IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	OVM		REMARKS
							PERCENT GRAV. SAND-FINES		
0			M	L	Brn Sandy Gravel fill	SP			0 = Asphalt
1			S	BIK	Gravelly Clay	CI			
2					Glass and brick fragments + asphalt fragments				
3									
4									
5	5		M	St	Silty Clay	CI	0		
6	5								
7	7								
8	10								
9	11		M	St	Tan Trace gravel		0		
10	7								
11	10								
12	13								
13	18								
14	5								
15	10						75		odor
16	8								
17	14								
18	27		MD		Gray Silty Clay	GM			
19	29		D		Sandy Gravel to silt		1000		
20	4		St	Mott	Silty Clay	CI			
21	9								
22	9								
23	19		MP		F. Sandy Gravel (angular)	GP	40		
24	6								
25	7		W	MD	Gray Silty Clay lenses	CI			initial
26	9								
27	12						14		
28	4								
29	6		W	L	Tan Gravelly sand	SP			
30	6								
31	7								
32	4								
33	6								
34	7								
35	4								
36	6								
37	6								
38	7								
39	4								
40	6								



FIELD LOG OF BORING NO. MW-2

SHEET NO. 2 OF 2

PROJECT NO. 97-44-361-01 DATE(S) 5/22/89 ELEVATION _____

PROJECT NAME 500 40th ST OK REFERENCE _____

FIELD ENGINEER D Coy LOCATION _____

ASSISTANT RM WATER LEVEL _____ AFTER _____ MIN/HOURS _____

DRILLING CO. All Terrain TIME _____ SETUP _____ START _____ STOP _____

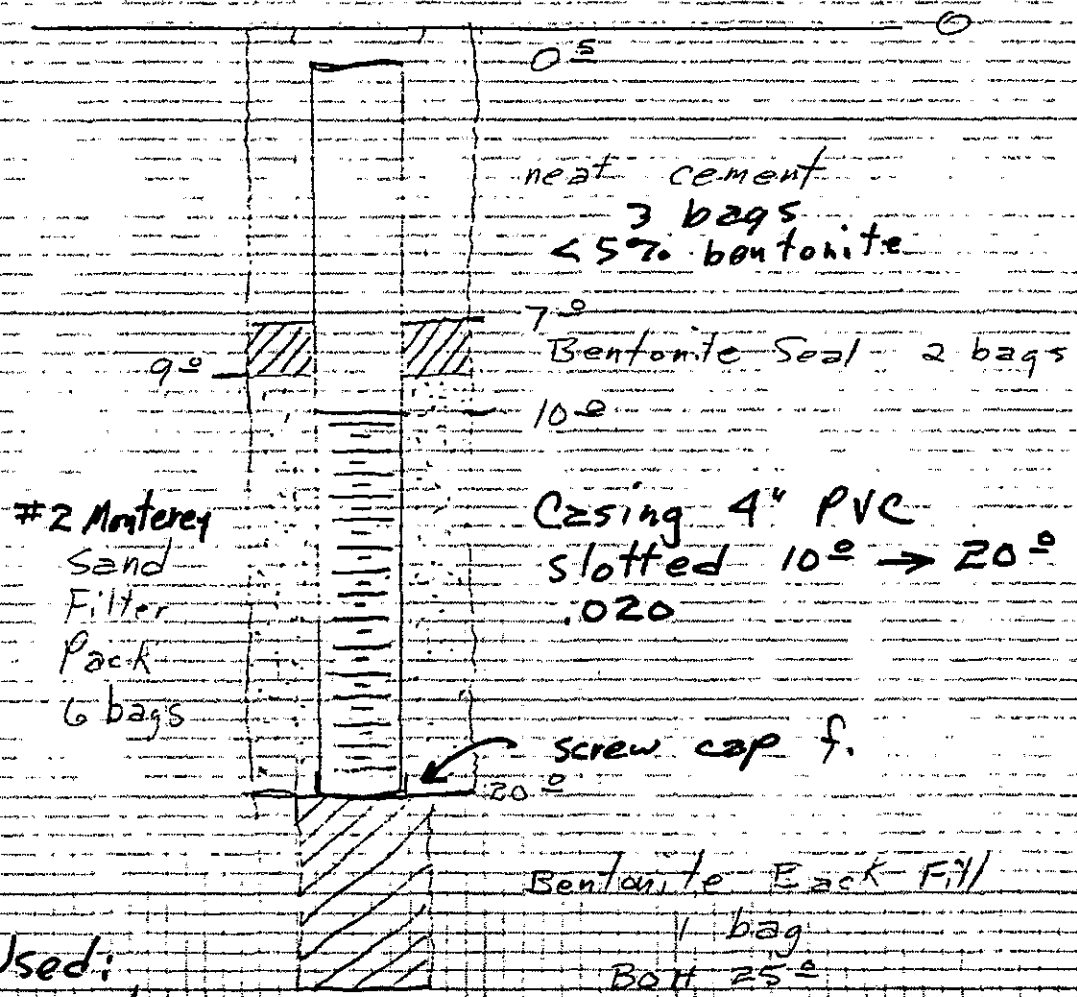
DRILLING METHOD & DIAM. 8 x 3 3/4" ← 12 x 8" DRIVING WEIGHT 140 AVERAGE DROP 30

Auto Hammer

DEPTH	BLOWS PER LENGTH - IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	PERCENT GRAV. SAND-FINES	REMARKS
0	6	YM	M	tan	Silty Clay and fine sand	CI		
1	8							
2	7							
3	13							
4	15							
5	18							
6	4			Brn	Silty Clay lenses sand			
7	6							
8	9							
9	12							
10					BOH 25'			
11					Back Fill Bentonite to 20'			
12								
13								
14								
15								
16								
17								
18								
19								
20								

FINES: FRACTION OF MATERIAL SMALLER THAN NO. 200 SIEVE SIZE.

BY DJC DATE 5/22/79 CLIENT _____ SHEET NO. 1 OF 1
CHKD. BY _____ DATE _____ MW-2 PROJECT NO. 29-44-361-01
PROJECT 500 40" S+ OAK



Materials Used:

- 3 bags cement
- 3 bags bentonite pellets/chips
- 6 bags #2 Monterey Sand
- 1 10x4" PVC Tube
- 1 10x4" PVC tube slotted .020
- 1 female screw cap
- 1 slip cap



Converse Consultants

SIGNED _____
REG. NO. _____

SHEET NO.



15/4W 23H2
01-4340

FIELD LOG OF BORING NO. MW-3

SHEET NO. 1 OF 2

PROJECT NO. 97-44-361-01 DATE(S) 5/23/89 ELEVATION _____
 PROJECT NAME 500 40th ST JOK REFERENCE _____
 FIELD ENGINEER D. Coy LOCATION _____
 ASSISTANT Slim WATER LEVEL _____ AFTER _____ MIN./HOURS _____
 DRILLING CO. All Terrain TIME _____
 DRILLING METHOD & DIAM. 8x3 3/4 < 12x8 DRIVING WEIGHT 140 SETUP _____ START _____ STOP _____
 _____ AVERAGE DROP 30
 _____ Auto Hammer

DEPTH	BLOWS PER LENGTH - IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	OVM		REMARKS
							PERCENT	GRAV. SAND-FINES	
0					Brn Sandy Gravel fill	GP			02 Asphalt
1			st	BIK	Silty Clay	CI			
2									
3									
4									
5	4			MOIST					
6	9			Tan	grading to			0	
7	4								
8	6			Tan	Silty Clay				
9	13		MD		Gravel lense	GP			
10	15		st	Tan	Silty Clay	CI		0	
11	4			MOIST	Tr gravel				
12	6			RUST					
13	9			GRAY					
14	13			MOIST				0	
15	4			Tan					
16	8								
17	10								
18	19		MD	Tan	Fine Sandy Angular Gravel	GM	750		odor
19	9				some silt				
20	10				(20-35%)				
21	10		st	Tan	Silty Clay Tr Gravel	CI	OVM?		odor
22	11			MOIST			OVM		
23	4		VM				OUT		
24	9				some F Sand		of		initial
25	4								
26	6		W	Tan	lense Sandy Clay		order		
27	8		VM	MOIST					
28	16			RUST	Silty Clay				less odor
29	4								
30	6								
31	7								
32	16								
33	5		M	VST					
34	12								

FINES: FRACTION OF MATERIAL SMALLER THAN NO. 200 SIEVE SIZE.



01-434Q

FIELD LOG OF BORING NO. MW-3

SHEET NO. 2 OF 2

PROJECT NO. 99-44-361-01 DATE(S) 5/23/89 ELEVATION _____

PROJECT NAME 500 40th ST REFERENCE _____

FIELD ENGINEER DOC LOCATION _____

ASSISTANT Slm WATER LEVEL _____ AFTER _____ MIN./HOURS _____

DRILLING CO. All Terrain TIME _____

DRILLING METHOD & DIAM. 8x3 3/4" < 12x8 DRIVING WEIGHT 140 SETUP _____ START _____ STOP _____

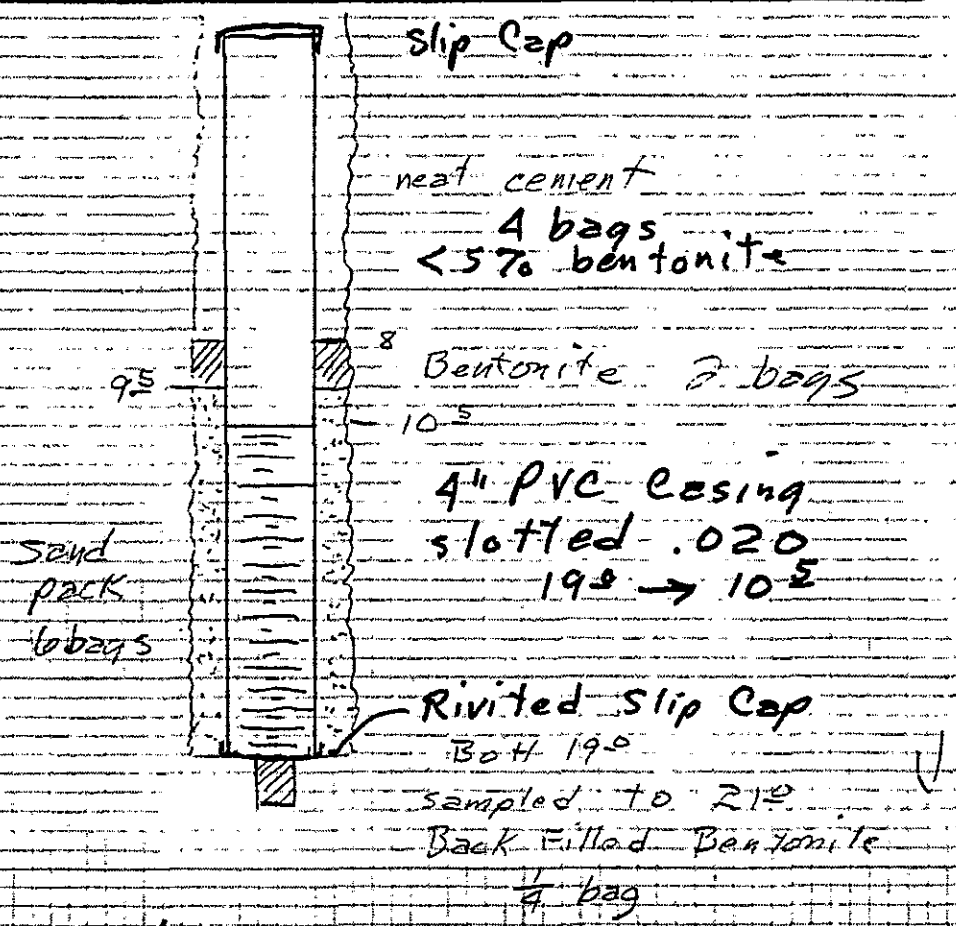
AVERAGE DROP 30
Auto H

DEPTH	BLOWS PER LENGTH - IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	OVM		REMARKS
							PERCENT GRAV. SAND-FINES		
0									
1	18	M	st	Tan	Silty Clay	CI			
2	27				Both 19 ² (2uger) sample hole to 21 ⁰				
3					BE Bentonite to 19 ⁰				
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

FINES: FRACTION OF MATERIAL SMALLER THAN NO. 200 SIEVE SIZE.

BY DSC DATE 5/17/89 CLIENT _____ SHEET NO. 1 OF 1
CHKD. BY _____ DATE _____ PROJECT NO. 88-44-361-01
PROJECT 500 40-4 ST Oak

MW=3



Materials Used:

- 6 bags #2 mortar sand
- 3 bags bentonite chips
- 4 bags cement
- 1 10' x 4" pvc tube
- 1 10' x 4" pvc tube slotted .020
- 2 4" slip caps



15/4W 23H3
01-434R

FIELD LOG OF BORING NO. MW-4

SHEET NO. 1 OF 2

PROJECT NO. 79-94-361-01 DATE(S) 5/23/89 ELEVATION _____
 PROJECT NAME 500 40th ST OAK REFERENCE _____
 FIELD ENGINEER D. Gay LOCATION _____
 ASSISTANT JM WATER LEVEL _____ AFTER _____ MIN./HOURS _____
 DRILLING CO. All Terrain TIME _____ SETUP _____ START _____ STOP _____
 DRILLING METHOD & DIAM. 8x3³/₄ < 12x8 DRIVING WEIGHT 140 AVERAGE DROP 30
Auto Ham

DEPTH	BLOW PER LENGTH - IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	OVM		REMARKS
							PERCENT GRAV. SAND-FINES		
0			M	Brn	Gravelly Sand fill	GP			O ₃ Asphalt
1			M	BK	Silty Clay and Gravel	CI			
2					decreasing gravel				
3									
4									
5	5 ²	9							
6		6							
7		3							
8		9		Tan	Silty Clay Tr				
9		12		Mott	gravel			not	
10		15		Rust				working	
11		6		Brn					
12		9	ST	Mott					
13		12		Rust					
14	2	7							
15	10 ²	12							
16		5							
17		8	MD		Sandy Gravel Tr Silt	GM			
18		13		Tan	lense clay	CI			
19		13		gray	lense gravel	GM			
20		5							
21		4	M	Tan	Silty Clay and F	CI			
22		4	W		Sand				
23		6							
24	3	7	MD		Sandy Gravel and silt	GM			
25	15 ²	17							
26		6	VM	ST	Silty Clay some gravel	CI			
27		9							
28		10	M						
29		11							
30		2	VM	Tan					
31		5		Mott					
32		5		Rust					
33		5							
34		2			increasing sand				
35		4							

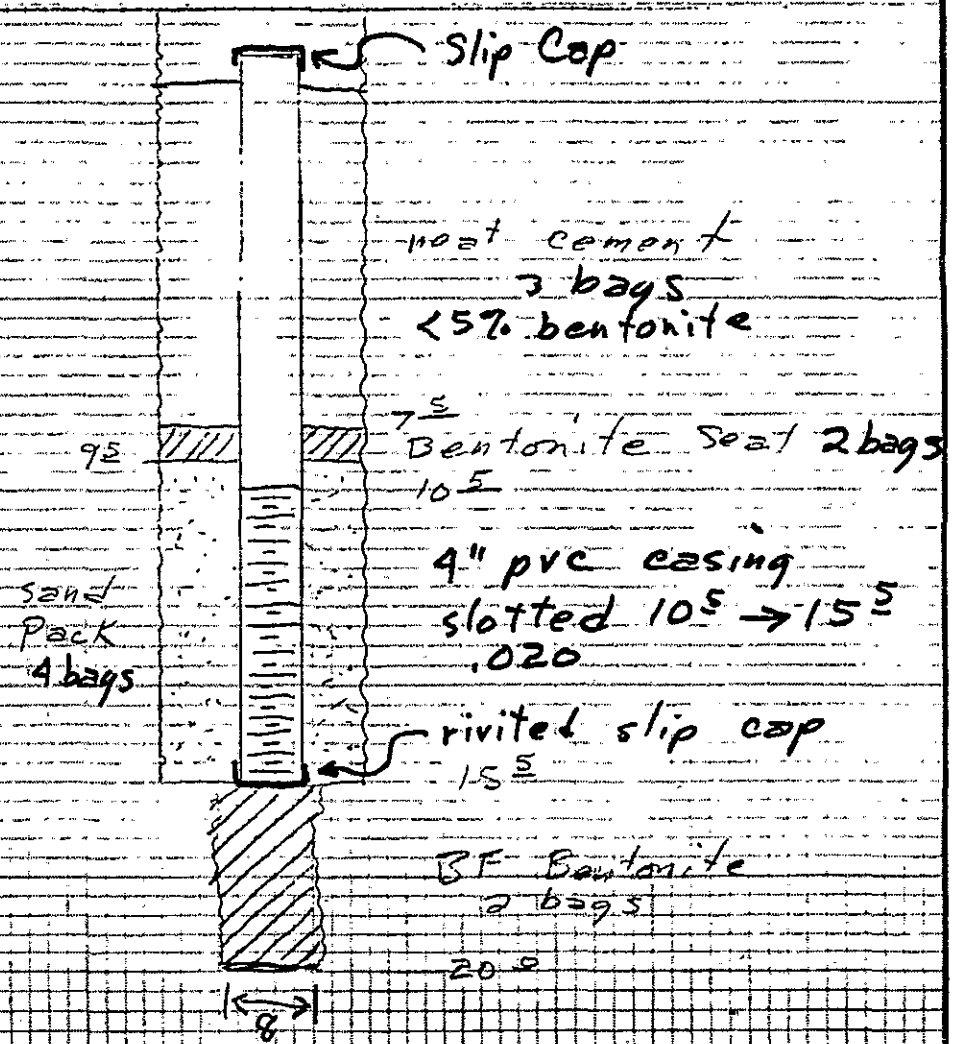
FINES: FRACTION OF MATERIAL SMALLER THAN NO. 200 SIEVE SIZE.

BOH 200

T = 10 15 - 30 min

BY DOC DATE 5/23/1 CLIENT S.H. 1 SHEET NO. 1 OF 1
CHKD. BY _____ DATE _____ PROJECT NO. 85-44- - - 01
PROJECT 500 40th Oak

MW-4



Materials Used:

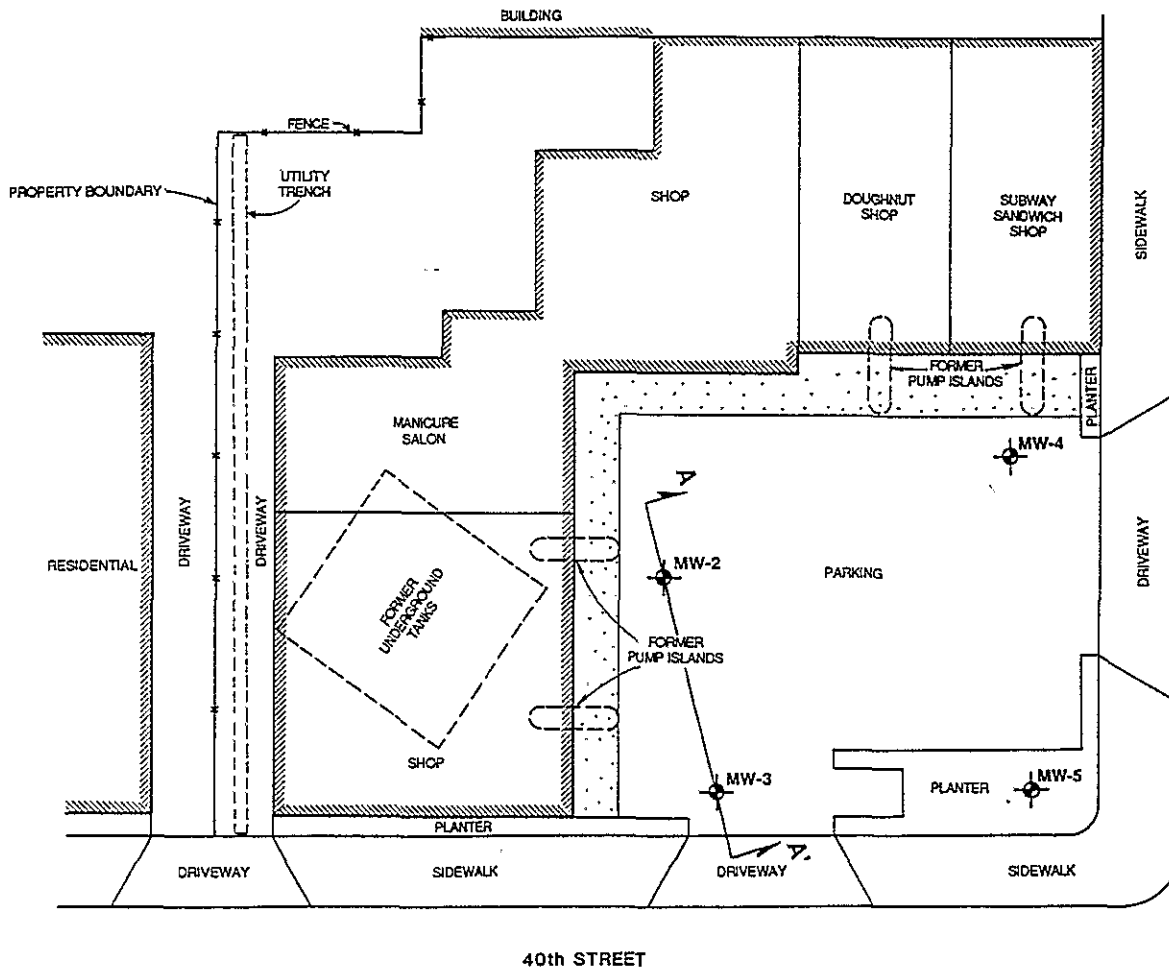
- 3 bags cement
- 4 bags #2 sand
- 4 bags bentonite pellets chips
- 1 10' x 4" pvc tube
- 1 10' x 4" pvc tube slotted .020
- 2 4" pvc slip caps



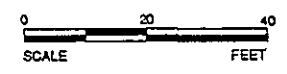
Converse Consultants

SIGNED _____
REG. NO. _____

SHEET NO.



LEGEND
 MW-2 GROUNDWATER MONITORING WELL
 NOTE: GROUNDWATER MONITORING WELL MW-1 WAS NOT INSTALLED
 LINE OF GEOLOGIC CROSS SECTION



1989 PLOT PLAN Q3/89

SHELL OIL COMPANY
 500 40th Street
 Oakland, California

Scale	AS SHOWN	Project No	
Date	7/6/89	Drawing No	88-44-381-01
Prepared By	KGC		
Checked By	RMB		3
Approved By	DWC		



Converse Environmental Consultants California

Base Map: Surveyed with EDM, Converse 1989.

01-4522
 S/L/W 23H4

01-452Z

15/40 23H4

LOG OF BORING NO. MW-5

DATE DRILLED: 9-19-89		ELEVATION:		WL TAKEN: 9-19-89		EQUIPMENT: 8"x 12" Hollow Stem Auger					
DEPTH (ft)	SAMPLE	WATER LEVEL	SYMBOL	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	WELL CONSTRUCTION	BLOCKS/FT.	O.V.M. (ppm)	T.P.H. (ppm)
				slightly moist	medium dense	dark brown	Gravelly SAND and SILT some rubble (Fill)				
					medium		Sandy SILT increasing Clay	ML			
1						brown	Silty CLAY trace Sand, trace Gravel	CL	9	0	
5											
2						brown mottled gray	Silty CLAY and fine SAND black tubelets	CL	11	0	
10											
3				moist	medium	light brown mottled rust and gray	Sandy CLAY som Silt	CL	14	0	
15											
4				moist	medium		Fine Sandy CLAY and SILT	CL	15	0	
				very moist							
				wet							
20							Total Depth of Boring: 20 ft. Below Ground Surface				

SHELL OIL COMPANY
500 40th Street
Oakland, California

Driller:
All Terrain
Drilling

Project No.
88-44-361-01



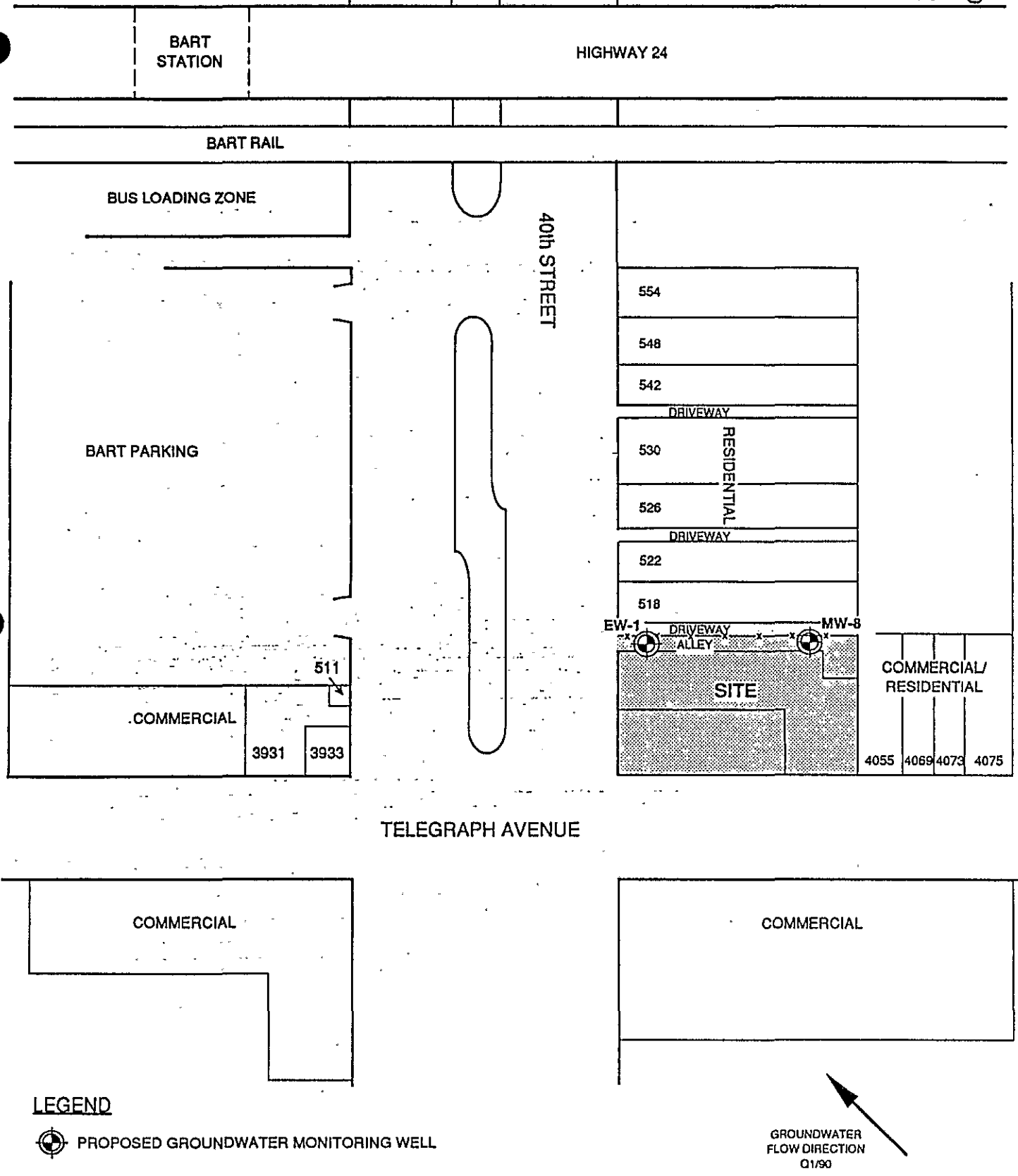
Converse Environmental Consultants California

Drawing No.
A-2

01-4654, B


inv Add

1S/4W 23HS-6



PROPOSED GROUNDWATER MONITORING WELLS

all terrain 1369
 Lic # *CS7-437836* SHELL OIL COMPANY
 500 40th Street
 Oakland, California

 **Converse Environmental West**

Scale	NOT TO SCALE	Project No.	88-44-361-20
Prepared by	KGC	Date	5/9/90
Checked by	CCH	Drawing No.	
Approved by	DWC		

15/4A 23 H5

LOG OF BORING NO. MW-8

01-465Y

DATE DRILLED: 6/27/90

EL: n/a

WL TAKEN: n/a

EQUIPMENT: 3.75"x 8" / 7.25"x 12" H.S.A.

DEPTH (ft)	SAMPLE	WATER LEVEL	SYMBOL	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	WELL CONSTRUCTION	BLDMS/6IN.	D.V.M. (ppm)	T.P.H. (ppm)
				moist	loose	light brown	Gravelly SAND. (Fill)	SW			
				moist	medium	black	Silty CLAY, trace Gravel.	CL			
5	1			slightly moist	very stiff	brownish gray	Silty CLAY.	CL	7	10	
10	2			slightly moist	very stiff	light gray	Silty CLAY.	CL	6	11	
15	3			moist	very stiff	grayish brown	Silty CLAY, trace coarse Gravel.	CL	5	12	
20	4			very moist	very stiff	reddish brown	Silty CLAY.	CL	12	11	

SHELL OIL COMPANY
500 40th Street
Oakland, California

Project No.

88-44-361-20

Drawing No.

A-2

1369

13/4W 23 H5

LOG OF BORING NO. MW-8

01-465Y

continued - page 2

DEPTH (ft)	SAMPLE	WATER LEVEL	SYMBOL	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	WELL CONSTRUCTION	BLDG/BDN.	G.V.W. (ppm)	T.P.H. (ppm)
	S	14		wet					10		
	S			wet	very stiff	light brown	Silty CLAY, trace fine Sand. CL		10		
	S			wet	medium dense		SAND and CLAY, some Gravel. SC		20		
	S			wet	stiff	light brown	Sandy GRAVEL, some CLAY. GC		11		
	S			wet	stiff	light brown	Sandy CLAY, trace Gravel. CL		13		
25	S			wet	medium dense	tan	Sandy fine to coarse GRAVEL, some Clay, some Silt. GC		14		
	S			wet	medium dense	tan	Sandy fine to coarse GRAVEL, some Clay, some Silt. GC		10		
	S			wet	medium dense	tan	Sandy fine to coarse GRAVEL, some Clay, some Silt. GC		15		
	S			wet	medium dense	tan	Fine to coarse Sandy fine to coarse GRAVEL, trace Clay, trace Silt. GP		12		
	S			wet	loose				15		
	S			wet	medium dense		Sandy GRAVEL. GP		18		
	S			wet	medium dense		Sandy GRAVEL. GP		4		
30	S			wet	very dense		Silty SAND and GRAVEL, trace Clay. GM		8		
	S			wet	dense	tan			10		
	S			wet	dense	tan	Sandy GRAVEL, some Silt, trace Clay. GM		12		
	S			wet	loose				30		
	S			wet	medium dense		Silty SAND and GRAVEL, trace Clay. GM		27		
	S			wet	dense	tan			8		
	S			wet	dense	tan	Sandy GRAVEL, some Silt, trace Clay. GM		17		
	S			wet	dense	tan	Sandy GRAVEL, some Silt, trace Clay. GM		25		
	S			wet	loose				27		
	S			wet	medium dense		Sandy GRAVEL, some Silt. GM		5		
	S			wet	medium dense		Sandy GRAVEL, some Silt. GM		4		
35	S			wet	dense	tan	Sandy fine to very coarse Gravel, some SILT. GM		3		
	S			wet	dense	tan	Sandy fine to very coarse Gravel, some SILT. GM		18		
	S			wet	dense	tan	Sandy fine to very coarse Gravel, some SILT. GM		10		
	S			wet	dense	tan	Sandy GRAVEL, some Silt. GM		16		
	S			wet	dense	tan	Sandy GRAVEL, some Silt. GM		15		
	S			wet	dense	tan	Sandy GRAVEL, some Silt. GM		25		
	S			moist			Fine SAND and Silt, some Clay. SM		13		
	S			moist			Fine SAND and Silt, some Clay. SM		14		
	S			moist	stiff				8		
	S			moist	stiff		Silty CLAY, tr fine Sand. CL		8		
	S			moist	hard	brownish gray	Gravelly SAND, little Clay. GC		7		
40	S			moist	hard	brownish gray	Silty CLAY, trace Gravel, trace fine Sand. CL		14		
	S			moist	hard	brownish gray	Silty CLAY, trace Gravel, trace fine Sand. CL		35		
	S			moist	hard	brownish gray	Silty CLAY, trace Gravel, trace fine Sand. CL		32		

SHELL OIL COMPANY
500 40th Street
Oakland, California

Project No.
88-44-361-20

Drawing No.
A-3



1369

15/4A 23 H 5

LOG OF BORING NO. MW-8

01-4657

continued - page 3

DEPTH (ft)	SAMPLE	WATER LEVEL	SYMBOL	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	WELL CONSTRUCTION	BLDMS/FTN.	C.V.M. (ppm)	T.P.H. (ppm)
S				slightly moist	hard	tan	Silty CLAY. CL		12		
				slightly moist			Silty CLAY, trace fine Gravel. CL		14		
				slightly moist	very stiff	tan	Silty CLAY, some Sand. CL		18		
S									21		
									8		
									10		
									15		
									17		
45							Total Depth of Boring: 44 ft Below Ground Surface. Casing: 4" ID Blank Schedule 40 PVC Pipe. Screen: 4" ID Slotted Schedule 40 PVC Pipe. (0.020 inch slot) Filter Pack: 2/12 Sand.				
50											
55											
60											

SHELL OIL COMPANY
500 40th Street
Oakland, California

Project No.
88-44-361-20

Drawing No.
1369 A-4

15/422346

LOG OF BORING NO. EW-1

01-4657

DATE DRILLED: 6/28/90 EL: n/a WL TAKEN: n/a EQUIPMENT: 3.75"x 8" / 7.25"x 12" H.S.A.

DEPTH (ft)	SAMPLE	WATER LEVEL	SYMBOL	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	WELL CONSTRUCTION	BLDMS/GIN.	O.V.M. (ppm)	T.P.H. (ppm)
				moist	loose	light brown	0.2' CONCRETE. Pea GRAVEL. (F111)				
				moist	medium	black	Silty CLAY, trace Gravel. CL				
5	1					dark gray	Gravelly CLAY. CL		5		
				moist	medium dense	tan	Fine SAND. SP		6		
	S				loose	tan	Fine SAND. SP		2		
	S			slightly moist	stiff	dark gray	Silty CLAY. CL		2		
	S			slightly moist	stiff	dark gray	Silty CLAY. CL		3		
	2			slightly moist	stiff	dark gray	Silty CLAY, some fine Sand. CL		8		
10				moist	dense		Clayey GRAVEL. GC		17		
	S				medium dense	dark gray	Clayey GRAVEL. GC		15		
	S			slightly moist	very stiff	tan	Silty CLAY. CL		12		
	S								14		
	S			slightly moist	very stiff	grayish brown	Silty CLAY. CL		16		
	S								7		
	S			slightly moist	very stiff	tan	Silty CLAY, trace Gravel. CL		18		
15	3			slightly moist	very stiff	tan	Silty CLAY, trace Gravel. CL		15		
	S								14		
	S			slightly moist	hard	tan	Silty CLAY, trace Gravel. CL		11		
	S								10		
	S			slightly moist	very stiff	light brown	Silty Clay, tr fine Sand. CL		14		
	S								18		
	S			slightly moist	hard	brown	Silty CLAY. CL		20		
	S								10		
	S			slightly moist	very stiff	light brown	Silty Clay, tr fine Sand. CL		15		
	S								19		
20	4			slightly moist	hard	brown	Silty CLAY. CL		21		
	S								7		
	S			slightly moist	hard	brown	Silty CLAY. CL		18		

SHELL OIL COMPANY
500 40th Street
Oakland, California

Project No.
88-44-361-20

Drawing No.
A-5

1369

13/41 23 H 6

LOG OF BORING NO. EW-1

01-465Z

continued - page 2

DEPTH (ft)	SAMPLE	WATER LEVEL	SYMBOL	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	WELL CONSTRUCTION	BLDS/GIN.	O.V.M. (ppm)	T.P.H. (ppm)
							Silty CLAY. CL		7		
	S			slightly moist	hard	reddish brown	Silty CLAY, trace Gravel. CL		19		
				moist			Last 2" Clayey Sandy Gravel.		20		
							Sandy GRAVEL, some Silt, trace Clay. GM		22		
	S						0.2' Sandy CLAY.		12		
				very moist	dense	reddish brown	Sandy GRAVEL, some Silt. GM		17		
							Gravelly CLAY. GC		20		
25	S			wet	medium dense	brown	Sandy GRAVEL, some Clay, some Silt. GM		5		
							Gravelly SAND, some Silt. GC		11		
							Increasing Gravel.		12		
	S			wet	dense	brown	Sandy GRAVEL, some Silt. GM		15		
									17		
	S								18		
									12		
	S			wet	medium dense	brown	Silty SAND, some Gravel, SC/GC trace Clay. GC		18		
									20		
	S			wet	dense	brown	Fine to coarse Sandy fine to coarse GRAVEL. GM		22		
30									15		
	S								23		
									15		
	S			wet	dense	brown	Increasing Gravel. GP		16		
									19		
	S								24		
									17		
	S				v stiff	brown	Sandy GRAVEL. GP		18		
									20		
	S			wet			Silty CLAY, tr fine Sand. CL		23		
									17		
35	S			wet			Sandy GRAVEL. GP		22		
									22		
	S			wet		brown	Fine to medium GRAVEL, some Sand, some Clay. GP		20		
									14		
	S					rusty red	GRAVEL. little SAND. GP		17		
									16		
	S			moist		rd brn	Silty fine SAND. SM		22		
									50/5"		
	S			moist	very dense		Fine SAND and GRAVEL, some Silt. GP		16		
40					very dense	brown	Silty Sandy GRAVEL. GM		24		

SHELL OIL COMPANY
500 40th Street
Oakland, California

Project No.
88-44-361-20

Drawing No.
A-6

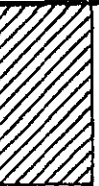


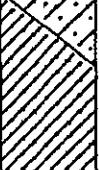


1369

LOG OF BORING NO. EW-1

15/4023H6

01-465Z

continued - page 3

DEPTH (FG)	SAMPLE	WATER LEVEL	SYMBOL	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	WELL CONSTRUCTION	BLDG./BDN.	D.V.M. (ppm)	T.P.H. (ppm)
	S			moist			Sandy CLAY, some GRAVEL. CL		12		
									13		
					hard	brown			27		
							Sandy CLAY, some GRAVEL. CL		29		
	S						Gravelly SAND, some Clay. SC		6		
				moist					23		
					very dense	brown			33		
45									60		
	S			slightly moist	very stiff	tan	Silty CLAY, black organics. CL		6		
50									14		
									12		
	S			slightly moist	very stiff	tan	Silty CLAY. CL		16		
								19			
								22			
								10			
	S			slightly moist	hard	reddish brown	Silty CLAY. CL	15			
							Sandy CLAY. CL	20			
								26			
55							Total Depth of Boring: 44 ft Below Ground Surface.				
							Casing: 4" ID Blank Schedule 40 PVC Pipe.				
							Screen: 4" id Slotted Schedule 40 PVC Pipe. (0.020 inch slot)				
							Filter Pack: 12/20 Sand.				
60											

SHELL OIL COMPANY
500 40th Street
Oakland, California

Project No.
88-44-361-20

Drawing No.
1369 A-7

01-442P

1S/4W 23 M13

PROJECT NAME / LOCATION Oakland Shell 3420 San Pablo Avenue Oakland, CA	PROJECT NUMBER: 40-88-666	BORING NUMBER: MW-5	SHEET 2 OF 2
	CONTRACTOR: West Hazmat Drilling		DRILLING METHOD: H.S.A.
	DRILLER: Randy Reidhead		DRILLING RIG: CME-75
	START: 12:15/01-19-90		COMPLETED: 2:40/01-19-90
LAND OWNER: Shell Oil Company		SURFACE ELEVATION: 20.91	LOGGED BY: Hal Hansen

S T A Y M P L E	T A U M P L E R	S N M M B L E R	B C L O U S E	S I A N M T P L E(ft)	S R A E M C P O L V E(in)	DEPTH SCALE 1"= 4'	DESCRIPTIONS OF MATERIALS AND CONDITIONS	CONTAMINANT OBSERVATION	GENERAL OBSERVATION NOTES
								INSTRUMENT: OVM UNITS: ppm	
CA	MW-5-5	26/47/50 for 4"		25.0-26.5	12	25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47	GRAVELLY SAND; brown, coarse sand, saturated, minor plastic fines, (SW) Total Depth at 26.5 feet	1	No odor

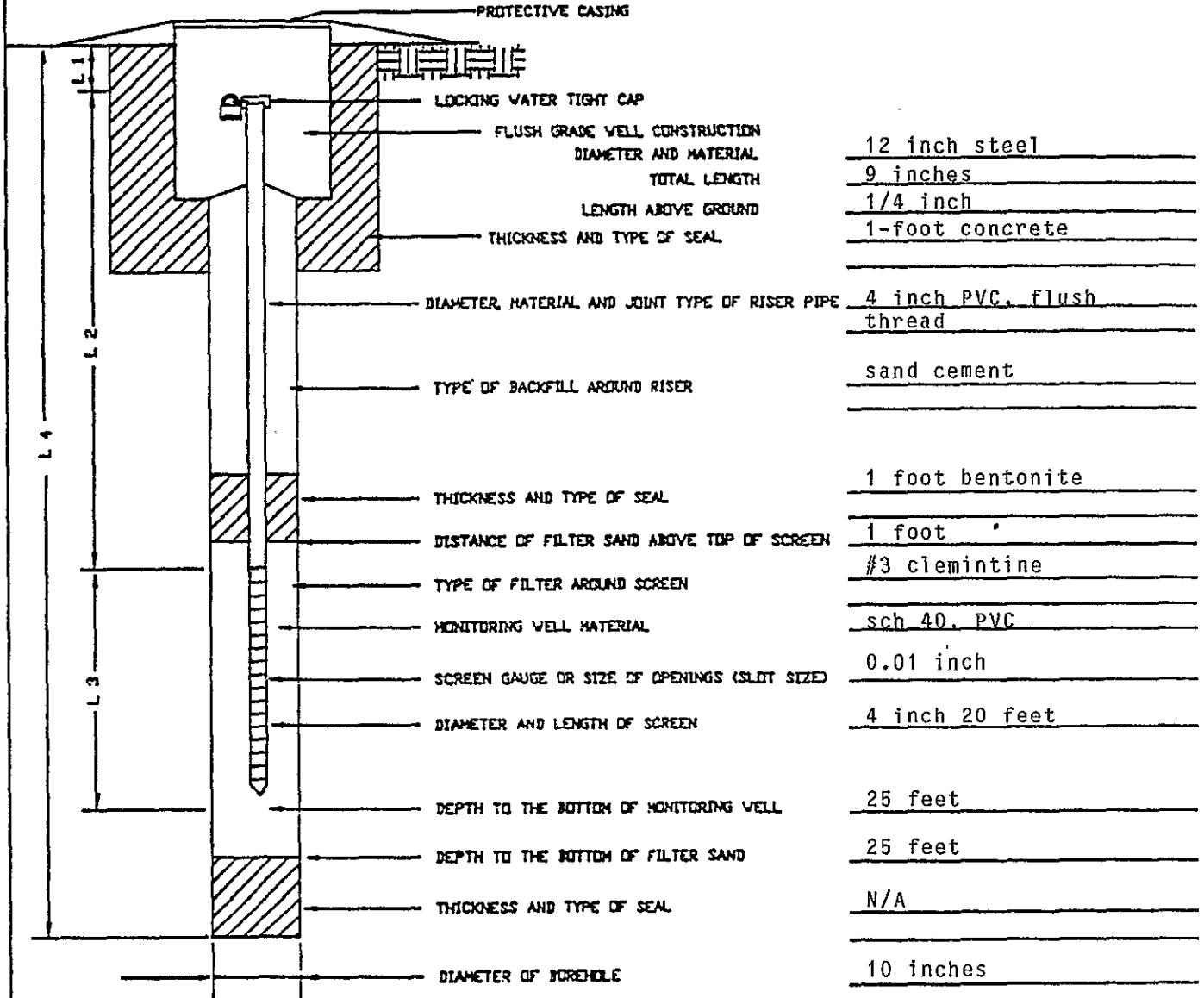
WATER LEVEL DATA				PROFESSIONAL GEOLOGIST	
DATE				SIGNATURE	
TIME					
GWL				TYPED NAME	
CASING DEPTH					

01-442P

INSTALLATION OF FLUSH GRADE MONITORING WELL

PROJECT Oakland Shell
3420 San Pablo Ave
 DELTA NO. 40-88-666

MONITORING WELL NO. MW-5
 ELEVATIONS: TOP OF RISER 20.91
 GROUND LEVEL 21.29



12 inch steel
 9 inches
 1/4 inch
 1-foot concrete
 4 inch PVC, flush thread
 sand cement
 1 foot bentonite
 1 foot
 #3 clemintine
 sch 40, PVC
 0.01 inch
 4 inch 20 feet
 25 feet
 25 feet
 N/A
 10 inches

L 1 = 0.25 FT.
 L 2 = 4.75 FT.
 L 3 = 20.0 FT.
 L 4 = 25.0 FT.

INSTALLATION COMPLETED
 DATE: 1-19-90
 TIME: 240

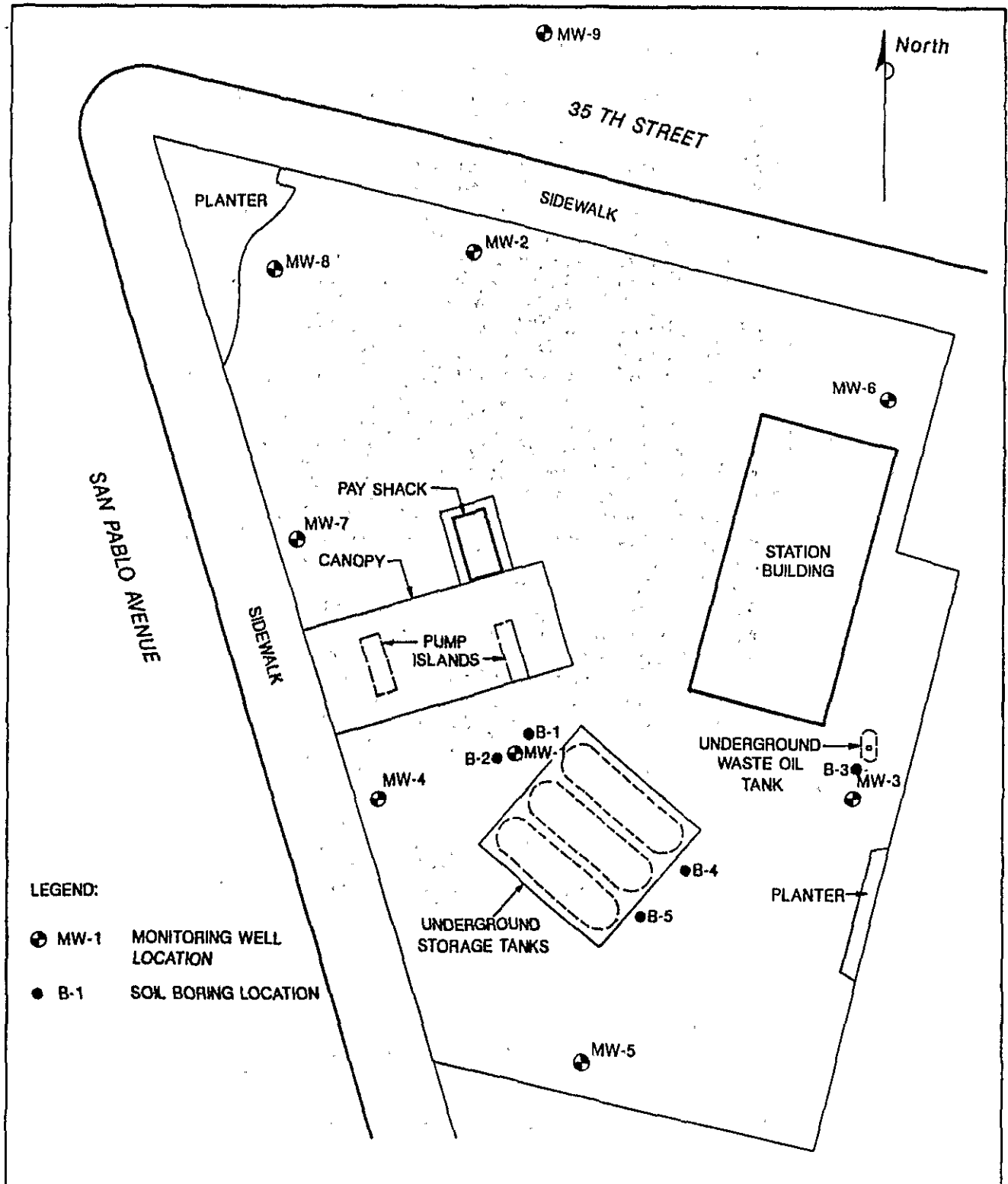
MONITORING WELL WATER LEVEL MEASUREMENTS		
DATE	TIME	WATER LEVEL *
2-2-90	11:59	7.89

* MEASURE POINT: Top of casing



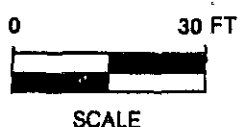
Delta
 Environmental
 Consultants, Inc.

01-442P



LEGEND:

- ⊕ MW-1 MONITORING WELL LOCATION
- B-1 SOIL BORING LOCATION



SITE MAP
3420 SAN PABLO AVENUE
OAKLAND, CA.

PROJECT NO. 40-88-666	PREPARED BY HEH 2/7/90	Delta Environmental Consultants, Inc.
AUTOCAD NO. —	REVIEWED BY	

Lot # C57-554979

01-442P

IS/4W 23M13

PROJECT NAME / LOCATION Oakland Shell 3420 San Pablo Avenue Oakland, CA	PROJECT NUMBER: 40-88-666	BORING NUMBER: MW-5	SHEET 1 OF 2
	CONTRACTOR: West Hazmat Drilling		DRILLING METHOD: H.S.A.
	DRILLER: Randy Reidhead		DRILLING RIG: CME-75
	START: 12:15/01-19-90		COMPLETED: 2:40/01-19-90
LAND OWNER: Shell Oil Company		SURFACE ELEVATION: 20.91	LOGGED BY: Hal Hansen

SAY M P L E	T A U M P L E R	S N M B L E R	B C L O U N T S	S I A N T P L E (ft)	S R A E M C P O L V E (in)	DEPTH SCALE 1"= 4'	DESCRIPTIONS OF MATERIALS AND CONDITIONS	CONTAMINANT OBSERVATION	GENERAL OBSERVATION NOTES
								INSTRUMENT: OVM UNITS: ppm	
CA	MW-5-1	9/12/38	5.0-6.5	18	1	Asphalt road base			
					2	CLAY; very dark gray, highly plastic, slightly moist, (CH)			
					3				
					4				
					5	SANDY CLAY; yellowish brown, moderately plastic, slightly moist, (CL)	50	Slight odor	
					6				
					7				
					8				
					9				
CA	MW-5-2	12/16/9	10.0-11.5	18	10	Saturated	0	No odor	
					11				
					12				
					13				
					14				
CA	MW-5-3	5/7/11	15.0-16.5	18	15		0	No odor	
					16				
					17	SILTY CLAY; dark yellowish brown, moderately plastic, saturated, (CL)			
					18				
					19				
CA	MW-5-4	4/4/7	20.0-21.5	18	20		0	No odor	
					21				
					22				
					23				

WATER LEVEL DATA				PROFESSIONAL GEOLOGIST	
DATE				SIGNATURE	TYPED NAME
TIME					
GWL					
CASING DEPTH					

01-442Q
15/4W 23 M14

PROJECT NAME / LOCATION Oakland Shell 3420 San Pablo Avenue Oakland, CA	PROJECT NUMBER: 40-88-666	BORING NUMBER: MW-6	SHEET 1 OF 1
	CONTRACTOR: West Hazmat Drilling		DRILLING METHOD: H.S.A.
	DRILLER: Randy Reidhead		DRILLING RIG: CME-75
	START: 9:00/01-19-90		COMPLETED: 1:00/01-19-90
LAND OWNER: Shell Oil Company	SURFACE ELEVATION: 22.32	LOGGED BY: Hal Hansen	

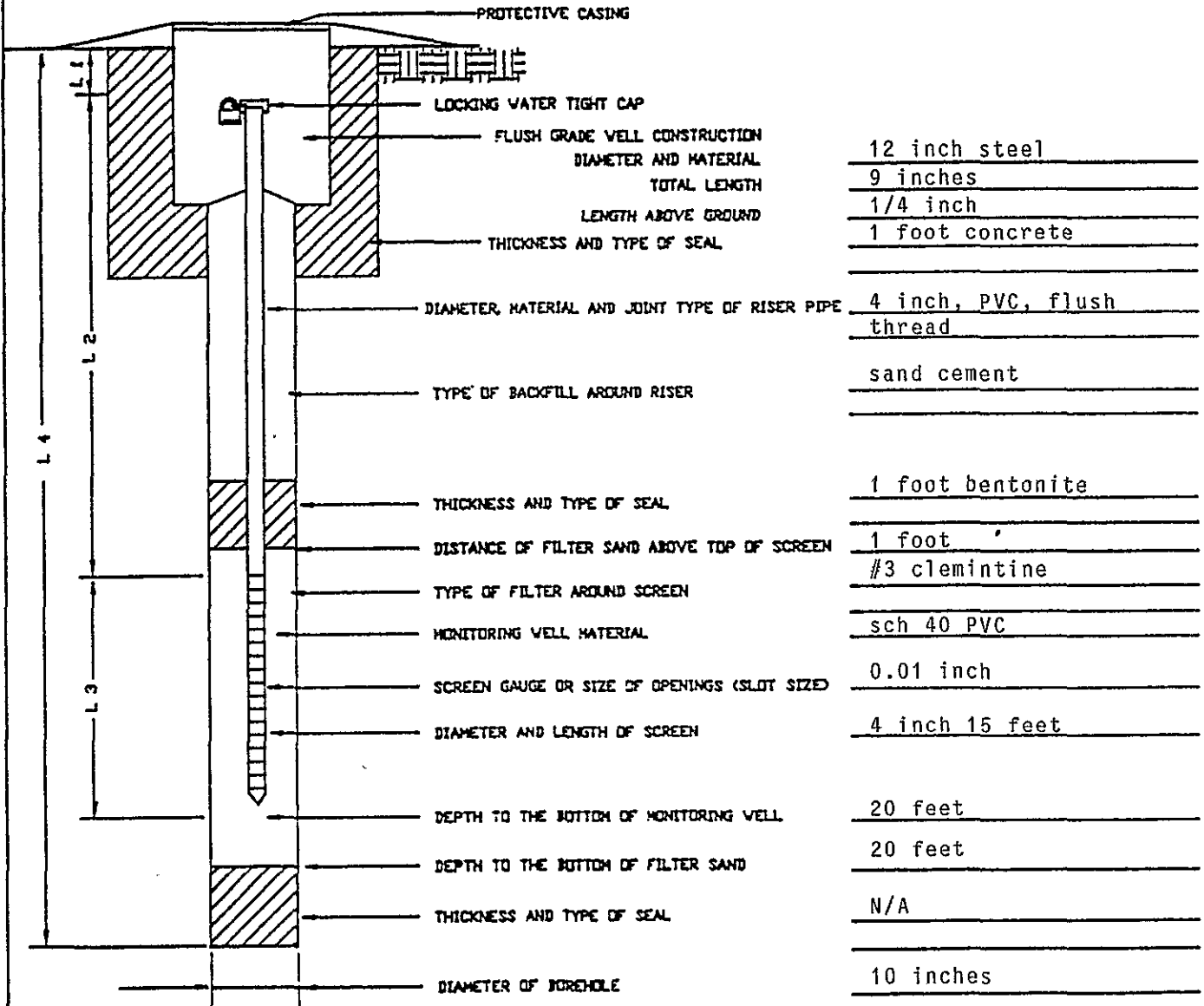
S T A Y P E L E	S N A U M P L E R	B C L O U N T S	S I A N T P L E(ft)	S R A E M P O L Y E(in)	DEPTH SCALE 1"= 4'	DESCRIPTIONS OF MATERIALS AND CONDITIONS	CONTAMINANT OBSERVATION	GENERAL OBSERVATION NOTES
							INSTRUMENT: OVM UNITS: ppm	
CA	MW-6-1	10/12/38	5.0-6.5	18	1 - Asphalt road base 2 - CLAY; very dary gray, highly plastic, slightly moist, (CH) 3 - 4 - 5 - SANDY CLAY; greenish gray, moderately plastic, slightly moist, (CL) 6 - 7 - 8 - 9 -	0	No odor	
CA	MW-6-2	9/13/20	10.0-11.5	18	10 - Color change to yellowish brown 11 - 12 - 13 - Saturated 14 -	14	Slight odor	
CA	MW-6-3	5/8/11	15.0-16.5	18	15 - SILTY CLAY; yellowish brown, moderately plastic, saturated, (CL) 16 - 17 - 18 - 19 -	0	No odor	
CA	MW-6-4	4/7/11	20.0-21.5	18	20 - Total Depth at 21.5 feet 21 - 22 - 23 -	0	No odor	

WATER LEVEL DATA				PROFESSIONAL GEOLOGIST	
DATE				SIGNATURE	
TIME					
GWL				TYPED NAME	
CASING DEPTH					

INSTALLATION OF FLUSH GRADE MONITORING WELL

PROJECT Oakland Shell
3420 San Pablo Ave
 DELTA NO. 40-88-666

MONITORING WELL NO. MW-6
 ELEVATIONS: TOP OF RISER 22.32
 GROUND LEVEL 22.63



L 1 = 0.25 FT.
 L 2 = 4.75 FT.
 L 3 = 15.0 FT.
 L 4 = 20.0 FT.

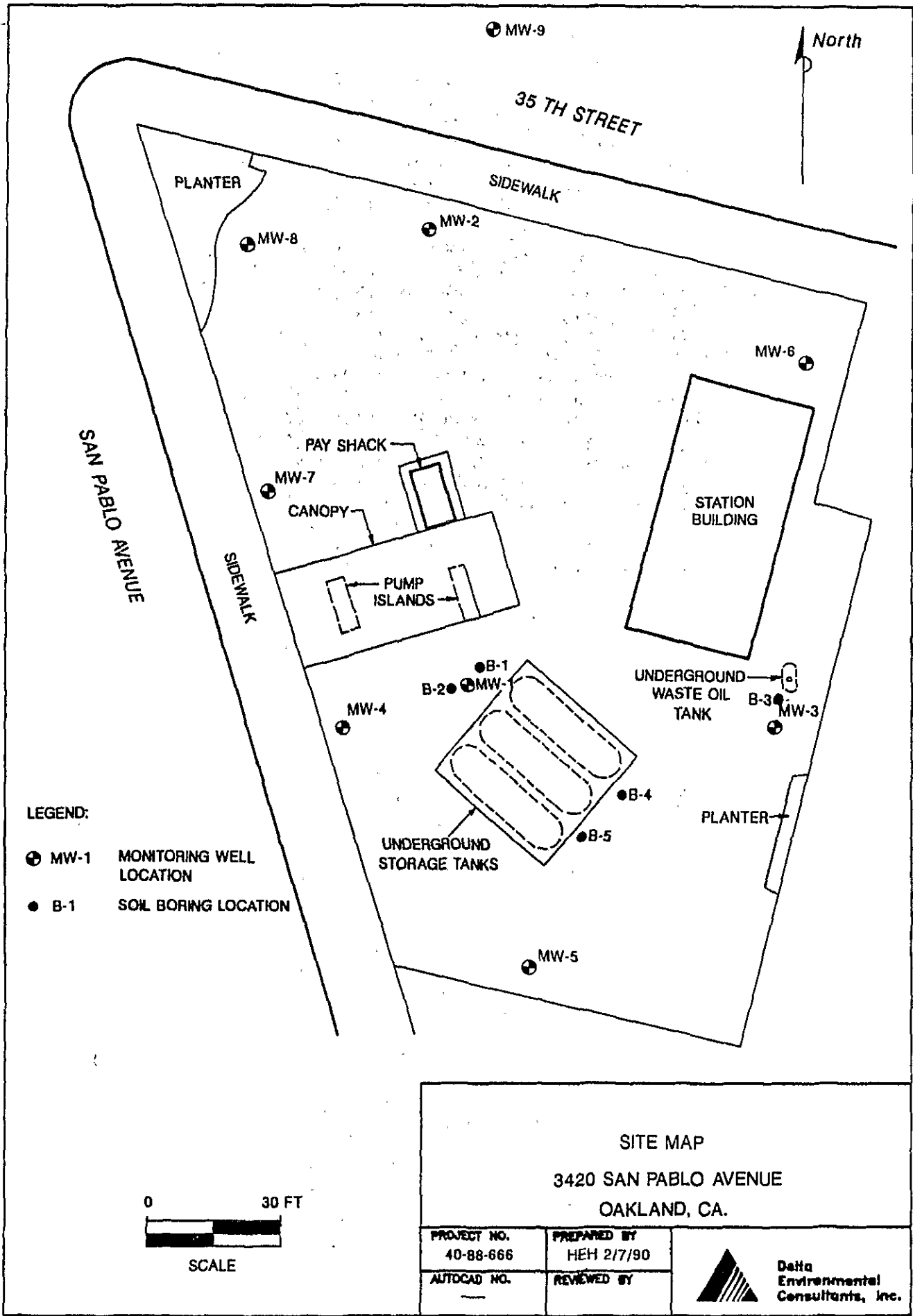
INSTALLATION COMPLETED:

DATE: 1-19-90
 TIME: 10:00

MONITORING WELL WATER LEVEL MEASUREMENTS		
DATE	TIME	WATER LEVEL #
2-2-90	11:41	7.86

MEASURE POINT: Top of casing





6/6# C57-554979

01-442R
1S/4W 23M15

PROJECT NAME / LOCATION Oakland Shell 3420 San Pablo Avenue Oakland, CA	PROJECT NUMBER: 40-88-666	BORING NUMBER: MW-7	SHEET 1 OF 1
	CONTRACTOR: West Hazmat Drilling		DRILLING METHOD: H.S.A.
	DRILLER: Randy Reidhead		DRILLING RIG: CME-75
	START: 11:00/01-19-90		COMPLETED: 12:00/01-19-90
LAND OWNER: Shell Oil Company		SURFACE ELEVATION: 20.36	LOGGED BY: Hal Hansen

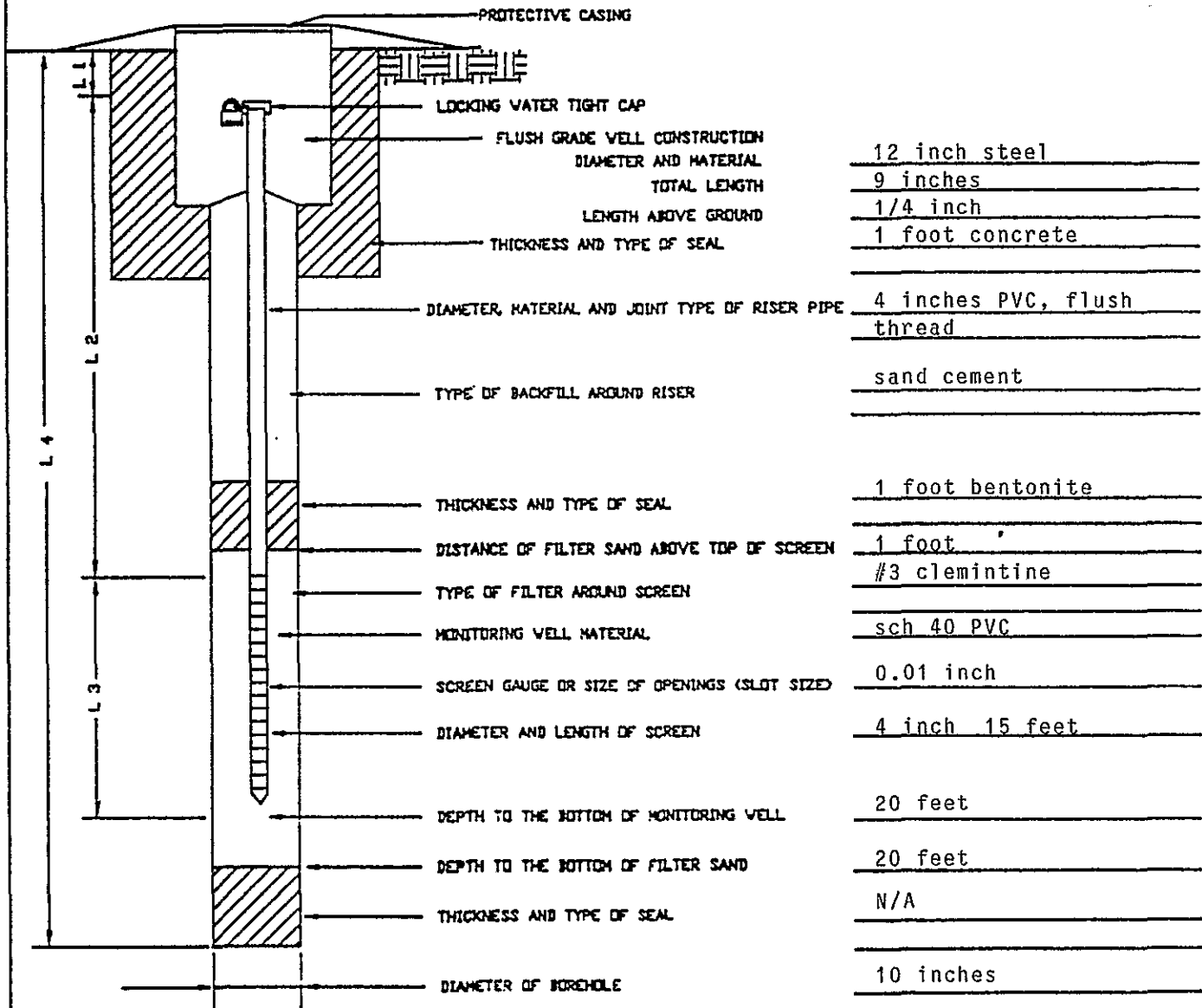
SAY MPE LE	STA MPE LE	N MPE LE	B MPE LE	C MPE LE	S MPE LE	I MPE LE	A MPE LE	N MPE LE	S MPE LE	R MPE LE	E MPE LE	DEPTH SCALE 1"= 4'	DESCRIPTIONS OF MATERIALS AND CONDITIONS	CONTAMINANT OBSERVATION	GENERAL OBSERVATION NOTES
														INSTRUMENT: OVM UNITS: ppm	
													Asphalt road base		
													CLAY; very dark gray, highly plastic, slightly moist, (CH)		
CA	MW-7-1		16/22/30		5.0-6.5				18				SANDY CLAY; greenish gray, moderately plastic, slightly moist, (CL)	95	Moderate odor
CA	MW-7-2		9/15/25		10.0-11.5				18				Color change to yellowish brown Saturated	85	Moderate odor
CA	MW-7-3		6/8/10		15.0-16.5				18				SILTY CLAY; yellowish brown, moderately plastic, saturated, (CL)	5	Slight odor
CA	MW-7-4		6/8/14		20.0-21.5				18				Total Depth at 21.5 feet	0	No odor

WATER LEVEL DATA				PROFESSIONAL GEOLOGIST	
DATE				SIGNATURE	
TIME					
GWL				TYPED NAME	
CASING DEPTH					

INSTALLATION OF FLUSH GRADE MONITORING WELL

PROJECT Oakland Shell
3420 San Pablo Ave
 DELTA NO. 40-88-666

MONITORING WELL NO. MW-7
 ELEVATIONS: TOP OF RISER 20.36
 GROUND LEVEL 20.76



FLUSH GRADE WELL CONSTRUCTION	12 inch steel
DIAMETER AND MATERIAL	9 inches
TOTAL LENGTH	1/4 inch
LENGTH ABOVE GROUND	1 foot concrete
THICKNESS AND TYPE OF SEAL	
DIAMETER, MATERIAL AND JOINT TYPE OF RISER PIPE	4 inches PVC, flush thread
TYPE OF BACKFILL AROUND RISER	sand cement
THICKNESS AND TYPE OF SEAL	1 foot bentonite
DISTANCE OF FILTER SAND ABOVE TOP OF SCREEN	1 foot
TYPE OF FILTER AROUND SCREEN	#3 clemintine
MONITORING WELL MATERIAL	sch 40 PVC
SCREEN GAUGE OR SIZE OF OPENINGS (SLOT SIZE)	0.01 inch
DIAMETER AND LENGTH OF SCREEN	4 inch 15 feet
DEPTH TO THE BOTTOM OF MONITORING WELL	20 feet
DEPTH TO THE BOTTOM OF FILTER SAND	20 feet
THICKNESS AND TYPE OF SEAL	N/A
DIAMETER OF BOREHOLE	10 inches

L 1 = 0.25 FT.
 L 2 = 4.75 FT.
 L 3 = 15.0 FT.
 L 4 = 20.0 FT.

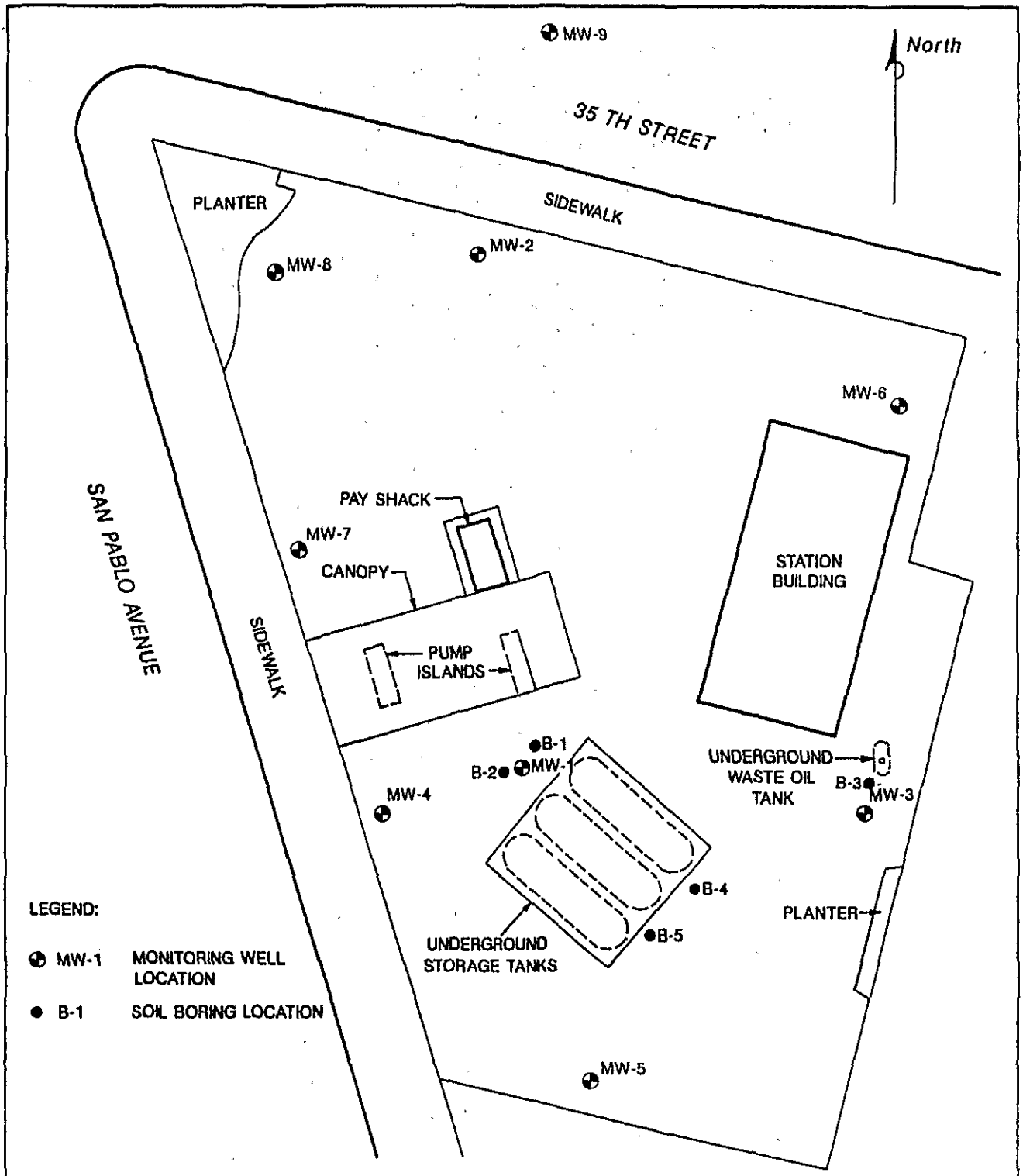
INSTALLATION COMPLETED:

DATE: 1-19-90
 TIME: 12:00

MONITORING WELL WATER LEVEL MEASUREMENTS		
DATE	TIME	WATER LEVEL *
2-2-90	11:52	8.91

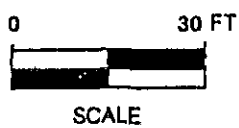
* MEASURE POINT: top of casing





LEGEND:

- ⊕ MW-1 MONITORING WELL LOCATION
- B-1 SOIL BORING LOCATION



SITE MAP
3420 SAN PABLO AVENUE
OAKLAND, CA.

PROJECT NO. 40-88-666	PREPARED BY HEH 2/7/90
AUTOCAD NO. —	REVIEWED BY

**Delta
Environmental
Consultants, Inc.**

lic# C57-554979

01-4425
1S/4W 23M16

PROJECT NAME / LOCATION Oakland Shell 3420 San Pablo Avenue Oakland, CA	PROJECT NUMBER: 40-88-666	BORING NUMBER: MW-8	SHEET 1 OF 1
	CONTRACTOR: West Hazmat Drilling		DRILLING METHOD: H.S.A.
	DRILLER: Randy Reidhead		DRILLING RIG: CME-75
	START: 2:30/01-18-90		COMPLETED: 3:45/01-18-90

LAND OWNER: Shell Oil Company	SURFACE ELEVATION: 20.95	LOGGED BY: Hal Hansen
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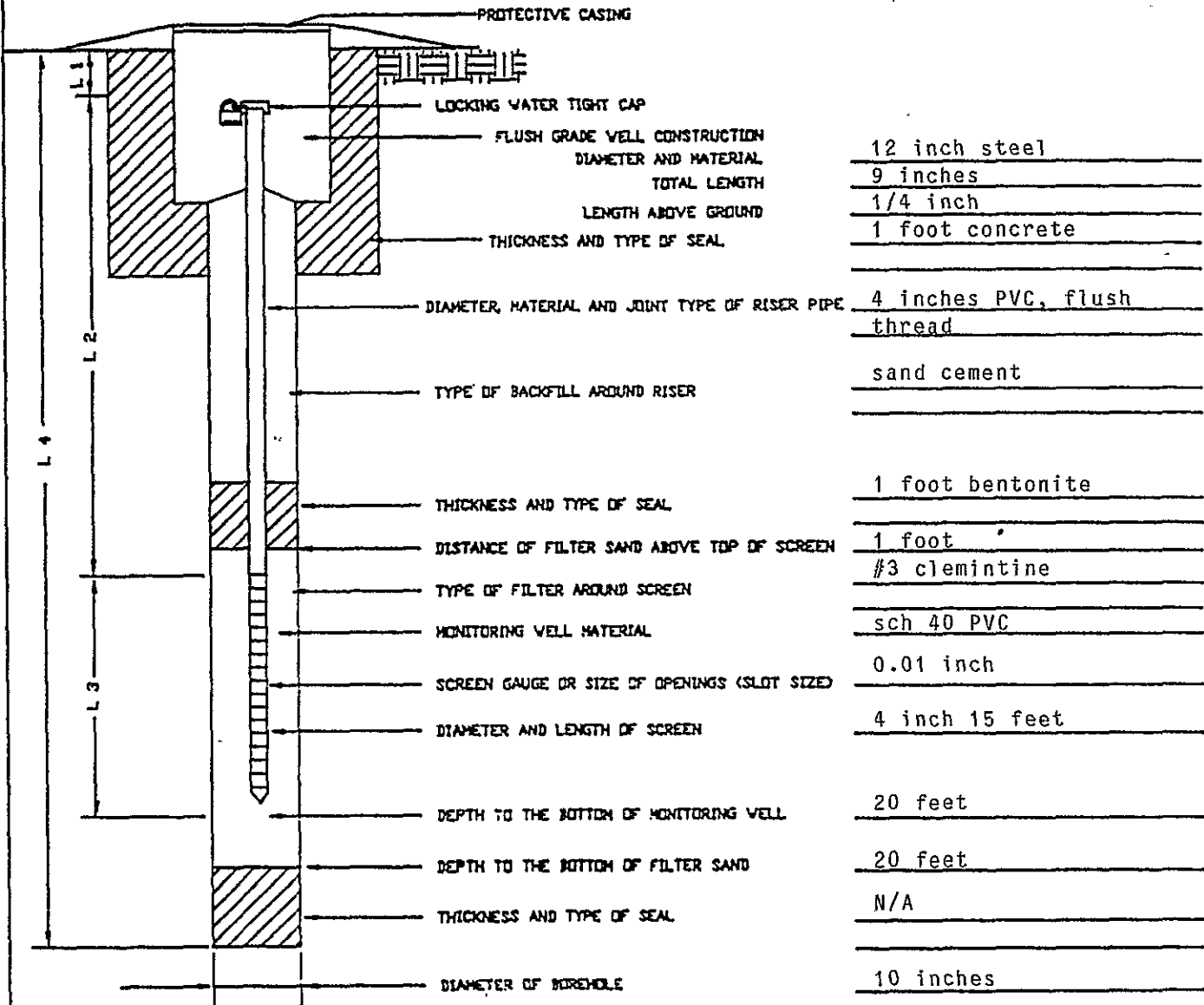
STAY MPE LE	SN MPE LE	B C S	I A N P L	S R A E M C P O L V E	DEPTH SCALE 1"= 4'	DESCRIPTIONS OF MATERIALS AND CONDITIONS	CONTAMINANT OBSERVATION	GENERAL OBSERVATION NOTES
							INSTRUMENT: OVM UNITS: ppm	
CA	MW-8-1	16/27/28	5.0-6.5	18	1	Asphalt road base		
					2	CLAY; very dark gray, highly plastic, slightly moist, (CH)		
					3			
					4			
CA	MW-8-1	16/27/28	5.0-6.5	18	5		3	Slight odor
					6	SANDY CLAY; greenish gray, moderately plastic, slightly moist, (CL)		
					7			
					8			
					9			
CA	MW-8-2	11/13/19	10.0-11.5	18	10	Saturated	100	Moderate odor
					11			
					12			
					13			
					14			
CA	MW-8-3	4/6/7	15.0-16.5	18	15		0	No odor
					16			
					17	SILTY CLAY; dark yellowish brown, slightly plastic, saturated, (CL)		
					18			
					19			
CA	MW-8-4	9/11/16	20.0-21.5	18	20		0	No odor
					21			
					22	Total Depth at 21.5 feet		
					23			

WATER LEVEL DATA				PROFESSIONAL GEOLOGIST	
DATE				SIGNATURE	
TIME					
GWL				TYPED NAME	
CASING DEPTH					

INSTALLATION OF FLUSH GRADE MONITORING WELL

PROJECT Oakland Shell
3420 San Pablo Ave
 DELTA NO. 40-88-666

MONITORING WELL NO. MW-8
 ELEVATIONS: TOP OF RISER 20.95
 GROUND LEVEL 21.14



L 1 = 0.25 FT.
 L 2 = 4.75 FT.
 L 3 = 15.0 FT.
 L 4 = 20.0 FT.

INSTALLATION COMPLETED

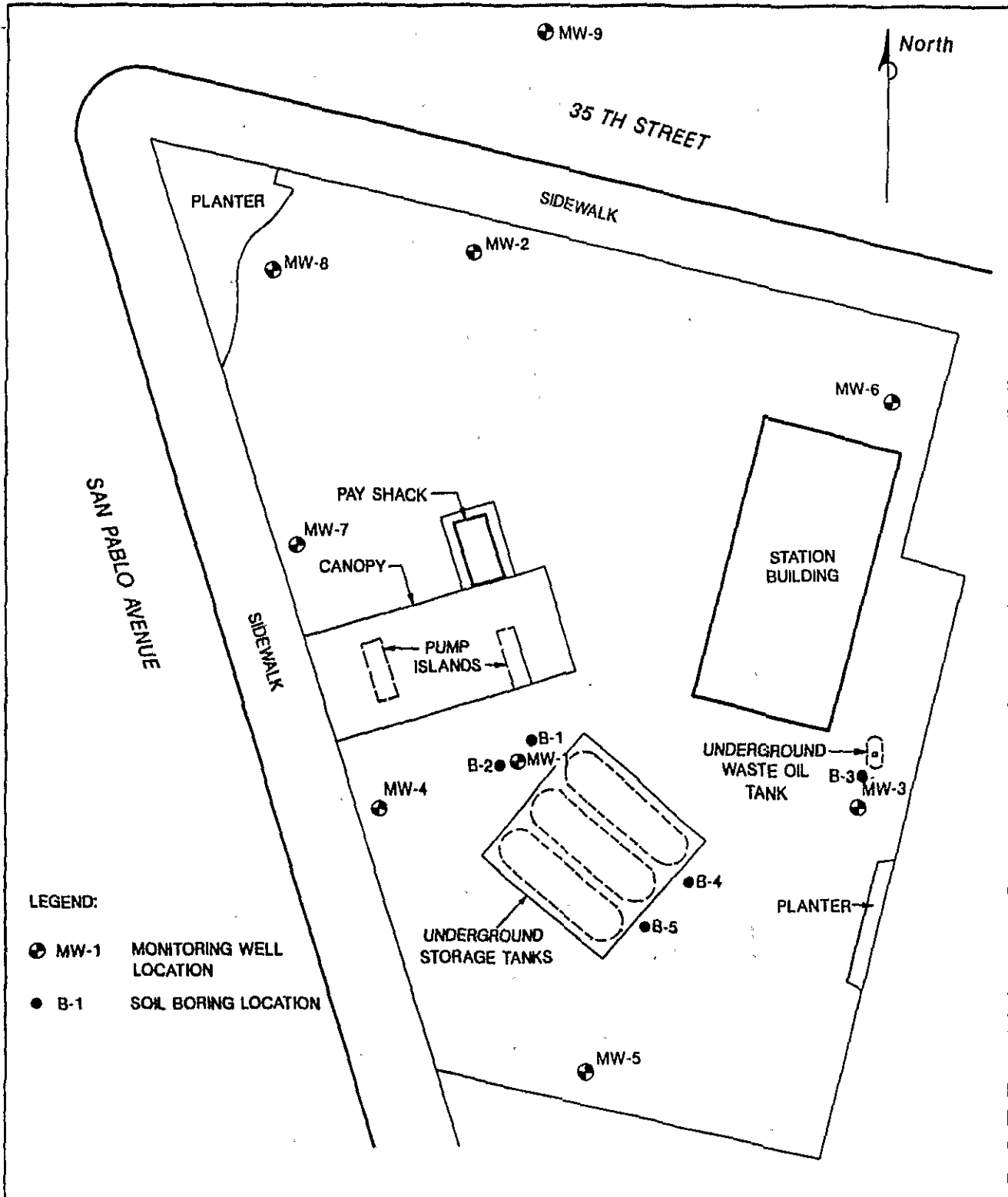
DATE: 1-18-90
 TIME: 3:45

MONITORING WELL WATER LEVEL MEASUREMENTS

DATE	TIME	WATER LEVEL *
2-2-90	11:49	7.32

* MEASURE POINT: top of casing

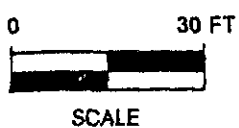





LEGEND:

⊕ MW-1 MONITORING WELL LOCATION

● B-1 SOIL BORING LOCATION



<p>SITE MAP</p> <p>3420 SAN PABLO AVENUE</p> <p>OAKLAND, CA.</p>		
PROJECT NO. 40-88-666	PREPARED BY HEH 2/7/90	 <p>Delta Environmental Consultants, Inc.</p>
AUTOCAD NO. —	REVIEWED BY	

Lot # C57-554979

01-442T
 1S/4W 23M17

PROJECT NAME / LOCATION Oakland Shell 3420 San Pablo Avenue Oakland, CA	PROJECT NUMBER: 40-88-666	BORING NUMBER: MW-9	SHEET 1 OF 1
	CONTRACTOR: West Hazmat Drilling		DRILLING METHOD: H.S.A.
	DRILLER: Randy Reidhead		DRILLING RIG: CME-75
	START: 12:30/01-19-90		COMPLETED: 2:00/01-19-90
LAND OWNER: Shell Oil Company	SURFACE ELEVATION: 21.19	LOGGED BY: Hal Hansen	

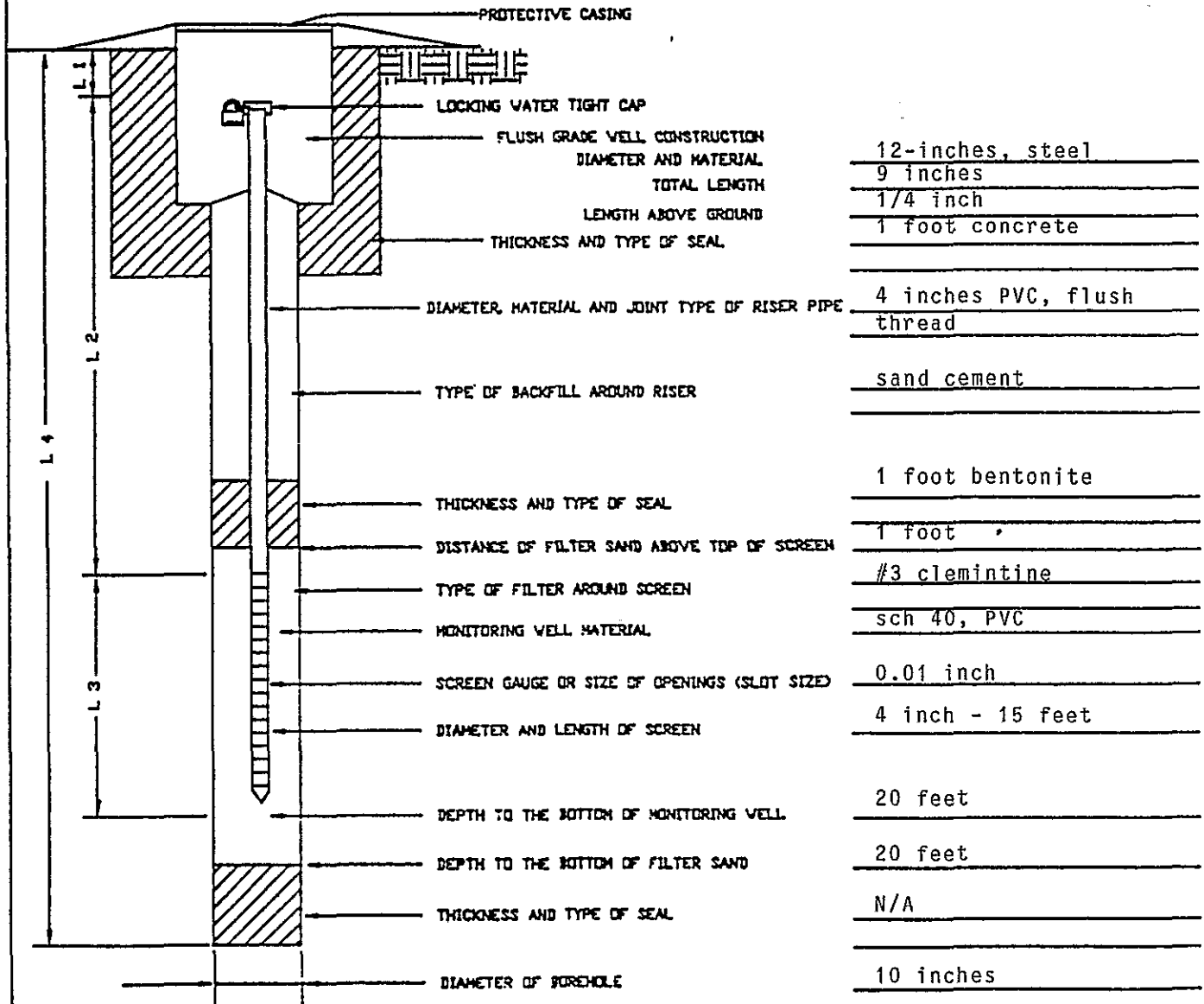
S T A Y P L E	T M P E	S N M P L E	A U M P L E	B C L O U N T S	S I A N T P L E(ft)	S R A E M C P O L V E(in)	DEPTH SCALE 1"= 4'	DESCRIPTIONS OF MATERIALS AND CONDITIONS	CONTAMINANT OBSERVATION	GENERAL OBSERVATION NOTES
									INSTRUMENT: OVM UNITS: ppm	
							1	Asphalt road base		
							2	CLAY; very dark gray, highly plastic, slightly moist, (CH)		
							3			
							4			
CA		MW-9-1		9/23/27	5.0-6.5	10	5	SANDY CLAY; yellowish brown, moderately plastic, slightly moist, (CL)	0	No odor
							6			
							7			
							8			
							9			
CA		MW-9-2		16/21/31	10.0-11.5	18	10		30	Slight odor
							11			
							12			
							13			
							14			
CA		MW-9-3		5/9/12	15.0-16.5	18	15	SITLY CLAY; dark yellowish brown, slightly plastic saturated, (CL)	0	No odor
							16			
							17			
							18			
							19			
CA		MW-9-4			20.0-21.5	18	20		0	No odor
							21			
							22	Total Depth at 21.5 feet		
							23			

WATER LEVEL DATA				PROFESSIONAL GEOLOGIST	
DATE				SIGNATURE	
TIME					
GWL				TYPED NAME	
CASING DEPTH					

INSTALLATION OF FLUSH GRADE MONITORING WELL

PROJECT Oakland Shell
3420 San Pablo Ave
 DELTA NO. 40-88-666

MONITORING WELL NO. MW-9
 ELEVATIONS: TOP OF RISER 21.19
 GROUND LEVEL 21.46



L 1 = 0.25 FT.
 L 2 = 4.75 FT.
 L 3 = 15.0 FT.
 L 4 = 20.0 FT.

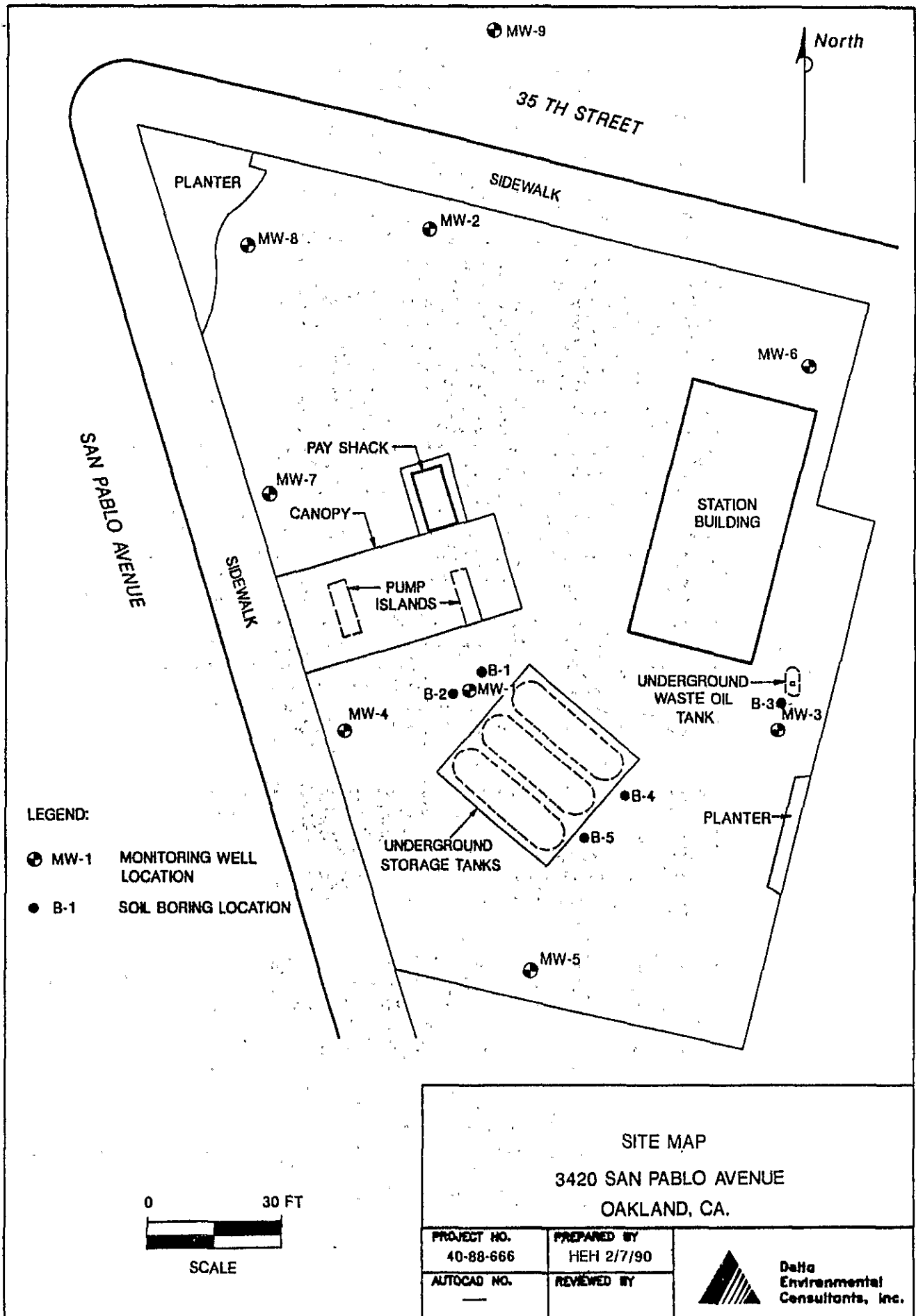
INSTALLATION COMPLETED:

DATE: 1-18-90
 TIME: 2:00

MONITORING WELL WATER LEVEL MEASUREMENTS		
DATE	TIME	WATER LEVEL *
2-2-90	11:43	9.02

* MEASURE POINT: top of casing

Delta
 Environmental
 Consultants, Inc.



lic# C57-554979

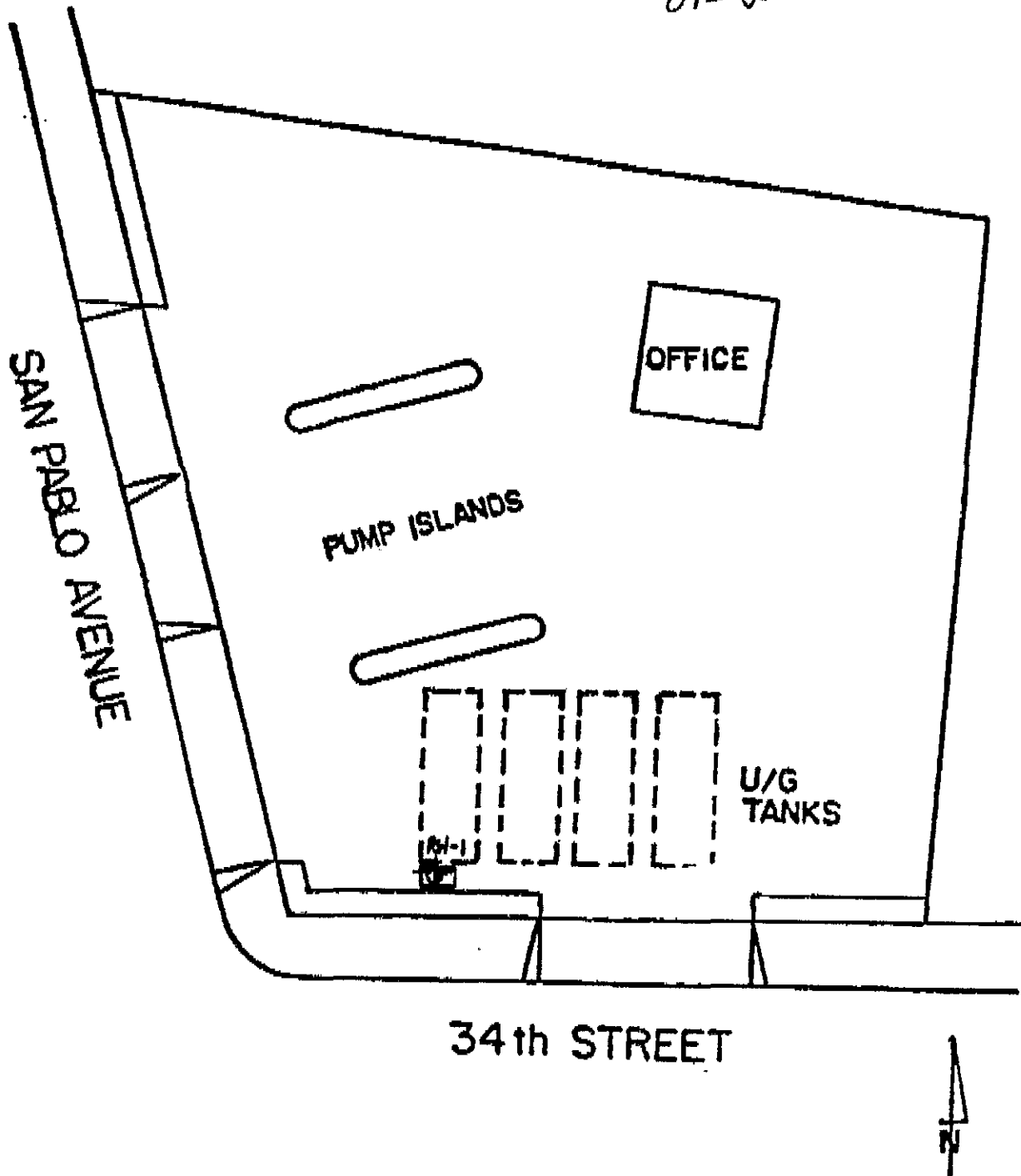
CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

Permit No.
89580

IS/4W 23M18
201221



⊕ RW-1 - PROPOSED RECOVERY WELL



Figure 2. SITE PLAN

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

01-532M

NORTHWEST ENVIROCON INC.

Field Log of Test Pit or Auger Hole

01504W23M21

	Site Location	Douglas Metal Finishing	Boring #	MW-1
	Project #	6409	Date	3/9/93
	Drilling Contractor	Bayland		
	Driller	Roger Strong	Logger	Mary McDonald
	Start	8:35am	Finish	11:50am
			Boring Diameter	12"
	Drilling Method	Hollow Stem Auger		
	Sampling Method	Modified California / Brass or stainless steel sleeves		
n/s	est. water depth		elev	

Depth	Cas.	Annu.	Well Legend	Screening Results (ppm)	Sample #	# Rec.	Blow Ct.	USCS	Description of Material
1			Casing: 4" sch 40 PVC 0-4'2"					CL	
2									
3				0	2.5		3		brownish black silty clay (CL) 5YR2/1, stiff,
4			Screen 4" sch 40 PVC 4'2"- 12'2" 0.020" slots	0	4.0		6		trace fine sand and angular gravel, mottled with dark brown, contains piece
5							11		of brick and clay pipe
6						14	at 5.5 ft grayish brown clay with sand and gravel (CL) 5YR 3/2		
7							stiff, fine sand and fine angular gravel, 1/4 to 1/2" sandstone clasts - rust colored		
8				0	7.5		3		
9							6		
10				36	9.0		11		moderate brown sandy clay (CL) 5YR 3/4
11				226			22		stiff, stringers of brown clay, mottled with olive, rust staining.
12				570			24		at 9.5 feet clayey sand with gravel, medium dense

PERMIT 93085

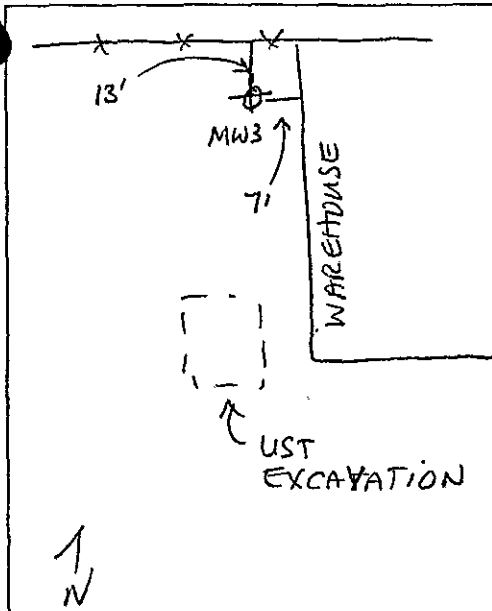
01532 P

15/

NORTHWEST ENVIROCON INC.

Field Log of Test Pit or Auger Hole

01504W23M23



Site Location <i>Douco Metal Finishing</i>		Boring # <i>MW-3</i>
Project # <i>6409</i>	Date <i>3/5/93</i>	Sheet <i>1 of 2</i>
Drilling Contractor <i>Bayland</i>		
Driller <i>Roger Strong</i>		Logger <i>Mary McDonald</i>
Start <i>2:30 pm</i>	Finish <i>4:15 pm</i>	Boring Diameter <i>12"</i>
Drilling Method <i>Hollow Stem Auger</i>		
Sampling Method <i>Modified California / brass or stainless steel sleeves</i>		
n/s	est. water depth	elev

Depth	Cas.	Annu.	Well Legend	Screening Results (ppm)	Sample #	# Rec.	Blow Ct.	USCS	Description of Material
1			Casing 4" sch 40 PVC 0-4'					SW	light olive gray sand with gravel (SW), fine gravel, piece of glass
2									
3					0	2.5	2		
4			Screen: 4'-14' 4" sch 40 PVC 0.020" slots				4	CL	grayish brown sandy clay with gravel (CL) 5YR3/2 stiff fine angular gravel more gravel, color change to brownish gray 5YR4/1 at 3.3 ft. grayish brown 5YR3/2 with rust staining at 4 ft.
5							7		
6					0	4.0	5		
7							7		
8					44	7.5	3		
9							8		
10				18	9.0	3	GC	brown 5YR3/4 brick inclusion at 7.8ft grayish brown clayey gravel (GC) 5YR3/2 loose, wet, angular moderate brown sandy clay with gravel (CL) 10YR5/4 stiff, fine gravel	
11						8	CL		
12						7			

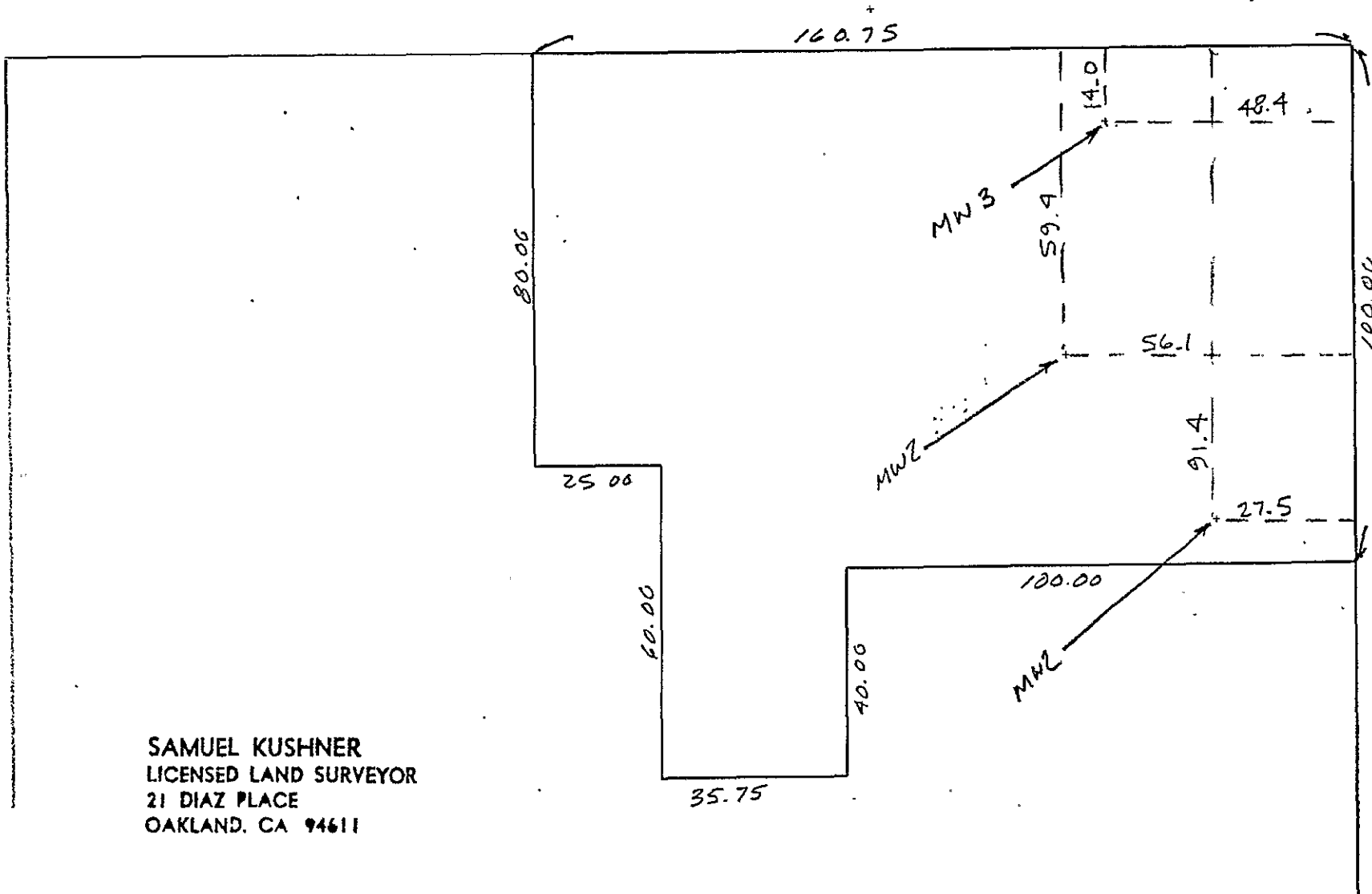
SCALE: 1"=30'



BM #2957
EL=26.785

34TH ST (60')

CHESTNUT ST (60')



SAMUEL KUSHNER
LICENSED LAND SURVEYOR
21 DIAZ PLACE
OAKLAND, CA 94611

LINDEN ST. (60')

01-5-32 M-φ
13/4/01-23 M21-23

01-532 m-~~4~~ 15/4W-23471-23
SAMUEL KUSHNER

LICENSED LAND SURVEYOR

21 Diaz Place
Oakland, CA 94611
(510) 339-1728

March 31, 1993

Northwest Envirocon Inc.
1800 Tribute Road, Suite 101
Sacramento, CA 95815

Attn: Kevin Gallagher

Re: Dougco, 34th St. at Linden, Oakland.
Your No. 6409

Location	Casing Elevation	Rim Elevation	
MW-1	26.78	27.20	M
MW-2	26.01	26.77	N
MW-3	26.17	26.67	Ø

Elevations are on City of Oakland Datum. (Elevation values based on City of Oakland Datum are 3.00 feet greater than they would be if based on Mean Sea Level Datum.)

BENCH MARK: City of Oakland # 2957
Chiseled square on top of curb at mid point of northwest return,
34th Street and Linden Street.

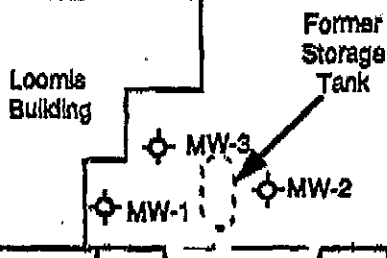
ELEVATION = 26.785 (City of Oakland Datum)

Horizontal locations in relationship to the property boundary are shown on the enclosed sketch and are based on City of Oakland street monuments on 34th St. at the intersection with Chestnut St. and with Linden St.

01-484 V

15/4W 23N12

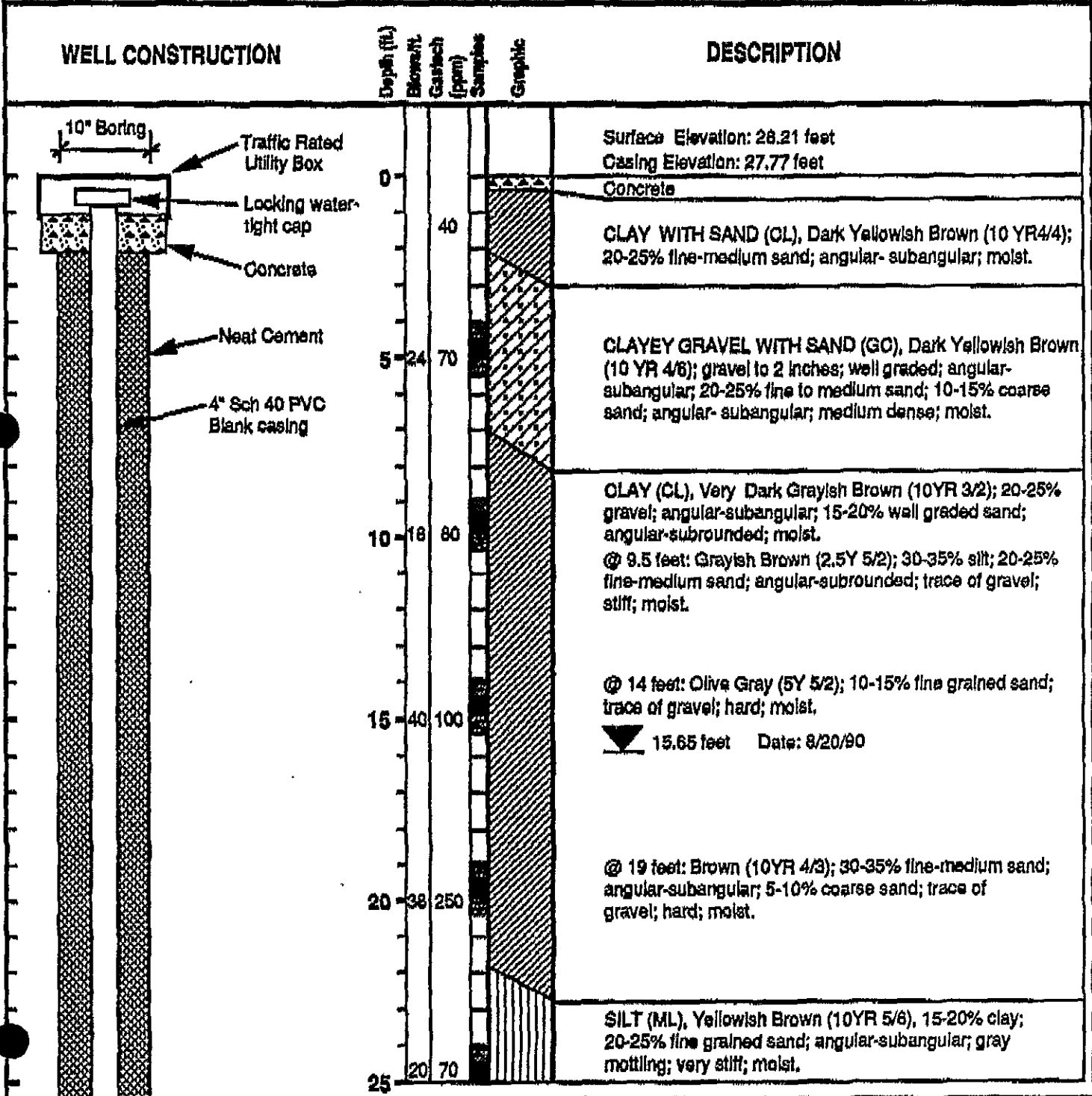
**LOG OF BORING MW-1
LOOMIS ARMORED, INC.
936 Brockhurst Street
Oakland, California**



Brockhurst Street

Project No.: CC134.01
Logged By: Daniel Becraft
Drilling Co.: Baylands
Driller: Tom Schmitt

Date Drilled: August 18, 1990
Drilling Method: 10" Hollow Stem Auger
Sampling Method: 2" Split spoon
Inclination: Vertical

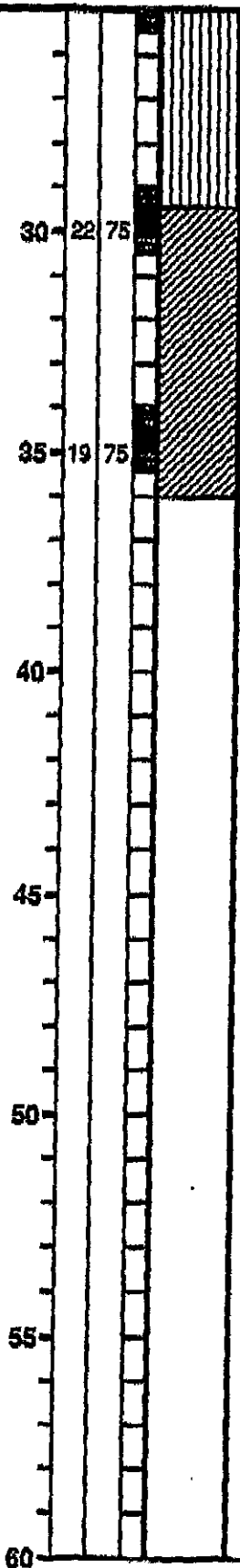
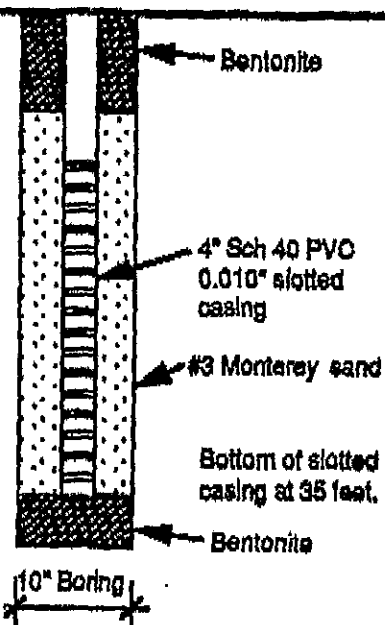


LOG OF BORING MW-1 (continued)

WELL CONSTRUCTION

Depth (ft.)
 Interval
 Casinoh
 (ppm)
 Sample
 Graphic

DESCRIPTION



SILT (ML) continued

@29 feet: 10-15% clay; 25-35% fine sand.

CLAY (CL), Light Brownish Gray (2.5Y 6/2); 20-25% fine sand; angular-subangular; 20-25% silt; yellow brown lenses; very stiff; moist.

@34 feet: Mottled Light Brownish Gray (2.5Y 6/2) Yellowish Brown (10YR 2/2); trace silt; very stiff; moist.

Bottom of Boring: 36 feet.
Time: 12:05 PM Date: 8/18/90

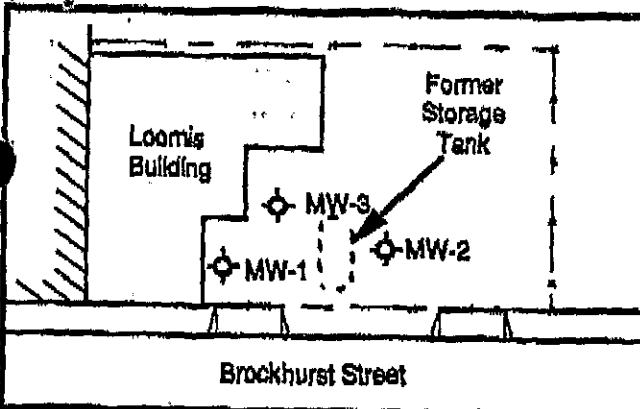
01-484W

15/4W 23N3

LOG OF BORING MW-2
LOOMIS ARMORED, INC.
936 Brockhurst St.
Oakland, California

Project No.: CC134.01
 Logged By: Andy Bunten
 Drilling Co.: Baylands
 Driller: Tom Schmidt

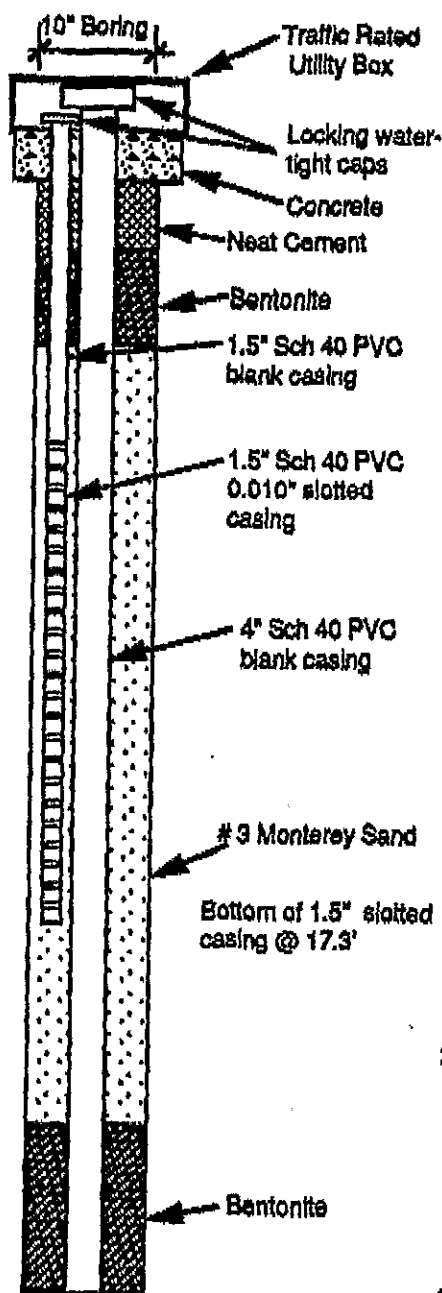
Date Drilled: August 14, 1990
 Drilling Method: 10" Hollow Stem Auger
 Sampling Method: 2" Split spoon
 Inclination: Vertical



WELL CONSTRUCTION

Depth (ft)
 Blows/ft.
 Geotech
 (ppm)
 Samples
 Graphic

DESCRIPTION



0		Surface Elevation: 28.81 feet Casing Elevation: 26.29 feet
		Asphaltic Concrete
		CLAY (CL), Yellowish Brown (10YR 5/6); 5-10% well graded sand; moist.
		CLAYEY SILT (ML), Black (2.5YN 2/0); trace coarse sand; 30-35% clay; moist.
5	26	CLAYEY GRAVEL (GO), Yellowish Brown (10YR 5/6); 1/4"- 3/8"; subrounded; 15-20% well graded sand; medium dense; very stiff; moist.
		CLAY (CL), Very Dark Grayish Brown (2.5Y 3/2); 10-15% well graded sand; moist.
10	12	CLAYEY GRAVEL (GC), Yellowish Brown (10YR 5/6); 1/8"-1/2"; 20-25% well graded sand; 25-30% clay; medium dense; moist.
		SILT (ML), Olive Yellow (2.5Y 6/8); 25-30% fine-medium sand; 15-20% clay; moist.
		@14 feet: Black (5Y 2.5/1); 10-15% well graded sand; 30-35% clay; moist.
15	21	CLAY (CL), Light Olive Brown (2.5Y 5/6); 45-50% well graded sand; very stiff; moist.
		▼ 15.30 feet Date: 8/20/90
		@16 feet: Light Brownish Gray (2.5Y 6/2), 20-25% gravel; 1/8"-1/4"; 5-10% medium-coarse sand; moist.
		@19 feet: Olive Yellow (2.5Y 5/6); 20-25% well graded sand; moist.
		@20 feet: Dark Yellowish Brown (10YR 4/6); 25-30% 1/8"-3/8" gravel; 10-15% well graded sand; hard; moist.
25	32	@24 feet: Black (10YR 2/1), 10-15% well graded sand; moist.

**LOG OF BORING MW-2
(continued)**

WELL CONSTRUCTION

Depth (ft.)
 Sonotube
 Caseteck
 (ppm)
 Samples
 Graphic

DESCRIPTION

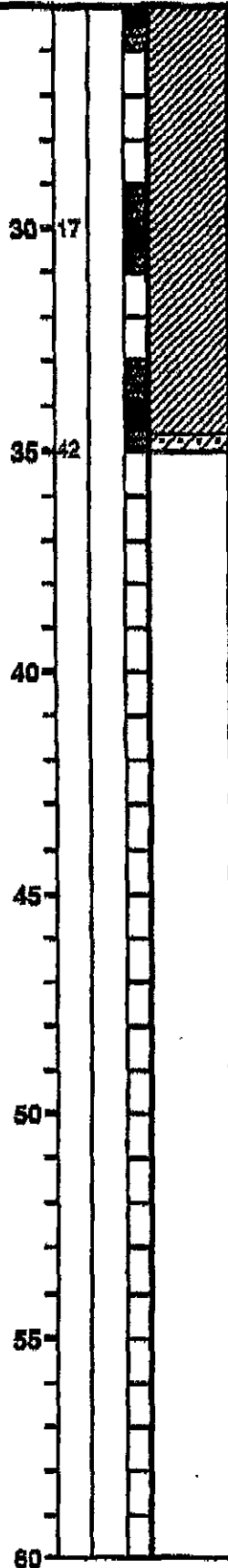


Bentonite

4" Sch 40 PVC
 0.010" slotted
 casing

Bottom of 4" slotted
 casing @ 35 feet.

10" Boring



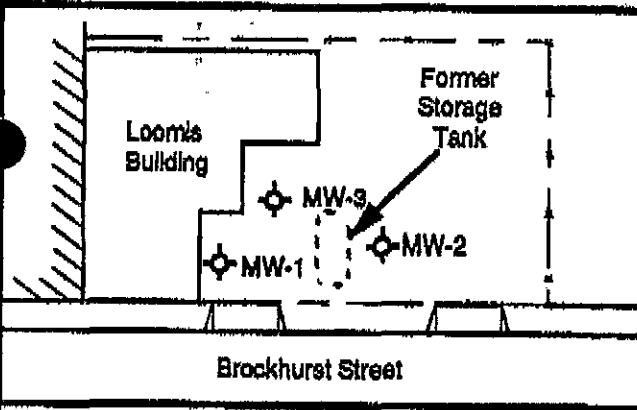
CLAY (CL) continued, Dark Yellow Brown (10YR 4/6); trace fine-medium sand; trace gravel; hard; moist.

@30 feet: Dark Yellow Brown (10YR 4/6); 15-20% well graded sand; very stiff; moist.

@34 feet: Yellowish Brown (10YR 5/8); 25-35% fine grained sand; subangular-subrounded; hard; moist.

GRAVEL (GC), Dark Yellowish Brown (10YR 3/8); gravel to 1"; rounded and angular; 50-60% coarse sand; rounded; 20-30% fine-medium sand; 10-20% fines; moist.

Bottom of Boring: 35 feet.
 Time: 5:30 PM Date: 8/14/90



LOG OF BORING MW-3
LOOMIS ARMORED, INC.
936 Brockhurst St.
Oakland, California

Project No.: CC134.01
 Logged By: Andy Buntan
 Drilling Co.: Baylands
 Driller: Tom Schmidt

Date Drilled: August 14, 1990
 Drilling Method: 10" Hollow Stem Auger
 Sampling Method: 2" Split spoon
 Inclination: Vertical

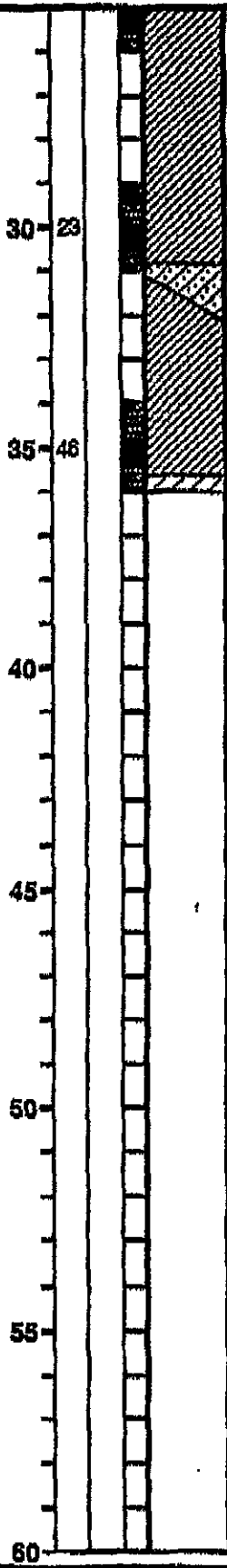
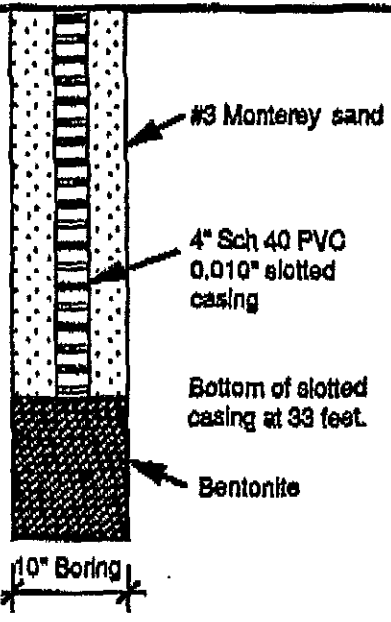
WELL CONSTRUCTION	Depth (ft.)	Blowft.	Casibach (ppm)	Samplers	Graphic	DESCRIPTION
10" Boring	0					Surface Elevation: 28.83 feet Casing Elevation: 28.07 feet
Traffic Rated Utility Box	0					Asphaltic Concrete
Locking water-tight cap	0					CLAY (CL), Yellowish Brown (10YR 5/6); 5-10% well graded sand; moist.
Concrete	0					
Neat Cement	5	27				CLAYEY GRAVEL (GC), Yellowish Brown (10YR 5/6); 1/4" - 3/8"; subrounded; 15-20% well graded sand; medium dense; moist.
Bentonite	10	18				SANDY CLAY (CL), Black (10YR 2/1); 15-20% fine-medium sand w/trace coarse; stiff; moist.
4" Sch 40 PVC Blank casing	10					SANDY SILT (ML), Light Olive Brown (2.5Y 5/6); 30-35% fine-medium sand; stiff; moist-wet.
# 3 Monterey Sand	15	19				CLAY (CL), Light Brownish Gray (2.5Y 6); 10-15% fine-medium sand; stiff; moist.
	15					@ 14 feet: Very Dark Grayish Brown (2.5Y 3/2); 25-30% well graded sand; moist.
	15					▼ 14.54 feet Date: 8/20/90
	15					@ 16 feet: Olive Brown (2.5Y 4/4); 15-20% gravel; 1/8-3/8"; subrounded; 5-10% fine-medium sand; very stiff; moist.
	20	47				SANDY SILT (ML), Light Olive Brown (2.5Y 5); 25-30% fine-medium sand w/trace coarse; moist-wet.
4" Sch 40 PVC 0.010" slotted casing	20					CLAY (CL), Dark Yellowish Brown (10YR 4/6); 30-35% well graded sand; trace gravel; hard; dry-moist.
	25	16				@24 feet: Light Yellowish Brown (2.5Y 6/4); 10-15% well graded sand; dry-moist.

**LOG OF BORING MW-3
(continued)**

WELL CONSTRUCTION

Depth (ft.)
 Location
 Caseloch
 (Open)
 Samples
 Graphic

DESCRIPTION



CLAY (CL) continued, Light Olive Brown (2.5Y 5/6); trace fine-medium sand; very stiff; moist.

@30 feet: Yellowish Brown (10YR 5/6); 10-15% gravel; 1/8-1/4"; 15-20% well graded sand; stiff; moist.

CLAYEY SAND (SC), Yellowish Brown (10YR 5/6); medium fine; 25-30% clay; moist

CLAY (CL), Grayish Brown (2.5Y 5/2); 10-15% well graded sand; trace 1/8" gravel; hard; moist.

CLAYEY GRAVEL (GC), Yellowish Brown (10YR 5/6); 1/8-3/8"; 10-15% well graded sand; 20-25% clay; moist.

Bottom of Boring: 36 feet.
 Time: 2:00 PM Date: 8/14/90

Phone 415-233-3200

01-740

AMERICAN CREAMERY COMPANY.
14th. & Poplar Streets.
Oakland, California.

LOG OF WELL.

Sandy soil -----	5	feet
Yellow sand -----	5	to 51 "
Blue clay -----	51	" 63 "
Yellow sandy clay -----	63	" 67 "
Blue sandy clay -----	67	" 92 "
Sand & Gravel -----	92	" 94 "
Blue clay -----	94	" 105 "
Blue sandy clay -----	105	" 120 "
Blue clay & gritt -----	120	" 141 "
Gravel, no water(made test) -----	141	" 148 "
Yellow clay -----	148	" 167 "
Gravel, some clay -----	167	" 168 "
Yellow clay -----	168	" 182 "
Water bearing gravel(perf) -----	182	" 185 "
Clay -----	185	" 195 "

Casing 10" No. 14 R. H. Dbl.
Total depth of well 200 feet.
Cased to 195 feet.

No. 2 well. No log.
Cased 164 feet of 10" Casing and 36' of 8" column

JOHN N. MILLER
PRESIDENT

C. A. ORNBAUM
VICE PRESIDENT

I. MILLER
SECRETARY

CALIFORNIA LINEN SUPPLY Co., INC.

HEAD OFFICE
1246 FOLSOM STREET

TELEPHONE MARKET 1388

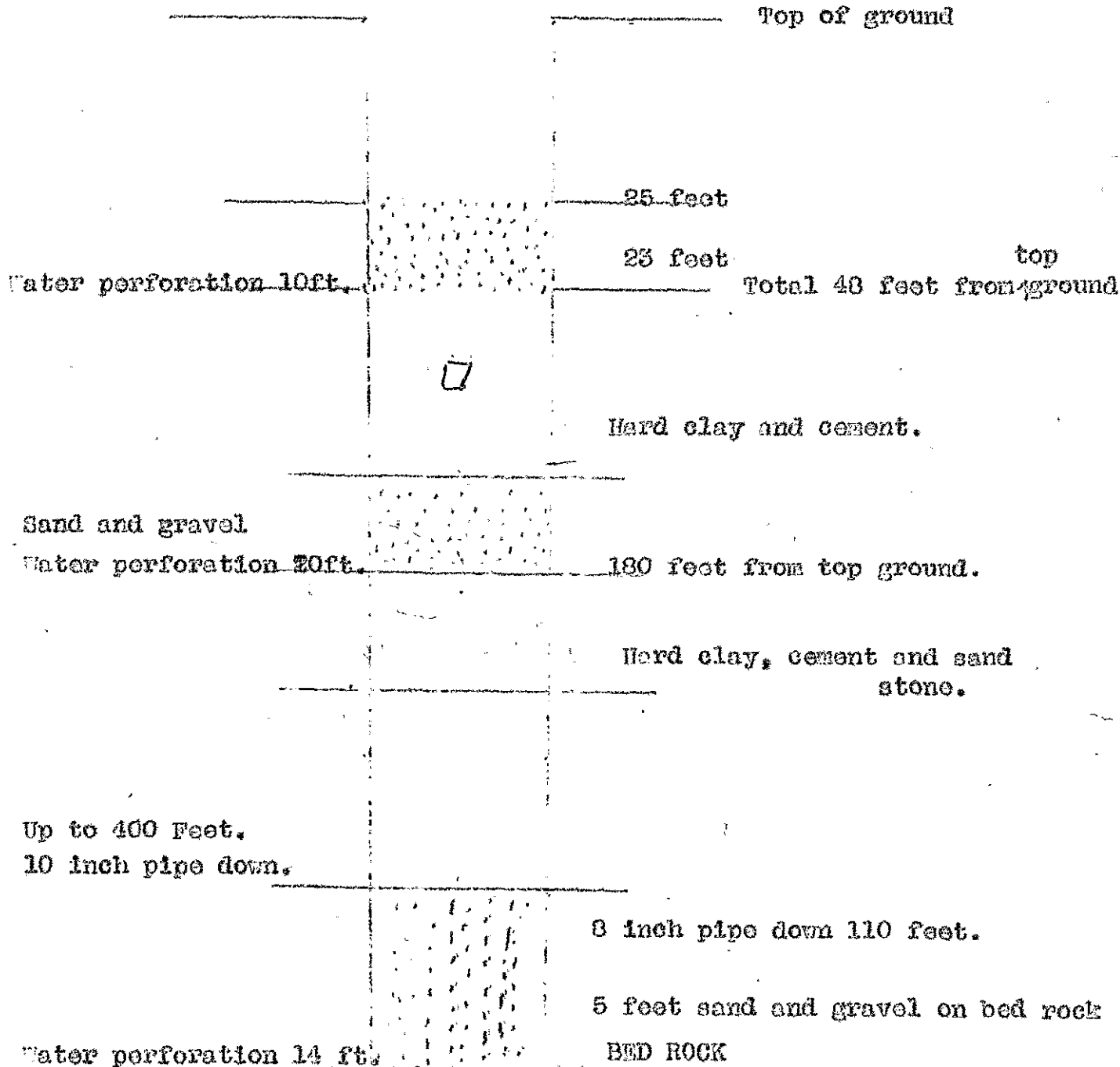
SAN FRANCISCO

BRANCH OFFICE
989 41st STREET
OAKLAND, CALIF.

TELEPHONE
PIEDMONT 3430

01-741

LOGG OF OUTSIDE WELL OF PEARL LAUNDRY CO.



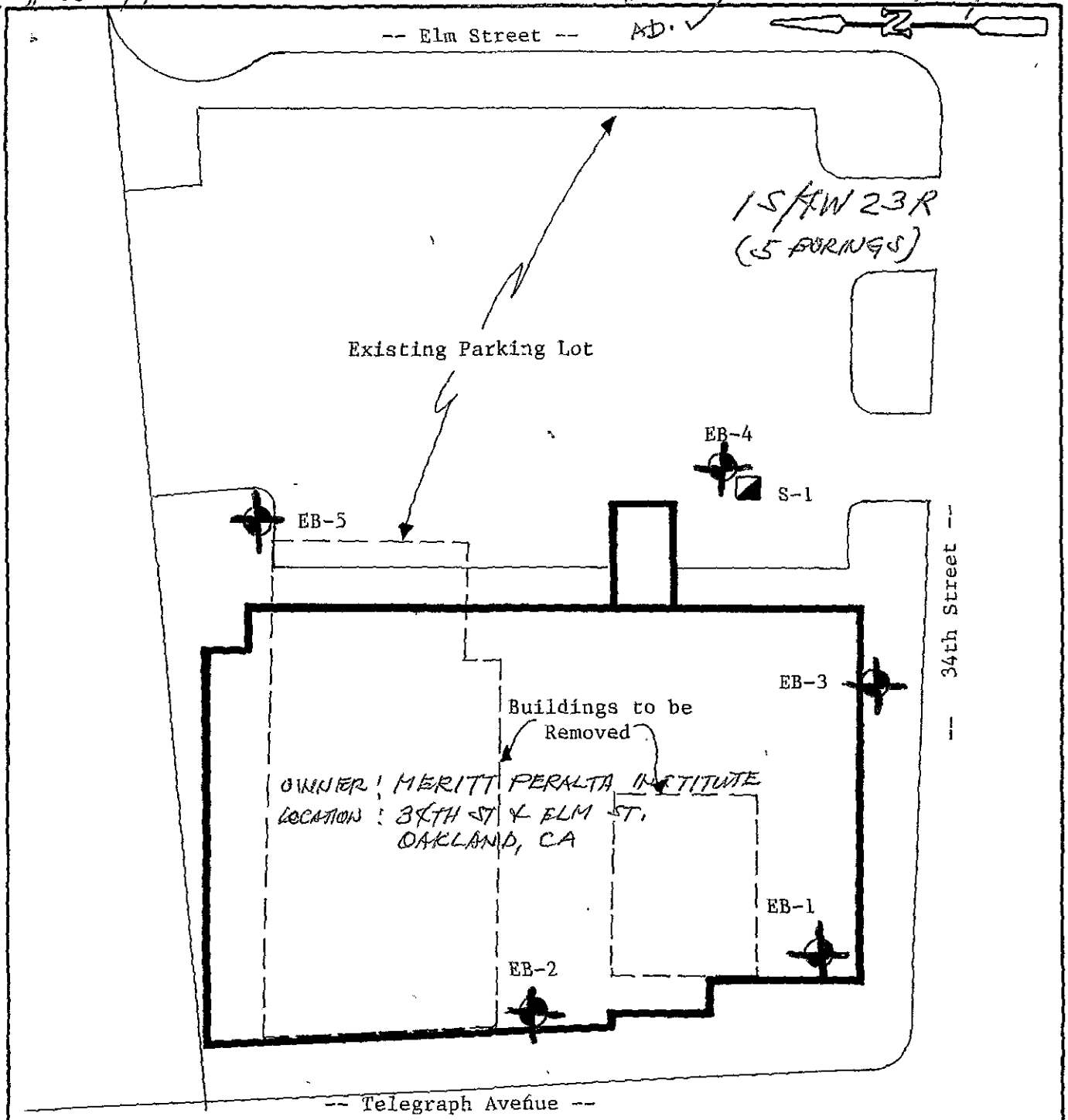
Depth of well 510 feet in all.
Finished July 30-August 1, 1926, by

U. S. NORMAN.

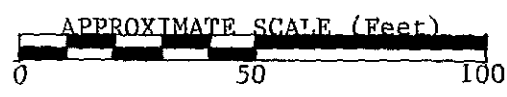
80247 01-401 A-E

INV. ✓
AD. ✓

Plot



LEGEND



- EB-5 Approximate Location of Exploratory Boring
- S-1 Approximate Location of Bulk Sample

Base: "New Site Plan & Existing Site Plan", by Stephen J. Short and Associates, dated December 22, 1987.



Kaldveer Associates
Geoscience Consultants
A California Corporation

SITE PLAN		
MPI OFFICE AND PROGRAM BUILDING Oakland, California		
PROJECT NO.	DATE	Figure 1
K1047-1	June 1988	

DRILLER: Holt Drilling - Livermore Modesto - 1594

#88247

01-401A
15/4W23R

DRILL RIG Continuous Flight Auger				SURFACE ELEVATION --		LOGGED BY LG			
DEPTH TO GROUNDWATER 14' (see note 3)				BORING DIAMETER 6 Inches		DATE DRILLED 6/15/88			
DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT.)	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
2" AC over 4" Baserock									
GRAVEL, (fine grained), sandy (fine-coarse grained), some silt	dark brown	loose	GM	1		8	14		
CLAY, silty, sandy (fine-coarse grained), trace gravel (fine grained)	dark grey-black	firm	CL	2	X	12*			
				3					
CLAY, silty, sandy (fine-coarse grained) (lense of sand fine-coarse grained, silty clayey) (FILL) ↑	medium brown	firm	CL	4		5	15		
				5					
SAND, (fine-coarse grained), some silt, with gravel (fine grained) with lenses and balls of clay, silty, sandy (fine-coarse grained) Passing #200 Sieve = 36%	tan and red	medium dense	SM-SC	6					
				7					
				8					
				9					
				10					
				11					
				12					
				13					
				14					
				15					
CLAY, silty, some sand (fine-medium grained)	beige mottled with black	very stiff	CL ML	14	X	33*	29	92	3.4
				15					
				16					
				17					
				18					
				19					
Grading sandy (fine-medium grained)				19	X	34*	23	101	2.6
				20					



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A California Corporation

EXPLORATORY BORING LOG

MPI OFFICE AND PROGRAM BUILDING
Oakland, California

PROJECT NO.

DATE

BORING NO.

K1047-1

June 1988

1

#88247

01-401A-E 15/AW23R

DRILL RIG Continuous Flight Auger		SURFACE ELEVATION - -		LOGGED BY LG					
DEPTH TO GROUNDWATER 14' (see note 3)		BORING DIAMETER 6 Inches		DATE DRILLED 6/15/88					
DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT.)	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
CLAY, silty, sandy (fine-medium grained) (continued)	tan mottled with black	very stiff	CL	21	X	34*			
				22					
SILT, with sand (fine-medium grained) Passing #200 Sieve = 69%	tan mottled with black	very stiff	ML-SM	23		22			
				24					
				25					
				26					
				27					
				28					
SAND, (fine-coarse grained), trace clay, some gravel (fine grained), lenses of gravel (fine grained), and silt Passing #200 Sieve = 15%	brown	medium dense	SC	28		14			
				29					
Bottom of Boring = 30 Feet				30					
Notes: 1. The stratification lines represent the approximate boundaries between soil types and the transition may be gradual. 2. For an explanation of penetration resistance values marked with an asterisk (*) see first page, Appendix A. 3. Groundwater level was measured at 27½ feet at time of drilling. Six hours after drilling, the groundwater level measured at 14 feet.				31					
				32					
				33					
				34					
				35					
				36					
				37					
				38					
				39					
				40					



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EXPLORATORY BORING LOG

MPI OFFICE AND PROGRAM BUILDING
 Oakland, California

PROJECT NO.

DATE

BORING NO.

K1047-1

June 1988

1

788247

01-401B

15/FW23R

DRILL RIG Continuous Flight Auger		SURFACE ELEVATION --		LOGGED BY LG					
DEPTH TO GROUNDWATER 19' (see note 3)		BORING DIAMETER 6 Inches		DATE DRILLED 6/15/88					
DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT.)	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
2" AC over 4" Baserock									
CLAY, silty, some sand (fine-coarse grained), trace of gravel (fine grained) Liquid Limit = 34% Plasticity Index = 20% Passing #200 Sieve = 75%	dark grey	stiff	CL	1	X	23*	18		
				2					
				3					
CLAY, silty, sandy (fine-coarse grained)	medium brown	stiff	cl	4	X	43*	15	111	
				5					
				6					
CLAY, very silty, trace of sand (fine-medium grained)	tan	stiff	CL-ML	7					
				8					
				9					
CLAY, silty, sandy (fine-coarse grained) (grading very silty)	beige mottled with black	stiff	CL	10	X	28*	29	94	4.3
				11					
				12					
		very stiff		13					
				14					
				15					
				16	X	35*	25	95	2.8
				17					
				18					
SAND (fine-medium grained), silty with lenses of sand (fine-coarse grained), trace of gravel (fine grained)	beige	medium dense	SM	19			▽		
				20					
						24	23		



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EXPLORATORY BORING LOG

MPI OFFICE AND PROGRAM BUILDING
Oakland, California

PROJECT NO.

K1047-1

DATE

June 1988

BORING NO.

2

#88247

01-401B

15/XW23R

DRILL RIG Continuous Flight Auger				SURFACE ELEVATION - -		LOGGED BY LG			
DEPTH TO GROUNDWATER 19' (see note 3)				BORING DIAMETER 6 Inches		DATE DRILLED 6/15/88			
DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT.)	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
SAND, (fine-to medium-grained), silty, with lenses of sand (fine-coarse grained), trace of gravel (fine grained) (continued)	beige	medium dense	SM	21		24	23		
				22					
				23					
				24					
				25					
SAND, (fine-to medium-grained), with silt, with lenses of gravel and sandy silt Passing #200 Sieve = 33%	brown	dense	SM	25		25 6"			
				26					
				27					
GRAVEL, (fine-grained), sandy, (fine-to coarse-grained) with trace of silt	brown	dense	GW-GM	28					
				29					
				30					
Bottom of Boring = 30 Feet				31					
Notes: 1. The stratification lines represent the approximate boundaries between soil types and the transitions may be gradual. 2. For an explanation of penetration resistance values marked with an asterisk (*) see first page, Appendix A. 3. Groundwater level was measured at 19 feet at time of drilling.				32					
				33					
				34					
				35					
				36					
				37					
				38					
				39					
				40					



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EXPLORATORY BORING LOG

MPI OFFICE & PROGRAM BUILDING
 Oakland, California

PROJECT NO.	DATE	BORING NO.
K1047-1	June 1988	2

88247

01-401C

15/W23R

DRILL RIG Continuous Flight Auger	SURFACE ELEVATION - -	LOGGED BY LG
DEPTH TO GROUNDWATER 14½' (see note 3)	BORING DIAMETER 6 Inches	DATE DRILLED 6/15/88

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
1½" AC over 4" Baserock									
CLAY, very silty, sandy, (fine-coarse grained), with trace of gravel (fine grained)	dark grey	very stiff	CL-ML	1	X	36*			
				2	X				
CLAY, silty, sandy, (fine-to coarse-grained), with trace of gravel (fine-grained)	medium brown	firm-stiff	CL	3		8	22		
				4	X	37*			
				5	X				
				6					
				7					
SAND, (fine to coarse grained) with silt Passing #200 Sieve = 36%	medium brown	medium dense	SM	8		28			
				9					
				10					
				11					
				12					
CLAY, silty, sandy (fine-to coarse-grained), with trace of roots	beige mottled with black and tan	very stiff	CL	13	X	38*	23	98	
				14	X				
				15					
SAND, (fine-to medium-grained), silty, clayey	brown	medium dense	SC	16					
				17					
SAND, (fine-to medium-grained), some silt with lenses of sand (fine-to coarse-grained) with trace of gravel (fine-grained) and lenses of gravel (fine-grained), sandy (fine-to coarse-grained)	brown	medium dense	SM	18	X	50*			
				19	X				
				20					



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EXPLORATORY BORING LOG

MPI OFFICE & PROGRAM BUILDING
 Oakland, California

PROJECT NO.	DATE	BORING NO.
K1047-1	June 1988	3

88247

01-401c

1S/W 23R

DRILL RIG Continuous Flight Auger			SURFACE ELEVATION - -		LOGGED BY LG				
DEPTH TO GROUNDWATER 14½' (see note 3)			BORING DIAMETER 6 Inches		DATE DRILLED 6/15/88				
DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT.)	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
SAND (fine-medium grained), some silt with lenses of sand (fine-coarse grained), with trace of gravel (fine grained), sandy (fine-coarse grained) (continued) (lense of silty clayey sand, fine-medium grained)	brown	medium dense	SM	21	X	50*	20		
				22					
				23					
				24					
Bottom of Boring = 24½ Feet				25					
<p>Notes:</p> <p>1. The stratification lines represent the approximate boundaries between soil types and the transition may be gradual.</p> <p>2. For an explanation of penetration resistance values marked with an asterisk (*) see first page, Appendix A.</p> <p>3. Groundwater level was measured at 18 feet at time of drilling. Three hours after drilling, the groundwater level was measured at 14½ feet.</p>				26					
				27					
				28					
				29					
				30					
				31					
				32					
				33					
				34					
				35					
				36					
				37					
				38					
				39					
				40					



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EXPLORATORY BORING LOG

MPI OFFICE & PROGRAM BUILDING
 Oakland, California

PROJECT NO.

K1047-1

DATE

June 1988

BORING NO.

3

#88277

01-401D
15/W23R

DRILL RIG Continuous Flight Auger		SURFACE ELEVATION --		LOGGED BY LG						
DEPTH TO GROUNDWATER Not Encountered		BORING DIAMETER 6 Inches		DATE DRILLED 6/15/88						
DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT)	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)	
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE							
3" AC over 6" Baserock				1	X					
CLAY, very silty, sandy (fine-coarse grained), trace of gravel, trace of bricks	dark brown	very stiff	CL	2	X	33*	16	104	8.6	
				3		30	13			
CLAY, silty, sandy (fine-coarse grained), with gravel (fine grained)	medium brown	very stiff	CL-SC	4	X	50*	13			
				5						
SAND (fine-coarse grained), with gravel (fine grained), some silt	brown	medium dense	SM	6						
				7						
Bottom of Boring = 5 Feet				8						
Notes: 1. The stratification lines represent the approximate boundaries between soil types and the transition may be gradual. 2. For an explanation of penetration resistance values marked with an asterisk (*) see first page, Appendix A.				9						
				10						
				11						
				12						
				13						
				14						
				15						
				16						
				17						
				18						
				19						
				20						



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EXPLORATORY BORING LOG

MPI OFFICE AND PROGRAM BUILDING
 Oakland, California

PROJECT NO.

K1047-1

DATE

June 1988

BORING NO.

4

88247

01-401E
1S/W23R

DRILL RIG Continuous Flight Auger				SURFACE ELEVATION --		LOGGED BY LG			
DEPTH TO GROUNDWATER 27' (See Note 3)				BORING DIAMETER 6 Inches		DATE DRILLED 6/15/88			
DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT.)	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
3" AC over 6" Baserock									
CLAY, silty, sandy (fine-to coarse-grained), some gravel (fine-grained), some bricks (FILL) ↑	dark grey	stiff	CL	1	[SAMPLER]	24*			
		firm		2					
				3					
			4						
CLAY, silty, some sand (fine-to medium-grained)	medium brown mottled black	stiff	CL	5	[SAMPLER]	11	22		
			6						
SAND, (fine-to coarse-grained), some silt with gravel (fine-grained), lenses and balls of silty, sandy (fine-to coarse-grained) clay	tan and red	medium dense	SM-SC	7	[SAMPLER]	20	12		
				8					
				9					
				10					
				11					
SILT, clayey, trace of sand (fine-grained)	beige mottled with black	stiff-very stiff	ML	12	[SAMPLER]	32*	31	92	3.3
				13					
				14					
				15					
CLAY, very silty, with trace of sand (fine-to medium-grained)	beige mottled with black	very stiff	CL	16	[SAMPLER]	45*	19	108	16.9
				17					
				18					
				19					
				20					



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EXPLORATORY BORING LOG

MPI OFFICE AND PROGRAM BUILDING
Oakland, California

PROJECT NO.

K1047-1

DATE

June 1988

BORING NO.

5

#88247

01-401E

1S/4W23R

DRILL RIG Continuous Flight Auger		SURFACE ELEVATION --		LOGGED BY LG					
DEPTH TO GROUNDWATER 27' (See Note 3)		BORING DIAMETER 6 Inches		DATE DRILLED 6/15/88					
DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT.)	WATER CONTENT (%)	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (KSF)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
CLAY, very silty, with trace of sand (fine-to medium-grained) (continued) (grading with some sand fine-to medium-grained)	beige mottled with black	very stiff	CL	21	X	27*			
				22					
				23					
				24					
				25					
				26					
				27					
SAND, (fine-to coarse-grained), with silt and clay, grading to clay, silty Passing #200 Sieve =68%	beige	medium dense	SC - CL	27		31*	=		
				28					
Bottom of Boring = 28½ Feet				29					
Notes: 1. The stratification lines represent the approximate boundaries between soil types and the transitions may be gradual. 2. For an explanation of penetration resistance values marked with an asterisk (*) see first page, Appendix A. 3. Groundwater level was measured at time of drilling.				30					
				31					
				32					
				33					
				34					
				35					
				36					
				37					
				38					
				39					
				40					



Kaldveer Associates
 Geoscience Consultants
 A California Corporation

EXPLORATORY BORING LOG

MPI OFFICE & PROGRAM BUILDING
 Oakland, California

PROJECT NO.

K1047-1

DATE

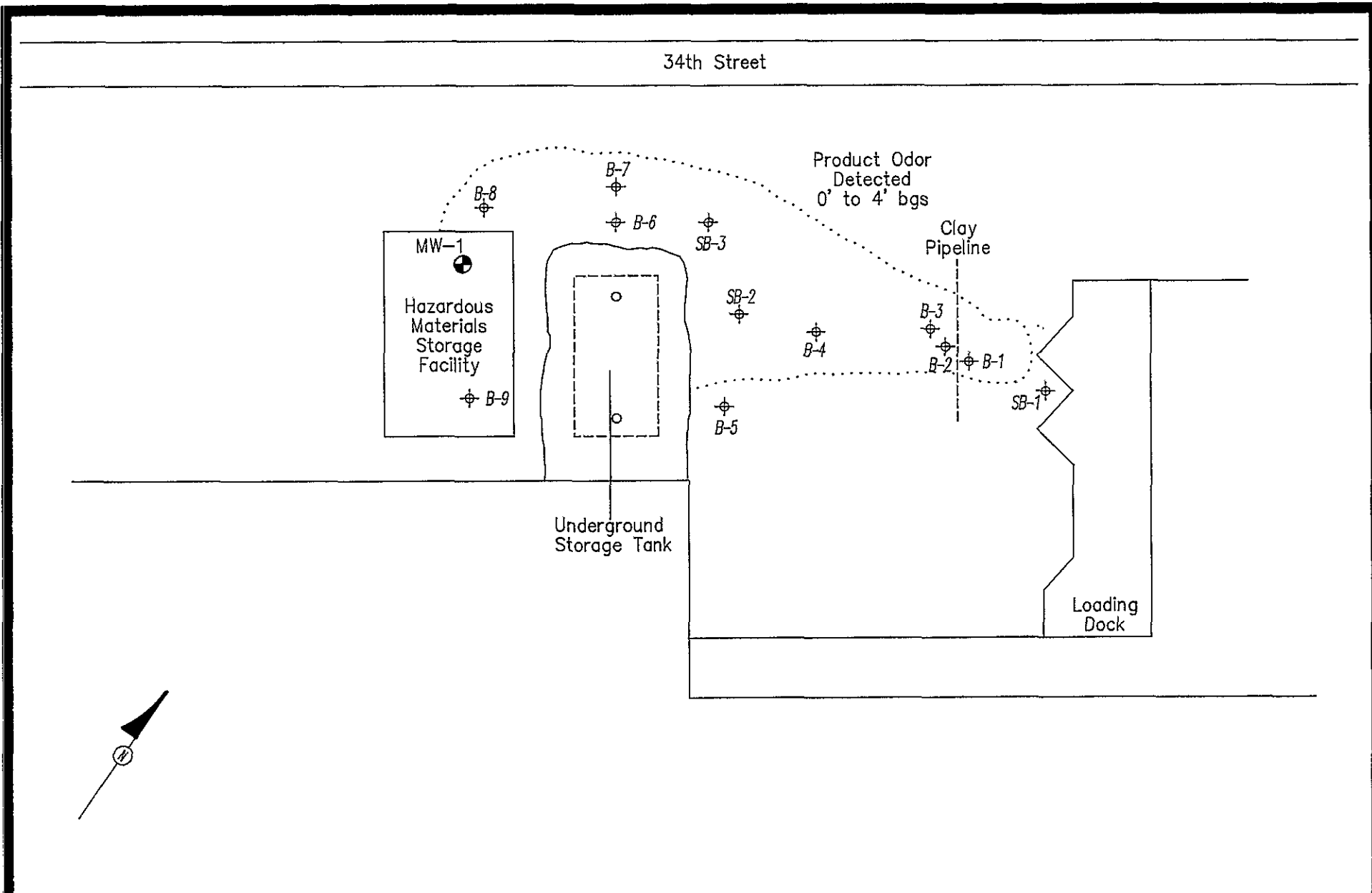
June 1988

BORING NO.

5

LOG OF EXPLORATORY BORING						Project No.: 40536.00 Client: Summit Medical Center Location: 350 Hawthorne Avenue, Oakland Logged By: R. Silva		Date: April 11, 1992 Driller: West Hazmat		BORING NO. MW-1 Sheet 1 of 3	
Field Location of Boring: ~ 10' southwest of excavation pit						Drilling Method: Continuous flight hollow stem auger Hole Diameter: 8"					
Ground Elevation:						Datum:					
Blow Count	PID OVA (ppm)	D E P T H	S A M P L E	Soil Group Symbol (USCS)	Litho- graphic Symbol	DESCRIPTION					
						Water Level	21.97'	22.66'			
						Time	1400	1551			
						Date	4-13-92	4-17-92			
		1		CL		Silty clay, very dark gray (10 YR 3/1), moist, low plasticity, no odor					
		2				Silty clay, brownish (10 YR 5/3), moist, gravel (~ 5%), no odor					
		3									
		4									
		5									
2											
4	ND	6	X	CL		Silty clays, dark gray (10 YR 4/1), moist, low plasticity, no odor					
6		7									
		8									
		9									
4		10									
4	ND	11	X	CL		Silty clay, yellowish brown (10 YR 5/6), moist, low plasticity, no odor					
5		12									
		13									
		14									
4		15									
7	ND	16	X	CL		Sandy clays, brownish (10 YR 4/3), moist, gravel (~ 5%), no odor					
16		17									
		18									

01-508X
01504W 23R07 M



01-508X
01504W 23R07 M

<p>LEGEND</p> <p>⊕ Sample Location</p> <p>..... Approximate Limit of Shallow Diesel Fuel Detected</p> <p>(not to scale)</p>	<p>Site Vicinity Map SUMMIT MEDICAL CENTER 350 Hawthorne Avenue Oakland, California</p> <p>Clayton Project No. 40536.00</p>	<p>Figure 2</p> <p>40536-00-17</p>	<p>Clayton ENVIRONMENTAL CONSULTANTS</p>
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01-508X

01504W 23 R 07M

Clayton
ENVIRONMENTAL
CONSULTANTS

**LOG OF
EXPLORATORY BORING**

Project No.: 40536.00 Date: April 11, 1992
Client: Summit Medical Center
Location: 350 Hawthorne Avenue, Oakland
Logged By: R. Silva Driller: West Hazmat

BORING NO.
MW-1
Sheet 2 of 3

Field Location of Boring:
~ 10' southwest of excavation pit

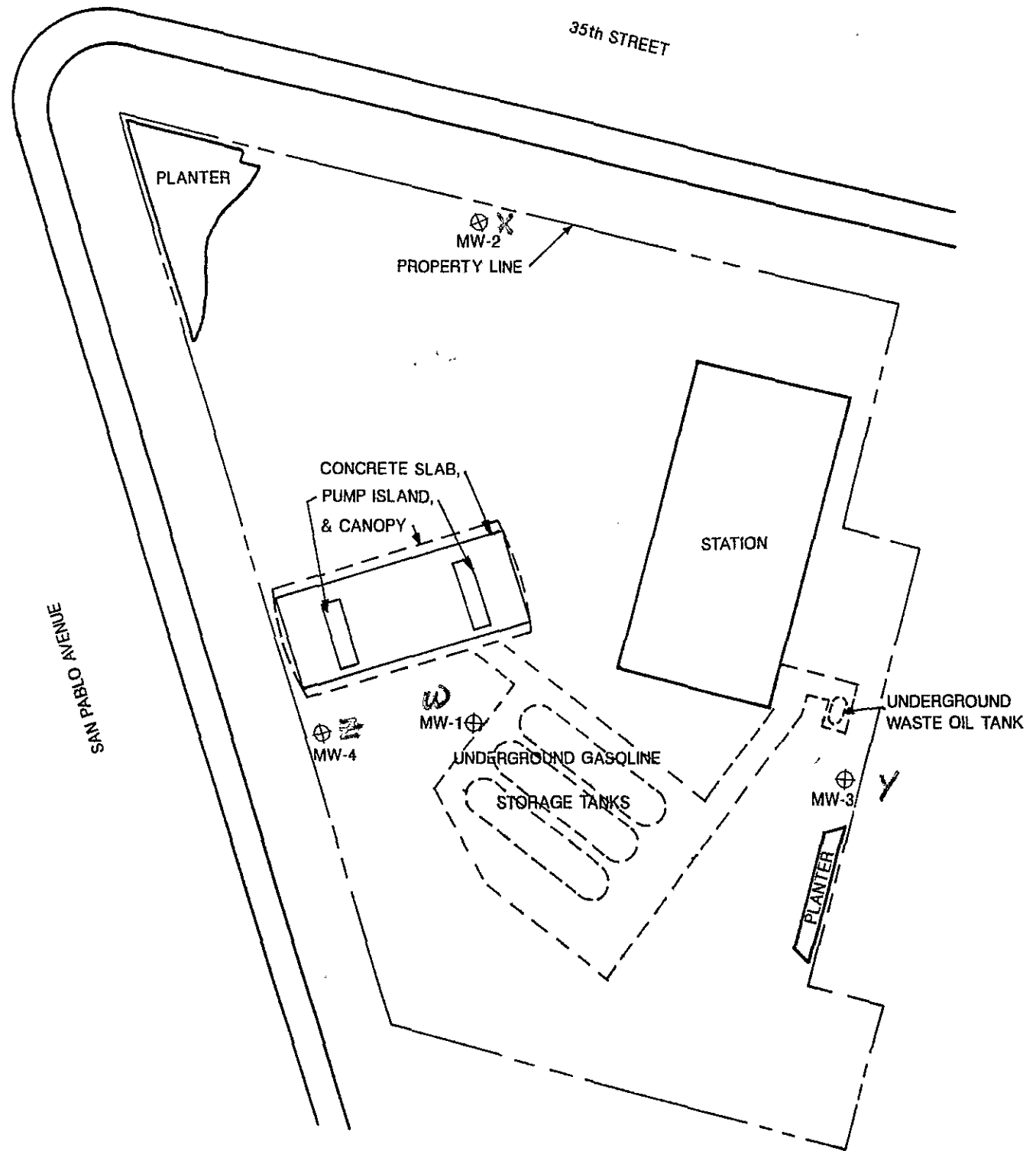
Ground Elevation:

Datum:

Drilling Method: Continuous flight hollow stem auger
Hole Diameter: 8"
Casing Installation Data: Screen - 40' to 20'; solid - 20' to 0'; sand - 40' to 18'; bentonite - 18' to 15'; grout 15' to surface

Blow Count	PID OVA (ppm)	D E P T H	S A M P L E	Soil Group Symbol (USCS)	Litho- graphic Symbol	DESCRIPTION			
						Water Level	21.97'	22.66'	
						Time	1400	1551	
						Date	4-13-92	4-17-92	
		19		CL		Sandy clay, dark yellowish brown (10 YR 4/4), coral chips (~5%), very moist, low plasticity, no odor			
3		20							
5	ND								
10		21							
		22							
		23							
		24							
4		25							
6	ND			CL		Sandy clays, dark yellowish brown (10 YR 4/4), very moist, low plasticity, no odor			
8		26							
		27		▽		Approximate depth of groundwater encountered			
		28							
		29							
		30							
		31							
		32		CL		Sandy clays, very pale brown (10 YR 8/3), saturated, low plasticity, no odor			
		33							
		34							
		35							
		36							

LOG OF EXPLORATORY BORING						Project No.: 40536.00 Client: Summit Medical Center Location: 350 Hawthorne Avenue, Oakland Logged By: R. Silva		Date: April 11, 1992 Driller: West Hazmat		BORING NO. MW-1 Sheet 3 of 3	
Field Location of Boring: ~10' southwest of excavation pit						Drilling Method: Continuous flight hollow stem auger					
Ground Elevation:						Datum:					
Blow Count	PID QVA (ppm)	D E P T H	S A M P L E	Soil Group Symbol (USCS)	Litho- graphic Symbol	Water Level		21.97'	22.66'		
						Time		1400	1551		
						Date		4-13-92	4-17-92		
DESCRIPTION											
		37		CL		Sandy clays, very pale brown (10 YR 8/3), saturated, low plasticity, no odor					
		38									
		39									
		40									
		41				Terminated borehole at 40'; set well at 40'					
		42									
		43									
		44									
		45									
		46									
		47									
		48									
		49									
		50									
		51									
		52									
		53									
		54									



LEGEND:
 ⊕ MW-1 MONITORING WELL LOCATIONS



Delta
 Environmental
 Consultants, Inc.

MONITORING WELL LOCATIONS
 3420 SAN PABLO AVENUE
 OAKLAND, CA.

DRAWN BY: *CPM 1-5-89*

JOB NO. 40-88-666

CHK. BY: *Malik*

89/02
 Lic# C57-519428

01-17W

Inu Add 15/44 23M9

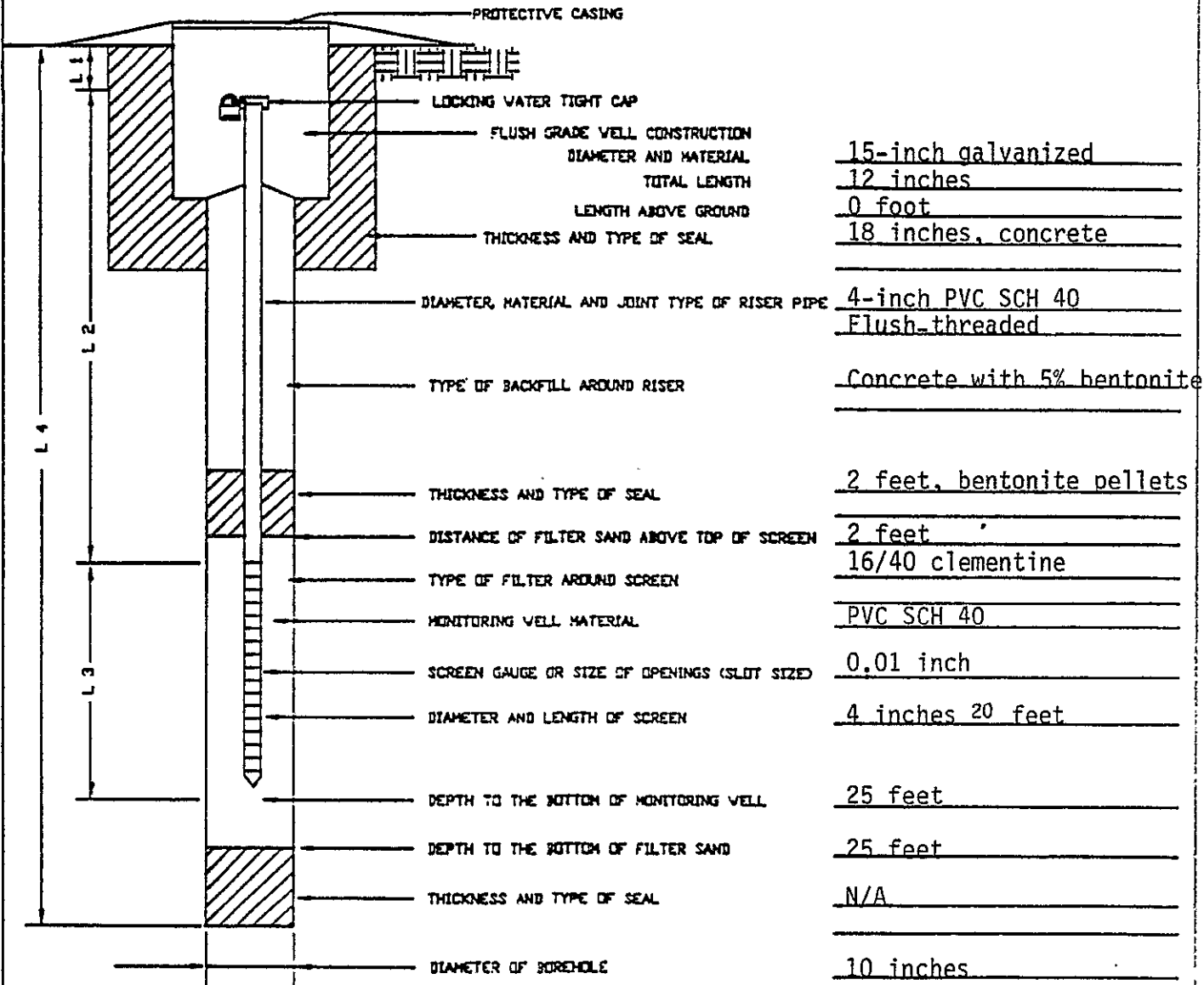
INSTALLATION OF FLUSH GRADE MONITORING WELL

PROJECT Oakland Shell

MONITORING WELL NO. MW-1

DELTA NO. 40-88-666

ELEVATIONS: TOP OF RISER 100.0 relative
GROUND LEVEL _____



15-inch galvanized
12 inches
0 foot
18 inches, concrete

4-inch PVC SCH 40
Flush-threaded

Concrete with 5% bentonite

2 feet, bentonite pellets

2 feet
16/40 clementine

PVC SCH 40

0.01 inch

4 inches 20 feet

25 feet

25 feet

N/A

10 inches

L 1 = 0.25 FT.
L 2 = 5 FT.
L 3 = 20 FT.
L 4 = 25 FT.

INSTALLATION COMPLETED
DATE: 4-11-1989
TIME: 10:30

MONITORING WELL WATER LEVEL MEASUREMENTS		
DATE	TIME	WATER LEVEL *
4-17-1989	13:25	6.30

* MEASURE POINT: Top of Casing

01-217W
15/4W-23M9

PROJECT NAME / LOCATION					PROJECT NUMBER: 40-88-666	BORING NUMBER: MW-1	SHEET 1 OF 2		
3420 San Pablo Avenue Oakland, CA					CONTRACTOR: West Hazmat Drilling		DRILLING METHOD: H.S.A.		
					DRILLER: Randy Reidhead		DRILLING RIG: CME-55		
					START: 8:00		COMPLETED: 4-11-89/10:30		
LAND OWNER: Shell Oil Company					SURFACE ELEVATION: 100.00 (relative)		LOGGED BY: Hal Hansen		
S A Y P L E	T A M P P L E	S N A U M P L E R	B C L O U N T S	S I A N M P L E (ft)	S R A E M C P O L V E (in)	DEPTH SCALE 1"= 4'	DESCRIPTIONS OF MATERIALS AND CONDITIONS	CONTAMINANT OBSERVATION	GENERAL OBSERVATION NOTES
								INSTRUMENT:	Odor
							ASPHALT AND ROAD BASE		
CA	MW1 1	9/12/15	5.0-6.5	18		1	CLAY; very dark gray, highly plastic, slightly moist, no sand (CH)		
CA	MW1 2	12/15/18	10.0-11.5	18		5	SANDY CLAY; dark greenish gray, moderately plastic, slightly moist, sand fine to coarse, some gravel toward the bottom of the unit (CL)	1100	Strong odor
CA	MW1 3	6/6/9	15.0-16.5	17		10		375	Slight odor
CA	MW1 4	11/15/21	20.0-21.5	15		15	SILTY CLAY; dark yellowish brown, moderately plastic, very moist, stiff, some gravel at the bottom of unit (CL)	30	Slight odor
						20		3	Very slight odor
WATER LEVEL DATA					PROFESSIONAL GEOLOGIST				
DATE					SIGNATURE				
TIME									
GWL									
CASING DEPTH									

01-217W
15/4W-23M9

PROJECT NAME / LOCATION 3420 San Pablo Avenue Oakland, CA	PROJECT NUMBER: 40-88-666	BORING NUMBER: MW-1	SHEET 2 OF 2
	CONTRACTOR: West Hazmat		DRILLING METHOD: H.S.A.
	DRILLER: Randy Reidhead		DRILLING RIG: CME-55
	START: 8:00/4-11-89		COMPLETED: 10:30/4-11-89
LAND OWNER: Shell Oil Company		SURFACE ELEVATION: 100.00 (relative)	LOGGED BY: Hal Hansen

ST AV MPE L E	SN AU MPE L E	BC LO U W T S	SI AN M P L E(ft)	SR AE M C P O L V E(in)	DEPTH SCALE 1"= 4'	DESCRIPTIONS OF MATERIALS AND CONDITIONS	CONTAMINANT OBSERVATION	GENERAL OBSERVATION NOTES
							INSTRUMENT: UNITS: Tip	
CA	MW1 6	12/ 14/ 20	25.0- 26.5	6	25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47	GRAVELLY SAND; brown, very coarse sand, saturated, gravel 1/2 inch to 1/4 inch, minor plastic fines (SW) <hr/> Total Depth 25.0 feet	Lost sample	No odor

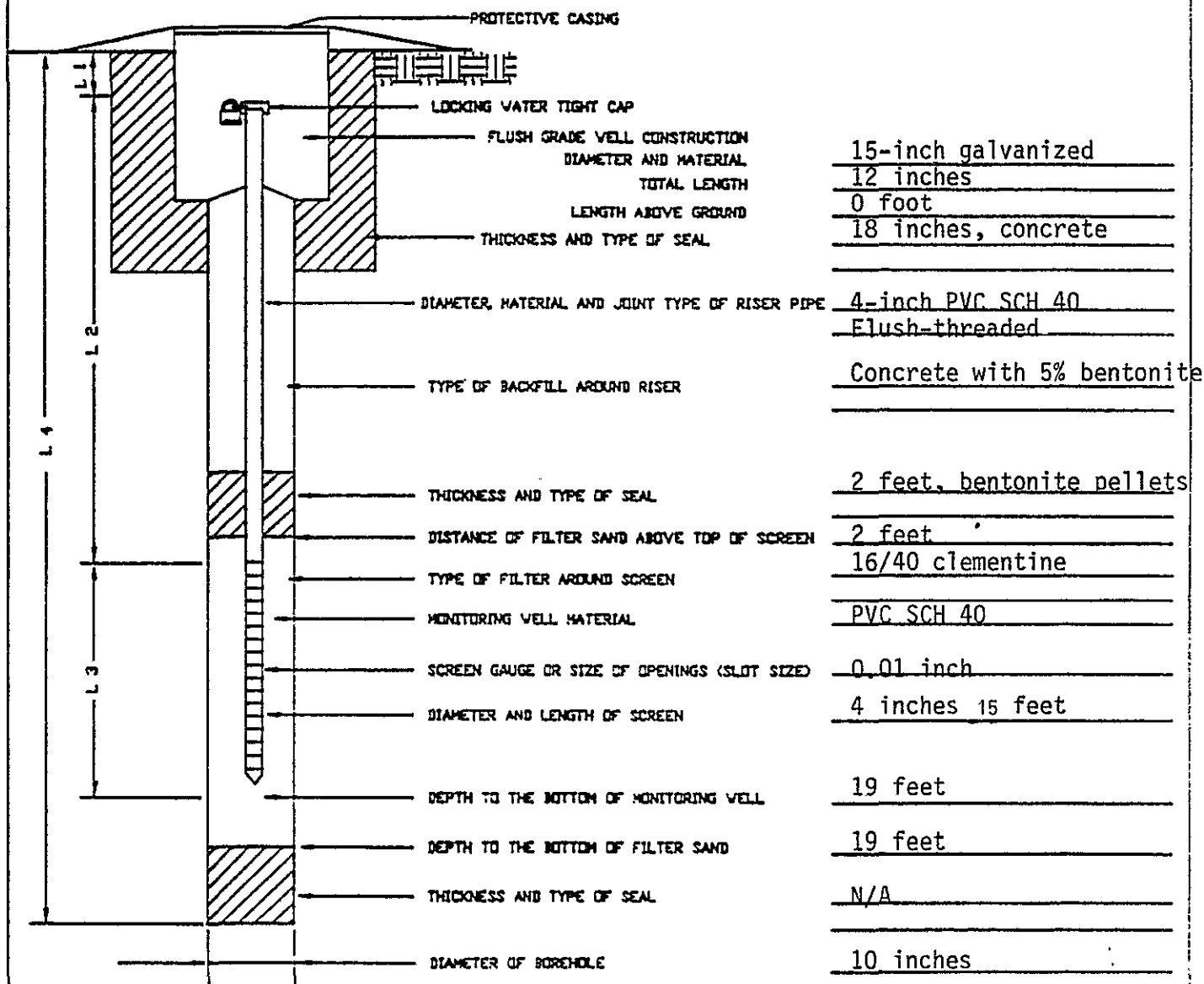
WATER LEVEL DATA				PROFESSIONAL GEOLOGIST		
DATE						
TIME						
GWL						SIGNATURE
CASING DEPTH						TYPED NAME

Invol Addl S/HW 23 M10

INSTALLATION OF FLUSH GRADE MONITORING WELL

PROJECT Oakland Shell
 DELTA NO. 40-88-666

MONITORING WELL NO. MW-2
 ELEVATIONS: TOP OF RISER 100.29 relative
 GROUND LEVEL _____



- 15-inch galvanized
- 12 inches
- 0 foot
- 18 inches, concrete
- 4-inch PVC SCH 40
- Flush-threaded
- Concrete with 5% bentonite
- 2 feet, bentonite pellets
- 2 feet
- 16/40 clementine
- PVC SCH 40
- 0.01 inch
- 4 inches 15 feet
- 19 feet
- 19 feet
- N/A
- 10 inches

L 1 = 0.25 FT.
 L 2 = _____ FT.
 L 3 = 15 FT.
 L 4 = 19 FT.

INSTALLATION COMPLETED
 DATE: 4-10-1989
 TIME: 9:45

MONITORING WELL WATER LEVEL MEASUREMENTS		
DATE	TIME	WATER LEVEL #
4-17-1989	13:15	6.46

MEASURE POINT: Top of casing

01-217X
15/4W-23M10

PROJECT NAME / LOCATION 3420 San Pablo Avenue Oakland, CA	PROJECT NUMBER: 40-88-666	BORING NUMBER: MW-2	SHEET 1 OF 1
	CONTRACTOR: West Hazmat		DRILLING METHOD: H.S.A.
	DRILLER: Randy Reidhead		DRILLING RIG: CME-55
	START: 8:00/4-10-89		COMPLETED: 9:45/4-10-89
LAND OWNER: Shell Oil Company		SURFACE ELEVATION: 100.29 (relative)	LOGGED BY: Hal Hansen

S T A Y P E L E	N A U M B E R	B L O C K L O C A T I O N	S I M P L E (ft)	S R A E M C P O L Y E (in)	DEPTH SCALE 1"= 4'	DESCRIPTIONS OF MATERIALS AND CONDITIONS	CONTAMINANT OBSERVATION	GENERAL OBSERVATION NOTES
							INSTRUMENT: UNITS: Tip	
CA	MW2 1	6/ 19/ 19	5.0- 6.5	18	1 2 3 4	ASPHALT AND ROAD BASE CLAY; very dark gray, highly plastic, slightly moist, no sand (CH)	25	Moderate odor
CA	MW2 2	9/ 10/ 14	10.0- 11.5	17	5 6 7 8 9 10 11 12 13 14	SANDY CLAY; dark greenish gray, moderately low plasticity, slightly moist, sand grades to gravel at bottom of the unit (CL)	75	Moderate odor
CA	MW2 3	4/5/ 7	15.0- 16.5	16	15 16 17 18 19	SILTY CLAY; dark yellowish brown, moderately low plasticity, moist stiff gravel toward bottom of the unit (CL)	0	No odor
CA	MW2 4	12/ 26/ 35	20.0- 21.5	17	20 21 22 23	Total Depth 20.0 feet	0	No odor

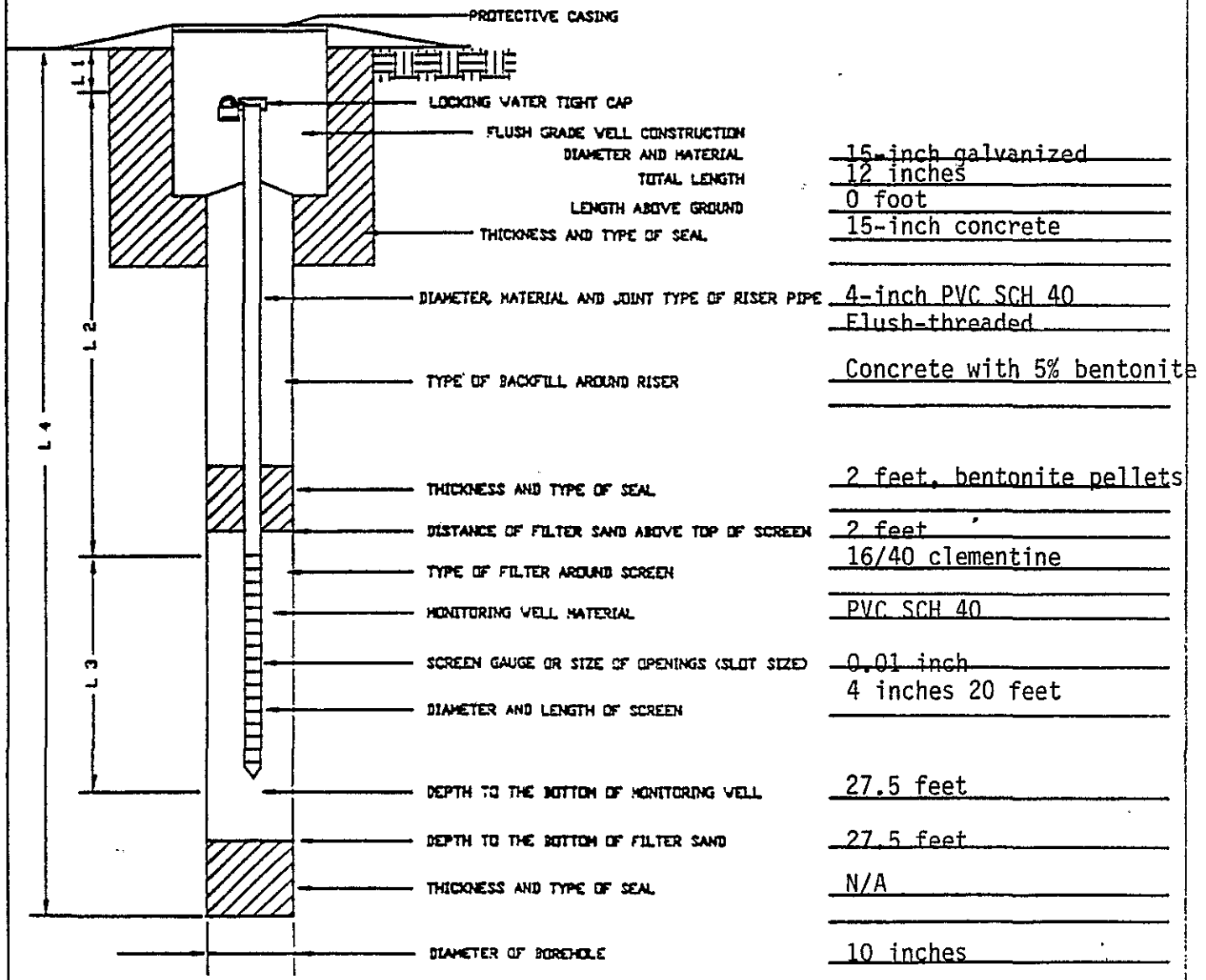
WATER LEVEL DATA				PROFESSIONAL GEOLOGIST	
DATE				SIGNATURE	TYPED NAME
TIME					
GWL					
CASING DEPTH					

Incl Add 15/4W 23M11 01-2177

INSTALLATION OF FLUSH GRADE MONITORING WELL

PROJECT Oakland Shell
 DELTA NO. 40-88-666

MONITORING WELL NO. MW-3
 ELEVATIONS: TOP OF RISER 100.50 relative to
 GROUND LEVEL _____



L 1 = 0.25 FT.
 L 2 = 7.5 FT.
 L 3 = 20 FT.
 L 4 = 27.5 FT.

INSTALLATION COMPLETED
 DATE: 4-10-89
 TIME: 13:00

MONITORING WELL WATER LEVEL MEASUREMENTS		
DATE	TIME	WATER LEVEL ■
4-17-1989	13:20	5.81

■ MEASURE POINT: Top of casing

01-2174

15/4W-23M11-

PROJECT NAME / LOCATION 3420 San Pablo Avenue Oakland, CA	PROJECT NUMBER: 40-88-666	BORING NUMBER: MW-3	SHEET 1 OF 2
	CONTRACTOR: West Hazmat		DRILLING METHOD: H.S.A.
	DRILLER: Randy Reidhead	DRILLING RIG: CME-55	
	START: 11:00/4-10-89	COMPLETED: 1:00/4-10-89	
LAND OWNER: Shell Oil Company	SURFACE ELEVATION: 100.00 (relative)		LOGGED BY: Hal Hansen

S A Y M P L E	T A U M P L E	S N M P L E	B L O C K N O T E S	S I A N M P L E (ft)	S R A E M C P O L V E (in)	DEPTH SCALE 1"= 4'	DESCRIPTIONS OF MATERIALS AND CONDITIONS	CONTAMINANT OBSERVATION	GENERAL OBSERVATION NOTES	
								INSTRUMENT: UNITS: Tip		
						1	ASPHALT AND ROAD BASE			
						2	CLAY; very dark gray, highly plastic, slightly moist, no sand (CH)			
						3				
						4				
CA	MW3-1	8/13/13		5.0-6.5	18	5			0	No odor
						6	SILTY CLAY; olive brown with light olive brown mottles, moderately high plasticity, slightly moist (CL)			
						7				
						8				
						9				
CA	MW3-2	13/23/21		10.0-11.5	18	10		0	No odor	
						11				
						12				
						13				
						14	SANDY CLAY; yellowish brown, moderately low plasticity, moist, fine sands (CL)			
CA	MW3-3	11/14/15		15.0-16.5	17	15			0	No odor
						16				
						17				
						18				
						19				
CA	MW3-4	3/8/15		20.0-21.5	15	20		0	No odor	
						21				
						22				
						23				

WATER LEVEL DATA				PROFESSIONAL GEOLOGIST	
DATE				SIGNATURE	TYPED NAME
TIME					
GWL					
CASING DEPTH					

01-2174

15/4W-23M11

PROJECT NAME / LOCATION		PROJECT NUMBER: 40-88-666	BORING NUMBER: MW-3	SHEET 2 OF 2
3420 San Pablo Avenue Oakland, CA		CONTRACTOR: West Hazmat Drilling		DRILLING METHOD: H.S.A.
		DRILLER: Randy Reidhead		DRILLING RIG: CME-55
		START: 11:00/4-10-89		COMPLETED: 1:00/4-10-89
LAND OWNER: Shell Oil Company		SURFACE ELEVATION: 100.50' (relative)		LOGGED BY: Hal Hansen

S T Y P E	S A M P L E	N U M B E R	B L O C K N O .	S I A N T P L E (ft)	S R A E M C P O L V E (in)	DEPTH SCALE 1"= 4'	DESCRIPTIONS OF MATERIALS AND CONDITIONS	CONTAMINANT OBSERVATION	GENERAL OBSERVATION NOTES
								INSTRUMENT:	
CA	MW3-5	25/25/42		25.0-26.5	14	23-26	GRAVELLY SAND; brown, coarse sand, gravel, saturated, minor plastic fines (SW)	0	No odor
CA	MW3-6	18/23/39		30.0-31.5	15	30-31	Total Depth 30.0 feet	0	No odor
						32-45			

WATER LEVEL DATA				PROFESSIONAL GEOLOGIST	
DATE				SIGNATURE	
TIME					
GWL					
CASING DEPTH				TYPED NAME	

Add Invo 15/4W23 M 12 01-2172

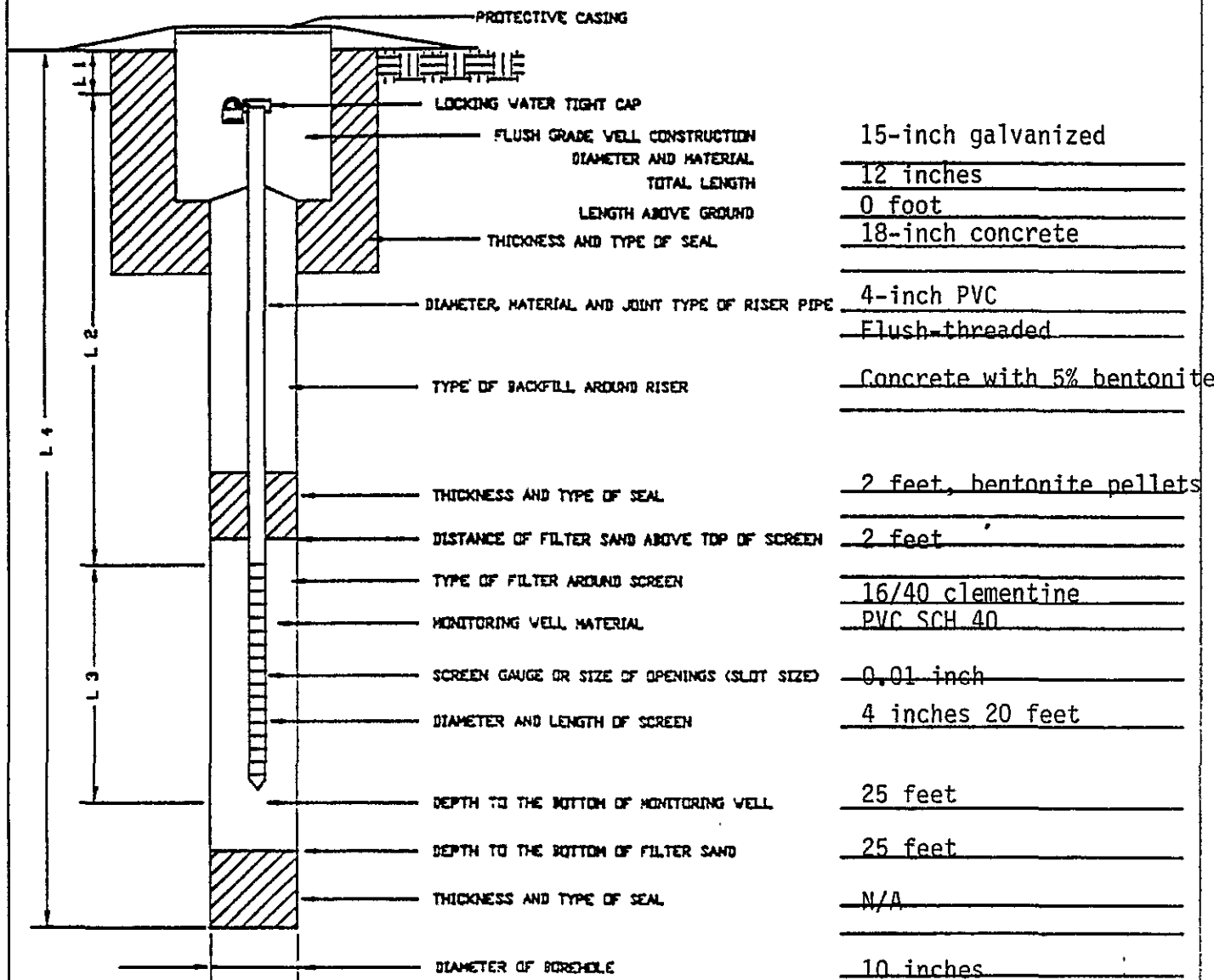
INSTALLATION OF FLUSH GRADE MONITORING WELL

PROJECT Oakland Shell

MONITORING WELL NO. MW-4

DELTA NO. 40-88-666

ELEVATIONS: TOP OF RISER 99.03 relative
GROUND LEVEL _____



- 15-inch galvanized
- 12 inches
- 0 foot
- 18-inch concrete
- 4-inch PVC
- Flush-threaded
- Concrete with 5% bentonite
- 2 feet, bentonite pellets
- 2 feet
- 16/40 clementine
- PVC SCH 40
- 0.01 inch
- 4 inches 20 feet
- 25 feet
- 25 feet
- N/A
- 10 inches

L 1 = 0.25 FT.
L 2 = 5 FT.
L 3 = 20 FT.
L 4 = 25 FT.

INSTALLATION COMPLETED
DATE: 4-10-1989
TIME: 18:30

MONITORING WELL WATER LEVEL MEASUREMENTS		
DATE	TIME	WATER LEVEL *
4-17-1989	13:30	6.30

* MEASURE POINT: Top of casing

PROJECT NAME / LOCATION		PROJECT NUMBER: 40-88-666	BORING NUMBER: MW-4	SHEET 1 OF 2
3420 San Pablo Avenue Oakland, CA		CONTRACTOR: West Hazmat Drilling		DRILLING METHOD: H.S.A.
		DRILLER: Randy Reidhead		DRILLING RIG: CME-55
		START: 2:30/4-10-89		COMPLETED: 6:30/4-10-89
LAND OWNER: Shell Oil Company		SURFACE ELEVATION: 99.03' (relative)		LOGGED BY: Hal Hansen

STAY MPE L E	SNAU MPE L E	BLOU WNT S	SIAN MPT L E(ft)	SRAE MCP O L V E(in)	DEPTH SCALE 1"= 4'	DESCRIPTIONS OF MATERIALS AND CONDITIONS	CONTAMINANT OBSERVATION	GENERAL OBSERVATION NOTES
							INSTRUMENT:	
CA	MW4 -1	17/ 25/ 32	5.0- 6.5	18	1	ASPHALT AND ROAD BASE	7	Slight odor
					2	LEAN CLAY; very dark gray, highly plastic, slightly moist, no sand (CH)		
					3			
					4			
					5	SILTY CLAY; dark greenish gray, medium plasticity, slightly moist, some gravel (CL)		
CA	MW4 -2	6/8/ 12	10.0- 11.5	17	9	SILTY CLAY; dark yellowish brown, dark greenish-gray, mottles, moderately plastic, moist (CL)	0	No odor
					10			
					11			
					12			
					13			
CA	MW4 -3	8/9/ 12	14.0- 16.5	17	14	SANDY CLAY; yellowish brown, moderately plastic, moist, fine sand, grades to a coarse sand at the bottom of the unit (CL)	0	No odor
					15			
					16			
					17			
					18			
CA	MW4 -4	9/8/ 24	20.0- 21.5	15	19		0	No odor
					20			
					21			
					22			
					23			

WATER LEVEL DATA				PROFESSIONAL GEOLOGIST	
DATE				SIGNATURE	
TIME					
GWL				TYPED NAME	
CASING DEPTH					

PROJECT NAME / LOCATION 3420 San Pablo Avenue Oakland, CA	PROJECT NUMBER: 40-88-666	BORING NUMBER: MW-4	SHEET 2 OF 2
	CONTRACTOR: West Hazmat Drilling		DRILLING METHOD: H.S.A.
	DRILLER: Randy Reidhead		DRILLING RIG: CME-55
	START: 2:30/4-10-89		COMPLETED: 6:30/4-10-89

LAND OWNER: Shell Oil Company	SURFACE ELEVATION: 99.03 (relative)	LOGGED BY: Hal Hansen
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S T A Y M P L E	S N A M P L E	S N U M B E R	B C L O U N T S	S I A N M T P L E(ft)	S R A E M C P O L V E(in)	DEPTH SCALE 1"= 4'	DESCRIPTIONS OF MATERIALS AND CONDITIONS	CONTAMINANT OBSERVATION	GENERAL OBSERVATION NOTES
								INSTRUMENT:	
CA	MW4	-5	25/ 24/ 30	25.0- 26.5	16	23 24 25 26 27 28 29	GRAVELLY SAND; brown, coarse sand, saturated, gravel 1/2" to 1", some plastic fines (SW)	0	No odor
CA	MW4	-6	19/ 22/ 37	30.0- 31.5	17	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45	Total Depth 31.5	0	No odor

WATER LEVEL DATA				PROFESSIONAL GEOLOGIST	
DATE				SIGNATURE	
TIME					
GWL				TYPED NAME	
CASING DEPTH					

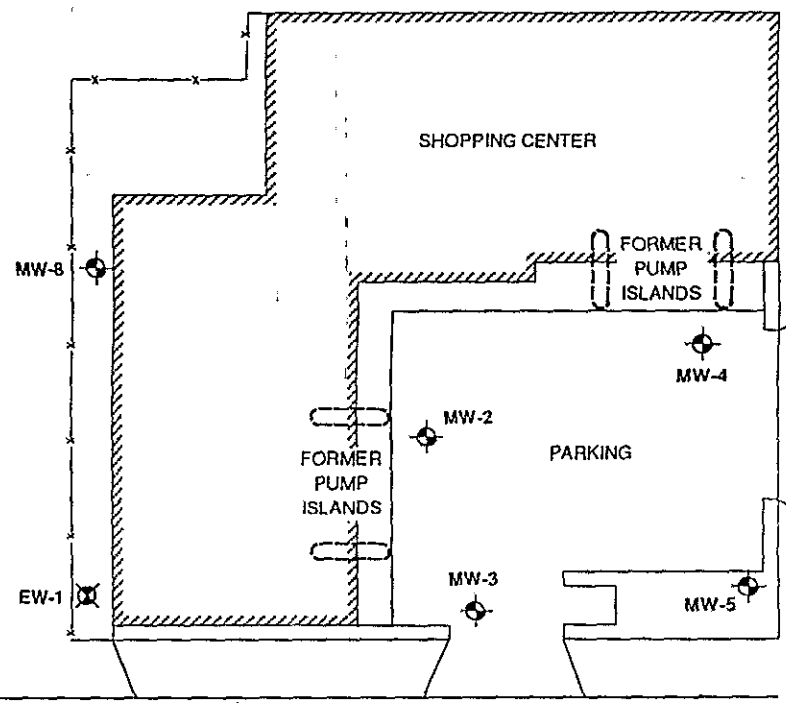
PERMIT 91633 CS7 437836

ph: 415-5434200

1369



RESIDENCES



OMW-12

OMW-6

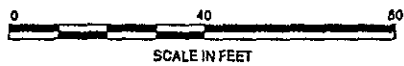
40th STREET

OMW-11

OMW-13

OMW-9

OMW-10



Base Map: Surveyed with Electronic Distance Meter by CEW, 1989

LEGEND

- MW-1 GROUNDWATER MONITORING WELL
- OMW-1 OFFSITE GROUNDWATER MONITORING WELL

OFFSITE PLOT PLAN

SHELL OIL COMPANY
500 40th Street
Oakland, California



Converse Environmental West

Scale	AS SHOWN	Project No.	88-44-361-20
Prepared by	LQL	Date	12/30/91
Approved by	DS	Drawing No.	3
WIC No.	204-5508-4903		

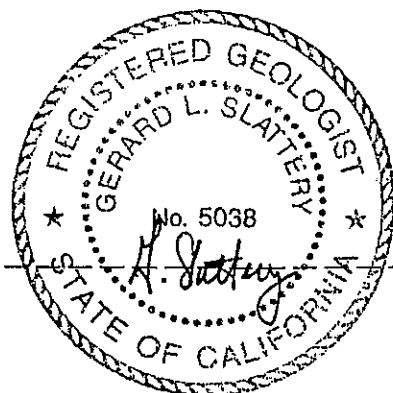
01-530F-G-H
TELEGRAPH AVENUE
MWM - OFS 01/12/91
HOS
NOV 11

01-530F
LOG OF BORING NO. OMW-11

als of 23107

Start: 11/21/91	Geologist: C. Brown	Driller/Helper: N/A
Completion: 11/21/91	Assistant Geol.: N/A	Drilling Method: Hollow Stem Auger
Water Measure: 11/22/91	Drilling Co.: A.T.D.	Auger/Bit Dia.: 3.75" x 8" - 7.25" x 13"

DEPTH (FT)	SAMPLE	WATER LEVEL	SYMBOL	WELL CONSTRUCT.	DESCRIPTION	MOISTURE	SOIL CONSISTENCY OR ROCK HARDNESS	COLOR	BLOWS / 6"	PERCENT RECOVERY
					8" Concrete, 7" Base			gray brown		
					Silty Clay	moist	dense	black		
							stiff			
	S					moist	stiff	brown	4	
5	1								9	
	S									
	2				Clayey Sand, little fine Gravel	moist	medium dense	gray with rust	5	
10									13	
	S								10	
									14	
	S								16	
									18	
	S					moist to very moist			9	
									11	
	S								14	
									18	
	3				Slightly Clayey, coarse Sand, trace to little fine Gravel	wet	loose		5	
15									5	
	S				Fine Sandy Clay	very moist	stiff	gray with rust	4	
									5	
	S								5	
									7	
	S				Clayey fine Sand		medium dense		4	
									5	
	S								6	
					Silty fine Sand			brown	6	
	2								6	
	S				Coarse Sand and fine Gravel, trace Clay	wet			9	
20									20	



SHELL OIL COMPANY
500 40th Street
Oakland, California

Project No.
88-44-361-20

DEPTH (FT)	SAMPLE	WATER LEVEL	SYMBOL	WELL CONSTRUCT.	DESCRIPTION	MOISTURE	SOIL CONSISTENCY OR ROCK HARDNESS	COLOR	BLOWS/6"	PERCENT RECOVERY
	S				Clayey coarse Sand and fine Gravel SC/GC	wet	dense	brown	11	
	S				Fine Gravelly coarse Sand, trace Clay SP				19	
	S				Very Sandy Clay/Clayey Sand CL/SC			rust with gray	21	
	SPT				Fine Gravelly fine to medium Sand SP			gray	16	
	3								4	
									5	
									10	
									11	
25					Total Depth of Boring: 24 ft. Casing: Blank 4" ID Sch. 40 PVC Screen: Slotted 4" ID Sch. 40 PVC, 0.020" slots Filter Pack: 2/12 sand					
30										
35										
40										

SHELL OIL COMPANY
 500 40th Street
 Oakland, California

Project No.

88-44-361-20



Converse Environmental West

Drawing No.

A-3

1369

01-5309
LOG OF BORING NO. OMW-12

ols of W 23408

Start: 11/20/91	Geologist: C. Brown	Driller/Helper: N/A
Completion: 11/20/91	Assistant Geol.: N/A	Drilling Method: Hollow Stem Auger
Water Measure: 12/2/91	Drilling Co.: A.T.D.	Auger/Bit Dia.: 3.75" x 8" - 7.25" x 13"

DEPTH (FT)	SAMPLE	WATER LEVEL	SYMBOL	WELL CONSTRUCT.	DESCRIPTION	MOISTURE	SOIL CONSISTENCY OR ROCK HARDNESS	COLOR	BLOWS / 6"	PERCENT RECOVERY
					≈8" Concrete, 8" Base, 6" Fill					
					6" layer Gravel					
					Silty Clay	CL	moist	stiff	black	
					trace black specks				brown	10
5	S									10
	1									
	S				Clayey Sand	SC	moist	medium dense	gray with rust	6
10	2									18
										16
	S				Fine Sandy Silt	ML				11
										11
	S				Clayey Sand, little fine Gravel	SC	very moist to wet		red brown	16
					wet Sand lens					9
	S									12
					wet Sand lens					12
					wet Sand lens					18
	S				Coarse Sand, pea Gravel	SC/GC	wet			8
	S				Fine Sandy Clay	CL	very moist	stiff	gray	10
15										5
	S									8
					wet lens		wet		rust with gray	11
	S						very moist			12
										4
	S									5
					Silty Clay	CL				12
							wet			15
	S				Clayey Sand and fine Gravel	SC/GC	very moist	stiff		4
20										
					Silty Clay	CL	moist			7





SHELL OIL COMPANY
500 40th Street
Oakland, California

Project No.
88-44-361-20

01530 G
LOG OF BORING NO. OMW-12

01504023H08

Continued - Page 2

DEPTH (FT)	SAMPLE	WATER LEVEL	SYMBOL	WELL CONSTRUCT.	DESCRIPTION	MOISTURE	SOIL CONSISTENCY OR ROCK HARDNESS	COLOR	BLOWS / 6"	PERCENT RECOVERY
	S				Silty Clay	CL	moist	rust with gray	5	
	S								8	
	S								6	
	P								7	
	T								4	
	3				Becoming Sandy				5	
									6	
									8	
25					Total Depth of Boring: 24 ft. Casing: Blank 4" ID Sch. 40 PVC Screen: Slotted 4" ID Sch. 40 PVC, 0.020" slots Filter Pack: 2/12 sand					
30										
35										
40										



SHELL OIL COMPANY
500 40th Street
Oakland, California

Project No.
88-44-361-20



Converse Environmental West

Drawing No.
A-5

1369

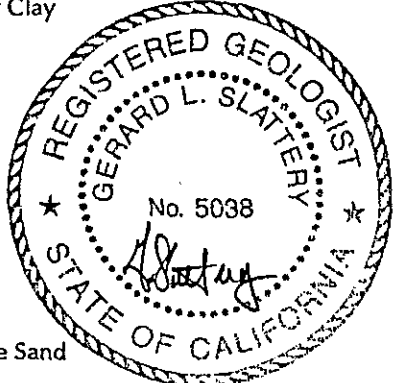
LOG OF BORING NO. OMW-13

01-53011

015 of 12 23409

Start: 11/21/91	Geologist: C. Brown	Driller/Helper: N/A
Completion: 11/21/91	Assistant Geol.: N/A	Drilling Method: Hollow Stem Auger
Water Measure: 11/22/91	Drilling Co.: A.T.D.	Auger/Bit Dia.: 3.75" x 8" - 7.25" x 13"

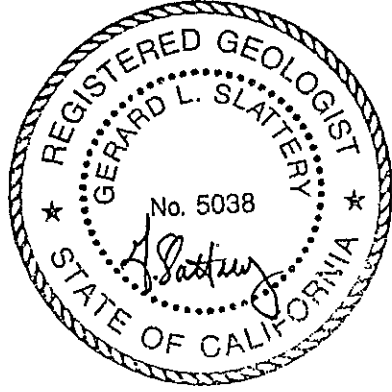
DEPTH (FT)	SAMPLE	WATER LEVEL	SYMBOL	WELL CONSTRUCT.	DESCRIPTION	MOISTURE	SOIL CONSISTENCY OR ROCK HARDNESS	COLOR	BLOWS / 6"	PERCENT RECOVERY
					8" Concrete, 8" Base					
					Silty Clay	moist	stiff	dark gray black		
	S							mottled gray brown	4	
5	1								8	
	S								5	
	S				trace Sand			gray	9	
					Grading into fine Sandy Clay				12	
									14	
	S				Fine Sandy Clay/Clayey Sand				5	
10	2								7	
	S				Silty Clay		stiff	light gray with rust	6	
									11	
	S				Clayey Sand and Gravel		dense		24	
									25	
	S								9	
	S								15	
	S					wet			16	
	S						medium dense		20	
15	3								8	
	S				Sandy Silt		stiff	rust	9	
									10	
	S				Clayey Sand and Gravel			brown	7	
									12	
									16	
	S								12	
	S								19	
	S								23	
									34	
20						wet	medium dense		10	
									15	



SHELL OIL COMPANY
500 40th Street
Oakland, California

Project No.
88-44-361-20

DEPTH (FT)	SAMPLE	WATER LEVEL	SYMBOL	WELL CONSTRUCT.	DESCRIPTION	MOISTURE	SOIL CONSISTENCY OR ROCK HARDNESS	COLOR	BLOWS / 6"	PERCENT RECOVERY
	S		[Diagonal hatching symbol]	[Well construction diagram]	Silty Clay	CL	very moist	gray brown	5	
	S					moist	6			
	S				Sandy Clay with occasional Clayey Sand lens	very moist	gray with rust	4		
	P T 3						5	6	8	
25					Total Depth of Boring: 24 ft. Casing: Blank 4" ID Sch. 40 PVC Screen: Slotted 4" ID Sch. 40 PVC, 0.020" slots Filter Pack: 2/12 sand					
30										
35										
40										



SHELL OIL COMPANY
500 40th Street
Oakland, California

Project No.

88-44-361-20

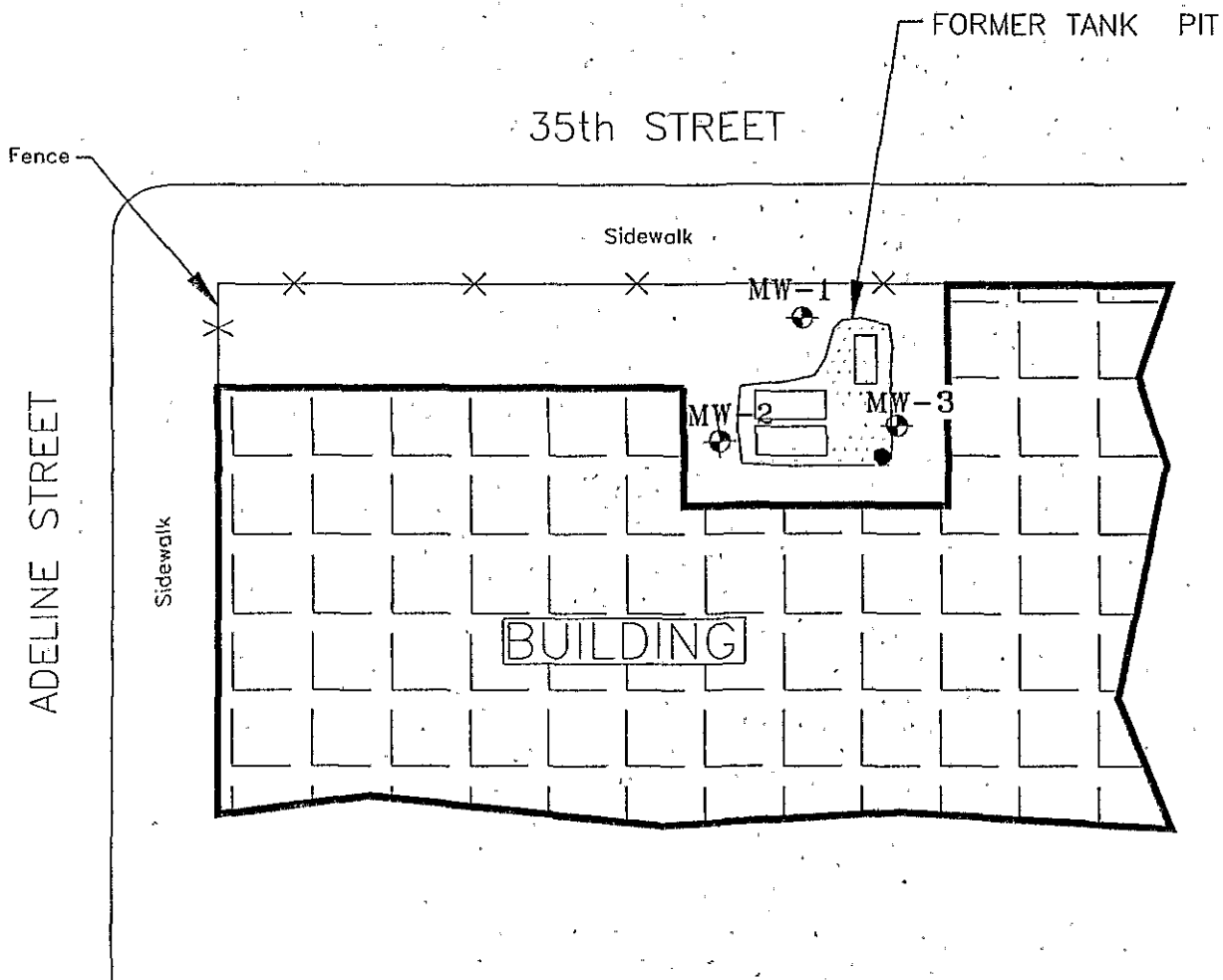


Converse Environmental West

Drawing No.

A-7

FIGURE 2



SCALE:
 0 | 10 | 20
 1" = 20'
 ⊕ MONITORING WELL

CITY OF PARIS CLEANERS
 3516 ADELINE STREET
 OAKLAND, CALIFORNIA

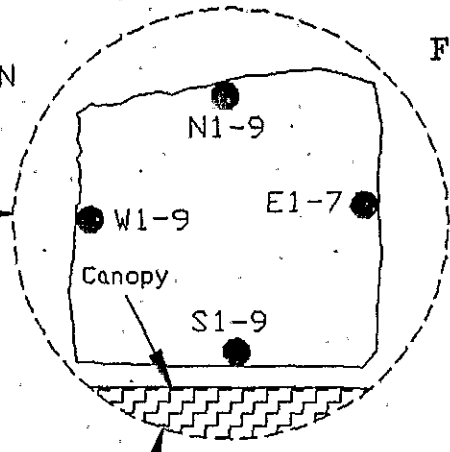
URIAH, INC.
 AN ENVIRONMENTAL SERVICES COMPANY

FIGURE 3



2X MAGNIFICATION
OF UST PIT

Note:
4 Point Composite Soil
Sample A2 Was Acquired
From Soil Stockpile on
3/31/92. Discrete UST
Pit Samples were
Obtained On 1/27/92.



35th STREET

Fence

Concrete
Slab

Soil
Stockpile

Sidewalk

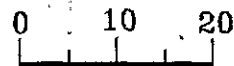
A2

ADELINE STREET

Sidewalk

BUILDING

SCALE:



1" = 20'

- 4 Point Composite Soil Sample Locations.
- Discrete Soil Sample Locations.

CITY OF PARIS CLEANERS
3516 ADELINE STREET
OAKLAND, CALIFORNIA

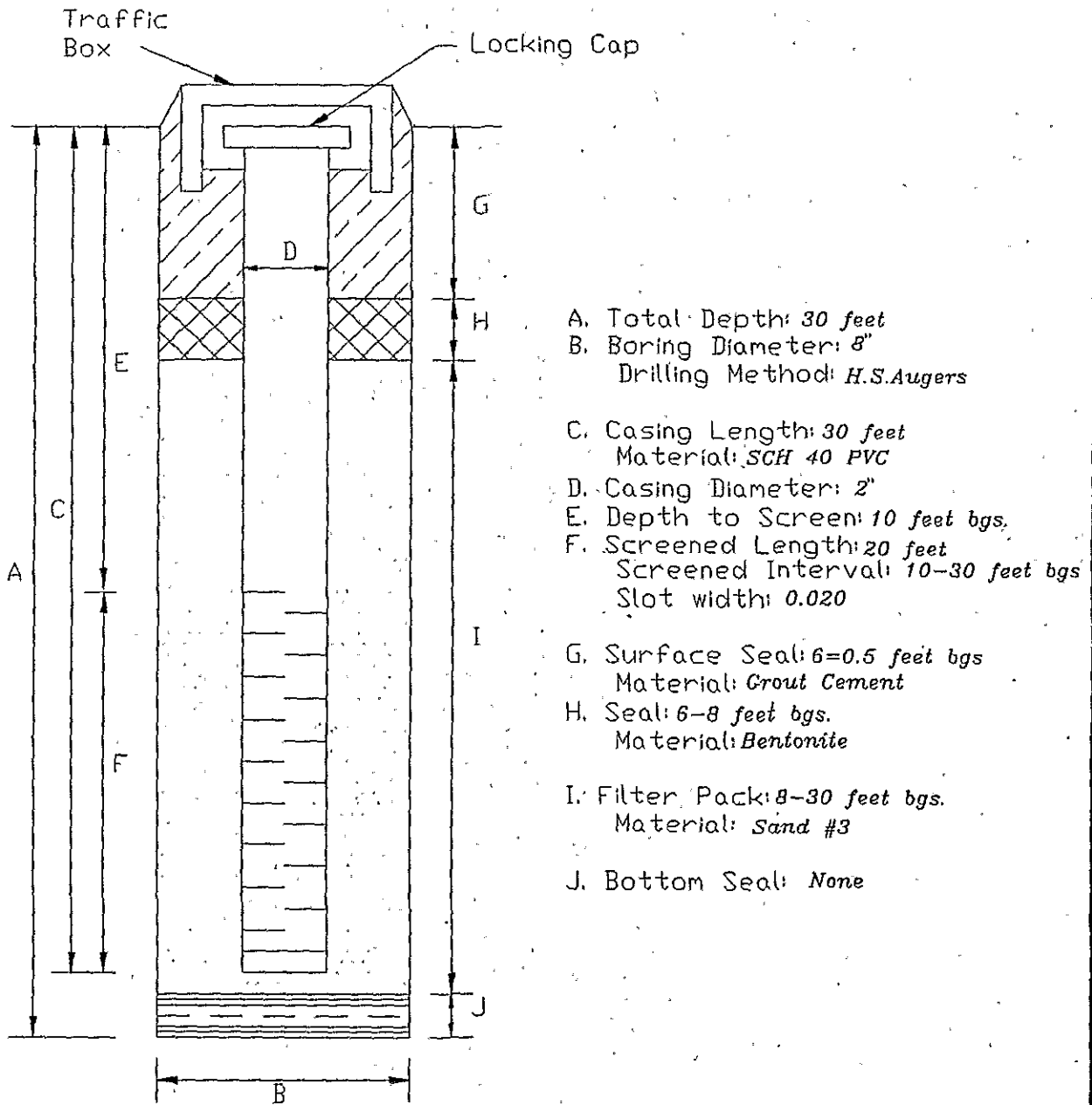
URIAH, INC.
AN ENVIRONMENTAL SERVICES COMPANY

WELL DETAILS

Client: Champion Estate

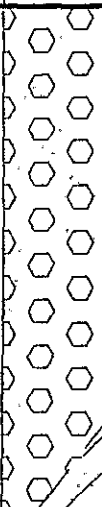
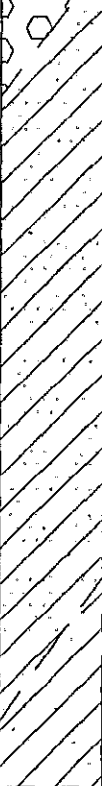
Location: 3561 Adeline St., Oakland, CA

Monitoring Well Number: MW-1 through MW-3



SOIL BORING LOG

CLIENT: CHAMPION ESTATE WELL #: MW-1
 LOCATION: 3516 ADELIN St., OAKLAND, CA.
 DATE DRILLED: 10/29-30/92 DRILLED BY: S.E.S.
 DRILLING METHOD: H.S. Augers SAMPLE METHOD: Split
 LOGGED BY: ADI CONSTANTINESCU Spoon

Depth Below Surface	Samples Collected		SOIL DESCRIPTION Color, Grain size, Texture, Moisture, Consistency, Odor	Unified Soil Classification	Log	Penetration Collected Blows / 18"	Comments		
	INT	Sample No.							
5		MW1-5	SANDY GRAVEL; BROWN; WELL GRADED; LOOSE; DRY; NO HYDROCARBON ODOR.	GW		2, 3, 6			
10		MW1-10	SANDY GRAVEL; GRAY TO BROWN; MEDIUM DENSE; SLIGHTLY MOIST, VAGUE HYDROCARBON ODOR.			4, 5, 8			
15		MW1-15	CLAYEY SAND; GREENISH GRAY; MEDIUM; MEDIUM DENSE; MOIST; VAGUE HYDROCARBON ODOR.			4, 11, 12			
20		MW1-20	CLAYEY SAND; OLIVE GRAY; POORLY GRADED; MEDIUM; MEDIUM DENSE; WET; NO HYDROCARBON ODOR.			SC		3, 5, 10	
25			CLAYEY SAND; OLIVE GRAY; POORLY GRADED; MEDIUM; MEDIUM DENSE; WATER SATURATED; NO HYDROCARBON ODOR.					3, 7, 6	
30			SANDY CLAY; WITH SOME GRAVEL; LIGHT BROWN; WITH LOW PLASTICITY; STIFF; WATER SATURATED; NO HYDROCARBON ODOR.	CL	4, 8, 14				

Uriah, Inc.

An Environmental Services Company

2456 Armstrong Street
Livermore, CA 94550
(510) 455-4991 Office
(510) 455-4995 FAX

WELL MONITORING FORM:

CLIENT: CITY OF PARIS CLEANERS DATE: NOVEMBER 18, 1992
 SITE _____ COUNTY _____
 ADDRESS: 3516 ADELIN STREET REPRESENTATIVE: MR. JEFF SHAPIRO
OAKLAND, CA COUNTY REPRESENTATIVE
 CONTACTED PRIOR TO SAMPLING? YES

Note 1: TOTAL WELL DEPTH & DEPTH TO WATER measurements are read to an accuracy of .01' from a straight edge placed in a north-south orientation on top of the christy box.

Note 2: The 0.17 figure used below to convert WATER COLUMN HEIGHT to gallons has units of gallons/linear foot; and is for a 2" diameter, Schedule 40 PVC pipe with an inside diameter of 2.067". Similarly, use a conversion factor of 0.66 for a 4" pipe, which has a 4.026" I.D.

TOTAL WELL DEPTH 30.04' MONITORING WELL # MW-1
 - DEPTH TO WATER 13.99' PURGE METHOD: DISPOSABLE BAILER
 = WATER COLUMN HEIGHT 16.05' X 0.17 = 2.73 Gallons (1 well volume)

Multiply 1 well volume by 3 to obtain the minimum number of gallons of water to be purged from monitoring well prior to taking samples.

3 X 2.73 = 8.19 Gallons (3 Well Volumes)

TIME	GALLONS	TEMPERATURE °F	pH	CONDUCTIVITY μmhos/cm
1337	0	65.5	6.9	1785
1344	3	63.6	6.8	1606
1352	6	62.4	6.7	1604
1358	8	62.1	6.7	1574
1402	9	62.1	6.8	1563

CONTAMINANT ODOR? YES TIME OF SAMPLE COLLECTION: 1420
 TURBIDITY LEVEL: MODERATE WITNESSED BY: *** NO WITNESS ***
 SHEEN ON WATER? YES SAMPLER'S SIGNATURE: J. RAFF for T. FOREAD

01533Q

01504W23M25

SOIL BORING LOG

CLIENT: CHAMPION ESTATE WELL #: MW-2
 LOCATION: 3516 ADELIN St., OAKLAND, CA.
 DATE DRILLED: 10/30/92 DRILLED BY: S.E.S.
 DRILLING METHOD: H.S. Augers SAMPLE METHOD: Split
 LOGGED BY: ADI CONSTANTINESCU Spoon

Depth Below Surface	Samples Collected		SOIL DESCRIPTION Color, Grain size, Texture, Moisture, Consistency, Odor	Unified Soil Classification	Log	Penetration Collected Blows / 18'	Comments
	INT	Sample No.					
5		MW2-5	SANDY GRAVEL; BROWN; WELL GRADED; LOOSE; DRY; NO HYDROCARBON ODOR.	GW	Hexagonal pattern	2, 3, 5	
10		MW2-10	SANDY GRAVEL; GRAY TO BROWN; MEDIUM DENSE; SLIGHTLY MOIST, VAGUE HYDROCARBON ODOR.		Hexagonal pattern	3, 6, 14	
15		MW2-15	CLAYEY SAND; GREENISH GRAY; MEDIUM; MEDIUM DENSE; MOIST; HYDROCARBON ODOR;		Diagonal hatching	4, 12, 12	
20		MW2-20	CLAYEY SAND; OLIVE GRAY; POORLY GRADED; MEDIUM; MEDIUM DENSE; WET; NO HYDROCARBON ODOR.	SC	Diagonal hatching	3, 6, 11	
25			CLAYEY SAND; OLIVE GRAY; POORLY GRADED; MEDIUM; MEDIUM DENSE; WATER SATURATED; NO HYDROCARBON ODOR.		Diagonal hatching	4, 7, 5	
30			SANDY CLAY; WITH SOME GRAVEL; LIGHT BROWN; WITH LOW PLASTICITY; STIFF; WATER SATURATED; NO HYDROCARBON ODOR.	CL	Diagonal hatching	3, 9, 15	

1658

Uriah, Inc.

An Environmental Services Company

2456 Armstrong Street
Livermore, CA 94550
(510) 455-4991 Office
(510) 455-4995 FAX

WELL MONITORING FORM:

CLIENT: CITY OF PARIS CLEANERS DATE: NOVEMBER 18, 1992
 SITE ADDRESS: 3516 ADELIN STREET COUNTY REPRESENTATIVE: MR. JEFF SHAPIRO
OAKLAND, CA COUNTY REPRESENTATIVE CONTACTED PRIOR TO SAMPLING? YES

Note 1: TOTAL WELL DEPTH & DEPTH TO WATER measurements are read to an accuracy of .01' from a straight edge placed in a north-south orientation on top of the christy box.

Note 2: The 0.17 figure used below to convert WATER COLUMN HEIGHT to gallons has units of gallons/linear foot, and is for a 2" diameter, Schedule 40 PVC pipe with an inside diameter of 2.067". Similarly, use a conversion factor of 0.66 for a 4" pipe, which has a 4.026" I.D.

TOTAL WELL DEPTH 30.20' MONITORING WELL # MW-2
 - DEPTH TO WATER 13.18' PURGE METHOD: DISPOSABLE BAILER
 = WATER COLUMN HEIGHT 17.02' X 0.17 = 2.89 Gallons (1 well volume)

Multiply 1 well volume by 3 to obtain the minimum number of gallons of water to be purged from monitoring well prior to taking samples.

3 X 2.89 = 8.67 Gallons (3 Well Volumes)

TIME	GALLONS	TEMPERATURE °F	pH	CONDUCTIVITY µmhos/cm
1442	0	60.4	6.8	1384
1449	3	60.5	6.9	1390
1457	6	60.2	6.9	1407
1505	8	59.9	6.9	1411
1510	9	60.4	7.0	1413

CONTAMINANT ODOR? SLIGHT TIME OF SAMPLE COLLECTION: 1520
 TURBIDITY LEVEL: MODERATE WITNESSED BY: *** NO WITNESS ***
 SHEEN ON WATER? NONE SAMPLER'S SIGNATURE: J. RAPP & T. FRIED

01-533R

01504W23M26

SOIL BORING LOG

CLIENT: CHAMPION ESTATE WELL #: MW-3
 LOCATION: 3516 ADELIN St., OAKLAND, CA.
 DATE DRILLED: 10/30/92 DRILLED BY: S.E.S.
 DRILLING METHOD: H.S. Augers SAMPLE METHOD: Split
 LOGGED BY: ADI CONSTANTINESCU Spoon

Depth Below Surface	Samples Collected		SOIL DESCRIPTION Color, Grain size, Texture, Moisture, Consistency, Odor	Unified Soil Classification	Log	Penetration Collected Blows / 18"	Comments
	INT	Sample No.					
5		MW3-5	SANDY GRAVEL; BROWN; WELL GRADED; LOOSE; DRY; NO HYDROCARBON ODOR.	GW		2, 4, 5	
10		MW3-10	SANDY GRAVEL; GRAY TO BROWN; MEDIUM DENSE; SLIGHTLY MOIST, VAGUE HYDROCARBON ODOR.			3, 10, 13	
15		MW3-15	CLAYEY SAND; GREENISH GRAY; MEDIUM; MEDIUM DENSE; MOIST; HYDROCARBON ODOR;			3, 11, 11	
20		MW3-20	CLAYEY SAND; OLIVE GRAY; POORLY GRADED; MEDIUM; MEDIUM DENSE; MOIST; VAGUE HYDROCARBON ODOR.	SC		4, 6, 10	
25			CLAYEY SAND; OLIVE GRAY; POORLY GRADED; MEDIUM; MEDIUM DENSE; WATER SATURATED; NO HYDROCARBON ODOR.			4, 6, 8	
30			SANDY CLAY; WITH SOME GRAVEL; LIGHT BROWN; WITH LOW PLASTICITY; STIFF; WATER SATURATED; NO HYDROCARBON ODOR.	CL		4, 8, 15	

1658

Uriah, Inc.

An Environmental Services Company

2456 Armstrong Street
Livermore, CA 94550
(510) 455-4991 Office
(510) 455-4995 FAX

WELL MONITORING FORM:

CLIENT: CITY OF PARIS CLEANERS DATE: NOVEMBER 18, 1992
 SITE COUNTY
 ADDRESS: 3516 ADELINE STREET REPRESENTATIVE: MR. JEFF SHAPIRO
OAKLAND, CA COUNTY REPRESENTATIVE
 CONTACTED PRIOR TO SAMPLING? YES

Note 1: TOTAL WELL DEPTH & DEPTH TO WATER measurements are read to an accuracy of .01' from a straight edge placed in a north-south orientation on top of the christy box.

Note 2: The 0.17 figure used below to convert WATER COLUMN HEIGHT to gallons has units of gallons/linear foot, and is for a 2" diameter, Schedule 40 PVC pipe with an inside diameter of 2.067". Similarly, use a conversion factor of 0.66 for a 4" pipe, which has a 4.026" I.D.

TOTAL WELL DEPTH 30.05' MONITORING WELL # MW-3
 - DEPTH TO WATER 13.93' PURGE METHOD: DISPOSABLE BAILER
 = WATER COLUMN HEIGHT 16.12' X 0.17 = 2.74 Gallons (1 well volume)

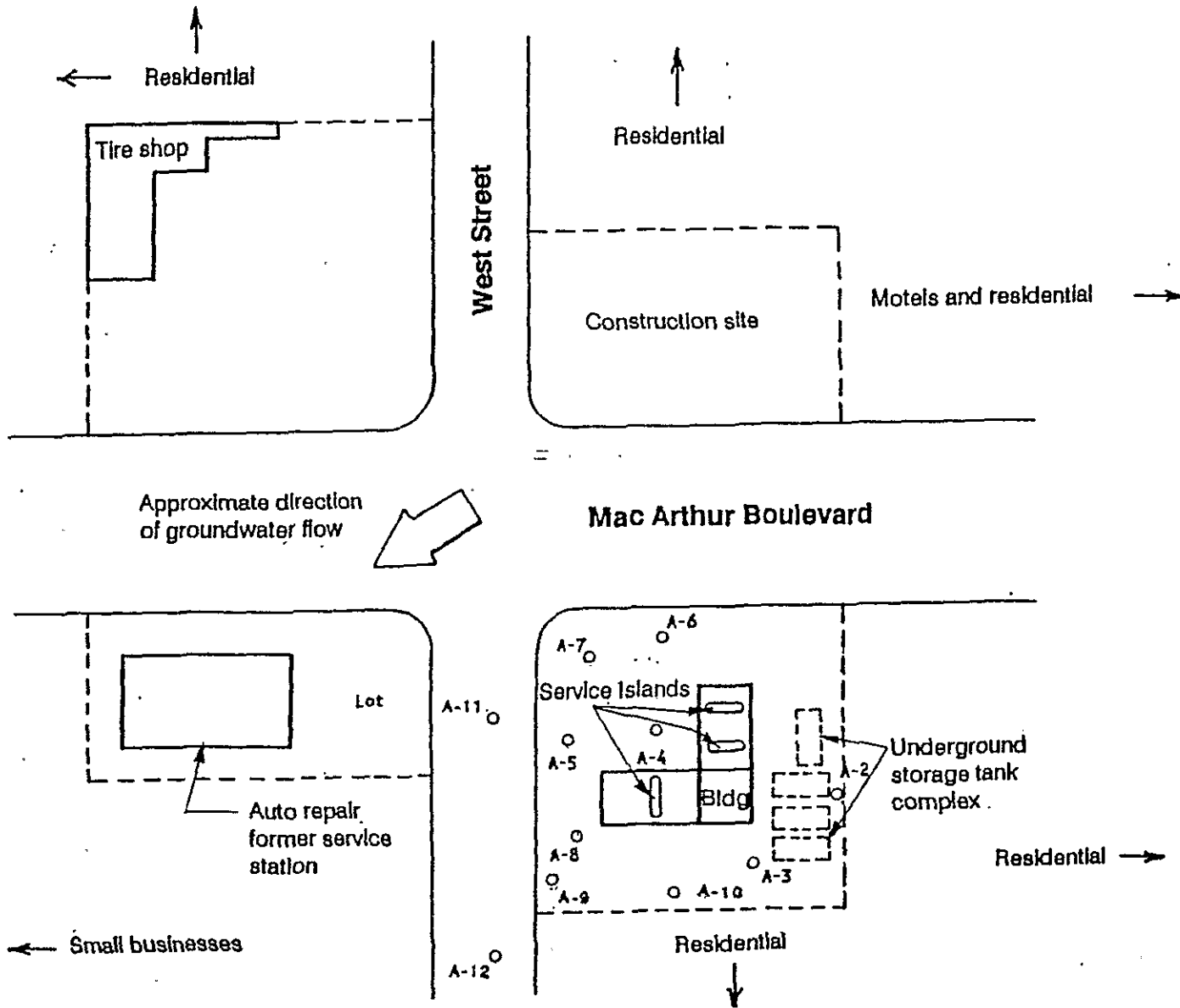
Multiply 1 well volume by 3 to obtain the minimum number of gallons of water to be purged from monitoring well prior to taking samples.

3 X 2.74 = 8.22 Gallons (3 Well Volumes)

TIME	GALLONS	TEMPERATURE °F	pH	CONDUCTIVITY µmhos/cm
1538	0	59.9	7.0	1586
1545	3	60.0	7.1	1585
1553	6	59.3	7.0	1470
1601	8	59.6	7.1	1491
1605	9	60.1	7.1	1478

CONTAMINANT ODOR? YES TIME OF SAMPLE COLLECTION: 1616
 TURBIDITY LEVEL: MODERATE WITNESSED BY: *** NO WITNESS ***
 SHEEN ON WATER? YES SAMPLER'S SIGNATURE: J. RAFF FOR T. FOREARD

01-261 A-D
15/4W 23K1-4



LEGEND

- GROUNDWATER MONITORING WELL LOCATION

SCALE 1" = 60'

DRILLER: BAYLARD



PACIFIC ENVIRONMENTAL GROUP, INC.

ARCO SERVICE STATION #4931
731 MacArthur Boulevard & West Street
Oakland, California

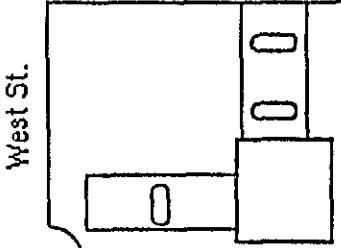
INTENDED SITE MAP

FIGURE:
2
PROJECT:
12.03

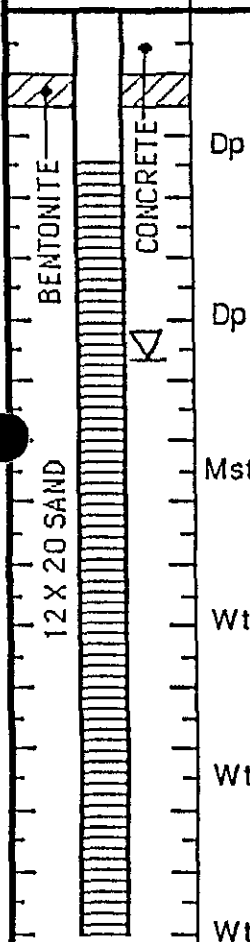
<p>LOCATION MAP MacArthur</p> <p>West St. A-9 ELEVATION</p>	<p>PACIFIC ENVIRONMENTAL GROUP, INC.</p> <p>PROJECT NO. 130-12.03 LOGGED BY: MD DRILLING METHOD: HSA SAMPLING METHOD: CAL MOD CASING TYPE: Sch 40 PVC SLOT SIZE: 0.020 GRAVEL PACK: 12 X 20 SAND</p>	<p>WELL / A-9 BORING NO. PAGE 1 OF 1</p> <p>CLIENT: G.R. ARCO DATE DRILLED: 12-15-87 LOCATION: MacArthur & West HOLE DIAMETER: 12" HOLE DEPTH: 45' WELL DEPTH: 40' WELL DIAMETER: 6"</p>
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WELL COMPLETION	MOISTURE CONTENT	TIP	PENETRATION RESISTANCE (BLOW'S/FT)	DEPTH (FEET)	SAMPLE GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
				2		CL	ASPHALT & GRAVEL _ FILL.
		Dp	P	4		CL	CLAY; tan; silty; 10-15% fine to coarse sand; trace fine gravel; iron oxide stains; trace organics. @3 1/2'; no product odor.
				6			
				8			
		Mst		8			@9'; as above; no sand or gravel; gray mottle around rootholes; rootholes moist; stiff; faint product odor.
				10			
				12			
		Wt	25	14		SW	SAND; dark brown-gray; trace to 10% fines; fine to coarse grained; mostly coarse sand; trace fine gravel; angular to sub rounded; medium dense. @14'; no product odor.
				16			
				18			
		Wt	24	20			@19'; as above; medium dense; no product odor.
				22			
		Wt	35	24			@24'; as above; dense; no product odor.
				26			
				28		SP/CL	INTERBEDDED SAND & CLAY; SAND: tan; 10-15% low plasticity fines; very fine grained; iron oxide stains; CLAY: tan; iron oxide stains; silty; trace fine to coarse sand; bedds up to 8" thick. @30'; no product odor.
		Wt	14	30			
				32			
		Wt	23	34		SC-CL	CLAY to CLAYEY SAND; brick red; 50% fine to coarse sand; trace fine gravel; sand and gravel rounded.
				36			
		Wt	25	38		SC	CLAYEY SAND; medium brown; iron oxide stains; 25-35% low plasticity fines; fine to medium grained; medium dense. @39'; no product odor.
				40			
				42			
				44			

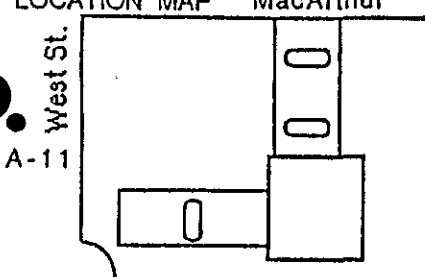
BOTTOM OF BORING AT ~45'

<p>LOCATION MAP MacArthur</p>  <p>West St.</p> <p>ELEVATION ● A-10</p>	<p>PACIFIC ENVIRONMENTAL GROUP, INC.</p> <p>PROJECT NO. 130-12.03 LOGGED BY: MD DRILLING METHOD: HSA SAMPLING METHOD: CALMOD CASING TYPE: Sch 40 PVC SLOT SIZE: 0.020 GRAVEL PACK: 12 X 20 SAND</p>	<p>WELL / A-10 BORING NO. PAGE 1 OF 1</p> <p>CLIENT: G.R. ARCO DATE DRILLED: 12-15-87 LOCATION: MacArthur & West HOLE DIAMETER: 8" HOLE DEPTH: 30 1/2' WELL DEPTH: 30' WELL DIAMETER: 3"</p>
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WELL COMPLETION	MOISTURE CONTENT	TIP	PENETRATION RESISTANCE (BLOWS/FT)	DEPTH (FEET)	SAMPLE	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
				2			ML	ASPHALT & GRAVEL - FILL
		Dp	P	4				SILT; tan; iron oxide stains; trace clay; 5-15% fine to coarse gravel; trace organics. @3 1/2'; no product odor.
				6				
		Dp	7	10			CL	CLAY; tan; iron oxide stains; silty; trace fine sand; rootholes. @9'; no product odor.
				12				
		Mst	21	14				@14'; as above; 20-30% sand; 5-10% fine to coarse gravel; very stiff; no product odor.
				16				
		Wt	26	20			SW	SAND; medium brown; 10-15% low plasticity fines; fine to coarse grained; well graded; 5-10% fine to medium gravel; angular; medium dense. @19'; no product odor.
				22				
		Wt	26	24				@24'; as above; predominately coarse sand; medium dense; no product odor.
				26				
		Wt	14	28				@29'; as above; no product odor.
				30			CL	CLAY; tan; iron oxide stains; 5-15% fine to medium sand; trace coarse sand; trace organics; silty.
				32				
				34				
				36				
				38				
				40				
				42				
				44				
								BOTTOM OF BORING AT 30 1/2'



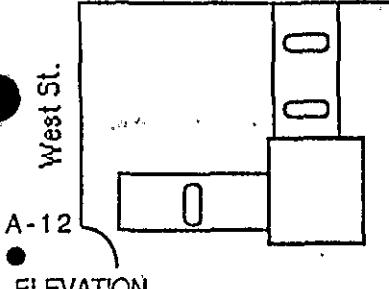
15/4W23K3
DL-261 C

<p>LOCATION MAP MacArthur</p>  <p>West St. A-11</p> <p>ELEVATION</p>	<p>PACIFIC ENVIRONMENTAL GROUP, INC.</p> <p>PROJECT NO. 130-12.03 LOGGED BY: MD DRILLING METHOD: HSA SAMPLING METHOD: CAL MOD CASING TYPE: Sch 40 PVC SLOT SIZE: 0.020 GRAVEL PACK: 12 X 20 SAND</p>	<p>WELL / A-11 BORING NO. PAGE 1 OF 1</p> <p>CLIENT: G.R. ARCO DATE DRILLED: 12-16-87 LOCATION: MacArthur & West HOLE DIAMETER: 8" HOLE DEPTH: 30 1/2' WELL DEPTH: 30' WELL DIAMETER: 3"</p>
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WELL COMPLETION	MOISTURE CONTENT	TIP	PENETRATION RESISTANCE (BLOWS/FT)	DEPTH (FEET)	SAMPLE	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
				2			CL	ASPHALT & GRAVEL - FILL.
			P	4	■			CLAY; tan-orange; iron oxide stains; silty; trace fine sand; rootholes; gray mottle at rootholes; trace organics. @3 1/2'; no product odor.
				6				
				8				
			10	10	■			@9'; as above; water in rootholes; stiff; no product odor.
				12				
			28	14	■			@14'; as above; medium brown; 5-10% fine to coarse sand; trace fine gravel; water in rootholes; very stiff; no product odor.
				16				
				18				
			41	20	■		SW	SAND; dark reddish brown; 5% low plasticity fines; fine to coarse grined; 5% fine to medium gravel; angular to sub rounded; dense. @19'; no product odor.
				22				
				24	■			@24'; as above; very dense; no product odor.
				26				
				28				
			15	30	■		SP/CL	INTERBEDDED CLAY & SAND; CLAY: tan; iron oxide stains; silty; trace fine sand; low plasticity; SAND: tan; iron oxide stains; 10-15% low plasticity fines; very fine grained; bedds ~ 4-6" thick in sample tube. @29'; no product odor.
				32				
				34				
				36				
				38				
				40				
				42				
				44				

BOTTOM OF BORING AT 30 1/2'

15/4W 2344
01-261 D

<p>LOCATION MAP MacArthur</p>  <p>West St. A-12 ELEVATION</p>	<p>PACIFIC ENVIRONMENTAL GROUP, INC.</p> <p>PROJECT NO. 130-12.03 LOGGED BY: MD DRILLING METHOD: HSA SAMPLING METHOD: CAL MOD CASING TYPE: Sch 40 PVC SLOT SIZE: 0.020 GRAVEL PACK: 12 X 20 SAND</p>	<p>WELL / A-12 BORING NO. PAGE 1 OF 1</p> <p>CLIENT: G.R. ARCO DATE DRILLED: 12-16-87 LOCATION: MacArthur & West HOLE DIAMETER: 8" HOLE DEPTH: 30 1/2' WELL DEPTH: 30' WELL DIAMETER: 3"</p>
---	---	--

WELL COMPLETION	MOISTURE CONTENT	TIP	PENETRATION RESISTANCE (BLOWS/FT)	DEPTH (FEET)	SAMPLE GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
				2		CL	ASPHALT.
				4	█		CLAY; tan; silty; 10-15% fine sand; trace organics; roots; rootholes; rootholes dry. @3 1/2'; no product odor.
				6			
				8			
				10	█		@9'; as above; trace sand; no organics; rootholes mottled gray; rootholes wet; stiff; no product odor.
				12			
				14			
				15			
				16	█	SW	SAND; medium brown; 10-15% low plasticity fines; fine to coarse grained; trace fine gravel; angular to sub rounded; well graded; medium dense. @14'; no product odor.
				18			
				20	█		@19'; as above; thin interbedds of medium grained sand; medium dense; no product odor.
				22			
				24	█		
				26	█	CL	CLAY; tan; iron oxide stains; trace fine sand; silty; very stiff; no product odor.
				28			
				30	█	SW	SAND; as above; some 2" clay interbedds; medium dense. @29'; no product odor.
				32			
				34			
				36			
				38			
				40			
				42			
				44			

BOTTOM OF BORING AT 30 1/2'

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

12/14/1913
12/14/1913 274
01-745

Job #1744. City of Paris Cleaning & Dyeing Works,
3516 - Adeline Street, Oakland.

LOG OF WELL.

Black adobe -----	3 feet.
Hard yellow clay -----	3 to 18 "
Small water gravel -----	18 " 20 "
Hard yellow sandy clay -----	20 " 34 "
Coarse water gravel -----	34 " 37 "
Hard brown sandy clay -----	37 " 38 "
Hard blue sandy clay -----	38 " 49 "
Hard yellow clay -----	49 " 80 "
Hard brown clay, some rock in it -----	80 " 97 "

From 42 feet to 97 feet open hole no casing in it.

42 feet 8" No. 14 R. H. Collar Casing with 10 perforated
1/8" open slot

30 feet 6" No. 16 R. H. Collar Casing with 12' perforated.

Water 16 feet from top of casing.

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

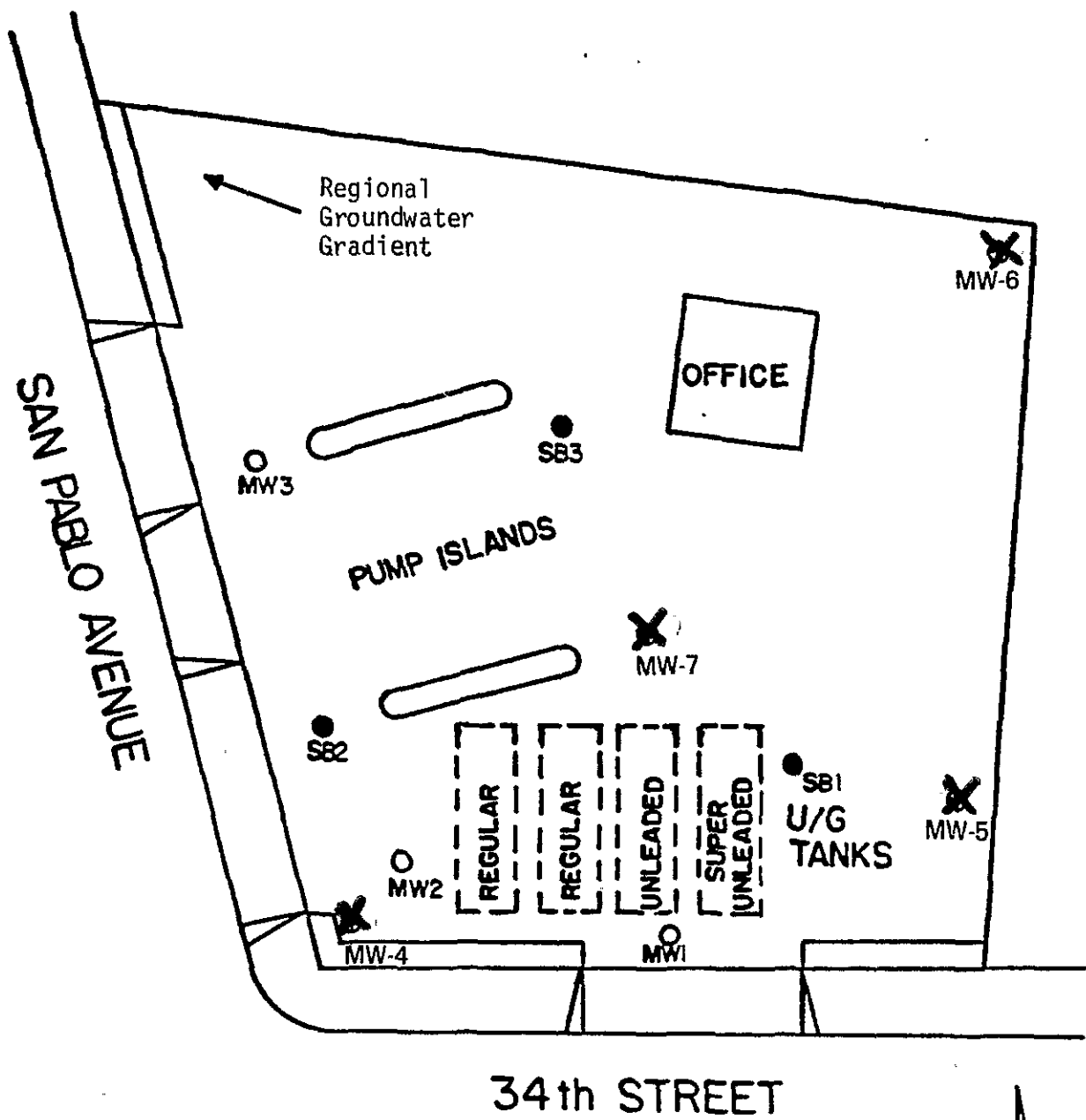
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

INV ✓
AD ✓

01-218A-D
Permit No. 86303 *plot/updated*

15/7W23M5-8



LEGEND

- MW1 - GT MONITORING WELLS
- ⊕ MW-4 - WCC MONITORING WELLS
- SB1 - GT SOIL BORINGS

THRIFTY OIL
3700 SAN PABLO AVE.
OAKLAND, CA.

DRILLER: KVILHAUG XIPPEL DRILLING
CORP., OJ.



Figure 1. MONITORING WELL AND BORING LOCATIONS

#P6303

INV ✓
AD

01-218A
15/4W23M5

Project No.: 90386A

Date: 11-14-86

Elevation.

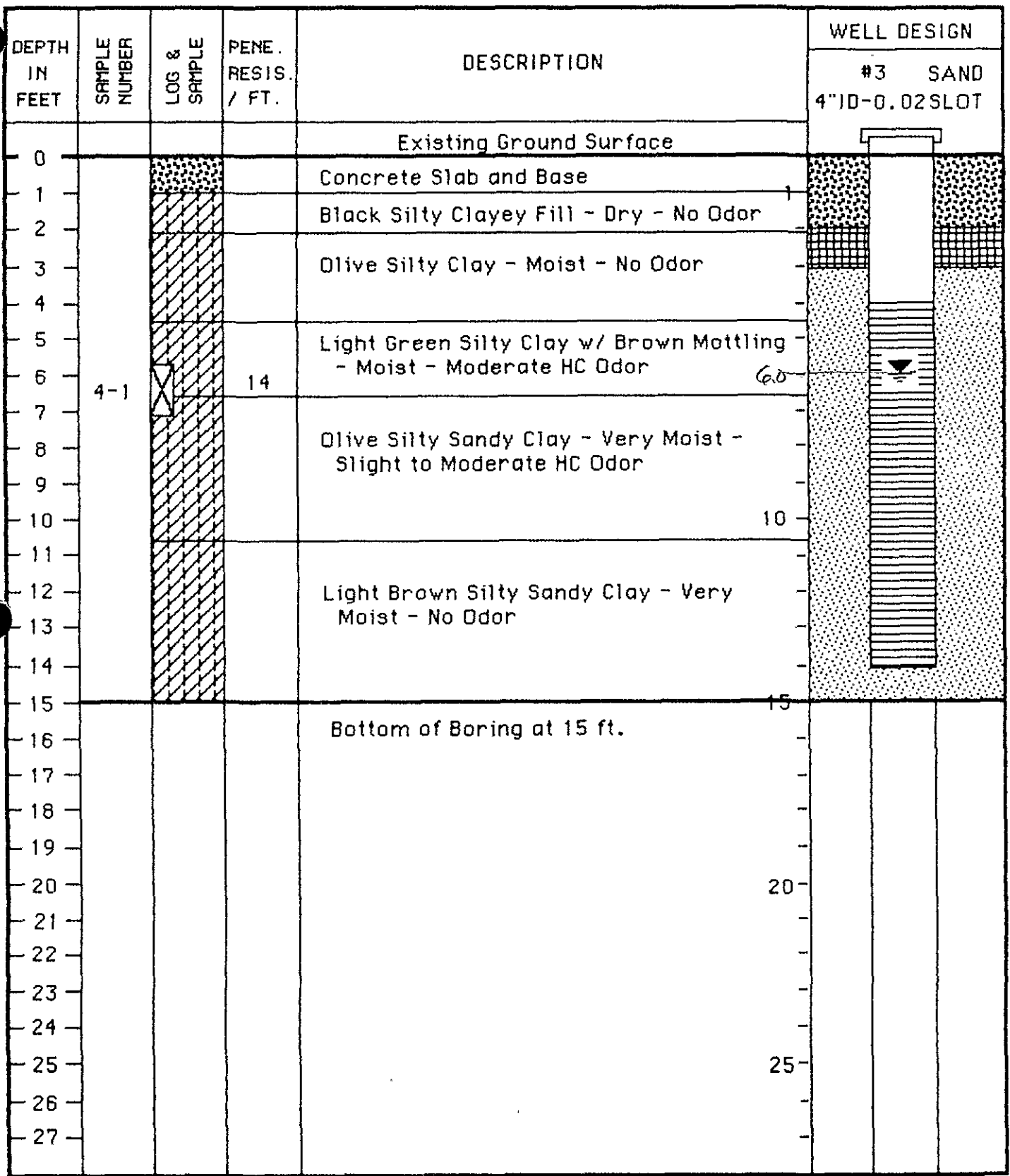


Figure 2 - Test Boring Log No. B-1
- Monitoring Well No. MW-4

Woodward-Clyde Consultants

#6303

INV ✓
AD ✓

01-218B
1S/7W23M6

Project No.: 90386A

Date: 11-14-86

Elevation.

DEPTH IN FEET	SAMPLE NUMBER	LOG & SAMPLE	PENE. RESIS. / FT.	DESCRIPTION	WELL DESIGN	
					#3 SAND	2" ID - 0.025 SLOT
0				Existing Ground Surface		
1		AC Pavement and Base				
2		Black Silty Clay Fill				
3		Brown Silty Loam - Dry - No Odor				
4		Light Green Silty Clay w/ Some Sand - Moist - No Odor	50			
5	5-1					
6		Same as Above Except More Moisture - No Odor - No Recovery From Sample				
7		Brown Silty Gravelly Clay - Moist - No Odor				
8						
9		Same as Above Except No Gravel				
10						
11						
12						
13						
14						
15				Bottom of Boring at 15 ft.		
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

Figure 3 - Test Boring Log No. B-2
- Monitoring Well No. MW-5

#96303

INV ✓
AD ✓

01-2180
15/4W23M7

Project No.: 90386A

Date: 11-14-86

Elevation.

DEPTH IN FEET	SAMPLE NUMBER	LOG & SAMPLE	PENE. RESIS. / FT.	DESCRIPTION	WELL DESIGN	
					#3 SAND 2" ID - 0.025 SLOT	
0				Existing Ground Surface		
1				AC Pavement and Base		
2				Black Silty Clayey Fill - Dry - No Odor		
3				Light Brown Silty Clay - Moist - No Odor		
4				Light Brown to Light Green Silty Clay - Moist No Odor		
5					5	
6	6-1		26	Olive Silty Clay - Moist - No Odor		
7						
8				Light Brown Gravelly Silty Clay - Moist - No Odor		
9					9.0	
10					10	
11						
12				Brown Gravelly Silty Clay, Less Gravel w/ Depth - Very Moist - No Odor		
13						
14						
15					15	
16				Bottom of Boring at 15 ft.		
17						
18						
19						
20					20	
21						
22						
23						
24						
25					25	
26						
27						

Figure 4 - Test Boring Log No. B-3
- Monitoring Well No. MW-6

Woodward-Clyde Consultants

#86303

INV ✓
AD ✓

01-218D
1S/4W23M8

Project No.: 90386A

Date: 11-14-86

Elevation.

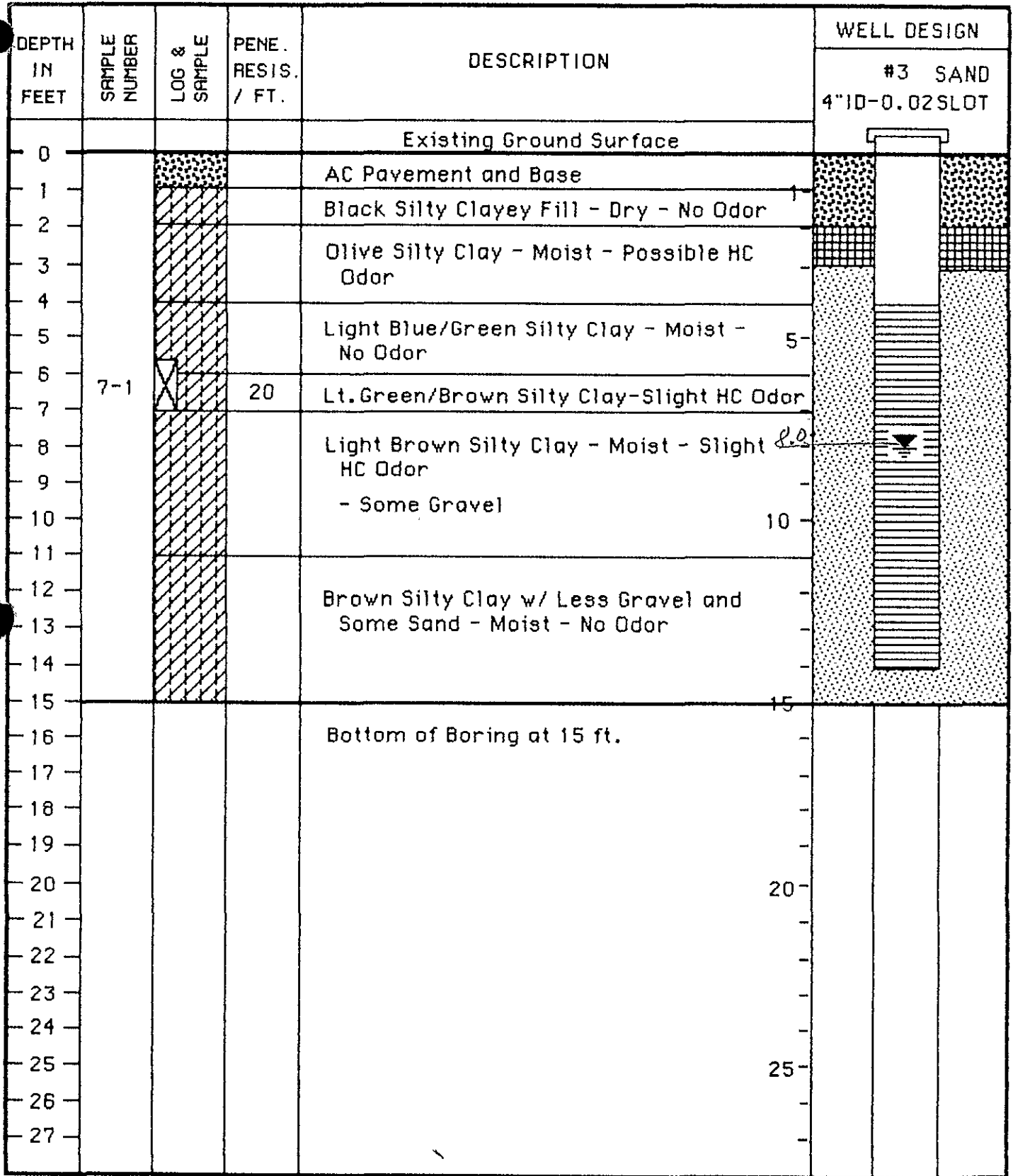


Figure 5 - Test Boring Log No. B-7
- Monitoring Well No. MW-7

Woodward-Clyde Consultants

Attachment C

Soil Boring Permit

Alameda County Public Works Agency - Water Resources Well Permit



399 Elmhurst Street
Hayward, CA 94544-1395
Telephone: (510)670-6633 Fax:(510)782-1939

Application Approved on: 08/17/2009 By jamesy

Permit Numbers: W2009-0754
Permits Valid from 08/27/2009 to 08/28/2009

Application Id:	1249593773171	City of Project Site:Oakland
Site Location:	3943 Broadway	
Project Start Date:	08/27/2009	Completion Date:08/28/2009
Assigned Inspector:	Contact Ron Smalley at (510) 670-5407 or ronaldws@acpwa.org	

Applicant:	Delta Consultants - Alan Buehler 11050 White Rock Rd, Suite 110, Rancho Cordova, CA 95670	Phone: 916-503-1273
Property Owner:	Clement Leung 3943 Broadway, Oakland, CA 94611	Phone: 510-655-7662
Client:	Alan Buehler 11050 White Rock Rd, Suite 110, Rancho Corvoda, CA 95670	Phone: 916-503-1273

	Total Due:	\$265.00
Receipt Number: WR2009-0309	Total Amount Paid:	\$265.00
Payer Name : Delta Consultants	Paid By: CHECK	PAID IN FULL

Works Requesting Permits:

Borehole(s) for Investigation-Geotechnical Study/CPT's - 2 Boreholes
Driller: Gregg Drilling - Lic #: 485165 - Method: CPT.

Work Total: \$265.00

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2009-0754	08/17/2009	11/25/2009	2	2.00 in.	35.00 ft

Specific Work Permit Conditions

1. Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings. All cuttings remaining or unused shall be containerized and hauled off site.
2. Boreholes shall not be left open for a period of more than 24 hours. All boreholes left open more than 24 hours will need approval from Alameda County Public Works Agency, Water Resources Section. All boreholes shall be backfilled according to permit destruction requirements and all concrete material and asphalt material shall be to Caltrans Spec or County/City Codes. No borehole(s) shall be left in a manner to act as a conduit at any time.
3. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.
4. Prior to any drilling activities, it shall be the applicant's responsibility to contact and coordinate an Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits or agreements required for that Federal, State, County or City, and follow all City or County Ordinances. No work shall begin until all the permits and requirements have been approved or obtained. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County an Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.
5. Applicant shall contact Ron Smalley for an inspection time at 510-670-5407 at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

Alameda County Public Works Agency - Water Resources Well Permit

6. Permittee, permittee's contractors, consultants or agents shall be responsible to assure that all material or waters generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on or off-site storm sewers, dry wells, or waterways or be allowed to move off the property where work is being completed.
 7. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of \$500.00.
 8. Permit is valid only for the purpose specified herein. No changes in construction procedures, as described on this permit application. Boreholes shall not be converted to monitoring wells, without a permit application process.
-

3943 Broadway, Oakland, CA 94611

B-1

B-2

enclosure

© 2009 TeleAtlas

Google

37°49'38.75"N 122°10'26.59"W

elev: 29m

Jun-2007

Eye alt: 72m

Attachment D

Gregg Drilling and Testing CPT Report



GREGG DRILLING & TESTING, INC.
GEOTECHNICAL AND ENVIRONMENTAL INVESTIGATION SERVICES

August 31, 2009

Delta Consultants
Attn: Lia Holden
312 Piercy Rd.
San Jose, California 95138

Subject: CPT Site Investigation
ConocoPhillips 0746, 3943 Broadway
Oakland, California
GREGG Project Number: 09-141MA

Dear Ms. Holden:

The following report presents the results of GREGG Drilling & Testing's Cone Penetration Test investigation for the above referenced site. The following testing services were performed:

1	Cone Penetration Tests	(CPTU)	<input checked="" type="checkbox"/>
2	Pore Pressure Dissipation Tests	(PPD)	<input checked="" type="checkbox"/>
3	Seismic Cone Penetration Tests	(SCPTU)	<input type="checkbox"/>
4	Resistivity Cone Penetration Tests	(RCPTU)	<input type="checkbox"/>
5	UVOST Laser Induced Fluorescence	(UVOST)	<input type="checkbox"/>
6	Groundwater Sampling	(GWS)	<input checked="" type="checkbox"/>
7	Soil Sampling	(SS)	<input checked="" type="checkbox"/>
8	Vapor Sampling	(VS)	<input type="checkbox"/>
9	Vane Shear Testing	(VST)	<input type="checkbox"/>
10	SPT Energy Calibration	(SPTE)	<input type="checkbox"/>

A list of reference papers providing additional background on the specific tests conducted is provided in the bibliography following the text of the report. If you would like a copy of any of these publications or should you have any questions or comments regarding the contents of this report, please do not hesitate to contact our office at (925) 313-5800.

Sincerely,
GREGG Drilling & Testing, Inc.

Mary Walden
Operations Manager



GREGG DRILLING & TESTING, INC.
GEOTECHNICAL AND ENVIRONMENTAL INVESTIGATION SERVICES

Cone Penetration Test Sounding Summary

-Table 1-

CPT Sounding Identification	Date	Termination Depth (Feet)	Depth of Groundwater Samples (Feet)	Depth of Soil Samples (Feet)	Depth of Pore Pressure Dissipation Tests (Feet)
CPT-B1	8/27/09	35	15.5, 24, 34	6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 20, 25, 30, 35	35.3
CPT-B2	8/27/09	35	15, 25, 34	6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 20, 25, 30, 35	-



Bibliography

Lunne, T., Robertson, P.K. and Powell, J.J.M., "Cone Penetration Testing in Geotechnical Practice"
E & FN Spon. ISBN 0 419 23750, 1997

Robertson, P.K., "Soil Classification using the Cone Penetration Test", Canadian Geotechnical Journal, Vol. 27,
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Mayne, P.W., "NHI (2002) Manual on Subsurface Investigations: Geotechnical Site Characterization", available
through www.ce.gatech.edu/~geosys/Faculty/Mayne/papers/index.html, Section 5.3, pp. 107-112.

Robertson, P.K., R.G. Campanella, D. Gillespie and A. Rice, "Seismic CPT to Measure In-Situ Shear Wave Velocity",
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pp. 791-803.

Robertson, P.K., Sully, J., Woeller, D.J., Lunne, T., Powell, J.J.M., and Gillespie, D.J., "Guidelines for Estimating
Consolidation Parameters in Soils from Piezocone Tests", Canadian Geotechnical Journal, Vol. 29, No. 4,
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Robertson, P.K., T. Lunne and J.J.M. Powell, "Geo-Environmental Application of Penetration Testing", Geotechnical
Site Characterization, Robertson & Mayne (editors), 1998 Balkema, Rotterdam, ISBN 90 5410 939 4 pp 35-47.

Campanella, R.G. and I. Weemeees, "Development and Use of An Electrical Resistivity Cone for Groundwater
Contamination Studies", Canadian Geotechnical Journal, Vol. 27 No. 5, 1990 pp. 557-567.

DeGroot, D.J. and A.J. Lutenegeger, "Reliability of Soil Gas Sampling and Characterization Techniques", International
Site Characterization Conference - Atlanta, 1998.

Woeller, D.J., P.K. Robertson, T.J. Boyd and Dave Thomas, "Detection of Polyaromatic Hydrocarbon Contaminants
Using the UVIF-CPT", 53rd Canadian Geotechnical Conference Montreal, QC October pp. 733-739, 2000.

Zemo, D.A., T.A. Delfino, J.D. Gallinatti, V.A. Baker and L.R. Hilpert, "Field Comparison of Analytical Results from
Discrete-Depth Groundwater Samplers" BAT EnviroProbe and QED HydroPunch, Sixth national Outdoor Action
Conference, Las Vegas, Nevada Proceedings, 1992, pp 299-312.

Copies of ASTM Standards are available through www.astm.org



Cone Penetration Testing Procedure (CPT)

Gregg Drilling carries out all Cone Penetration Tests (CPT) using an integrated electronic cone system, *Figure CPT*. The soundings were conducted using a 20 ton capacity cone with a tip area of 15 cm² and a friction sleeve area of 225 cm². The cone is designed with an equal end area friction sleeve and a tip end area ratio of 0.80.

The cone takes measurements of cone bearing (q_c), sleeve friction (f_s) and penetration pore water pressure (u_2) at 5-cm intervals during penetration to provide a nearly continuous hydrogeologic log. CPT data reduction and interpretation is performed in real time facilitating on-site decision making. The above mentioned parameters are stored on disk for further analysis and reference. All CPT soundings are performed in accordance with revised (2002) ASTM standards (D 5778-95).

The cone also contains a porous filter element located directly behind the cone tip (u_2), *Figure CPT*. It consists of porous plastic and is 5.0mm thick. The filter element is used to obtain penetration pore pressure as the cone is advanced as well as Pore Pressure Dissipation Tests (PPDT's) during appropriate pauses in penetration. It should be noted that prior to penetration, the element is fully saturated with silicon oil under vacuum pressure to ensure accurate and fast dissipation.

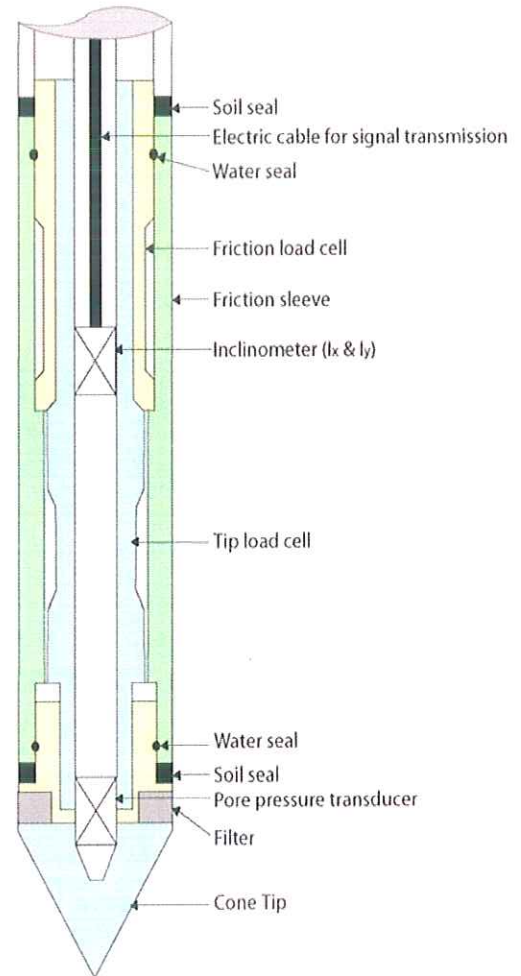


Figure CPT

When the soundings are complete, the test holes are grouted using a Gregg support rig. The grouting procedures generally consist of pushing a hollow CPT rod with a "knock out" plug to the termination depth of the test hole. Grout is then pumped under pressure as the tremie pipe is pulled from the hole. Disruption or further contamination to the site is therefore minimized.



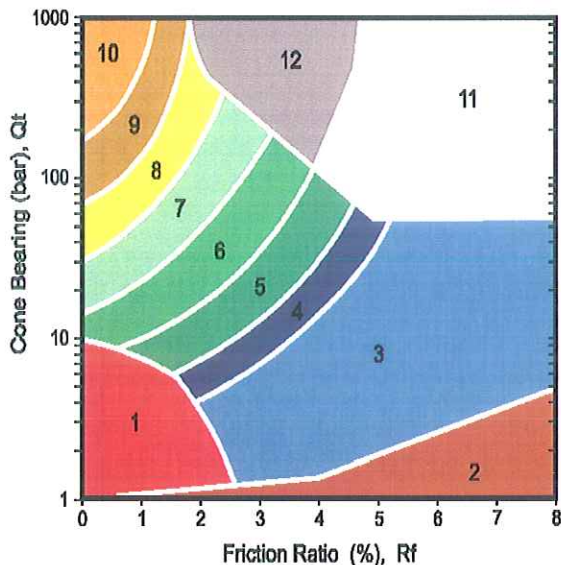
Cone Penetration Test Data & Interpretation

The Cone Penetration Test (CPT) data collected from your site are presented in graphical form in the attached report. The plots include interpreted Soil Behavior Type (SBT) based on the charts described by Robertson (1990). Typical plots display SBT based on the non-normalized charts of Robertson et al (1986). For CPT soundings extending greater than 50 feet, we recommend the use of the normalized charts of Robertson (1990) which can be displayed as SBTn, upon request. The report also includes spreadsheet output of computer calculations of basic interpretation in terms of SBT and SBTn and various geotechnical parameters using current published correlations based on the comprehensive review by Lunne, Robertson and Powell (1997), as well as recent updates by Professor Robertson. The interpretations are presented only as a guide for geotechnical use and should be carefully reviewed. Gregg Drilling & Testing Inc. do not warranty the correctness or the applicability of any of the geotechnical parameters interpreted by the software and do not assume any liability for any use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used in the software.

Some interpretation methods require input of the groundwater level to calculate vertical effective stress. An estimate of the in-situ groundwater level has been made based on field observations and/or CPT results, but should be verified by the user.

A summary of locations and depths is available in Table 1. Note that all penetration depths referenced in the data are with respect to the existing ground surface.

Note that it is not always possible to clearly identify a soil type based solely on q_t , f_s , and u_2 . In these situations, experience, judgment, and an assessment of the pore pressure dissipation data should be used to infer the correct soil behavior type.



(After Robertson, et al., 1986)

ZONE	SBT
1	Sensitive, fine grained
2	Organic materials
3	Clay
4	Silty clay to clay
5	Clayey silt to silty clay
6	Sandy silt to clayey silt
7	Silty sand to sandy silt
8	Sand to silty sand
9	Sand
10	Gravelly sand to sand
11	Very stiff fine grained*
12	Sand to clayey sand*

*over consolidated or cemented

Figure SBT



Pore Pressure Dissipation Tests (PPDT)

Pore Pressure Dissipation Tests (PPDT's) conducted at various intervals measured hydrostatic water pressures and determined the approximate depth of the ground water table. A PPDT is conducted when the cone is halted at specific intervals determined by the field representative. The variation of the penetration pore pressure (u) with time is measured behind the tip of the cone and recorded by a computer system.

Pore pressure dissipation data can be interpreted to provide estimates of:

- Equilibrium piezometric pressure
- Phreatic Surface
- In situ horizontal coefficient of consolidation (c_h)
- In situ horizontal coefficient of permeability (k_h)

In order to correctly interpret the equilibrium piezometric pressure and/or the phreatic surface, the pore pressure must be monitored until such time as there is no variation in pore pressure with time, *Figure PPDT*. This time is commonly referred to as t_{100} , the point at which 100% of the excess pore pressure has dissipated.

A complete reference on pore pressure dissipation tests is presented by Robertson et al. 1992.

A summary of the pore pressure dissipation tests is summarized in Table 1.

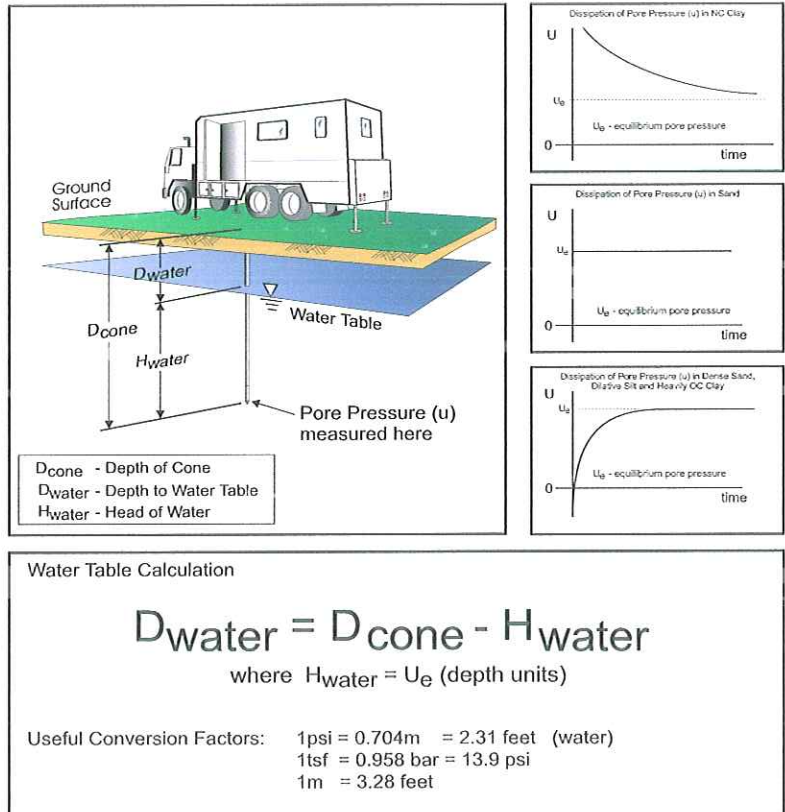


Figure PPDT



Groundwater Sampling (GWS)

Gregg Drilling conducts groundwater sampling using a Hydropunch® type groundwater sampler, *Figure GWS*. The groundwater sampler has a retrievable stainless steel or disposable PVC screen with steel drop off tip. This allows for samples to be taken at multiple depth intervals within the same sounding location. In areas of slower water recharge, provisions may be made to set temporary PVC well screens during sampling to allow the drill rig to advance to the next sample location while the groundwater is allowed to infiltrate.

The groundwater sampler operates by advancing 1 ¾ inch hollow push rods with the filter tip in a closed configuration to the base of the desired sampling interval. Once at the desired sample depth, the push rods are retracted; exposing the encased filter screen and allowing groundwater to infiltrate hydrostatically from the formation into the inlet screen. A small diameter bailer (approximately ½ or ¾ inch) is lowered through the push rods into the screen section for sample collection. The number of downhole trips with the bailer and time necessary to complete the sample collection at each depth interval is a function of sampling protocols, volume requirements, and the yield characteristics and storage capacity of the formation. Upon completion of sample collection, the push rods and sampler, with the exception of the PVC screen and steel drop off tip are retrieved to the ground surface, decontaminated and prepared for the next sampling event.

A summary of the groundwater samples collected, including the sampling date, depth and location identification, is presented in Table 1 and the corresponding CPT plot.

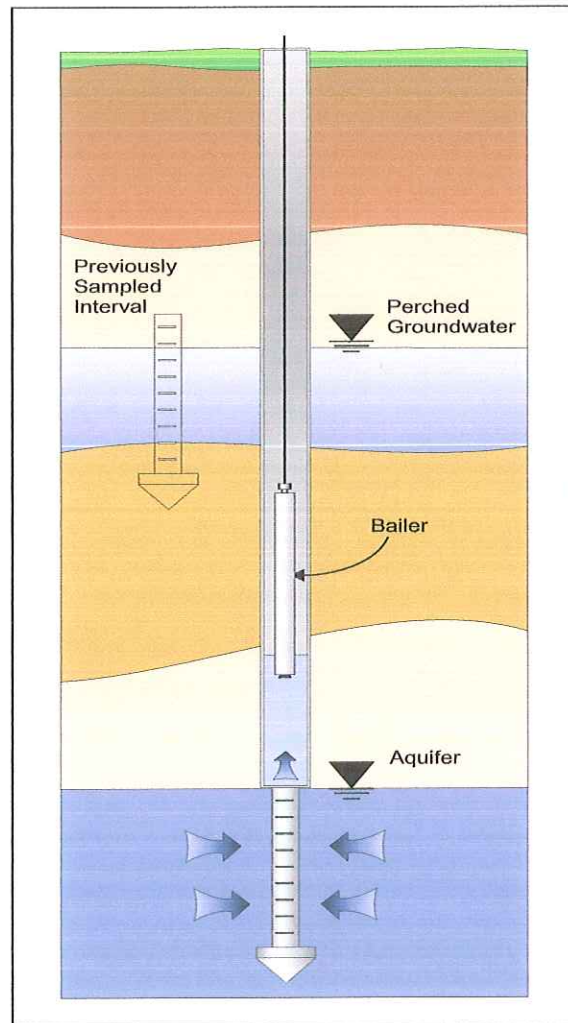


Figure GWS

For a detailed reference on direct push groundwater sampling, refer to Zemo et. al., 1992.



Soil Sampling (SS)

Gregg Drilling uses a piston-type sampler to obtain relatively undisturbed soil samples without generating any soil cuttings, *Figure SS*. Two different types of samplers (12 and 18 inch) are used depending on the soil type and density. The soil sampler is initially pushed in a "closed" position to the desired sampling interval using a hydraulic rig. Keeping the sampler closed minimizes the potential of cross contamination caused by sloughing. The inner tip of the sampler is then retracted 12 inches (or 18 inches if using the longer sampler) leaving a hollow soil sampler with two inner 1¼ inch diameter by 6 inch or four 3 inch long soil sample tubes. If using the 18 inch sampler, two 1½ inch diameter by 6 inch long tubes will be exposed. The hollow sampler is then pushed in a locked "open" position to collect a soil sample. The filled sampler and push rods are then retrieved to the ground surface. Because the soil enters the sampler at a constant rate, the opportunity for 100% recovery is increased. For environmental analysis, the soil sample tube ends are sealed with Teflon and plastic caps. Often, a longer "split tube" can be used for geotechnical sampling.

For a detailed reference on direct push soil sampling, refer to Robertson et al, 1998.

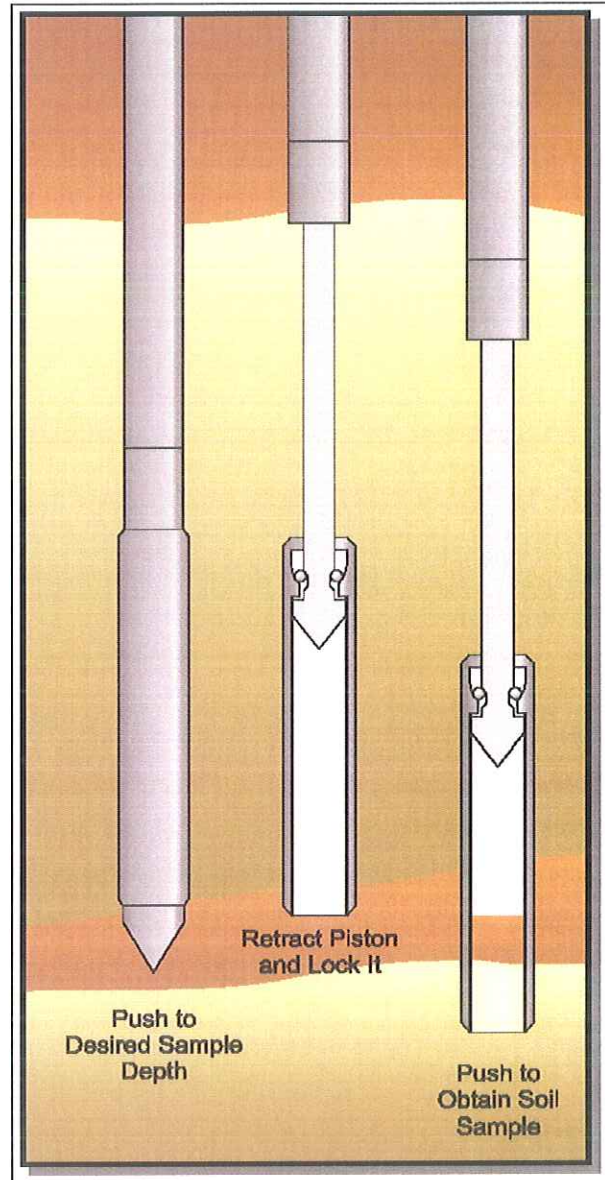


Figure SS

A summary of the soil samples collected, including the sampling date, depth and location identification, is presented in Table 1.



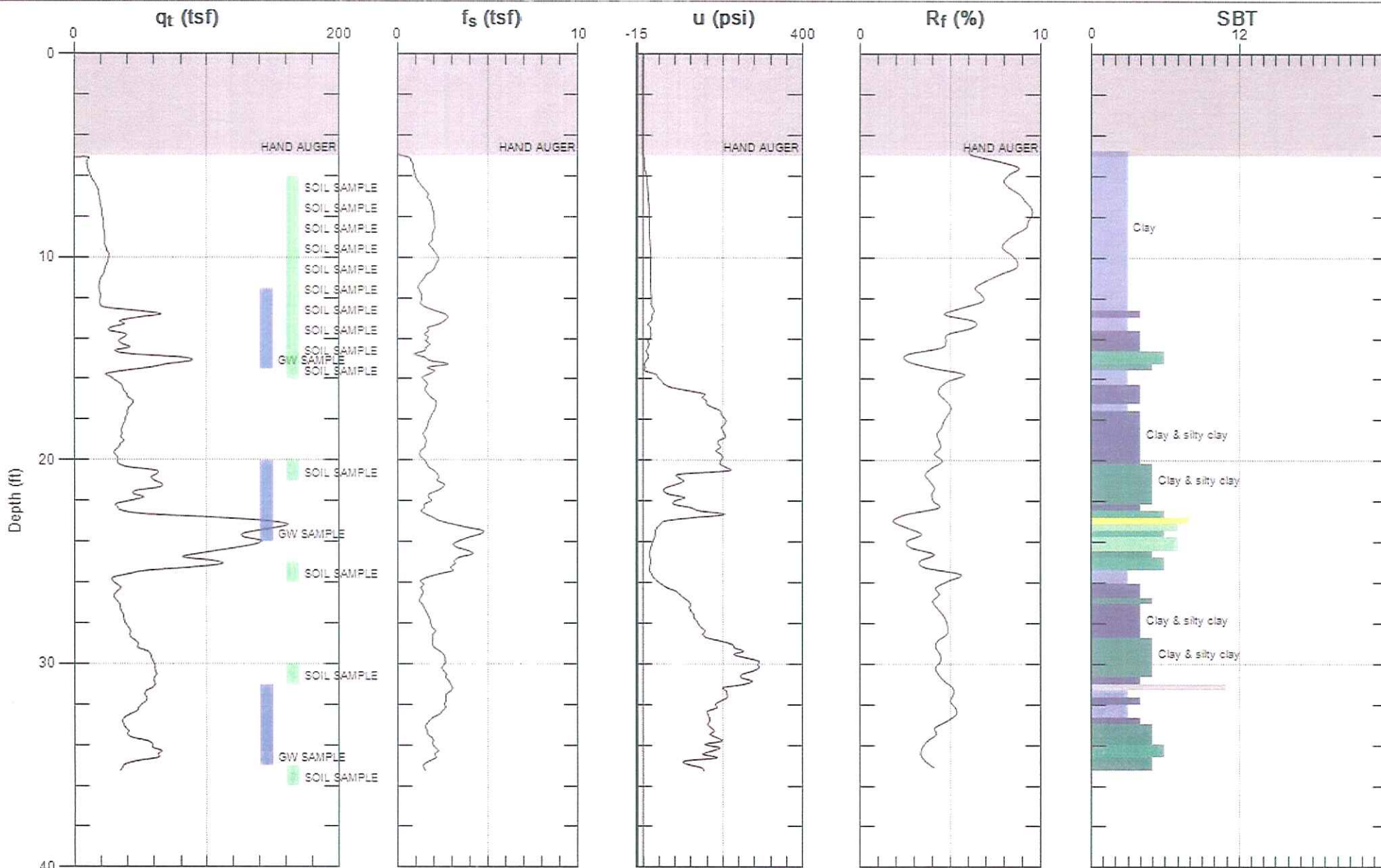
DELTA CONSULTANTS

Site: CONOCOPHILLIPS 0746

Engineer: L.HOLDEN

Sounding: CPT-B1

Date: 8/27/2009 06:13



Max. Depth: 35.269 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)



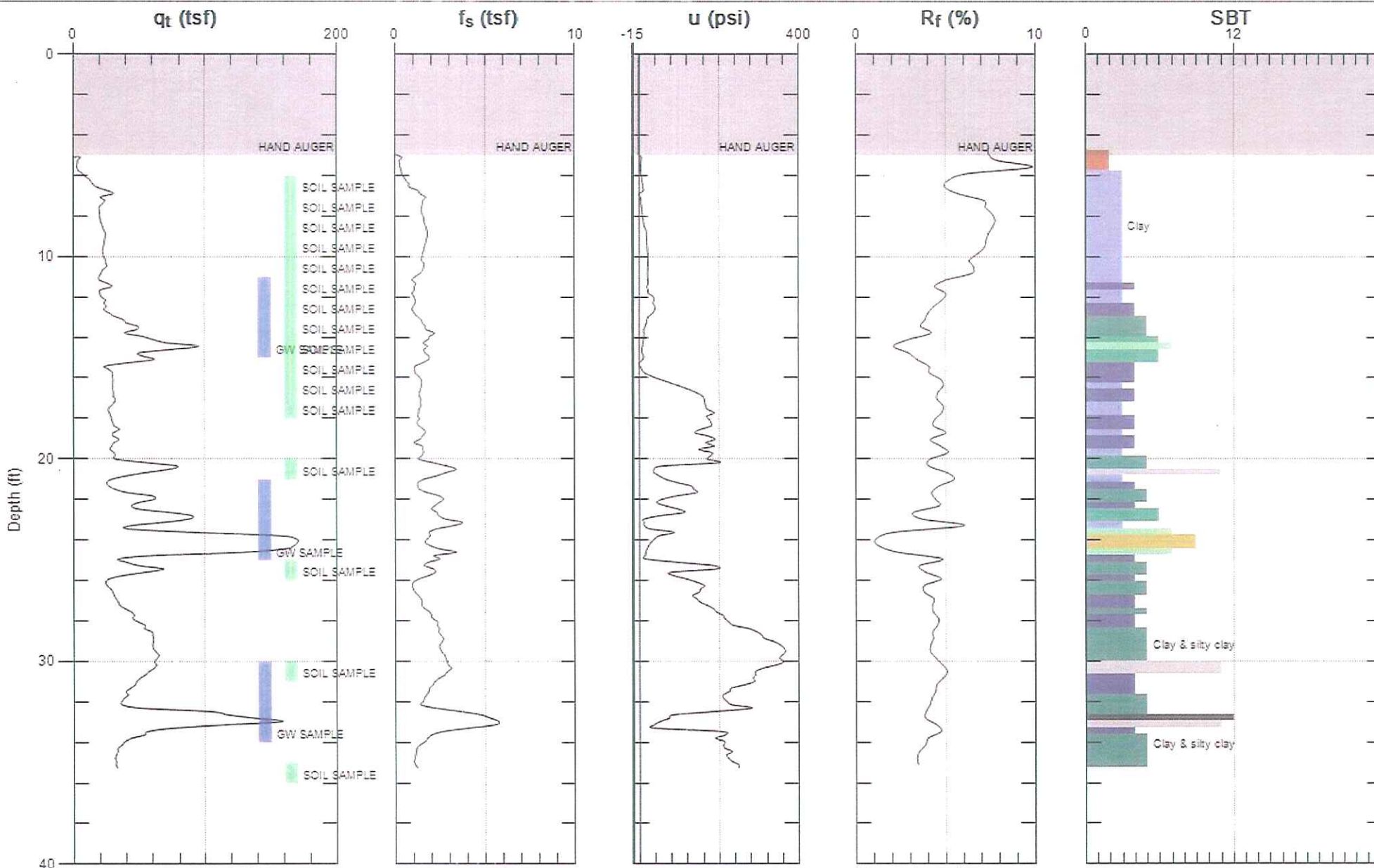
DELTA CONSULTANTS

Site: CONOCOPHILLIPS 0746

Engineer: L.HOLDEN

Sounding: CPT-B2

Date: 8/27/2009 11:36



Max. Depth: 35.269 (ft)
Avg. Interval: 0.328 (ft)

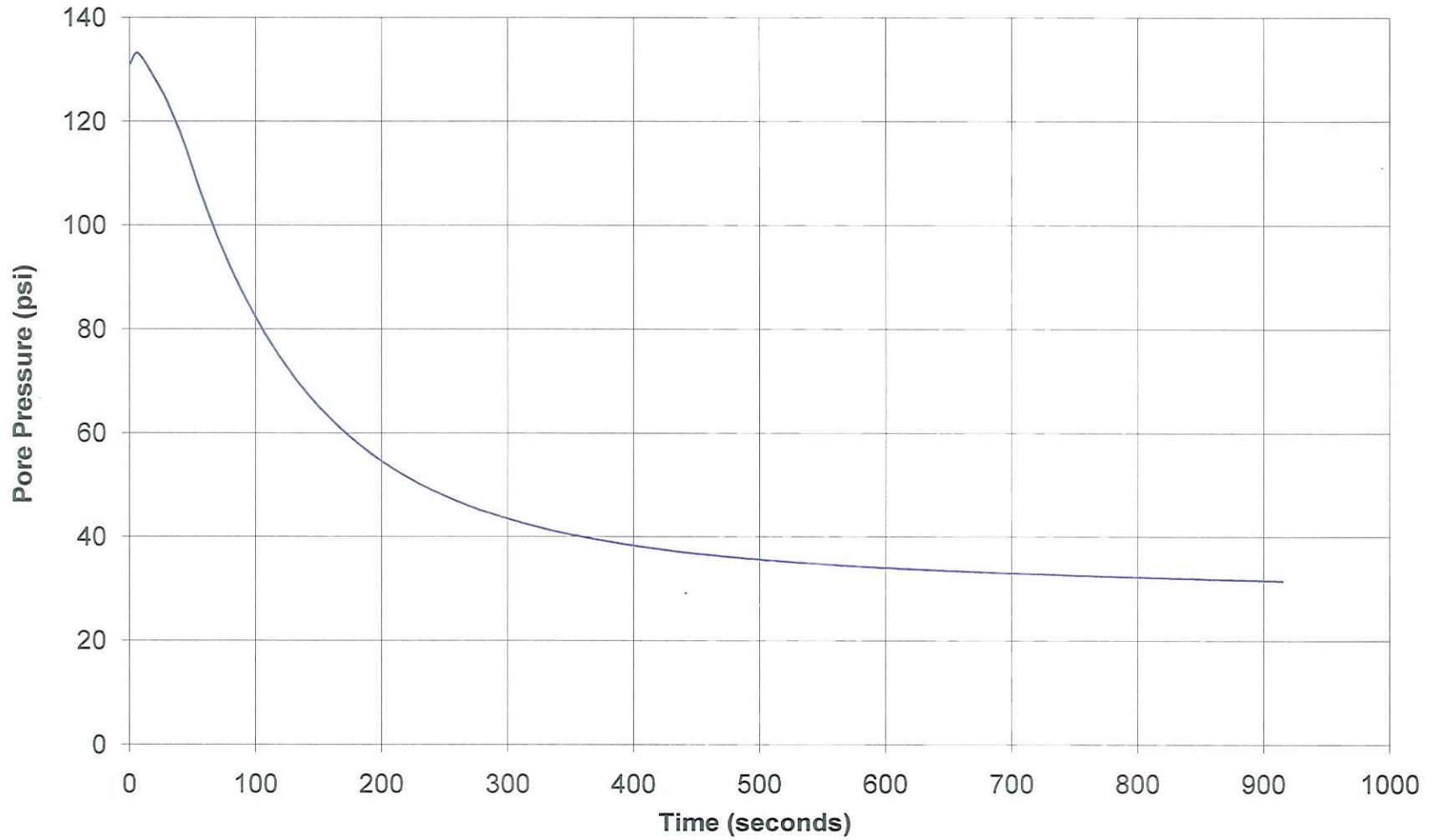
SBT: Soil Behavior Type (Robertson 1990)



GREGG DRILLING & TESTING

Pore Pressure Dissipation Test

Sounding: CPT-B1
Depth: 35.269
Site: CONOCOPHILLIPS 074
Engineer: L.HOLDEN

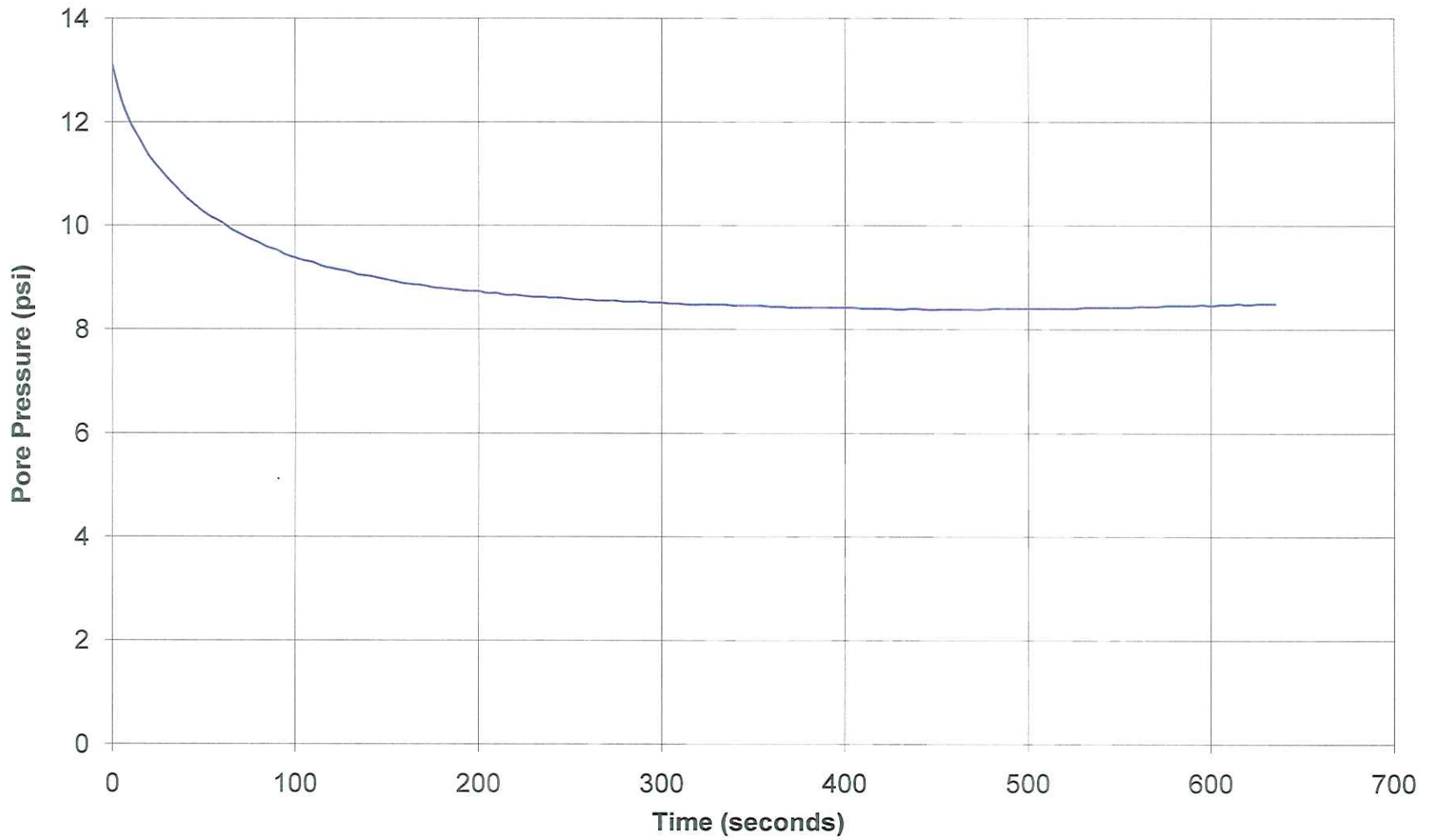




GREGG DRILLING & TESTING

Pore Pressure Dissipation Test

Sounding: CPT-B2
Depth: 22.802
Site: CPT-B2
Engineer: A. BUEHLER



Attachment E

Soil Boring Logs

Delta Consultants

Project No: c100746006
 Logged By: A. Buehler
 Driller: Gregg Drilling and Testing
 Drilling Method: CPT
 Sampling Method: Direct Push
 Casing Type: NA
 Slot Size: NA
 Gravel Pack: NA

Client: ConocoPhillips
 Location: 3943 Broadway, Oakland, CA
 Date Drilled: 8/27/09
 Hole Diameter: 1 3/4 inches
 Hole Depth: 36
 Well Diameter: NA
 Well Depth: NA
 Casing Stickup: NA

B-1
 Page 1 of 2

Location Map

Please see site map
 ▽ = First Water

▼ = Measured Water Level
 Prior to Grouting Borehole

Elevation Northing Easting

Well Completion Backfill Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
						↑		Hand Augered to 5 feet
					1		CL	Lean Clay, black, medium plasticity
					2			
					3		CL	Sandy Lean Clay, grey-green, low-medium plasticity
					4			
					5	▼		
		Moist	26		6		CL	Lean Clay, very dark brown
		Moist	2.5		7			As above: 5% sand
		Moist	92.8		8			As above: medium plasticity
		Moist	16.7		9			As above: mottled brown/gray
	▼ 10.2	Moist	26.2		10			As above
		Moist	40.0		11			As above: brown, low plasticity
		Moist	129		12		CL	Lean Clay with Sand, brown/gray, 20 % sand, low plasticity
		Damp	154		13		CL	Lean Clay, brown, medium plasticity
	▽	Wet	116		14		SM	Silty Sand, brown, sand is coarse
					15			No Recovery
					16			
					17			
					18			
					19			
		Wet	2.0		20		ML	Sandy Silt, light brown, 35% fine sand
					21			
					22			

Delta Consultants

Project No: c100746006
 Logged By: A. Buehler
 Driller: Gregg Drilling and Testing
 Drilling Method: CPT
 Sampling Method: Direct Push
 Casing Type: NA
 Slot Size: NA
 Gravel Pack: NA

Client: ConocoPhillips
 Location: 3943 Broadway, Oakland, CA
 Date Drilled: 8/27/09
 Hole Diameter: 1 3/4 inches
 Hole Depth: 36
 Well Diameter: NA
 Well Depth: NA
 Casing Stickup: NA

B-1
 Page 2 of 2

Location Map

Please see site map

▽ = First Water

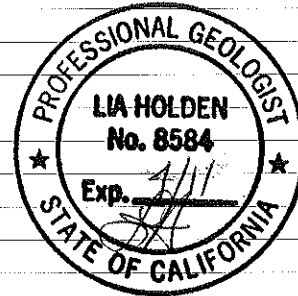
▼ = Measured Water Level
 Prior to Grouting Borehole

Elevation

Northing

Easting

Well Completion	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
Backfill Casing					23			Sandy Silt continued
		Wet	67.6		24			
					25		CH	Fat Clay with Sand, light brown, 15-20% sand
					26			
					27			
					28			
		Damp	0.0		29			
					30		CL	Lean Clay, light brown, medium plasticity
					31			
					32			
					33			
		Damp	17.2		34			
					35			As above: 5-10% fine sand
					36			
					37			Bottom of boring = 36 feet
					38			
					39			
					40			
					41			
					42			
					43			
					44			



Delta Consultants

Project No: c100746006
 Logged By: E. Chantikian
 Driller: Gregg Drilling and Testing
 Drilling Method: CPT
 Sampling Method: Direct Push
 Casing Type: NA
 Slot Size: NA
 Gravel Pack: NA

Client: ConocoPhillips
 Location: 3943 Broadway, Oakland, CA
 Date Drilled: 8/27/09
 Hole Diameter: 1 3/4 inches
 Hole Depth: 36
 Well Diameter: NA
 Well Depth: NA
 Casing Stickup: NA

B-2
 Page 1 of 2

Location Map
 Please see site map
 ▽ = First Water
 ▼ = Measured Water Level
 Prior to Grouting Borehole

Elevation Northing Easting

Well Completion Backfill Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
						↑		Hand Augered to 5 feet
					1		CL	Lean Clay, black, medium plasticity
					2			
					3		CL	Sandy Lean Clay, grey-green, low-medium plasticity
					4			
					5	▼		
		Moist	20.2		6		CL	Lean Clay, black, 5-10% fine sand, medium plasticity
		Moist	76.8		7		CL	Lean Clay with Sand, dark brown, 10-20% fine sand, low plasticity
	▼ 8.2	Moist	161		8			As above: brown
		Moist	925		9			As above: 15-25% fine sand
		Moist	1093		10			As above: 10-20% fine sand
		Moist	311.0		11			As above: 20-25% fine sand
		Moist	508		12		CL	Sandy Lean Clay, brown, 20-30% fine sand, low plasticity
	▽	Wet	195		13			As above: dark gray, 30-40% fine sand
		Wet	172		14		SC	Clayey Sand, dark gray, trace fine gravel, 20-30% plastic fines
			56.7		15			As above: 4 inch thick lense of lean clay at 15.5 feet
					16			No recovery
					17			No recovery
					18			
					19			
		Wet	58.6		20		CL	Sandy Lean Clay, gray, 20-30% fine sand, low to medium plasticity
					21			
					22			

Delta Consultants

Project No: c100746006
 Logged By: E. Chantikian
 Driller: Gregg Drilling and Testing
 Drilling Method: CPT
 Sampling Method: Direct Push
 Casing Type: NA
 Slot Size: NA
 Gravel Pack: NA

Client: ConocoPhillips
 Location: 3943 Broadway, Oakland, CA
 Date Drilled: 8/27/09
 Hole Diameter: 1 3/4 inches
 Hole Depth: 36
 Well Diameter: NA
 Well Depth: NA
 Casing Stickup: NA

B-2
 Page 2 of 2

Location Map

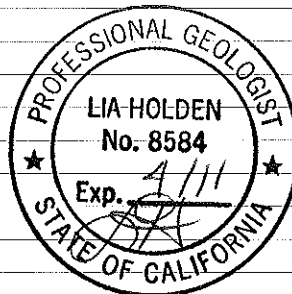
Please see site map

▽ = First Water

▼ = Measured Water Level
 Prior to Grouting Borehole

Elevation Northing Easting

Well Completion Backfill Casing	Static Water Level	Moisture Content	PID Reading (ppm)	Penetration (blows/6")	Depth (feet)	Sample Recovery Interval	Soil Type	LITHOLOGY / DESCRIPTION
					23			Lean Clay with Sand continued
		Wet	49.9		24			
					25		CL	Sandy Lean Clay, dark brown mottled with light brown, 20-30% fine sand, low to medium plasticity
					26			
					27			
					28			
					29			
		Damp	30.7		30		CL	Lean Clay with Sand, light brown, 15-20% fine sand, low to medium plasticity
					31			
					32			
					33			
					34			
		Damp	0.0		35		CL	Sandy Lean Clay, light brown, 35-40% fine sand, low plasticity
					36			
					37			Bottom of boring = 36 feet
					38			
					39			
					40			
					41			
					42			
					43			
					44			



Attachment F
Certified Laboratory Analytical Report



Laboratories, Inc.

Environmental Testing Laboratory Since 1949



Date of Report: 09/15/2009

Lia Holden

Delta Environmental

312 Piercy Rd

San Jose, CA 95138

RE: 0746

BC Work Order: 0911376

Invoice ID: B067933

Enclosed are the results of analyses for samples received by the laboratory on 8/28/2009. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Molly Meyers

Client Service Rep

Authorized Signature



Delta Environmental
312 Piercy Rd
San Jose, CA 95138

Project: 0746
Project Number: 4512169612
Project Manager: Lia Holden

Reported: 09/15/2009 14:59

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information					
0911376-01	COC Number:	---		Receive Date:	08/28/2009 19:15	Delivery Work Order:
	Project Number:	0746		Sampling Date:	08/27/2009 04:40	Global ID: T0600101471
	Sampling Location:	---		Sample Depth:	---	Location ID (FieldPoint): B-2
	Sampling Point:	B-2@12-15		Sample Matrix:	Water	Matrix: W
	Sampled By:	DECJ				Sample QC Type (SACode): CS Cooler ID:
0911376-02	COC Number:	---		Receive Date:	08/28/2009 19:15	Delivery Work Order:
	Project Number:	0746		Sampling Date:	08/27/2009 04:55	Global ID: T0600101471
	Sampling Location:	---		Sample Depth:	---	Location ID (FieldPoint): B-2
	Sampling Point:	B-2@23-25		Sample Matrix:	Water	Matrix: W
	Sampled By:	DECJ				Sample QC Type (SACode): CS Cooler ID:
0911376-03	COC Number:	---		Receive Date:	08/28/2009 19:15	Delivery Work Order:
	Project Number:	0746		Sampling Date:	08/27/2009 05:25	Global ID: T0600101471
	Sampling Location:	---		Sample Depth:	---	Location ID (FieldPoint): B-2
	Sampling Point:	B-2@32-34.5		Sample Matrix:	Water	Matrix: W
	Sampled By:	DECJ				Sample QC Type (SACode): CS Cooler ID:
0911376-04	COC Number:	---		Receive Date:	08/28/2009 19:15	Delivery Work Order:
	Project Number:	0746		Sampling Date:	08/27/2009 03:51	Global ID: T0600101471
	Sampling Location:	---		Sample Depth:	---	Location ID (FieldPoint): B-2
	Sampling Point:	B-2@35		Sample Matrix:	Solids	Matrix: SO
	Sampled By:	DECJ				Sample QC Type (SACode): CS Cooler ID:



Delta Environmental
312 Piercy Rd
San Jose, CA 95138

Project: 0746
Project Number: 4512169612
Project Manager: Lia Holden

Reported: 09/15/2009 14:59

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			Receive Date:	Sampling Date:	Sample Depth:	Sample Matrix:	Delivery Work Order:
0911376-05	COC Number:	---		08/28/2009 19:15	08/27/2009 02:50	---	Solids	Global ID: T0600101471
	Project Number:	0746						Location ID (FieldPoint): B-2
	Sampling Location:	---						Matrix: SO
	Sampling Point:	B-2@12						Sample QC Type (SACode): CS
	Sampled By:	DECJ						Cooler ID:
0911376-06	COC Number:	---		08/28/2009 19:15	08/27/2009 02:42	---	Solids	Global ID: T0600101471
	Project Number:	0746						Location ID (FieldPoint): B-2
	Sampling Location:	---						Matrix: SO
	Sampling Point:	B-2@10						Sample QC Type (SACode): CS
	Sampled By:	DECJ						Cooler ID:
0911376-07	COC Number:	---		08/28/2009 19:15	08/27/2009 02:55	---	Solids	Global ID: T0600101471
	Project Number:	0746						Location ID (FieldPoint): B-2
	Sampling Location:	---						Matrix: SO
	Sampling Point:	B-2@13						Sample QC Type (SACode): CS
	Sampled By:	DECJ						Cooler ID:
0911376-08	COC Number:	---		08/28/2009 19:15	08/27/2009 02:27	---	Solids	Global ID: T0600101471
	Project Number:	0746						Location ID (FieldPoint): B-2
	Sampling Location:	---						Matrix: SO
	Sampling Point:	B-2@6						Sample QC Type (SACode): CS
	Sampled By:	DECJ						Cooler ID:



Delta Environmental
312 Piercy Rd
San Jose, CA 95138

Project: 0746
Project Number: 4512169612
Project Manager: Lia Holden

Reported: 09/15/2009 14:59

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			Receive Date:	Sampling Date:	Sample Depth:	Sample Matrix:	Delivery Work Order:
0911376-16	COC Number:	---		08/28/2009 19:15	08/27/2009 10:35	---	Water	Global ID: T0600101471
	Project Number:	0746						Location ID (FieldPoint): B-1
	Sampling Location:	---						Matrix: W
	Sampling Point:	B-1@12.5-15.5						Sample QC Type (SACode): CS
	Sampled By:	DECJ						Cooler ID:
0911376-17	COC Number:	---		08/28/2009 19:15	08/27/2009 10:50	---	Water	Global ID: T0600101471
	Project Number:	0746						Location ID (FieldPoint): B-1
	Sampling Location:	---						Matrix: W
	Sampling Point:	B-1@22-24						Sample QC Type (SACode): CS
	Sampled By:	DECJ						Cooler ID:
0911376-18	COC Number:	---		08/28/2009 19:15	08/27/2009 11:10	---	Water	Global ID: T0600101471
	Project Number:	0746						Location ID (FieldPoint): B-1
	Sampling Location:	---						Matrix: W
	Sampling Point:	B-1@33-35						Sample QC Type (SACode): CS
	Sampled By:	DECJ						Cooler ID:
0911376-19	COC Number:	---		08/28/2009 19:15	08/27/2009 08:45	---	Solids	Global ID: T0600101471
	Project Number:	0746						Location ID (FieldPoint): B-1
	Sampling Location:	---						Matrix: SO
	Sampling Point:	B-1@6						Sample QC Type (SACode): CS
	Sampled By:	DECJ						Cooler ID:



Delta Environmental
312 Piercy Rd
San Jose, CA 95138

Project: 0746
Project Number: 4512169612
Project Manager: Lia Holden

Reported: 09/15/2009 14:59

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information					
0911376-23	COC Number:	---		Receive Date:	08/28/2009 19:15	Delivery Work Order:
	Project Number:	0746		Sampling Date:	08/27/2009 09:00	Global ID: T0600101471
	Sampling Location:	---		Sample Depth:	---	Location ID (FieldPoint): B-1
	Sampling Point:	B-1@10		Sample Matrix:	Solids	Matrix: SO
	Sampled By:	DECJ				Sample QC Type (SACode): CS Cooler ID:
0911376-26	COC Number:	---		Receive Date:	08/28/2009 19:15	Delivery Work Order:
	Project Number:	0746		Sampling Date:	08/27/2009 09:10	Global ID: T0600101471
	Sampling Location:	---		Sample Depth:	---	Location ID (FieldPoint): B-1
	Sampling Point:	B-1@13		Sample Matrix:	Solids	Matrix: SO
	Sampled By:	DECJ				Sample QC Type (SACode): CS Cooler ID:
0911376-27	COC Number:	---		Receive Date:	08/28/2009 19:15	Delivery Work Order:
	Project Number:	0746		Sampling Date:	08/27/2009 09:11	Global ID: T0600101471
	Sampling Location:	---		Sample Depth:	---	Location ID (FieldPoint): B-1
	Sampling Point:	B-1@14		Sample Matrix:	Solids	Matrix: SO
	Sampled By:	DECJ				Sample QC Type (SACode): CS Cooler ID:
0911376-31	COC Number:	---		Receive Date:	08/28/2009 19:15	Delivery Work Order:
	Project Number:	0746		Sampling Date:	08/27/2009 09:50	Global ID: T0600101471
	Sampling Location:	---		Sample Depth:	---	Location ID (FieldPoint): B-1
	Sampling Point:	B-1@35		Sample Matrix:	Solids	Matrix: SO
	Sampled By:	DECJ				Sample QC Type (SACode): CS Cooler ID:



Delta Environmental
312 Piercy Rd
San Jose, CA 95138

Project: 0746
Project Number: 4512169612
Project Manager: Lia Holden

Reported: 09/15/2009 14:59

Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID: 0911376-01		Client Sample Name: 0746, B-2@12-15, 8/27/2009 4:40:00AM											
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals	
Benzene	8.9	ug/L	5.0	EPA-8260	08/31/09	08/31/09 16:29	KEA	MS-V12	10	BSH1914	ND	A01,Z1	
1,2-Dibromoethane	ND	ug/L	5.0	EPA-8260	08/31/09	08/31/09 16:29	KEA	MS-V12	10	BSH1914	ND	A01,Z1	
1,2-Dichloroethane	ND	ug/L	5.0	EPA-8260	08/31/09	08/31/09 16:29	KEA	MS-V12	10	BSH1914	ND	A01,Z1	
Ethylbenzene	26	ug/L	5.0	EPA-8260	08/31/09	08/31/09 16:29	KEA	MS-V12	10	BSH1914	ND	A01,Z1	
Methyl t-butyl ether	59	ug/L	5.0	EPA-8260	08/31/09	08/31/09 16:29	KEA	MS-V12	10	BSH1914	ND	A01,Z1	
Toluene	ND	ug/L	5.0	EPA-8260	08/31/09	08/31/09 16:29	KEA	MS-V12	10	BSH1914	ND	A01,Z1	
Total Xylenes	74	ug/L	10	EPA-8260	08/31/09	08/31/09 16:29	KEA	MS-V12	10	BSH1914	ND	A01,Z1	
t-Amyl Methyl ether	ND	ug/L	5.0	EPA-8260	08/31/09	08/31/09 16:29	KEA	MS-V12	10	BSH1914	ND	A01,Z1	
t-Butyl alcohol	ND	ug/L	100	EPA-8260	08/31/09	08/31/09 16:29	KEA	MS-V12	10	BSH1914	ND	A01,Z1	
Diisopropyl ether	ND	ug/L	5.0	EPA-8260	08/31/09	08/31/09 16:29	KEA	MS-V12	10	BSH1914	ND	A01,Z1	
Ethanol	ND	ug/L	2500	EPA-8260	08/31/09	08/31/09 16:29	KEA	MS-V12	10	BSH1914	ND	A01,Z1	
Ethyl t-butyl ether	ND	ug/L	5.0	EPA-8260	08/31/09	08/31/09 16:29	KEA	MS-V12	10	BSH1914	ND	A01,Z1	
1,2-Dichloroethane-d4 (Surrogate)	112	%	76 - 114 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 16:29	KEA	MS-V12	10	BSH1914			
Toluene-d8 (Surrogate)	92.4	%	88 - 110 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 16:29	KEA	MS-V12	10	BSH1914			
4-Bromofluorobenzene (Surrogate)	109	%	86 - 115 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 16:29	KEA	MS-V12	10	BSH1914			



Delta Environmental
312 Piercy Rd
San Jose, CA 95138

Project: 0746
Project Number: 4512169612
Project Manager: Lia Holden

Reported: 09/15/2009 14:59

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 0911376-01		Client Sample Name: 0746, B-2@12-15, 8/27/2009 4:40:00AM											
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals	
Gasoline Range Organics (C4 - C12)	3200	ug/L	500	Luft	08/31/09	09/01/09 10:57	jjh	GC-V4	10	BSH2003	ND	A01	
a,a,a-Trifluorotoluene (FID Surrogate)	102	%	70 - 130 (LCL - UCL)	Luft	08/31/09	09/01/09 10:57	jjh	GC-V4	10	BSH2003			



Delta Environmental
312 Piercy Rd
San Jose, CA 95138

Project: 0746
Project Number: 4512169612
Project Manager: Lia Holden

Reported: 09/15/2009 14:59

Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID:	0911376-02		Client Sample Name:	0746, B-2@23-25, 8/27/2009 4:55:00AM									
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals	
Benzene	39	ug/L	0.50	EPA-8260	08/31/09	08/31/09 15:53	KEA	MS-V12	1	BSH1914	ND		
1,2-Dibromoethane	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 15:53	KEA	MS-V12	1	BSH1914	ND		
1,2-Dichloroethane	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 15:53	KEA	MS-V12	1	BSH1914	ND		
Ethylbenzene	83	ug/L	0.50	EPA-8260	08/31/09	08/31/09 15:53	KEA	MS-V12	1	BSH1914	ND		
Methyl t-butyl ether	2.3	ug/L	0.50	EPA-8260	08/31/09	08/31/09 15:53	KEA	MS-V12	1	BSH1914	ND		
Toluene	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 15:53	KEA	MS-V12	1	BSH1914	ND		
Total Xylenes	240	ug/L	1.0	EPA-8260	08/31/09	08/31/09 15:53	KEA	MS-V12	1	BSH1914	ND		
t-Amyl Methyl ether	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 15:53	KEA	MS-V12	1	BSH1914	ND		
t-Butyl alcohol	ND	ug/L	10	EPA-8260	08/31/09	08/31/09 15:53	KEA	MS-V12	1	BSH1914	ND		
Diisopropyl ether	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 15:53	KEA	MS-V12	1	BSH1914	ND		
Ethanol	ND	ug/L	250	EPA-8260	08/31/09	08/31/09 15:53	KEA	MS-V12	1	BSH1914	ND		
Ethyl t-butyl ether	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 15:53	KEA	MS-V12	1	BSH1914	ND		
1,2-Dichloroethane-d4 (Surrogate)	104	%	76 - 114 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 15:53	KEA	MS-V12	1	BSH1914			
Toluene-d8 (Surrogate)	103	%	88 - 110 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 15:53	KEA	MS-V12	1	BSH1914			
4-Bromofluorobenzene (Surrogate)	94.2	%	86 - 115 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 15:53	KEA	MS-V12	1	BSH1914			



Delta Environmental
312 Piercy Rd
San Jose, CA 95138

Project: 0746
Project Number: 4512169612
Project Manager: Lia Holden

Reported: 09/15/2009 14:59

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 0911376-02	Client Sample Name: 0746, B-2@23-25, 8/27/2009 4:55:00AM
----------------------------------	---

Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Gasoline Range Organics (C4 - C12)	770	ug/L	50	Luft	08/31/09	09/01/09 14:07	jjh	GC-V4	1	BSH2003	ND	
a,a,a-Trifluorotoluene (FID Surrogate)	127	%	70 - 130 (LCL - UCL)	Luft	08/31/09	09/01/09 14:07	jjh	GC-V4	1	BSH2003		



Delta Environmental
312 Piercy Rd
San Jose, CA 95138

Project: 0746
Project Number: 4512169612
Project Manager: Lia Holden

Reported: 09/15/2009 14:59

Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID: 0911376-03		Client Sample Name: 0746, B-2@32-34.5, 8/27/2009 5:25:00AM										
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Benzene	11	ug/L	0.50	EPA-8260	08/31/09	08/31/09 15:35	KEA	MS-V12	1	BSH1914	ND	
1,2-Dibromoethane	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 15:35	KEA	MS-V12	1	BSH1914	ND	
1,2-Dichloroethane	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 15:35	KEA	MS-V12	1	BSH1914	ND	
Ethylbenzene	11	ug/L	0.50	EPA-8260	08/31/09	08/31/09 15:35	KEA	MS-V12	1	BSH1914	ND	
Methyl t-butyl ether	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 15:35	KEA	MS-V12	1	BSH1914	ND	
Toluene	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 15:35	KEA	MS-V12	1	BSH1914	ND	
Total Xylenes	22	ug/L	1.0	EPA-8260	08/31/09	08/31/09 15:35	KEA	MS-V12	1	BSH1914	ND	
t-Amyl Methyl ether	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 15:35	KEA	MS-V12	1	BSH1914	ND	
t-Butyl alcohol	ND	ug/L	10	EPA-8260	08/31/09	08/31/09 15:35	KEA	MS-V12	1	BSH1914	ND	
Diisopropyl ether	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 15:35	KEA	MS-V12	1	BSH1914	ND	
Ethanol	ND	ug/L	250	EPA-8260	08/31/09	08/31/09 15:35	KEA	MS-V12	1	BSH1914	ND	
Ethyl t-butyl ether	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 15:35	KEA	MS-V12	1	BSH1914	ND	
1,2-Dichloroethane-d4 (Surrogate)	102	%	76 - 114 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 15:35	KEA	MS-V12	1	BSH1914		
Toluene-d8 (Surrogate)	99.4	%	88 - 110 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 15:35	KEA	MS-V12	1	BSH1914		
4-Bromofluorobenzene (Surrogate)	97.5	%	86 - 115 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 15:35	KEA	MS-V12	1	BSH1914		



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Project: 0746
Project Number: 4512169612
Project Manager: Lia Holden

Reported: 09/15/2009 14:59

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID:	0911376-03	Client Sample Name:	0746, B-2@32-34.5, 8/27/2009 5:25:00AM									
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Gasoline Range Organics (C4 - C12)	370	ug/L	50	Luft	08/31/09	08/31/09 11:59	jjh	GC-V4	1	BSH2003	ND	
a,a,a-Trifluorotoluene (FID Surrogate)	125	%	70 - 130 (LCL - UCL)	Luft	08/31/09	08/31/09 11:59	jjh	GC-V4	1	BSH2003		



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Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID:	0911376-04		Client Sample Name:	0746, B-2@35, 8/27/2009 3:51:00AM									
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals	
Benzene	ND	mg/kg	0.050	EPA-8260	08/31/09	09/01/09 15:12	ADC	MS-V2	10	BSH1912	ND	A10,Z1a	
1,2-Dibromoethane	ND	mg/kg	0.050	EPA-8260	08/31/09	09/01/09 15:12	ADC	MS-V2	10	BSH1912	ND	A10,Z1a	
1,2-Dichloroethane	ND	mg/kg	0.050	EPA-8260	08/31/09	09/01/09 15:12	ADC	MS-V2	10	BSH1912	ND	A10,Z1a	
Ethylbenzene	ND	mg/kg	0.050	EPA-8260	08/31/09	09/01/09 15:12	ADC	MS-V2	10	BSH1912	ND	A10,Z1a	
Methyl t-butyl ether	ND	mg/kg	0.050	EPA-8260	08/31/09	09/01/09 15:12	ADC	MS-V2	10	BSH1912	ND	A10,Z1a	
Toluene	ND	mg/kg	0.050	EPA-8260	08/31/09	09/01/09 15:12	ADC	MS-V2	10	BSH1912	ND	A10,Z1a	
Total Xylenes	ND	mg/kg	0.10	EPA-8260	08/31/09	09/01/09 15:12	ADC	MS-V2	10	BSH1912	ND	A10,Z1a	
t-Amyl Methyl ether	ND	mg/kg	0.050	EPA-8260	08/31/09	09/01/09 15:12	ADC	MS-V2	10	BSH1912	ND	A10,Z1a	
t-Butyl alcohol	ND	mg/kg	0.50	EPA-8260	08/31/09	09/01/09 15:12	ADC	MS-V2	10	BSH1912	ND	A10,Z1a	
Diisopropyl ether	ND	mg/kg	0.050	EPA-8260	08/31/09	09/01/09 15:12	ADC	MS-V2	10	BSH1912	ND	A10,Z1a	
Ethanol	ND	mg/kg	10	EPA-8260	08/31/09	09/01/09 15:12	ADC	MS-V2	10	BSH1912	ND	A10,Z1a	
Ethyl t-butyl ether	ND	mg/kg	0.050	EPA-8260	08/31/09	09/01/09 15:12	ADC	MS-V2	10	BSH1912	ND	A10,Z1a	
1,2-Dichloroethane-d4 (Surrogate)	93.4	%	70 - 121 (LCL - UCL)	EPA-8260	08/31/09	09/01/09 15:12	ADC	MS-V2	10	BSH1912			
Toluene-d8 (Surrogate)	96.3	%	81 - 117 (LCL - UCL)	EPA-8260	08/31/09	09/01/09 15:12	ADC	MS-V2	10	BSH1912			
4-Bromofluorobenzene (Surrogate)	101	%	74 - 121 (LCL - UCL)	EPA-8260	08/31/09	09/01/09 15:12	ADC	MS-V2	10	BSH1912			



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Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID:	0911376-04	Client Sample Name:	0746, B-2@35, 8/27/2009 3:51:00AM									
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Gasoline Range Organics (C4 - C12)	ND	mg/kg	1.0	Luft	08/31/09	09/01/09 08:50	JJH	GC-V8	1	BSH1727	ND	
a,a,a-Trifluorotoluene (FID Surrogate)	86.5	%	70 - 130 (LCL - UCL)	Luft	08/31/09	09/01/09 08:50	JJH	GC-V8	1	BSH1727		



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Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID:	0911376-05		Client Sample Name:	0746, B-2@12, 8/27/2009 2:50:00AM									
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals	
Benzene	0.71	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 16:25	ADC	MS-V2	25	BSH1912	ND	A01	
1,2-Dibromoethane	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 16:25	ADC	MS-V2	25	BSH1912	ND	A01	
1,2-Dichloroethane	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 16:25	ADC	MS-V2	25	BSH1912	ND	A01	
Ethylbenzene	42	mg/kg	0.50	EPA-8260	08/31/09	09/10/09 14:43	ADC	MS-V2	100	BSH1912	ND	A01	
Methyl t-butyl ether	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 16:25	ADC	MS-V2	25	BSH1912	ND	A01	
Toluene	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 16:25	ADC	MS-V2	25	BSH1912	ND	A01	
Total Xylenes	130	mg/kg	2.0	EPA-8260	08/31/09	09/10/09 16:28	ADC	MS-V2	200	BSH1912	ND	A01	
t-Amyl Methyl ether	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 16:25	ADC	MS-V2	25	BSH1912	ND	A01	
t-Butyl alcohol	ND	mg/kg	1.2	EPA-8260	08/31/09	08/31/09 16:25	ADC	MS-V2	25	BSH1912	ND	A01	
Diisopropyl ether	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 16:25	ADC	MS-V2	25	BSH1912	ND	A01	
Ethanol	ND	mg/kg	25	EPA-8260	08/31/09	08/31/09 16:25	ADC	MS-V2	25	BSH1912	ND	A01	
Ethyl t-butyl ether	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 16:25	ADC	MS-V2	25	BSH1912	ND	A01	
1,2-Dichloroethane-d4 (Surrogate)	101	%	70 - 121 (LCL - UCL)	EPA-8260	08/31/09	09/10/09 14:43	ADC	MS-V2	100	BSH1912			
1,2-Dichloroethane-d4 (Surrogate)	95.4	%	70 - 121 (LCL - UCL)	EPA-8260	08/31/09	09/10/09 16:28	ADC	MS-V2	200	BSH1912			
1,2-Dichloroethane-d4 (Surrogate)	102	%	70 - 121 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 16:25	ADC	MS-V2	25	BSH1912			
Toluene-d8 (Surrogate)	98.3	%	81 - 117 (LCL - UCL)	EPA-8260	08/31/09	09/10/09 16:28	ADC	MS-V2	200	BSH1912			
Toluene-d8 (Surrogate)	97.9	%	81 - 117 (LCL - UCL)	EPA-8260	08/31/09	09/10/09 14:43	ADC	MS-V2	100	BSH1912			
Toluene-d8 (Surrogate)	105	%	81 - 117 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 16:25	ADC	MS-V2	25	BSH1912			
4-Bromofluorobenzene (Surrogate)	104	%	74 - 121 (LCL - UCL)	EPA-8260	08/31/09	09/10/09 14:43	ADC	MS-V2	100	BSH1912			
4-Bromofluorobenzene (Surrogate)	102	%	74 - 121 (LCL - UCL)	EPA-8260	08/31/09	09/10/09 16:28	ADC	MS-V2	200	BSH1912			
4-Bromofluorobenzene (Surrogate)	111	%	74 - 121 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 16:25	ADC	MS-V2	25	BSH1912			



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Project: 0746
Project Number: 4512169612
Project Manager: Lia Holden

Reported: 09/15/2009 14:59

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 0911376-05	Client Sample Name: 0746, B-2@12, 8/27/2009 2:50:00AM												
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals	
Gasoline Range Organics (C4 - C12)	760	mg/kg	100	Luft	08/31/09	08/31/09 10:33	JJH	GC-V8	100	BSH1727	ND	A01	
a,a,a-Trifluorotoluene (FID Surrogate)	92.8	%	70 - 130 (LCL - UCL)	Luft	08/31/09	08/31/09 10:33	JJH	GC-V8	100	BSH1727			



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Reported: 09/15/2009 14:59

Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID:	0911376-06		Client Sample Name:	0746, B-2@10, 8/27/2009 2:42:00AM									
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals	
Benzene	1.9	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 16:51	ADC	MS-V2	25	BSH1912	ND	A01	
1,2-Dibromoethane	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 16:51	ADC	MS-V2	25	BSH1912	ND	A01	
1,2-Dichloroethane	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 16:51	ADC	MS-V2	25	BSH1912	ND	A01	
Ethylbenzene	10	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 16:51	ADC	MS-V2	25	BSH1912	ND	A01	
Methyl t-butyl ether	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 16:51	ADC	MS-V2	25	BSH1912	ND	A01	
Toluene	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 16:51	ADC	MS-V2	25	BSH1912	ND	A01	
Total Xylenes	24	mg/kg	0.25	EPA-8260	08/31/09	08/31/09 16:51	ADC	MS-V2	25	BSH1912	ND	A01	
t-Amyl Methyl ether	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 16:51	ADC	MS-V2	25	BSH1912	ND	A01	
t-Butyl alcohol	ND	mg/kg	1.2	EPA-8260	08/31/09	08/31/09 16:51	ADC	MS-V2	25	BSH1912	ND	A01	
Diisopropyl ether	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 16:51	ADC	MS-V2	25	BSH1912	ND	A01	
Ethanol	ND	mg/kg	25	EPA-8260	08/31/09	08/31/09 16:51	ADC	MS-V2	25	BSH1912	ND	A01	
Ethyl t-butyl ether	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 16:51	ADC	MS-V2	25	BSH1912	ND	A01	
1,2-Dichloroethane-d4 (Surrogate)	95.3	%	70 - 121 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 16:51	ADC	MS-V2	25	BSH1912			
Toluene-d8 (Surrogate)	100	%	81 - 117 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 16:51	ADC	MS-V2	25	BSH1912			
4-Bromofluorobenzene (Surrogate)	106	%	74 - 121 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 16:51	ADC	MS-V2	25	BSH1912			



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Project: 0746
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Reported: 09/15/2009 14:59

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 0911376-06		Client Sample Name: 0746, B-2@10, 8/27/2009 2:42:00AM											
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals	
Gasoline Range Organics (C4 - C12)	250	mg/kg	100	Luft	08/31/09	08/31/09 11:03	JJH	GC-V8	100	BSH1727	ND	A01	
a,a,a-Trifluorotoluene (FID Surrogate)	97.8	%	70 - 130 (LCL - UCL)	Luft	08/31/09	08/31/09 11:03	JJH	GC-V8	100	BSH1727			



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Total Concentrations (TTLIC)

BCL Sample ID: 0911376-06	Client Sample Name: 0746, B-2@10, 8/27/2009 2:42:00AM
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Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Lead	11	mg/kg	2.5	EPA-6010 B	09/01/09	09/02/09 09:41	ARD	PE-OP1	0.962	BSI0038	ND	

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Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID:	0911376-07		Client Sample Name:	0746, B-2@13, 8/27/2009 2:55:00AM									
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals	
Benzene	0.22	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 17:17	ADC	MS-V2	25	BSH1912	ND	A01	
1,2-Dibromoethane	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 17:17	ADC	MS-V2	25	BSH1912	ND	A01	
1,2-Dichloroethane	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 17:17	ADC	MS-V2	25	BSH1912	ND	A01	
Ethylbenzene	6.3	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 17:17	ADC	MS-V2	25	BSH1912	ND	A01	
Methyl t-butyl ether	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 17:17	ADC	MS-V2	25	BSH1912	ND	A01	
Toluene	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 17:17	ADC	MS-V2	25	BSH1912	ND	A01	
Total Xylenes	12	mg/kg	0.25	EPA-8260	08/31/09	08/31/09 17:17	ADC	MS-V2	25	BSH1912	ND	A01	
t-Amyl Methyl ether	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 17:17	ADC	MS-V2	25	BSH1912	ND	A01	
t-Butyl alcohol	ND	mg/kg	1.2	EPA-8260	08/31/09	08/31/09 17:17	ADC	MS-V2	25	BSH1912	ND	A01	
Diisopropyl ether	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 17:17	ADC	MS-V2	25	BSH1912	ND	A01	
Ethanol	ND	mg/kg	25	EPA-8260	08/31/09	08/31/09 17:17	ADC	MS-V2	25	BSH1912	ND	A01	
Ethyl t-butyl ether	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 17:17	ADC	MS-V2	25	BSH1912	ND	A01	
1,2-Dichloroethane-d4 (Surrogate)	109	%	70 - 121 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 17:17	ADC	MS-V2	25	BSH1912			
Toluene-d8 (Surrogate)	106	%	81 - 117 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 17:17	ADC	MS-V2	25	BSH1912			
4-Bromofluorobenzene (Surrogate)	118	%	74 - 121 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 17:17	ADC	MS-V2	25	BSH1912			



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Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 0911376-07		Client Sample Name: 0746, B-2@13, 8/27/2009 2:55:00AM											
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals	
Gasoline Range Organics (C4 - C12)	790	mg/kg	100	Luft	08/31/09	08/31/09 11:34	JJH	GC-V8	100	BSH1727	ND	A01	
a,a,a-Trifluorotoluene (FID Surrogate)	111	%	70 - 130 (LCL - UCL)	Luft	08/31/09	08/31/09 11:34	JJH	GC-V8	100	BSH1727			

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Project: 0746
Project Number: 4512169612
Project Manager: Lia Holden

Reported: 09/15/2009 14:59

Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID:	0911376-08		Client Sample Name:	0746, B-2@6, 8/27/2009 2:27:00AM								
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Benzene	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 13:49	ADC	MS-V2	1	BSH1912	ND	
1,2-Dibromoethane	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 13:49	ADC	MS-V2	1	BSH1912	ND	
1,2-Dichloroethane	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 13:49	ADC	MS-V2	1	BSH1912	ND	
Ethylbenzene	0.0093	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 13:49	ADC	MS-V2	1	BSH1912	ND	
Methyl t-butyl ether	0.0085	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 13:49	ADC	MS-V2	1	BSH1912	ND	
Toluene	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 13:49	ADC	MS-V2	1	BSH1912	ND	
Total Xylenes	0.015	mg/kg	0.010	EPA-8260	08/31/09	08/31/09 13:49	ADC	MS-V2	1	BSH1912	ND	
t-Amyl Methyl ether	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 13:49	ADC	MS-V2	1	BSH1912	ND	
t-Butyl alcohol	ND	mg/kg	0.050	EPA-8260	08/31/09	08/31/09 13:49	ADC	MS-V2	1	BSH1912	ND	
Diisopropyl ether	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 13:49	ADC	MS-V2	1	BSH1912	ND	
Ethanol	ND	mg/kg	1.0	EPA-8260	08/31/09	08/31/09 13:49	ADC	MS-V2	1	BSH1912	ND	
Ethyl t-butyl ether	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 13:49	ADC	MS-V2	1	BSH1912	ND	
1,2-Dichloroethane-d4 (Surrogate)	102	%	70 - 121 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 13:49	ADC	MS-V2	1	BSH1912		
Toluene-d8 (Surrogate)	101	%	81 - 117 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 13:49	ADC	MS-V2	1	BSH1912		
4-Bromofluorobenzene (Surrogate)	100	%	74 - 121 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 13:49	ADC	MS-V2	1	BSH1912		



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Project: 0746
Project Number: 4512169612
Project Manager: Lia Holden

Reported: 09/15/2009 14:59

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 0911376-08	Client Sample Name: 0746, B-2@6, 8/27/2009 2:27:00AM
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Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Gasoline Range Organics (C4 - C12)	6.6	mg/kg	1.0	Luft	08/31/09	09/01/09 09:51	JJH	GC-V8	1	BSH1727	ND	
a,a,a-Trifluorotoluene (FID Surrogate)	93.0	%	70 - 130 (LCL - UCL)	Luft	08/31/09	09/01/09 09:51	JJH	GC-V8	1	BSH1727		



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Reported: 09/15/2009 14:59

Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID:	0911376-16		Client Sample Name:	0746, B-1@12.5-15.5, 8/27/2009 10:35:00AM								
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Benzene	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 14:39	KEA	MS-V12	1	BSH1914	ND	
1,2-Dibromoethane	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 14:39	KEA	MS-V12	1	BSH1914	ND	
1,2-Dichloroethane	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 14:39	KEA	MS-V12	1	BSH1914	ND	
Ethylbenzene	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 14:39	KEA	MS-V12	1	BSH1914	ND	
Methyl t-butyl ether	9.2	ug/L	0.50	EPA-8260	08/31/09	08/31/09 14:39	KEA	MS-V12	1	BSH1914	ND	
Toluene	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 14:39	KEA	MS-V12	1	BSH1914	ND	
Total Xylenes	ND	ug/L	1.0	EPA-8260	08/31/09	08/31/09 14:39	KEA	MS-V12	1	BSH1914	ND	
t-Amyl Methyl ether	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 14:39	KEA	MS-V12	1	BSH1914	ND	
t-Butyl alcohol	47	ug/L	10	EPA-8260	08/31/09	08/31/09 14:39	KEA	MS-V12	1	BSH1914	ND	
Diisopropyl ether	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 14:39	KEA	MS-V12	1	BSH1914	ND	
Ethanol	ND	ug/L	250	EPA-8260	08/31/09	08/31/09 14:39	KEA	MS-V12	1	BSH1914	ND	
Ethyl t-butyl ether	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 14:39	KEA	MS-V12	1	BSH1914	ND	
1,2-Dichloroethane-d4 (Surrogate)	102	%	76 - 114 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 14:39	KEA	MS-V12	1	BSH1914		
Toluene-d8 (Surrogate)	101	%	88 - 110 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 14:39	KEA	MS-V12	1	BSH1914		
4-Bromofluorobenzene (Surrogate)	105	%	86 - 115 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 14:39	KEA	MS-V12	1	BSH1914		



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Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 0911376-16	Client Sample Name: 0746, B-1@12.5-15.5, 8/27/2009 10:35:00AM
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Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Gasoline Range Organics (C4 - C12)	1700	ug/L	50	Luft	08/31/09	09/01/09 10:33	jjh	GC-V4	1	BSH2003	ND	
a,a,a-Trifluorotoluene (FID Surrogate)	104	%	70 - 130 (LCL - UCL)	Luft	08/31/09	09/01/09 10:33	jjh	GC-V4	1	BSH2003		

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Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID:	0911376-17		Client Sample Name:	0746, B-1@22-24, 8/27/2009 10:50:00AM									
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals	
Benzene	ND	ug/L	1.0	EPA-8260	08/31/09	08/31/09 16:11	KEA	MS-V12	2	BSH1914	ND	A01,Z1	
1,2-Dibromoethane	ND	ug/L	1.0	EPA-8260	08/31/09	08/31/09 16:11	KEA	MS-V12	2	BSH1914	ND	A01,Z1	
1,2-Dichloroethane	ND	ug/L	1.0	EPA-8260	08/31/09	08/31/09 16:11	KEA	MS-V12	2	BSH1914	ND	A01,Z1	
Ethylbenzene	ND	ug/L	1.0	EPA-8260	08/31/09	08/31/09 16:11	KEA	MS-V12	2	BSH1914	ND	A01,Z1	
Methyl t-butyl ether	1.0	ug/L	1.0	EPA-8260	08/31/09	08/31/09 16:11	KEA	MS-V12	2	BSH1914	ND	A01,Z1	
Toluene	ND	ug/L	1.0	EPA-8260	08/31/09	08/31/09 16:11	KEA	MS-V12	2	BSH1914	ND	A01,Z1	
Total Xylenes	ND	ug/L	2.0	EPA-8260	08/31/09	08/31/09 16:11	KEA	MS-V12	2	BSH1914	ND	A01,Z1	
t-Amyl Methyl ether	ND	ug/L	1.0	EPA-8260	08/31/09	08/31/09 16:11	KEA	MS-V12	2	BSH1914	ND	A01,Z1	
t-Butyl alcohol	ND	ug/L	20	EPA-8260	08/31/09	08/31/09 16:11	KEA	MS-V12	2	BSH1914	ND	A01,Z1	
Diisopropyl ether	ND	ug/L	1.0	EPA-8260	08/31/09	08/31/09 16:11	KEA	MS-V12	2	BSH1914	ND	A01,Z1	
Ethanol	ND	ug/L	500	EPA-8260	08/31/09	08/31/09 16:11	KEA	MS-V12	2	BSH1914	ND	A01,Z1	
Ethyl t-butyl ether	ND	ug/L	1.0	EPA-8260	08/31/09	08/31/09 16:11	KEA	MS-V12	2	BSH1914	ND	A01,Z1	
1,2-Dichloroethane-d4 (Surrogate)	99.4	%	76 - 114 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 16:11	KEA	MS-V12	2	BSH1914			
Toluene-d8 (Surrogate)	93.1	%	88 - 110 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 16:11	KEA	MS-V12	2	BSH1914			
4-Bromofluorobenzene (Surrogate)	121	%	86 - 115 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 16:11	KEA	MS-V12	2	BSH1914		A19,S09	



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Reported: 09/15/2009 14:59

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 0911376-17	Client Sample Name: 0746, B-1@22-24, 8/27/2009 10:50:00AM
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Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Gasoline Range Organics (C4 - C12)	1100	ug/L	50	Luft	08/31/09	08/31/09 18:24	jjh	GC-V4	1	BSH2003	ND	
a,a,a-Trifluorotoluene (FID Surrogate)	98.6	%	70 - 130 (LCL - UCL)	Luft	08/31/09	08/31/09 18:00	jjh	GC-V4	1	BSH2003		

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Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID:	0911376-18		Client Sample Name:	0746, B-1@33-35, 8/27/2009 11:10:00AM									
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals	
Benzene	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 14:02	KEA	MS-V12	1	BSH1914	ND		
1,2-Dibromoethane	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 14:02	KEA	MS-V12	1	BSH1914	ND		
1,2-Dichloroethane	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 14:02	KEA	MS-V12	1	BSH1914	ND		
Ethylbenzene	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 14:02	KEA	MS-V12	1	BSH1914	ND		
Methyl t-butyl ether	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 14:02	KEA	MS-V12	1	BSH1914	ND		
Toluene	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 14:02	KEA	MS-V12	1	BSH1914	ND		
Total Xylenes	ND	ug/L	1.0	EPA-8260	08/31/09	08/31/09 14:02	KEA	MS-V12	1	BSH1914	ND		
t-Amyl Methyl ether	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 14:02	KEA	MS-V12	1	BSH1914	ND		
t-Butyl alcohol	ND	ug/L	10	EPA-8260	08/31/09	08/31/09 14:02	KEA	MS-V12	1	BSH1914	ND		
Diisopropyl ether	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 14:02	KEA	MS-V12	1	BSH1914	ND		
Ethanol	ND	ug/L	250	EPA-8260	08/31/09	08/31/09 14:02	KEA	MS-V12	1	BSH1914	ND		
Ethyl t-butyl ether	ND	ug/L	0.50	EPA-8260	08/31/09	08/31/09 14:02	KEA	MS-V12	1	BSH1914	ND		
1,2-Dichloroethane-d4 (Surrogate)	104	%	76 - 114 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 14:02	KEA	MS-V12	1	BSH1914			
Toluene-d8 (Surrogate)	97.3	%	88 - 110 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 14:02	KEA	MS-V12	1	BSH1914			
4-Bromofluorobenzene (Surrogate)	103	%	86 - 115 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 14:02	KEA	MS-V12	1	BSH1914			



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Reported: 09/15/2009 14:59

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 0911376-18	Client Sample Name: 0746, B-1@33-35, 8/27/2009 11:10:00AM
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Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Gasoline Range Organics (C4 - C12)	ND	ug/L	50	Luft	08/31/09	09/01/09 09:45	jjh	GC-V4	1	BSH2003	ND	
a,a,a-Trifluorotoluene (FID Surrogate)	95.0	%	70 - 130 (LCL - UCL)	Luft	08/31/09	09/01/09 09:45	jjh	GC-V4	1	BSH2003		



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Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID:	0911376-19		Client Sample Name:	0746, B-1@6, 8/27/2009 8:45:00AM								
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Benzene	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 14:15	ADC	MS-V2	1	BSH1912	ND	
1,2-Dibromoethane	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 14:15	ADC	MS-V2	1	BSH1912	ND	
1,2-Dichloroethane	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 14:15	ADC	MS-V2	1	BSH1912	ND	
Ethylbenzene	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 14:15	ADC	MS-V2	1	BSH1912	ND	
Methyl t-butyl ether	0.0055	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 14:15	ADC	MS-V2	1	BSH1912	ND	
Toluene	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 14:15	ADC	MS-V2	1	BSH1912	ND	
Total Xylenes	ND	mg/kg	0.010	EPA-8260	08/31/09	08/31/09 14:15	ADC	MS-V2	1	BSH1912	ND	
t-Amyl Methyl ether	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 14:15	ADC	MS-V2	1	BSH1912	ND	
t-Butyl alcohol	ND	mg/kg	0.050	EPA-8260	08/31/09	08/31/09 14:15	ADC	MS-V2	1	BSH1912	ND	
Diisopropyl ether	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 14:15	ADC	MS-V2	1	BSH1912	ND	
Ethanol	ND	mg/kg	1.0	EPA-8260	08/31/09	08/31/09 14:15	ADC	MS-V2	1	BSH1912	ND	
Ethyl t-butyl ether	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 14:15	ADC	MS-V2	1	BSH1912	ND	
1,2-Dichloroethane-d4 (Surrogate)	97.0	%	70 - 121 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 14:15	ADC	MS-V2	1	BSH1912		
Toluene-d8 (Surrogate)	97.3	%	81 - 117 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 14:15	ADC	MS-V2	1	BSH1912		
4-Bromofluorobenzene (Surrogate)	102	%	74 - 121 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 14:15	ADC	MS-V2	1	BSH1912		



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Reported: 09/15/2009 14:59

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 0911376-19	Client Sample Name: 0746, B-1@6, 8/27/2009 8:45:00AM
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Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Gasoline Range Organics (C4 - C12)	1.3	mg/kg	1.0	Luft	08/31/09	08/31/09 12:35	JJH	GC-V8	1	BSH1727	ND	
a,a,a-Trifluorotoluene (FID Surrogate)	98.5	%	70 - 130 (LCL - UCL)	Luft	08/31/09	08/31/09 12:35	JJH	GC-V8	1	BSH1727		

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Project Number: 4512169612
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Reported: 09/15/2009 14:59

Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID:	0911376-23		Client Sample Name:	0746, B-1@10, 8/27/2009 9:00:00AM									
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals	
Benzene	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 17:43	ADC	MS-V2	25	BSH1912	ND	A01	
1,2-Dibromoethane	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 17:43	ADC	MS-V2	25	BSH1912	ND	A01	
1,2-Dichloroethane	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 17:43	ADC	MS-V2	25	BSH1912	ND	A01	
Ethylbenzene	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 17:43	ADC	MS-V2	25	BSH1912	ND	A01	
Methyl t-butyl ether	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 17:43	ADC	MS-V2	25	BSH1912	ND	A01	
Toluene	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 17:43	ADC	MS-V2	25	BSH1912	ND	A01	
Total Xylenes	ND	mg/kg	0.25	EPA-8260	08/31/09	08/31/09 17:43	ADC	MS-V2	25	BSH1912	ND	A01	
t-Amyl Methyl ether	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 17:43	ADC	MS-V2	25	BSH1912	ND	A01	
t-Butyl alcohol	ND	mg/kg	1.2	EPA-8260	08/31/09	08/31/09 17:43	ADC	MS-V2	25	BSH1912	ND	A01	
Diisopropyl ether	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 17:43	ADC	MS-V2	25	BSH1912	ND	A01	
Ethanol	ND	mg/kg	25	EPA-8260	08/31/09	08/31/09 17:43	ADC	MS-V2	25	BSH1912	ND	A01	
Ethyl t-butyl ether	ND	mg/kg	0.12	EPA-8260	08/31/09	08/31/09 17:43	ADC	MS-V2	25	BSH1912	ND	A01	
1,2-Dichloroethane-d4 (Surrogate)	95.6	%	70 - 121 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 17:43	ADC	MS-V2	25	BSH1912			
Toluene-d8 (Surrogate)	98.3	%	81 - 117 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 17:43	ADC	MS-V2	25	BSH1912			
4-Bromofluorobenzene (Surrogate)	106	%	74 - 121 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 17:43	ADC	MS-V2	25	BSH1912			



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Reported: 09/15/2009 14:59

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID:	0911376-23	Client Sample Name:	0746, B-1@10, 8/27/2009 9:00:00AM										
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals	
Gasoline Range Organics (C4 - C12)	120	mg/kg	100	Luft	08/31/09	08/31/09 13:36	JJH	GC-V8	100	BSI0118	ND	A01	
a,a,a-Trifluorotoluene (FID Surrogate)	101	%	70 - 130 (LCL - UCL)	Luft	08/31/09	08/31/09 13:36	JJH	GC-V8	100	BSI0118			

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Reported: 09/15/2009 14:59

Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID:	0911376-26		Client Sample Name:	0746, B-1@13, 8/27/2009 9:10:00AM								
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Benzene	ND	mg/kg	0.0050	EPA-8260	08/31/09	09/01/09 07:35	ADC	MS-V2	1	BSH1912	ND	
1,2-Dibromoethane	ND	mg/kg	0.0050	EPA-8260	08/31/09	09/01/09 07:35	ADC	MS-V2	1	BSH1912	ND	
1,2-Dichloroethane	ND	mg/kg	0.0050	EPA-8260	08/31/09	09/01/09 07:35	ADC	MS-V2	1	BSH1912	ND	
Ethylbenzene	ND	mg/kg	0.0050	EPA-8260	08/31/09	09/01/09 07:35	ADC	MS-V2	1	BSH1912	ND	
Methyl t-butyl ether	ND	mg/kg	0.0050	EPA-8260	08/31/09	09/01/09 07:35	ADC	MS-V2	1	BSH1912	ND	
Toluene	ND	mg/kg	0.0050	EPA-8260	08/31/09	09/01/09 07:35	ADC	MS-V2	1	BSH1912	ND	
Total Xylenes	ND	mg/kg	0.010	EPA-8260	08/31/09	09/01/09 07:35	ADC	MS-V2	1	BSH1912	ND	
t-Amyl Methyl ether	ND	mg/kg	0.0050	EPA-8260	08/31/09	09/01/09 07:35	ADC	MS-V2	1	BSH1912	ND	
t-Butyl alcohol	ND	mg/kg	0.050	EPA-8260	08/31/09	09/01/09 07:35	ADC	MS-V2	1	BSH1912	ND	
Diisopropyl ether	ND	mg/kg	0.0050	EPA-8260	08/31/09	09/01/09 07:35	ADC	MS-V2	1	BSH1912	ND	
Ethanol	ND	mg/kg	1.0	EPA-8260	08/31/09	09/01/09 07:35	ADC	MS-V2	1	BSH1912	ND	
Ethyl t-butyl ether	ND	mg/kg	0.0050	EPA-8260	08/31/09	09/01/09 07:35	ADC	MS-V2	1	BSH1912	ND	
1,2-Dichloroethane-d4 (Surrogate)	92.7	%	70 - 121 (LCL - UCL)	EPA-8260	08/31/09	09/01/09 07:35	ADC	MS-V2	1	BSH1912		
Toluene-d8 (Surrogate)	95.6	%	81 - 117 (LCL - UCL)	EPA-8260	08/31/09	09/01/09 07:35	ADC	MS-V2	1	BSH1912		
4-Bromofluorobenzene (Surrogate)	104	%	74 - 121 (LCL - UCL)	EPA-8260	08/31/09	09/01/09 07:35	ADC	MS-V2	1	BSH1912		



Delta Environmental
312 Piercy Rd
San Jose, CA 95138

Project: 0746
Project Number: 4512169612
Project Manager: Lia Holden

Reported: 09/15/2009 14:59

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 0911376-26		Client Sample Name: 0746, B-1@13, 8/27/2009 9:10:00AM											
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals	
Gasoline Range Organics (C4 - C12)	110	mg/kg	25	Luft	09/01/09	09/01/09 11:39	JJH	GC-V8	25	BSI0118	ND	A01	
a,a,a-Trifluorotoluene (FID Surrogate)	92.8	%	70 - 130 (LCL - UCL)	Luft	09/01/09	09/01/09 11:39	JJH	GC-V8	25	BSI0118			



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Project Number: 4512169612
Project Manager: Lia Holden

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Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID: 0911376-27	Client Sample Name: 0746, B-1@14, 8/27/2009 9:11:00AM
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Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Benzene	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 15:33	ADC	MS-V2	1	BSH1837	ND	
1,2-Dibromoethane	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 15:33	ADC	MS-V2	1	BSH1837	ND	
1,2-Dichloroethane	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 15:33	ADC	MS-V2	1	BSH1837	ND	
Ethylbenzene	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 15:33	ADC	MS-V2	1	BSH1837	ND	
Methyl t-butyl ether	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 15:33	ADC	MS-V2	1	BSH1837	ND	
Toluene	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 15:33	ADC	MS-V2	1	BSH1837	ND	
Total Xylenes	ND	mg/kg	0.010	EPA-8260	08/31/09	08/31/09 15:33	ADC	MS-V2	1	BSH1837	ND	
t-Amyl Methyl ether	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 15:33	ADC	MS-V2	1	BSH1837	ND	
t-Butyl alcohol	ND	mg/kg	0.050	EPA-8260	08/31/09	08/31/09 15:33	ADC	MS-V2	1	BSH1837	ND	
Diisopropyl ether	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 15:33	ADC	MS-V2	1	BSH1837	ND	
Ethanol	ND	mg/kg	1.0	EPA-8260	08/31/09	08/31/09 15:33	ADC	MS-V2	1	BSH1837	ND	
Ethyl t-butyl ether	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 15:33	ADC	MS-V2	1	BSH1837	ND	
1,2-Dichloroethane-d4 (Surrogate)	92.6	%	70 - 121 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 15:33	ADC	MS-V2	1	BSH1837		
Toluene-d8 (Surrogate)	96.8	%	81 - 117 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 15:33	ADC	MS-V2	1	BSH1837		
4-Bromofluorobenzene (Surrogate)	116	%	74 - 121 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 15:33	ADC	MS-V2	1	BSH1837		



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Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 0911376-27	Client Sample Name: 0746, B-1@14, 8/27/2009 9:11:00AM
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Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Gasoline Range Organics (C4 - C12)	ND	mg/kg	1.0	Luft	09/01/09	09/01/09 10:31	JJH	GC-V8	1	BSI0118	ND	
a,a,a-Trifluorotoluene (FID Surrogate)	82.2	%	70 - 130 (LCL - UCL)	Luft	09/01/09	09/01/09 10:31	JJH	GC-V8	1	BSI0118		

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Reported: 09/15/2009 14:59

Volatile Organic Analysis (EPA Method 8260)

BCL Sample ID: 0911376-31		Client Sample Name: 0746, B-1@35, 8/27/2009 9:50:00AM										
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Benzene	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 15:59	ADC	MS-V2	1	BSH1837	ND	
1,2-Dibromoethane	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 15:59	ADC	MS-V2	1	BSH1837	ND	
1,2-Dichloroethane	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 15:59	ADC	MS-V2	1	BSH1837	ND	
Ethylbenzene	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 15:59	ADC	MS-V2	1	BSH1837	ND	
Methyl t-butyl ether	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 15:59	ADC	MS-V2	1	BSH1837	ND	
Toluene	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 15:59	ADC	MS-V2	1	BSH1837	ND	
Total Xylenes	ND	mg/kg	0.010	EPA-8260	08/31/09	08/31/09 15:59	ADC	MS-V2	1	BSH1837	ND	
t-Amyl Methyl ether	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 15:59	ADC	MS-V2	1	BSH1837	ND	
t-Butyl alcohol	ND	mg/kg	0.050	EPA-8260	08/31/09	08/31/09 15:59	ADC	MS-V2	1	BSH1837	ND	
Diisopropyl ether	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 15:59	ADC	MS-V2	1	BSH1837	ND	
Ethanol	ND	mg/kg	1.0	EPA-8260	08/31/09	08/31/09 15:59	ADC	MS-V2	1	BSH1837	ND	
Ethyl t-butyl ether	ND	mg/kg	0.0050	EPA-8260	08/31/09	08/31/09 15:59	ADC	MS-V2	1	BSH1837	ND	
1,2-Dichloroethane-d4 (Surrogate)	95.0	%	70 - 121 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 15:59	ADC	MS-V2	1	BSH1837		
Toluene-d8 (Surrogate)	96.9	%	81 - 117 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 15:59	ADC	MS-V2	1	BSH1837		
4-Bromofluorobenzene (Surrogate)	123	%	74 - 121 (LCL - UCL)	EPA-8260	08/31/09	08/31/09 15:59	ADC	MS-V2	1	BSH1837		S09



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Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 0911376-31		Client Sample Name: 0746, B-1@35, 8/27/2009 9:50:00AM										
Constituent	Result	Units	PQL	Method	Prep Date	Run Date/Time	Analyst	Instru-ment ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Gasoline Range Organics (C4 - C12)	6.1	mg/kg	1.0	Luft	09/01/09	09/01/09 09:21	JJH	GC-V8	1	BSI0118	ND	
a,a,a-Trifluorotoluene (FID Surrogate)	83.8	%	70 - 130 (LCL - UCL)	Luft	09/01/09	09/01/09 09:21	JJH	GC-V8	1	BSI0118		



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Volatile Organic Analysis (EPA Method 8260)

Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits	
										RPD	Percent Recovery Lab Quals
Benzene	BSH1837	Matrix Spike	0909743-85	0	0.11400	0.12500	mg/kg		91.2		70 - 130
		Matrix Spike Duplicate	0909743-85	0	0.11874	0.12500	mg/kg	4.1	95.0	20	70 - 130
Toluene	BSH1837	Matrix Spike	0909743-85	0	0.12490	0.12500	mg/kg		99.9		70 - 130
		Matrix Spike Duplicate	0909743-85	0	0.12661	0.12500	mg/kg	1.1	101	20	70 - 130
1,2-Dichloroethane-d4 (Surrogate)	BSH1837	Matrix Spike	0909743-85	ND	0.047920	0.050000	mg/kg		95.8		70 - 121
		Matrix Spike Duplicate	0909743-85	ND	0.047599	0.050000	mg/kg		95.2		70 - 121
Toluene-d8 (Surrogate)	BSH1837	Matrix Spike	0909743-85	ND	0.049096	0.050000	mg/kg		98.2		81 - 117
		Matrix Spike Duplicate	0909743-85	ND	0.047835	0.050000	mg/kg		95.7		81 - 117
4-Bromofluorobenzene (Surrogate)	BSH1837	Matrix Spike	0909743-85	ND	0.050343	0.050000	mg/kg		101		74 - 121
		Matrix Spike Duplicate	0909743-85	ND	0.050916	0.050000	mg/kg		102		74 - 121
Benzene	BSH1912	Matrix Spike	0909743-93	0	0.12544	0.12500	mg/kg		100		70 - 130
		Matrix Spike Duplicate	0909743-93	0	0.12058	0.12500	mg/kg	3.6	96.5	20	70 - 130
Toluene	BSH1912	Matrix Spike	0909743-93	0	0.13294	0.12500	mg/kg		106		70 - 130
		Matrix Spike Duplicate	0909743-93	0	0.12994	0.12500	mg/kg	1.9	104	20	70 - 130
1,2-Dichloroethane-d4 (Surrogate)	BSH1912	Matrix Spike	0909743-93	ND	0.047889	0.050000	mg/kg		95.8		70 - 121
		Matrix Spike Duplicate	0909743-93	ND	0.047955	0.050000	mg/kg		95.9		70 - 121
Toluene-d8 (Surrogate)	BSH1912	Matrix Spike	0909743-93	ND	0.048606	0.050000	mg/kg		97.2		81 - 117
		Matrix Spike Duplicate	0909743-93	ND	0.048372	0.050000	mg/kg		96.7		81 - 117
4-Bromofluorobenzene (Surrogate)	BSH1912	Matrix Spike	0909743-93	ND	0.050181	0.050000	mg/kg		100		74 - 121
		Matrix Spike Duplicate	0909743-93	ND	0.051506	0.050000	mg/kg		103		74 - 121
Benzene	BSH1914	Matrix Spike	0909743-89	0	17.760	25.000	ug/L		71.0		70 - 130
		Matrix Spike Duplicate	0909743-89	0	18.500	25.000	ug/L	4.1	74.0	20	70 - 130
Toluene	BSH1914	Matrix Spike	0909743-89	0	18.830	25.000	ug/L		75.3		70 - 130
		Matrix Spike Duplicate	0909743-89	0	20.190	25.000	ug/L	7.0	80.8	20	70 - 130
1,2-Dichloroethane-d4 (Surrogate)	BSH1914	Matrix Spike	0909743-89	ND	10.180	10.000	ug/L		102		76 - 114
		Matrix Spike Duplicate	0909743-89	ND	9.8400	10.000	ug/L		98.4		76 - 114

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Volatile Organic Analysis (EPA Method 8260)

Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits		Lab Quals
										RPD	Percent Recovery	
Toluene-d8 (Surrogate)	BSH1914	Matrix Spike	0909743-89	ND	9.7500	10.000	ug/L		97.5	88 - 110		
		Matrix Spike Duplicate	0909743-89	ND	9.9800	10.000	ug/L		99.8	88 - 110		
4-Bromofluorobenzene (Surrogate)	BSH1914	Matrix Spike	0909743-89	ND	9.6300	10.000	ug/L		96.3	86 - 115		
		Matrix Spike Duplicate	0909743-89	ND	9.9900	10.000	ug/L		99.9	86 - 115		



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Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits		Lab Quals
										RPD	Percent Recovery	
Gasoline Range Organics (C4 - C12)	BSH1727	Matrix Spike	0909743-77	0	5.2510	5.0000	mg/kg		105		70 - 130	
		Matrix Spike Duplicate	0909743-77	0	5.2796	5.0000	mg/kg	0.9	106	20	70 - 130	
a,a,a-Trifluorotoluene (FID Surrogate)	BSH1727	Matrix Spike	0909743-77	ND	0.037300	0.040000	mg/kg		93.2		70 - 130	
		Matrix Spike Duplicate	0909743-77	ND	0.039400	0.040000	mg/kg		98.5		70 - 130	
Gasoline Range Organics (C4 - C12)	BSH2003	Matrix Spike	0909743-65	0	1109.1	1000.0	ug/L		111		70 - 130	
		Matrix Spike Duplicate	0909743-65	0	1062.6	1000.0	ug/L	4.6	106	20	70 - 130	
a,a,a-Trifluorotoluene (FID Surrogate)	BSH2003	Matrix Spike	0909743-65	ND	41.413	40.000	ug/L		104		70 - 130	
		Matrix Spike Duplicate	0909743-65	ND	39.893	40.000	ug/L		99.7		70 - 130	
Gasoline Range Organics (C4 - C12)	BSI0118	Matrix Spike	0909743-81	0	4.9592	5.0000	mg/kg		99.2		70 - 130	
		Matrix Spike Duplicate	0909743-81	0	5.1866	5.0000	mg/kg	4.7	104	20	70 - 130	
a,a,a-Trifluorotoluene (FID Surrogate)	BSI0118	Matrix Spike	0909743-81	ND	0.043000	0.040000	mg/kg		108		70 - 130	
		Matrix Spike Duplicate	0909743-81	ND	0.043300	0.040000	mg/kg		108		70 - 130	



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Total Concentrations (TTLC)

Quality Control Report - Precision & Accuracy

Constituent	Batch ID	QC Sample Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits	
										RPD	Percent Recovery Lab Quals
Lead	BSI0038	Duplicate	0911376-06	10.752	11.947		mg/kg	10.5		20	
		Matrix Spike	0911376-06	10.752	113.97	96.154	mg/kg		107		75 - 125
		Matrix Spike Duplicate	0911376-06	10.752	118.97	96.154	mg/kg	5.5	113	20	75 - 125

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Volatile Organic Analysis (EPA Method 8260)

Quality Control Report - Laboratory Control Sample

Constituent	Batch ID	QC Sample ID	QC Type	Result	Spike Level	PQL	Units	Percent Recovery	RPD	Control Limits		Lab Quals
										Percent Recovery	RPD	
Benzene	BSH1837	BSH1837-BS1	LCS	0.11691	0.12500	0.0050	mg/kg	93.5		70 - 130		
Toluene	BSH1837	BSH1837-BS1	LCS	0.12325	0.12500	0.0050	mg/kg	98.6		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	BSH1837	BSH1837-BS1	LCS	0.049667	0.050000		mg/kg	99.3		70 - 121		
Toluene-d8 (Surrogate)	BSH1837	BSH1837-BS1	LCS	0.048511	0.050000		mg/kg	97.0		81 - 117		
4-Bromofluorobenzene (Surrogate)	BSH1837	BSH1837-BS1	LCS	0.051163	0.050000		mg/kg	102		74 - 121		
Benzene	BSH1912	BSH1912-BS1	LCS	0.12086	0.12500	0.0050	mg/kg	96.7		70 - 130		
Toluene	BSH1912	BSH1912-BS1	LCS	0.13277	0.12500	0.0050	mg/kg	106		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	BSH1912	BSH1912-BS1	LCS	0.048908	0.050000		mg/kg	97.8		70 - 121		
Toluene-d8 (Surrogate)	BSH1912	BSH1912-BS1	LCS	0.048174	0.050000		mg/kg	96.3		81 - 117		
4-Bromofluorobenzene (Surrogate)	BSH1912	BSH1912-BS1	LCS	0.050004	0.050000		mg/kg	100		74 - 121		
Benzene	BSH1914	BSH1914-BS1	LCS	17.530	25.000	0.50	ug/L	70.1		70 - 130		
Toluene	BSH1914	BSH1914-BS1	LCS	19.080	25.000	0.50	ug/L	76.3		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	BSH1914	BSH1914-BS1	LCS	10.270	10.000		ug/L	103		76 - 114		
Toluene-d8 (Surrogate)	BSH1914	BSH1914-BS1	LCS	10.100	10.000		ug/L	101		88 - 110		
4-Bromofluorobenzene (Surrogate)	BSH1914	BSH1914-BS1	LCS	9.8500	10.000		ug/L	98.5		86 - 115		

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Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Laboratory Control Sample

Constituent	Batch ID	QC Sample ID	QC Type	Result	Spike Level	PQL	Units	Percent Recovery	RPD	Control Limits		Lab Quals
										Percent Recovery	RPD	
Gasoline Range Organics (C4 - C12)	BSH1727	BSH1727-BS1	LCS	4.6071	5.0000	1.0	mg/kg	92.1		85 - 115		
a,a,a-Trifluorotoluene (FID Surrogate)	BSH1727	BSH1727-BS1	LCS	0.039000	0.040000		mg/kg	97.5		70 - 130		
Gasoline Range Organics (C4 - C12)	BSH2003	BSH2003-BS1	LCS	1072.2	1000.0	50	ug/L	107		85 - 115		
a,a,a-Trifluorotoluene (FID Surrogate)	BSH2003	BSH2003-BS1	LCS	40.530	40.000		ug/L	101		70 - 130		
Gasoline Range Organics (C4 - C12)	BSI0118	BSI0118-BS1	LCS	4.9990	5.0000	1.0	mg/kg	100		85 - 115		
a,a,a-Trifluorotoluene (FID Surrogate)	BSI0118	BSI0118-BS1	LCS	0.043200	0.040000		mg/kg	108		70 - 130		

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Total Concentrations (TTLC)

Quality Control Report - Laboratory Control Sample

Constituent	Batch ID	QC Sample ID	QC Type	Result	Spike Level	PQL	Units	Percent Recovery	RPD	Control Limits		Lab Quals
										Percent Recovery	RPD	
Lead	BSI0038	BSI0038-BS1	LCS	112.05	100.00	2.5	mg/kg	112		75 - 125		



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Volatile Organic Analysis (EPA Method 8260)

Quality Control Report - Method Blank Analysis

Constituent	Batch ID	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
Benzene	BSH1837	BSH1837-BLK1	ND	mg/kg	0.0050		
1,2-Dibromoethane	BSH1837	BSH1837-BLK1	ND	mg/kg	0.0050		
1,2-Dichloroethane	BSH1837	BSH1837-BLK1	ND	mg/kg	0.0050		
Ethylbenzene	BSH1837	BSH1837-BLK1	ND	mg/kg	0.0050		
Methyl t-butyl ether	BSH1837	BSH1837-BLK1	ND	mg/kg	0.0050		
Toluene	BSH1837	BSH1837-BLK1	ND	mg/kg	0.0050		
Total Xylenes	BSH1837	BSH1837-BLK1	ND	mg/kg	0.010		
t-Amyl Methyl ether	BSH1837	BSH1837-BLK1	ND	mg/kg	0.0050		
t-Butyl alcohol	BSH1837	BSH1837-BLK1	ND	mg/kg	0.050		
Diisopropyl ether	BSH1837	BSH1837-BLK1	ND	mg/kg	0.0050		
Ethanol	BSH1837	BSH1837-BLK1	ND	mg/kg	1.0		
Ethyl t-butyl ether	BSH1837	BSH1837-BLK1	ND	mg/kg	0.0050		
1,2-Dichloroethane-d4 (Surrogate)	BSH1837	BSH1837-BLK1	93.6	%	70 - 121 (LCL - UCL)		
Toluene-d8 (Surrogate)	BSH1837	BSH1837-BLK1	96.0	%	81 - 117 (LCL - UCL)		
4-Bromofluorobenzene (Surrogate)	BSH1837	BSH1837-BLK1	100	%	74 - 121 (LCL - UCL)		
Benzene	BSH1912	BSH1912-BLK1	ND	mg/kg	0.0050		
1,2-Dibromoethane	BSH1912	BSH1912-BLK1	ND	mg/kg	0.0050		
1,2-Dichloroethane	BSH1912	BSH1912-BLK1	ND	mg/kg	0.0050		
Ethylbenzene	BSH1912	BSH1912-BLK1	ND	mg/kg	0.0050		
Methyl t-butyl ether	BSH1912	BSH1912-BLK1	ND	mg/kg	0.0050		
Toluene	BSH1912	BSH1912-BLK1	ND	mg/kg	0.0050		
Total Xylenes	BSH1912	BSH1912-BLK1	ND	mg/kg	0.010		
t-Amyl Methyl ether	BSH1912	BSH1912-BLK1	ND	mg/kg	0.0050		
t-Butyl alcohol	BSH1912	BSH1912-BLK1	ND	mg/kg	0.050		



Delta Environmental
312 Piercy Rd
San Jose, CA 95138

Project: 0746
Project Number: 4512169612
Project Manager: Lia Holden

Reported: 09/15/2009 14:59

Volatile Organic Analysis (EPA Method 8260)

Quality Control Report - Method Blank Analysis

Constituent	Batch ID	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
Diisopropyl ether	BSH1912	BSH1912-BLK1	ND	mg/kg	0.0050		
Ethanol	BSH1912	BSH1912-BLK1	ND	mg/kg	1.0		
Ethyl t-butyl ether	BSH1912	BSH1912-BLK1	ND	mg/kg	0.0050		
1,2-Dichloroethane-d4 (Surrogate)	BSH1912	BSH1912-BLK1	95.8	%	70 - 121 (LCL - UCL)		
Toluene-d8 (Surrogate)	BSH1912	BSH1912-BLK1	96.5	%	81 - 117 (LCL - UCL)		
4-Bromofluorobenzene (Surrogate)	BSH1912	BSH1912-BLK1	100	%	74 - 121 (LCL - UCL)		
Benzene	BSH1914	BSH1914-BLK1	ND	ug/L	0.50		
1,2-Dibromoethane	BSH1914	BSH1914-BLK1	ND	ug/L	0.50		
1,2-Dichloroethane	BSH1914	BSH1914-BLK1	ND	ug/L	0.50		
Ethylbenzene	BSH1914	BSH1914-BLK1	ND	ug/L	0.50		
Methyl t-butyl ether	BSH1914	BSH1914-BLK1	ND	ug/L	0.50		
Toluene	BSH1914	BSH1914-BLK1	ND	ug/L	0.50		
Total Xylenes	BSH1914	BSH1914-BLK1	ND	ug/L	1.0		
t-Amyl Methyl ether	BSH1914	BSH1914-BLK1	ND	ug/L	0.50		
t-Butyl alcohol	BSH1914	BSH1914-BLK1	ND	ug/L	10		
Diisopropyl ether	BSH1914	BSH1914-BLK1	ND	ug/L	0.50		
Ethanol	BSH1914	BSH1914-BLK1	ND	ug/L	250		
Ethyl t-butyl ether	BSH1914	BSH1914-BLK1	ND	ug/L	0.50		
1,2-Dichloroethane-d4 (Surrogate)	BSH1914	BSH1914-BLK1	104	%	76 - 114 (LCL - UCL)		
Toluene-d8 (Surrogate)	BSH1914	BSH1914-BLK1	101	%	88 - 110 (LCL - UCL)		
4-Bromofluorobenzene (Surrogate)	BSH1914	BSH1914-BLK1	95.3	%	86 - 115 (LCL - UCL)		



Delta Environmental
312 Piercy Rd
San Jose, CA 95138

Project: 0746
Project Number: 4512169612
Project Manager: Lia Holden

Reported: 09/15/2009 14:59

Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Method Blank Analysis

Constituent	Batch ID	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
Gasoline Range Organics (C4 - C12)	BSH1727	BSH1727-BLK1	ND	mg/kg	1.0		
a,a,a-Trifluorotoluene (FID Surrogate)	BSH1727	BSH1727-BLK1	88.8	%	70 - 130 (LCL - UCL)		
Gasoline Range Organics (C4 - C12)	BSH2003	BSH2003-BLK1	ND	ug/L	50		
a,a,a-Trifluorotoluene (FID Surrogate)	BSH2003	BSH2003-BLK1	100	%	70 - 130 (LCL - UCL)		
Gasoline Range Organics (C4 - C12)	BSI0118	BSI0118-BLK1	ND	mg/kg	1.0		
a,a,a-Trifluorotoluene (FID Surrogate)	BSI0118	BSI0118-BLK1	104	%	70 - 130 (LCL - UCL)		

Delta Environmental
312 Piercy Rd
San Jose, CA 95138

Project: 0746
Project Number: 4512169612
Project Manager: Lia Holden

Reported: 09/15/2009 14:59

Total Concentrations (TTLC)

Quality Control Report - Method Blank Analysis

Constituent	Batch ID	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
Lead	BSI0038	BSI0038-BLK1	ND	mg/kg	2.5		



Delta Environmental
312 Piercy Rd
San Jose, CA 95138

Project: 0746
Project Number: 4512169612
Project Manager: Lia Holden

Reported: 09/15/2009 14:59

Notes And Definitions

- MDL Method Detection Limit
- ND Analyte Not Detected at or above the reporting limit
- PQL Practical Quantitation Limit
- RPD Relative Percent Difference
- A01 PQL's and MDL's are raised due to sample dilution.
- A10 PQL's and MDL's were raised due to matrix interference.
- A19 Surrogate is high due to matrix interference. Interferences verified through second extraction/analysis.
- S09 The surrogate recovery on the sample for this compound was not within the control limits.
- Z1 Run at dilution to avoid sample foaming.
- Z1a Sample plugged twice at 5.0g.

Chain Of Custody Record

BC Laboratories
4100 Atlas Court, Bakersfield, CA
(661) 327-4911 (661) 327-1918 fax

INVOICE REMITTANCE ADDRESS:

CONOCOPHILLIPS
Attn: Dee Hutchinson
3611 South Harbor, Suite 200
Santa Ana, CA. 92704

Purchase Order #

4512169612

ConocoPhillips AOC#

01085

DATE: 8/27/09
PAGE: 1 of 4

SAMPLING COMPANY: Delta Consultants		Valid Value ID:	CONOCOPHILLIPS SITE NUMBER 0746	GLOBAL ID NO.: T0600101471
ADDRESS: 312 Piercy Road, San Jose, CA		SITE ADDRESS (Street and City): 3943 Broadway, Oakland, CA		ConocoPhillips Manager Terry Grayson
PROJECT CONTACT (Hardcopy or PDF Report to): Lia Holden		EDF DELIVERABLE TO (RP or Designee): Lia Holden	PHONE NO.: 408-826-1863	E-MAIL: LAB USE ONLY 09-11376
TELEPHONE: 408-826-1863	FAX: 408-225-8506	E-MAIL: Lholden@dellaerv.com		

SAMPLER NAME(S) (Print): Evan Chantikian/Alan Buehler
CONSULTANT PROJECT NUMBER: 0746

TURNAROUND TIME (CALENDAR DAYS):
 14 DAYS
 7 DAYS
 48 HOURS
 24 HOURS
 LESS THAN 24 HOURS

FIVE DAY TURN AROUND

SPECIAL INSTRUCTIONS OR NOTES: CHECK BOX IF EDD IS NEEDED
 Please cc results to echantikian@deltaenv.com

REQUESTED ANALYSES

TPPH, BTEX, & MTBE by EPA 8260B	TPH-G, BTEX, 5 oxys (MTBE, TBA, DIPE, ETBE, TAME), 2 and ethanol by EPA Method 8260B	Full Scan VOCs EPA Method 8260B	TPH-D, 8015 without silica gel	TPH-G by EPA 8015M	BTEX, MTBE, TBA, ETBE, TAME, DIPE, 1,2-DCA, EDB, ethanol by EPA 8260B														
				X	X														
				X	X														
				X	X														
				X	X														
				X	X														
				X	X														
			Hold																
			Hold																

FIELD NOTES:
Container/Preservative or PID Readings or Laboratory Notes

LAB USE ONLY	Field Point Name	Sample ID	SAMPLING		MATRIX	NO. OF CONT.
			DATE	TIME		
1	B-2	@ 12-15	8/27/09	4:40	Water	7
2	B-2	@ 23-25	↓	4:55	↓	7
3	B-2	@ 32-34.5	↓	5:23	↓	4
4	B-2	@ 35	↓	3:51	Soil	1
5	↓	@ 12	↓	2:58	↓	1
6	↓	@ 10	↓	2:42	↓	1
7	↓	@ 13	↓	2:58	↓	1
8	↓	@ 5	↓	2:27	↓	1
9	↓	@ 30	↓	3:43	↓	1
10	↓	@ 8	↓	2:31	↓	1

CHK BY: CHR
 DISTRIBUTION:
 SUB-OUT:

Relinquished by (Signature): <i>[Signature]</i> Date: 8/28/09	Received by (Signature): <i>[Signature]</i> Date: 8/28/09	Date: 8/28/09	Time: 1325
Relinquished by (Signature): <i>[Signature]</i> Date: 8/28/09	Received by (Signature): <i>[Signature]</i> Date: 8/28/09	Date: 8/28/09	Time: 1430
Relinquished by (Signature): <i>[Signature]</i> Date: 8/28/09	Received by (Signature): <i>[Signature]</i> Date: 8-28-09	Date: 8-28-09	Time: 1600

R Ruy 8/28/09 1915

[Signature] 8/28/09 1915

Chain Of Custody Record

BC Laboratories
4100 Atlas Court, Bakersfield, CA
(661) 327-4911 (661) 327-1918 fax

INVOICE REMITTANCE ADDRESS:

CONOCOPHILLIPS
Attn: Dee Hutchinson
3611 South Harbor, Suite 200
Santa Ana, CA. 92704

Purchase Order #

4512169612

ConocoPhillips AOC#

01085

DATE: 8/27/09
PAGE: 2 of 4

SAMPLING COMPANY: Delta Consultants		Valid Value ID:	CONOCOPHILLIPS SITE NUMBER: 0746	GLOBAL ID NO.: T0600101471
ADDRESS: 312 Piery Road, San Jose, CA		SITE ADDRESS (Street and City): 3943 Broadway, Oakland, CA		ConocoPhillips Manager: Terry Grayson
PROJECT CONTACT (Hardcopy or PDF Report to): Lia Holden		EDF DELIVERABLE TO (RP or Designee): Lia Holden	PHONE NO.: 408-826-1863	E-MAIL: Terry Grayson
TELEPHONE: 408-826-1863	FAX: 408-225-8506	E-MAIL: Lholden@deltaenv.com	LAB USE ONLY: 09-11376	
SAMPLER NAME(S) (Print): Evan Chantikian/Alan Buehler		CONSULTANT PROJECT NUMBER: 0746		

REQUESTED ANALYSES

TURNAROUND TIME (CALENDAR DAYS):
 14 DAYS
 7 DAYS
 72 HOURS
 48 HOURS
 24 HOURS
 LESS THAN 24 HOURS

FIVE DAY TURN AROUND

SPECIAL INSTRUCTIONS OR NOTES: CHECK BOX IF EDD IS NEEDED

Please cc results to echantikian@deltaenv.com

FIELD NOTES:

Container/Preservative
or PID Readings
or Laboratory Notes

* Field Point name only required if different from Sample ID

LAB USE ONLY	Field Point Name	Sample ID	SAMPLING		MATRIX	NO. OF CONT.	TPPH, BTEX, & MTBE by EPA 8260B	TPH-G, BTEX, 5 oxy (MTBE, TBA, DIPE, ETBE, TAME), 2 and ethanol by EPA Method 8260B	Full Scan VOCs EPA Method 8260B	TPH-D, 8015 without silica gel	TPH-G by EPA 8015M	BTEX, MTBE, TBA, ETBE, TAME, DIPE, 1,2-DCA, EDB, ethanol by EPA 8260B									TEMPERATURE ON RECEIPT C°	
			DATE	TIME																		
11	B-2	@25-26	8/27	3:35	Soil	1	Hold															
12	↓	@ 11	↓	2:46	↓	1	Hold															
13	↓	@ 20-21	↓	3:29	↓	1	Hold															
14	↓	@ 9	↓	2:37	↓	1	Hold															
15	↓	@ 7	↓	2:31	↓	1	Hold															
16	B-1	@ 12.5-15.5		10:35	water	7					X											
17	↓	@ 22-24	↓	10:50	↓	7					X											
18	↓	@ 33-35	↓	11:10	↓	7					X											
19	↓	@ 6	↓	8:45	soil	1					X											
20	↓	@ 7	↓	8:47	soil	1	Hold				X											

Relinquished by (Signature): <i>[Signature]</i>	Received by (Signature): <i>[Signature] P. BING BCL</i>	Date: 8/28/09	Time: 1525
Relinquished by (Signature): <i>[Signature]</i> 8/28/09 1430	Received by (Signature): <i>[Signature] Ross Wickley BCLAB</i>	Date: 8/28/09	Time: 1430
Relinquished by (Signature): <i>[Signature]</i> 8/28/09	Received by (Signature): <i>[Signature]</i>	Date: 8-28-09	Time: 1600

[Signature] 8/28/09 1915 *[Signature]* 8/28/09 1915

Chain Of Custody Record

BC Laboratories
 4100 Atlas Court, Bakersfield, CA
 (661) 327-4911 (661) 327-1918 fax

INVOICE REMITTANCE ADDRESS: CONOCOPHILLIPS Attn: Dee Hutchinson 3611 South Harbor, Suite 200 Santa Ana, CA. 92704	Purchase Order # 4512169612 ConocoPhillips AOC# 01085	DATE: <u>8/27/09</u> PAGE: <u>3</u> of <u>4</u>
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SAMPLING COMPANY: Delta Consultants ADDRESS: 312 Piercy Road, San Jose, CA PROJECT CONTACT (Hardcopy or PDF Report to): Lia Holden TELEPHONE: 408-826-1863 FAX: 408-225-8506 E-MAIL: Lholden@dellaenv.com	Valid Value ID: CONOCOPHILLIPS SITE NUMBER 0746	SITE ADDRESS (Street and City): 3943 Broadway, Oakland, CA EDF DELIVERABLE TO (RP or Designee): Lia Holden PHONE NO.: 408-826-1863	GLOBAL ID NO.: T0600101471 ConocoPhillips Manager Terry Grayson E-MAIL: LAB USE ONLY <u>09-1376</u>
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TURNAROUND TIME (CALENDAR DAYS):
 14 DAYS 7 DAYS 72 HOURS 48 HOURS 24 HOURS LESS THAN 24 HOURS

FIVE DAY TURN AROUND

SPECIAL INSTRUCTIONS OR NOTES: CHECK BOX IF EDD IS NEEDED <input checked="" type="checkbox"/> Please cc results to echantikian@dellaenv.com	REQUESTED ANALYSES	FIELD NOTES: Container/Preservative or PID Readings or Laboratory Notes TEMPERATURE ON RECEIPT C°
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LAB USE ONLY	Field Point Name	Sample ID	SAMPLING		MATRIX	NO. OF CONT.	TPPH, BTEX, & MTBE by EPA 8260B	TPH-G, BTEX, 5 oxys (MTBE, TBA, DIPE, ETBE, TAME), 2 and ethanol by EPA Method 8260B	Full Scan VOCs EPA Method 8260B	TPH-D, 8015 without silica gel	TPH-G by EPA 8015M	BTEX, MTBE, TBA, ETBE, TAME, DIPE, 1,2-DCA, EDB, ethanol by EPA 8260B													
			DATE	TIME																					
	B-1	@8	8/27	8:50	Soil	1	Hold				X	X													
		@9		8:55		1	Hold																		
		@10		9:00		1																			
		@11		9:05		1	Hold																		
		@12		9:07		1	Hold																		
		@13		9:10		1																			
		@14		9:11		1																			
		@20		9:20		1	Hold																		
		@25		9:30		1	Hold																		
		@30		9:35		1	Hold																		

Relinquished by (Signature): <i>[Signature]</i> Received by (Signature): <i>[Signature]</i> P.BINS BCL	Date: 8/28/09	Time: 1325
Relinquished by (Signature): <i>[Signature]</i> BCL 8/28/09 1430 Received by (Signature): <i>[Signature]</i> Ross Dickey BCL AB	Date: 8/28/09	Time: 1430
Relinquished by (Signature): <i>[Signature]</i> Ross Dickey 8/28/09 Received by (Signature): <i>[Signature]</i> R. [Signature]	Date: 8-28-09	Time: 1600

[Handwritten signatures and dates]
 Ross Dickey 8/28/09 1915
 [Signature] 8/28/09 1915

Chain Of Custody Record

BC Laboratories
 4100 Atlas Court, Bakersfield, CA
 (661) 327-4911 (661) 327-1918 fax

INVOICE REMITTANCE ADDRESS: CONOCOPHILLIPS Attn: Dee Hutchinson 3611 South Harbor, Suite 200 Santa Ana, CA. 92704	Purchase Order # 4512169612 ConocoPhillips AOC# 01085	DATE: 8/27/09 PAGE: 4 of 4
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SAMPLING COMPANY: Delta Consultants	Valid Value ID:	CONOCOPHILLIPS SITE NUMBER 0746	GLOBAL ID NO.: T0600101471
ADDRESS: 312 Piercy Road, San Jose, CA		SITE ADDRESS (Street and City): 3943 Broadway, Oakland, CA	
PROJECT CONTACT (Hardcopy or PDF Report to): Lia Holden		ConocoPhillips Manager Terry Grayson	
TELEPHONE: 408-826-1863	FAX: 408-225-8506	E-MAIL: Lholden@dellaenv.com	PHONE NO.: 408-826-1863
SAMPLER NAME(S) (Print): Evan Chantikian/Alan Buehler		CONSULTANT PROJECT NUMBER 0746	

TURNAROUND TIME (CALENDAR DAYS): <input checked="" type="checkbox"/> 14 DAYS <input type="checkbox"/> 7 DAYS <input type="checkbox"/> 72 HOURS <input type="checkbox"/> 48 HOURS <input type="checkbox"/> 24 HOURS <input type="checkbox"/> LESS THAN 24 HOURS	REQUESTED ANALYSES							FIELD NOTES: Container/Preservative or PID Readings or Laboratory Notes			
FIVE DAY TURN AROUND	TPPH	BTEX	& MTBE	by EPA 8260B	Full Scan VOCs	EPA Method 8260B	TPH-D, 8015		without silica gel	TPH-G by EPA 8015M	BTEX, MTBE, TBA, ETBE, DIPE, 1,2-DCA, EDB, ethanol by EPA 8260B
SPECIAL INSTRUCTIONS OR NOTES: Please cc results to echantikian@deltaenv.com CHECK BOX IF EDD IS NEEDED <input checked="" type="checkbox"/>											

LAB USE ONLY	Field Point Name	Sample ID	SAMPLING		MATRIX	NO. OF CONT.	TPPH	BTEX & MTBE by EPA 8260B	TPH-G, BTEX, 5 oxys (MTBE, TBA, DIPE, ETBE, TAME), 2 and ethanol by EPA Method 8260B	Full Scan VOCs EPA Method 8260B	TPH-D, 8015 without silica gel	TPH-G by EPA 8015M	BTEX, MTBE, TBA, ETBE, DIPE, 1,2-DCA, EDB, ethanol by EPA 8260B	TEMPERATURE ON RECEIPT C°
			DATE	TIME										
	B-1	@35	8/27/09	9:50	soil	1						X	X	

Relinquished by: (Signature) <i>Dee Hutchinson</i>	Received by: (Signature) <i>Dee Hutchinson</i>	Date: 8/28/09	Time: 1325
Relinquished by: (Signature) <i>Ross Wickley</i>	Received by: (Signature) <i>Ross Wickley</i>	Date: 8/28/09	Time: 1430
Relinquished by: (Signature) <i>Ross Wickley</i>	Received by: (Signature) <i>R Ross</i>	Date: 8-28-09	Time: 1600

9/19/03 Revision

8-28-09 1915

Submission #: 09-11370

SHIPPING INFORMATION
 Federal Express UPS Hand Delivery
 BC Lab Field Service Other (Specify) _____

SHIPPING CONTAINER
 Ice Chest None
 Box Other (Specify) _____

Refrigerant: Ice Blue Ice None Other Comments:

Custody Seals Ice Chest Containers None Comments:
 Intact? Yes No Intact? Yes No

All samples received? Yes No All samples containers intact? Yes No Description(s) match COC? Yes No

COC Received
 YES NO

Emissivity: 0.98 Container: VO9 Thermometer ID: TN080
 Temperature: A 2.5 °C / C 25 °C

Date/Time 8/28/09 1923
 Analyst Init JNW

SAMPLE CONTAINERS	SAMPLE NUMBERS									
	1	2	3	4	5	6	7	8	9	10
QT GENERAL MINERAL/ GENERAL PHYSICAL										
PT PE UNPRESERVED										
QT INORGANIC CHEMICAL METALS										
PT INORGANIC CHEMICAL METALS										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT TOX										
PT CHEMICAL OXYGEN DEMAND										
PTA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL	A 10	A 10	A 3/6							
QT EPA 413.1, 413.2, 418.1										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
100ml EPA 547										
100ml EPA 531.1										
QT EPA 548										
QT EPA 549										
QT EPA 632										
QT EPA 8015M										
QT AMBER	B	B	B							
8 OZ. JAR										
32 OZ. JAR										
SOIL SLEEVE				A	A	A	A	A	A	A
PCB VIAL										
PLASTIC BAG										
FERROUS IRON										
ENCORE										

Comments: Description on -1A does not match COC.
 Sample Numbering Completed By: JNW Date/Time: 8/28/09 8:17
 A = Actual / C = Corrected

Submission #: 0911376

SHIPPING INFORMATION

Federal Express UPS Hand Delivery
 BC Lab Field Service Other (Specify) _____

SHIPPING CONTAINER

Ice Chest None
 Box Other (Specify) _____

Refrigerant: Ice Blue Ice None Other Comments:

Custody Seals Ice Chest Containers None Comments:
 Intact? Yes No Intact? Yes No

All samples received? Yes No All samples containers intact? Yes No Description(s) match COC? Yes No

COC Received
 YES NO

Emissivity: 0.98 Container: VOG Thermometer ID: TN080
 Temperature: A 2.5 °C / C 25 °C

Date/Time 8/28/09 1923
 Analyst Init JNW

SAMPLE CONTAINERS	SAMPLE NUMBERS									
	11	12	13	14	15	16	17	18	19	20
QT GENERAL MINERAL/ GENERAL PHYSICAL										
PT PE UNPRESERVED										
QT INORGANIC CHEMICAL METALS										
PT INORGANIC CHEMICAL METALS										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT TOX										
PT CHEMICAL OXYGEN DEMAND										
PIA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL							A (C)	A (C)	A (C)	
QT EPA 413.1, 413.2, 418.1										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
100ml EPA 547										
100ml EPA 531.1										
QT EPA 548										
QT EPA 549										
QT EPA 632										
QT EPA 8015M										
QT AMBER							B	B	B	
8 OZ. JAR										
32 OZ. JAR										
SOIL SLEEVE	A	A	A	A	A				A	A
PCB VIAL										
PLASTIC BAG										
FERROUS IRON										
ENCORE										

Comments:
 Sample Numbering Completed By: JNW Date/Time: 8/28/09 2017
 A = Actual / C = Corrected

Submission #: 09-11376

SHIPPING INFORMATION

Federal Express UPS Hand Delivery
 BC Lab Field Service Other (Specify) _____

SHIPPING CONTAINER

Ice Chest None
 Box Other (Specify) _____

Refrigerant: Ice Blue Ice None Other Comments:

Custody Seals Ice Chest Containers None Comments:
 Intact? Yes No Intact? Yes No

All samples received? Yes No All samples containers intact? Yes No Description(s) match COC? Yes No

COC Received

YES NO

Emissivity: 0.98 Container: 109 Thermometer ID: TN080

Temperature: A 2.5 °C / C 25 °C

Date/Time 8/28/09 1923

Analyst Init JNW

SAMPLE CONTAINERS	SAMPLE NUMBERS									
	21	22	23	24	25	26	27	28	29	30
QT GENERAL MINERAL/ GENERAL PHYSICAL										
PT PE UNPRESERVED										
OT INORGANIC CHEMICAL METALS										
PT INORGANIC CHEMICAL METALS										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT TOX										
PT CHEMICAL OXYGEN DEMAND										
PTA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL	((((((((((
QT EPA 413.1, 413.2, 418.1										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
100ml EPA 547										
100ml EPA 531.1										
QT EPA 548										
QT EPA 549										
QT EPA 632										
QT EPA 8015M										
QT AMBER										
8 OZ. JAR										
32 OZ. JAR										
SOIL SLEEVE	A	A	A	A	A	A	A	A	A	A
PCB VIAL										
PLASTIC BAG										
FERROUS IRON										
ENCORE										

Comments: _____
 Sample Numbering Completed By: JNW Date/Time: 8/28/09 2017
 A = Actual / C = Corrected

Submission #: 09-11370

SHIPPING INFORMATION

Federal Express UPS Hand Delivery
 BC Lab Field Service Other (Specify) _____

SHIPPING CONTAINER

Ice Chest None
 Box Other (Specify) _____

Refrigerant: Ice Blue Ice None Other Comments:

Custody Seals Ice Chest Containers None Comments:
 Intact? Yes No Intact? Yes No

All samples received? Yes No All samples containers intact? Yes No Description(s) match COC? Yes No

COC Received

YES NO

Emissivity: 0.98 Container: 109 Thermometer ID: Tn080

Temperature: A 2.5 °C / C 25 °C

Date/Time 8/28/09

Analyst Init JNW

1923

SAMPLE CONTAINERS	SAMPLE NUMBERS									
	1	2	3	4	5	6	7	8	9	10
QT GENERAL MINERAL/ GENERAL PHYSICAL	31									
PT PE UNPRESERVED										
QT INORGANIC CHEMICAL METALS										
PT INORGANIC CHEMICAL METALS										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT TOX										
PT CHEMICAL OXYGEN DEMAND										
PTA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL	(()	()	(()	()	()	()	()	()
QT EPA 413.1, 413.2, 418.1										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
100ml EPA 547										
100ml EPA 531.1										
QT EPA 548										
QT EPA 549										
QT EPA 632										
QT EPA 8015M										
QT AMBER										
8 OZ. JAR										
32 OZ. JAR										
SOIL SLEEVE	A									
PCB VIAL										
PLASTIC BAG										
FERROUS IRON										
ENCORE										

Comments: Sample Numbering Completed By: JNW Date/Time: 8/28/09 2017

A = Actual / C = Corrected