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2:33 pm, Apr 27, 2009

Alameda County
Environmental Health

April 24, 2009

Ms. Barbara Jakub
Hazardous Materials Specialist
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

RE: SENSITIVE RECEPTOR SURVEY, ADDENDUM

Delta Project No. C100746
RO# 0203
AOC 1085

Dear Ms. Jakub:

On behalf of ConocoPhillips Company (COP), Delta Consultants (Delta) is submitting this *Sensitive Receptor Survey, Addendum* (see attached), as per your letter entitled *Fuel Leak Case No. RO0000203 and GeoTracker Global ID T0600101471, UNOCAL #0746, 3943 Broadway, Oakland, CA*, dated December 5, 2008. Attached is the original Sensitive Receptor Survey report prepared by TRC plus all of the Department of Water Resources (DWR) well records.

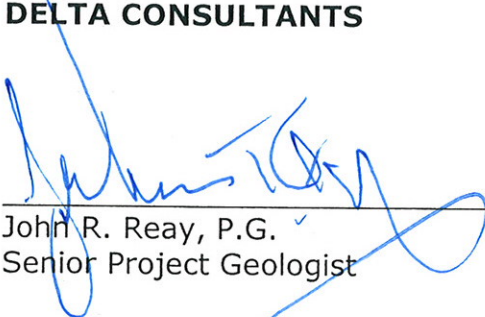
Service Station

Location

76 Service Station No. 0746

3943 Broadway
Oakland, California

Sincerely,
DELTA CONSULTANTS



John R. Reay, P.G.
Senior Project Geologist

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



1590 Solano Way
#A
Concord, CA 94520

925.688.1200 PHONE
925.688.0388 FAX

www.TRCSolutions.com

February 8, 2007

TRC Project No. 42016313

Mr. Don Hwang
Hazardous Materials Specialist
Alameda County Health Agency
1131 Harbor Bay Parkway
Alameda, California 94502

RE: SENSITIVE RECEPTOR SURVEY
76 SERVICE STATION # 0746
3943 BROADWAY
OAKLAND, CALIFORNIA

Dear Mr. Hwang:

On behalf of ConocoPhillips Company (ConocoPhillips), TRC has prepared this sensitive receptor survey report for 76 Service Station # 0746, located at 3943 Broadway (Site) in Oakland, California (Figure 1).

SCOPE OF WORK

To identify public and municipal wells within one-half mile of the subject site, TRC contacted the California Department of Water Resources (DWR) to obtain copies of well completion reports for any wells located in the Site vicinity. The results, excluding destroyed water supply wells and groundwater monitoring and extraction wells, are summarized in Table 1 and shown on Figure 1.

Also included in the survey was an evaluation of nearby surface water bodies as possible sensitive receptors. TRC accomplished this by observing various site and vicinity maps. Figure 1 shows the nearby surface water bodies located within a one-half mile radius of the Site.

SENSITIVE RECEPTOR SURVEY

A request was made to the DWR for well completion reports within the vicinity of the site. Of the well completion reports reviewed, three water supply wells were located within a one-half mile radius of the Site.

Two of the wells are located approximately 1,330 feet east and 1,450 feet north of the Site. These wells are listed as irrigation wells in the DWR well completion reports. The third well is a domestic well according to the DWR well completion report, and it is located approximately 2,070 feet northwest of the Site. The available construction details for these wells are provided in Table 1.

Sensitive Receptor Survey

76 Service Station # 0746

February 8, 2007

Page 2

The only surface water body within the vicinity of the site is Glen Echo Creek, located approximately 1,630 feet southeast of the Site.

Groundwater at the Site is encountered at approximate depths of 6 to 13 feet below grade and flows to the west at an average hydraulic gradient of 0.05 feet per foot (Semi-Annual Monitoring Report dated January 12, 2007). However, historical groundwater flow has been predominantly to the southwest.

CONCLUSIONS

None of the three wells is located within the path of the local groundwater flow and are therefore not considered potential sensitive receptors.

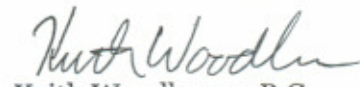
Glen Echo Creek is also not located within the path of local groundwater flow and is therefore not considered a potential sensitive receptor.

No other current or potential sensitive receptors were identified within a one-half mile radius of the Site.

If you have any questions or concerns regarding this information, please contact either of the undersigned at 925-688-1200.

Sincerely,


Monika Krupa
Staff Scientist

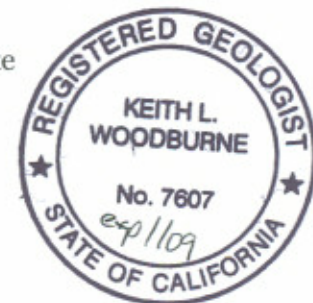

Keith Woodburne, P.G.
Senior Project Manager

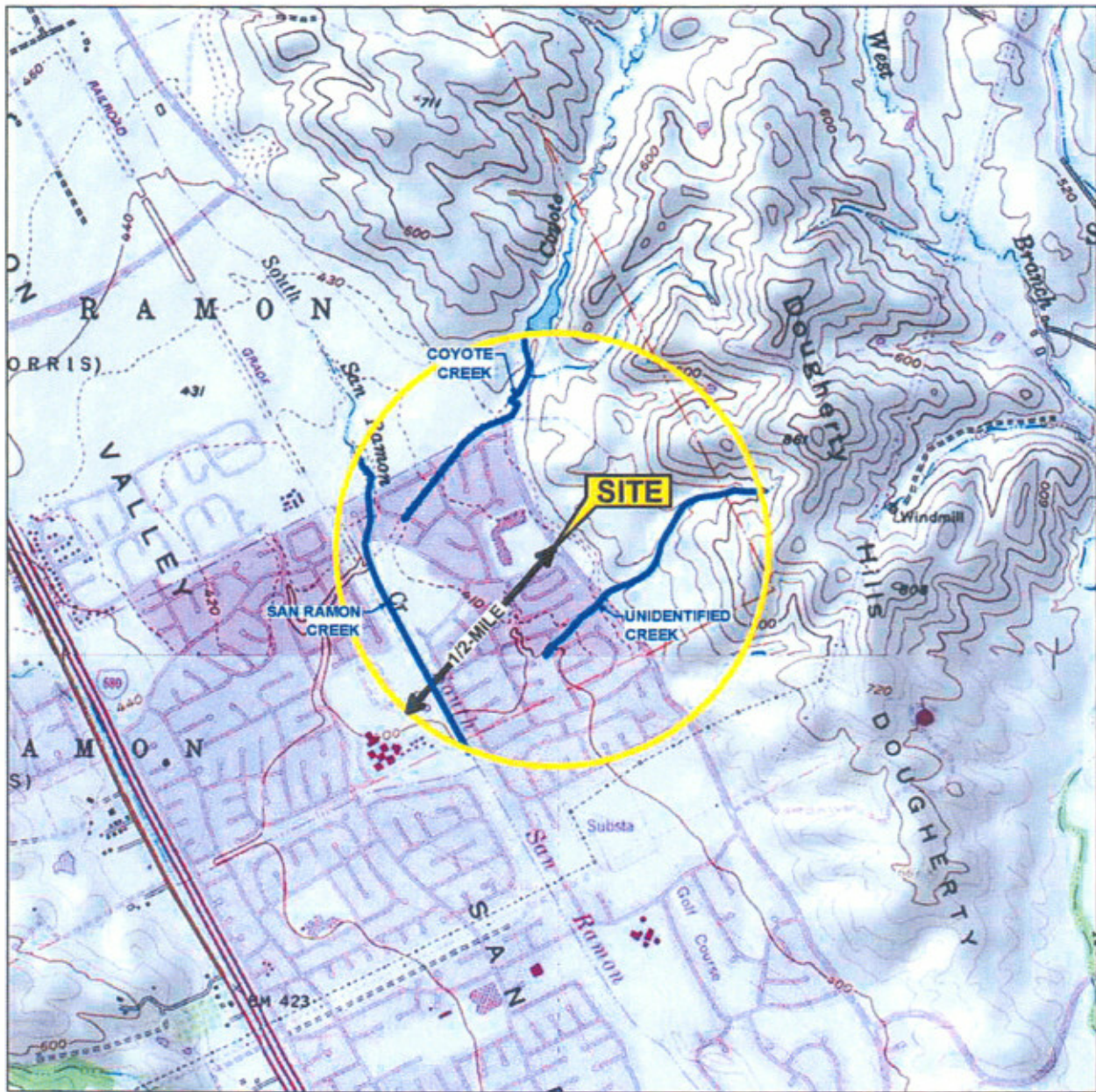
Attachments:

Figure 1 - Sensitive Receptors Within One-Half Mile Radius of Site

Table 1 - Summary of Well Information

cc: Eric Hetrick, ConocoPhillips (electronic upload only)





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:
Diablo and Dublin Quadrangles,
California

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

76 Service Station #6578
12105 Alcosta Boulevard
San Ramon, California



FIGURE 1

**TABLE 1
SUMMARY OF WELL INFORMATION**

76 Service Station # 0746
3943 Broadway
Oakland, California

TRC Well ID Number	Owner	Well Use	Well Total Depth (ft)	Screened Interval (ft)	Depth to Water (ft)	Date Installed	Approximate Distance From Site (ft)	Direction from Site
1	John Bond	Irrigation	198	132-189	21	7/29/1979	1,330	E
2	Ladies Relief Society	Irrigation	65	NA	9	NA	1,450	N
3	Robert Westwood	Domestic	NA	NA	NA	Sep-77	2,070	NW

Notes: NA = Not Available

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

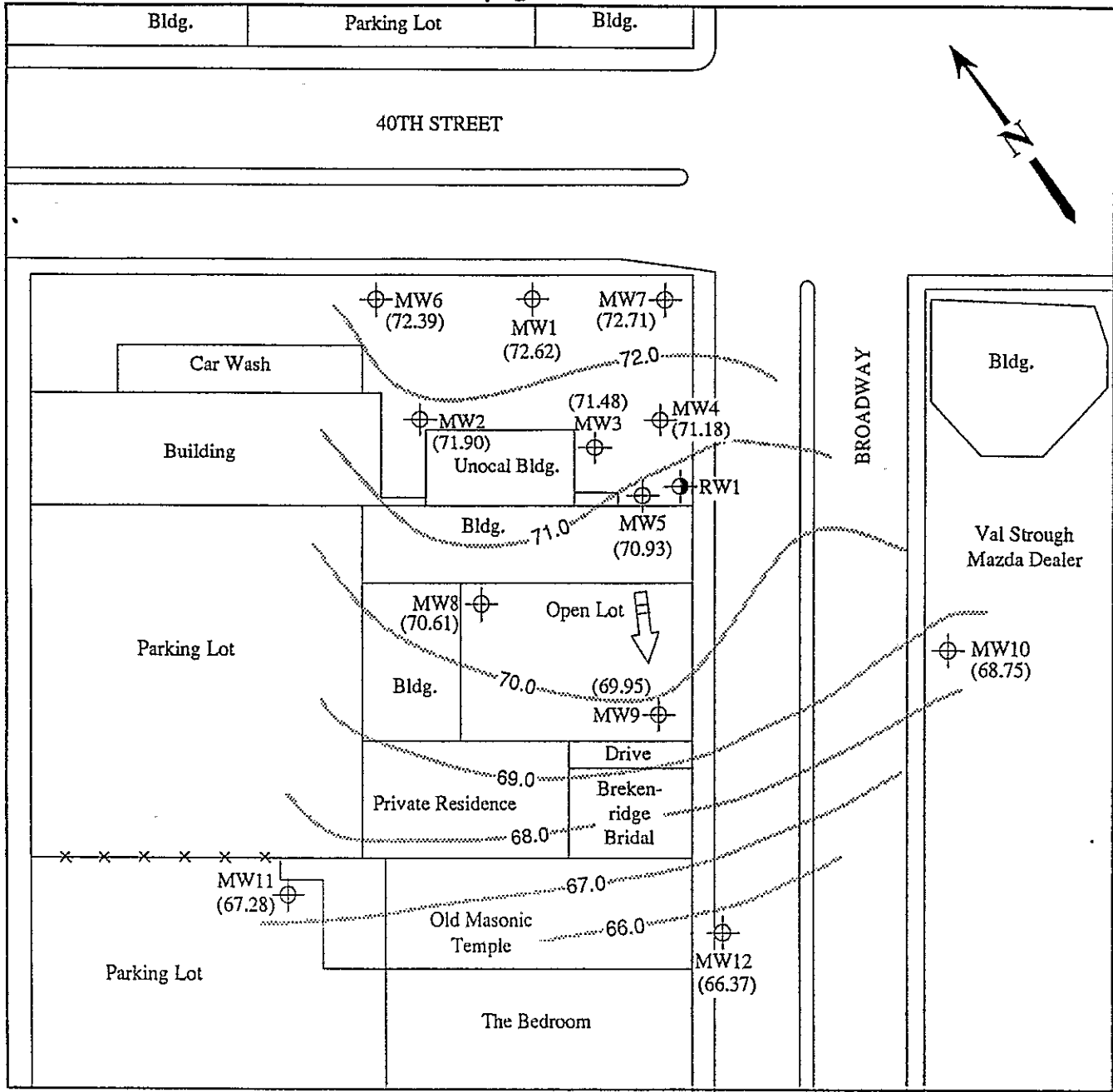
CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

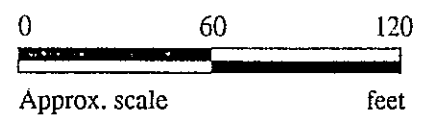
15/4W 24 L19E, 28

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

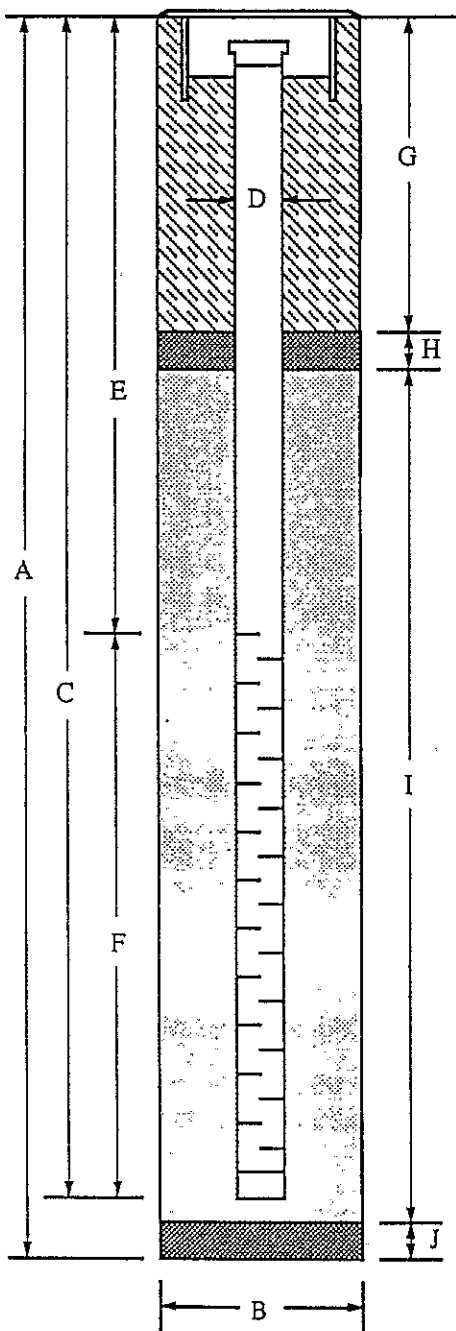
Project No. KEI-P89-0805		Boring & Casing Diameter 8' 2'	Logged By <i>JGG</i> D.L. <i>CEG 1633</i>
Project Name Unocal S/S #0746 3943 Broadway, Oakland		Well Cover Elevation	Date Drilled 6/26/92
Boring No. MW12		Drilling Method Hollow-stem Auger	Drilling Company Woodward Drilling

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.
			CL	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.
			SC	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		

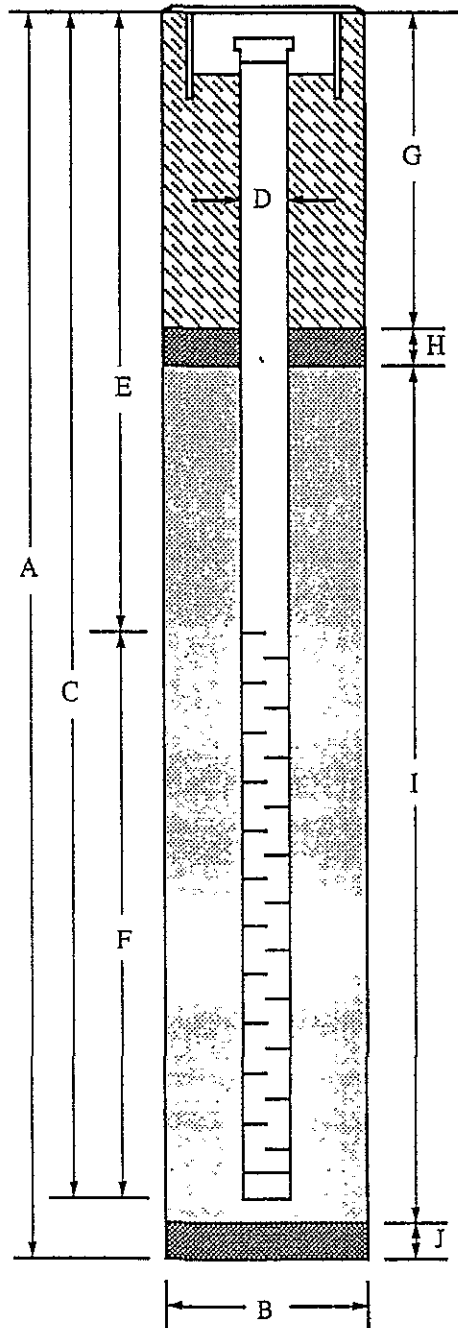
No blow count data - samples continuously cored

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 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

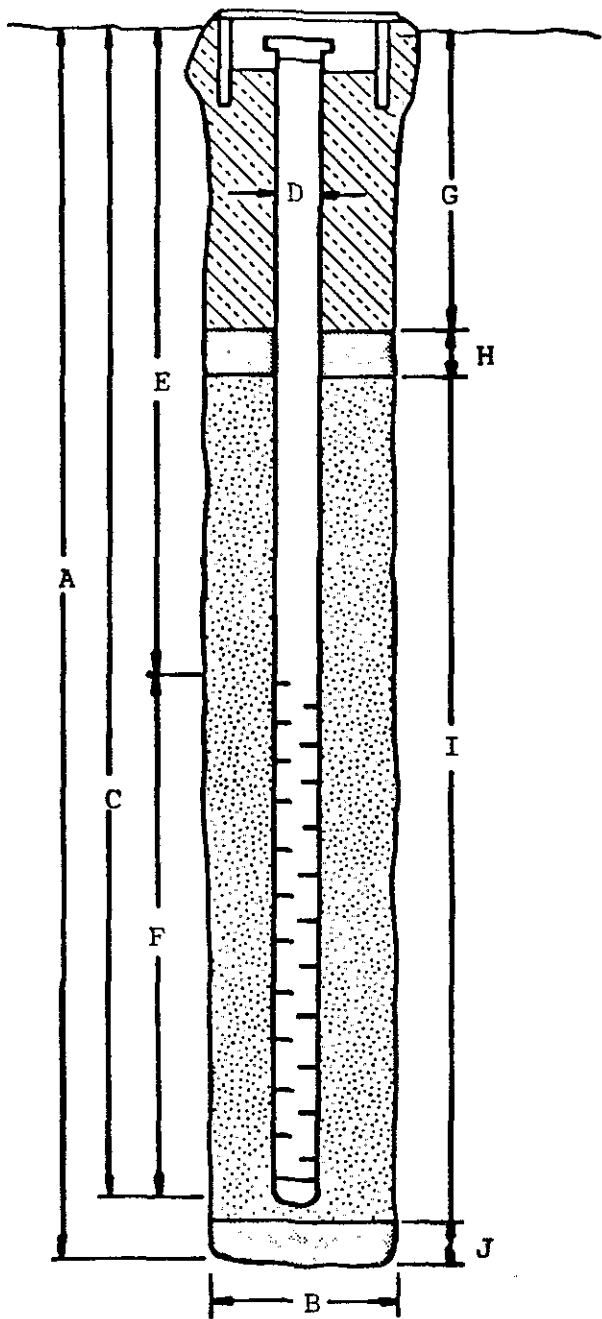
WELL COMPLETION DIAGRAM

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'
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: 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.

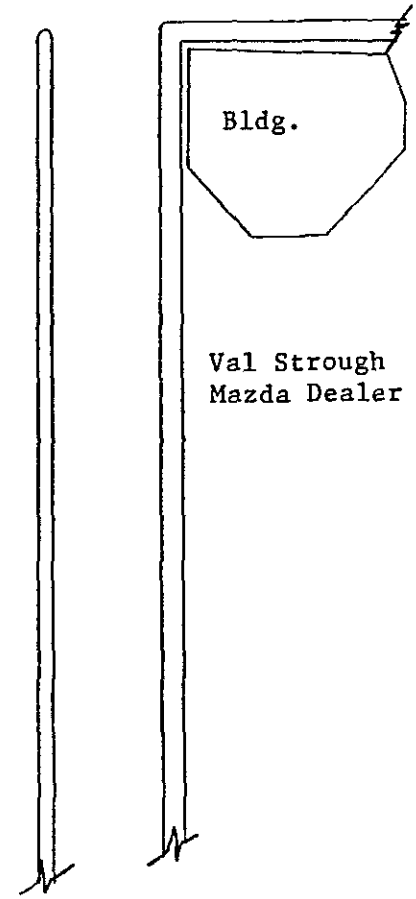
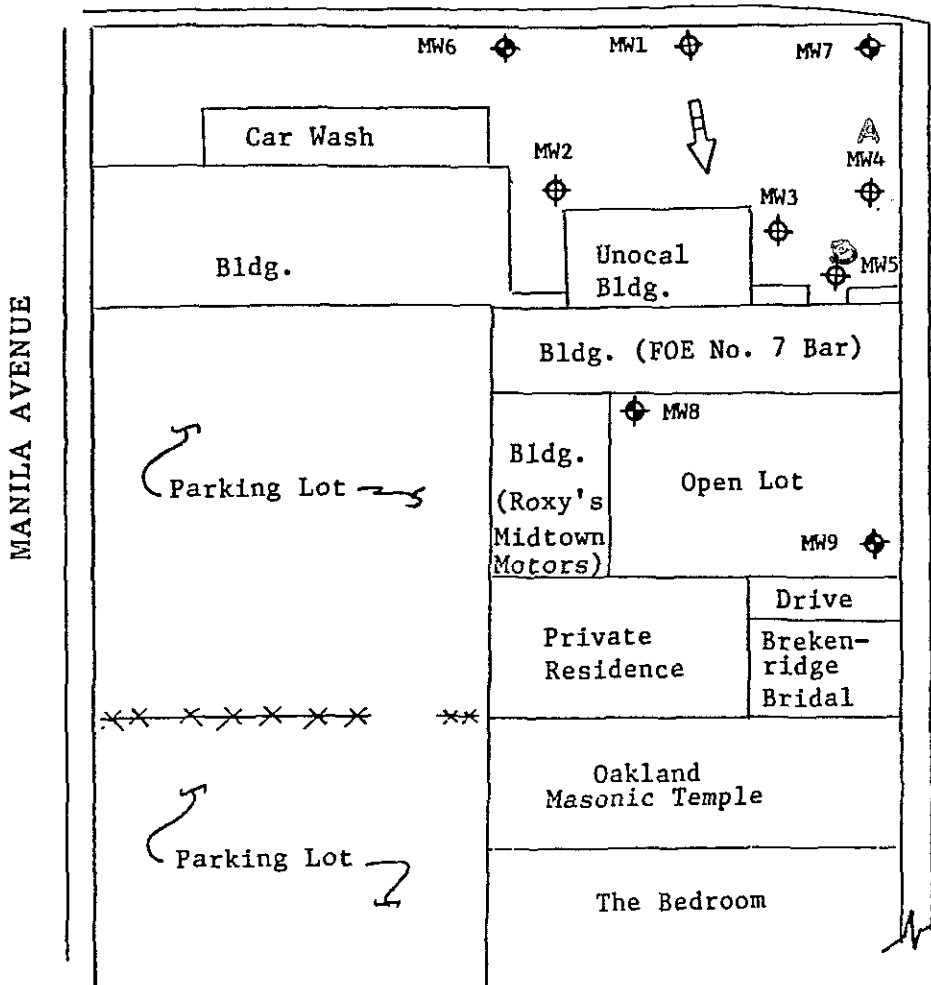
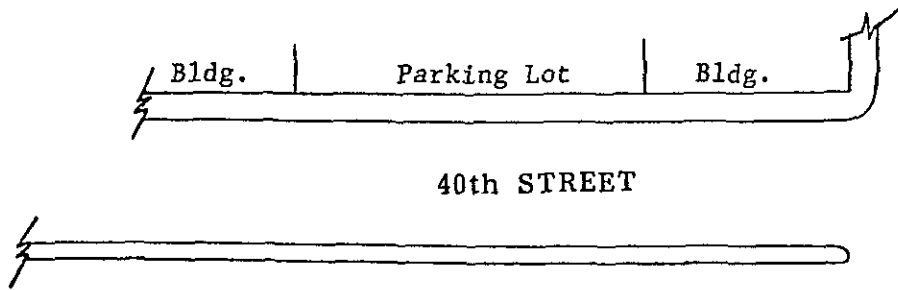


KAPREALIAN ENGINEERING, INC.

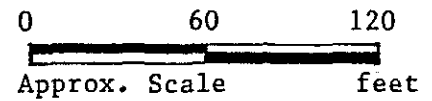
Consulting Engineers

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

308393 A.1.8



SITE VICINITY MAP



LEGEND

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

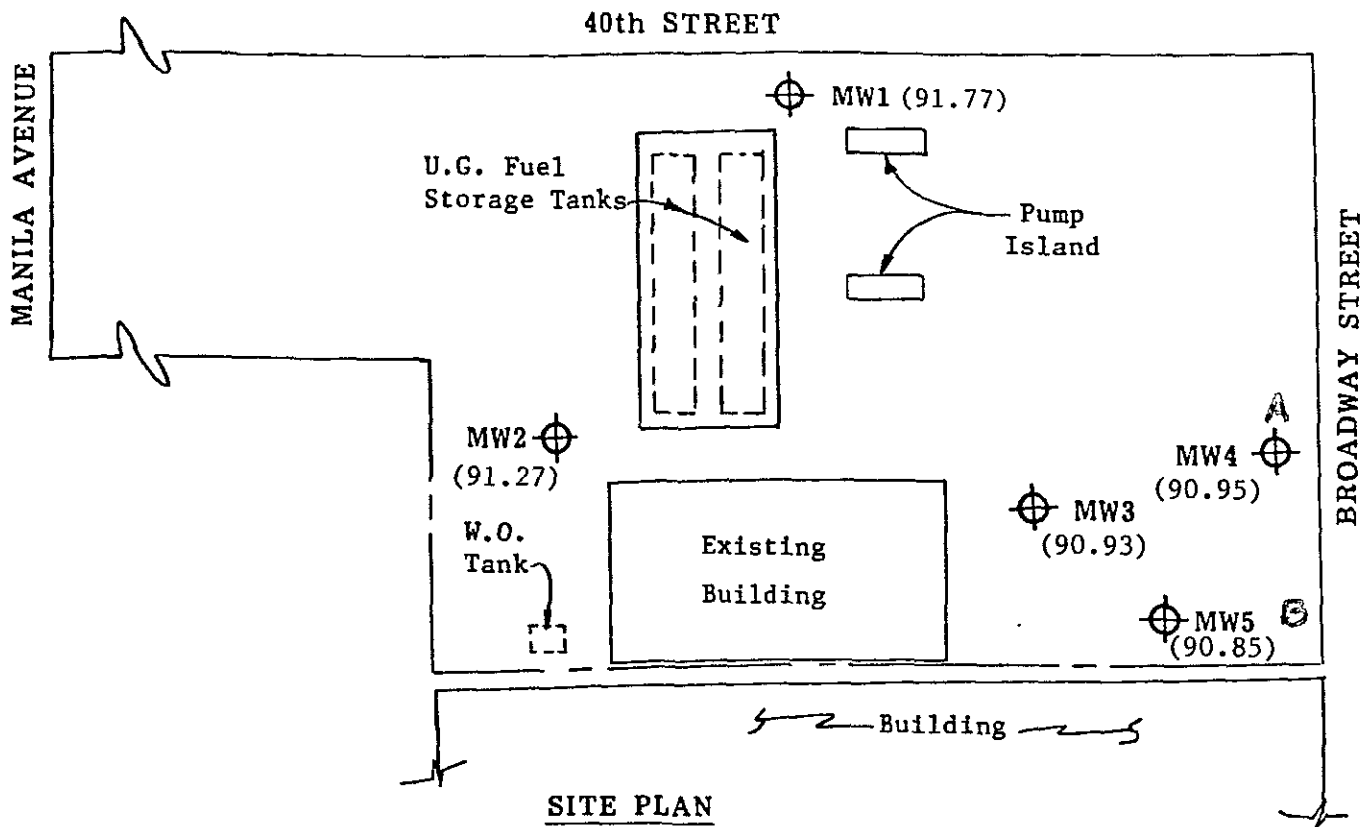
Unocal S/S #0746
3943 Broadway
Oakland, California



KAPREALIAN ENGINEERING, INC.
Consulting Engineers




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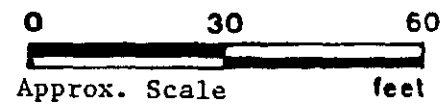
P.O. BOX 996 • BENICIA, CA 94510
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581



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

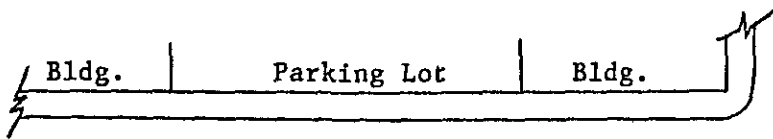


KAPREALIAN ENGINEERING, INC.

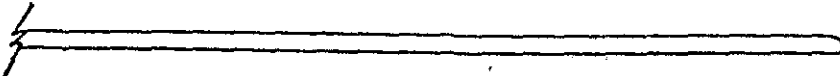
Consulting Engineers

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

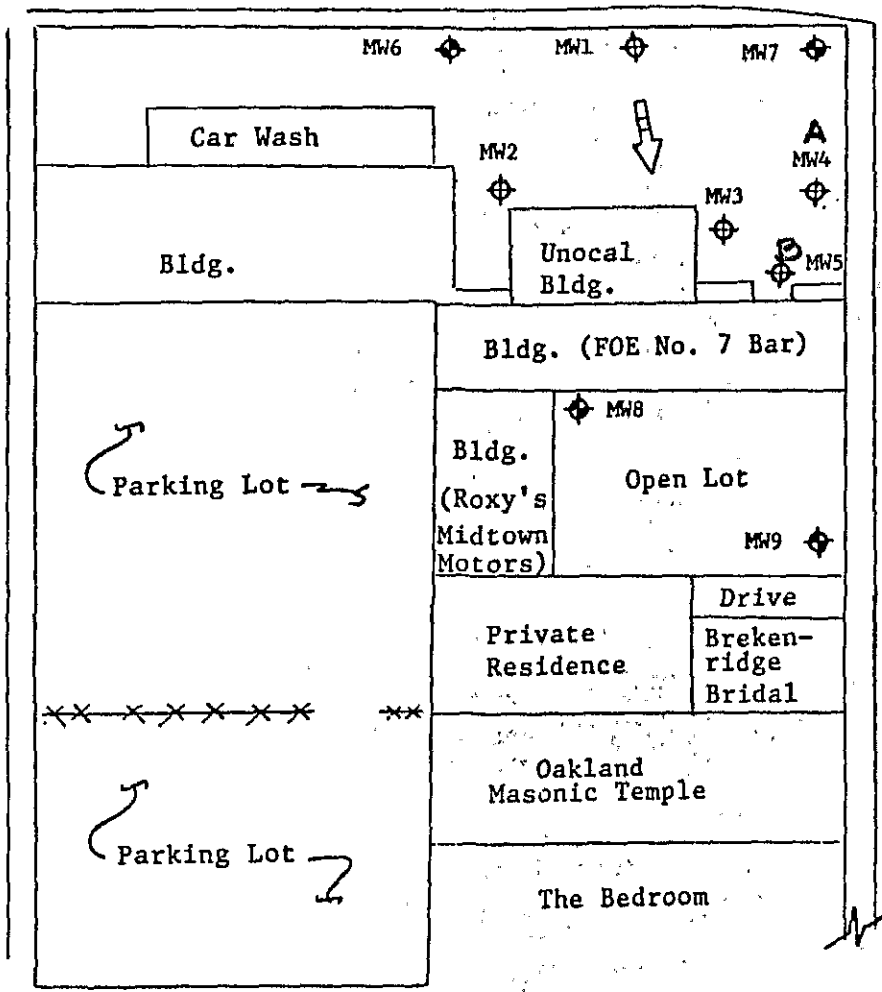
308393 A.B



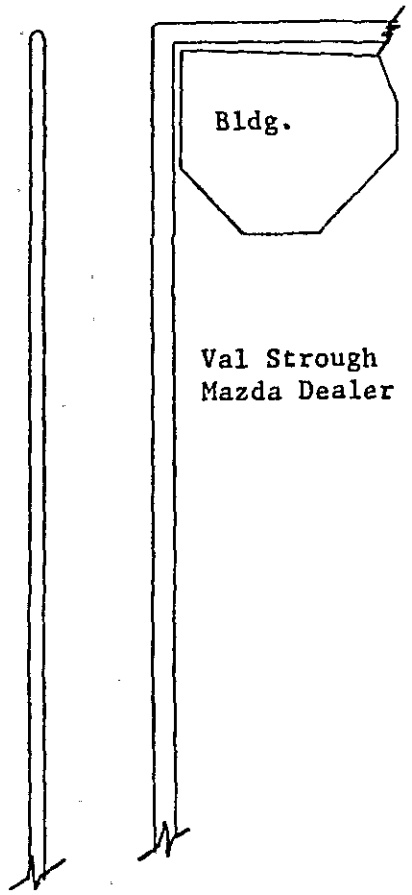
40th STREET



MANILA AVENUE






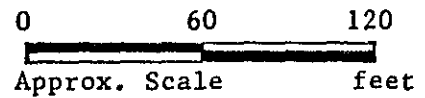
BROADWAY



SITE VICINITY MAP

LEGEND

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



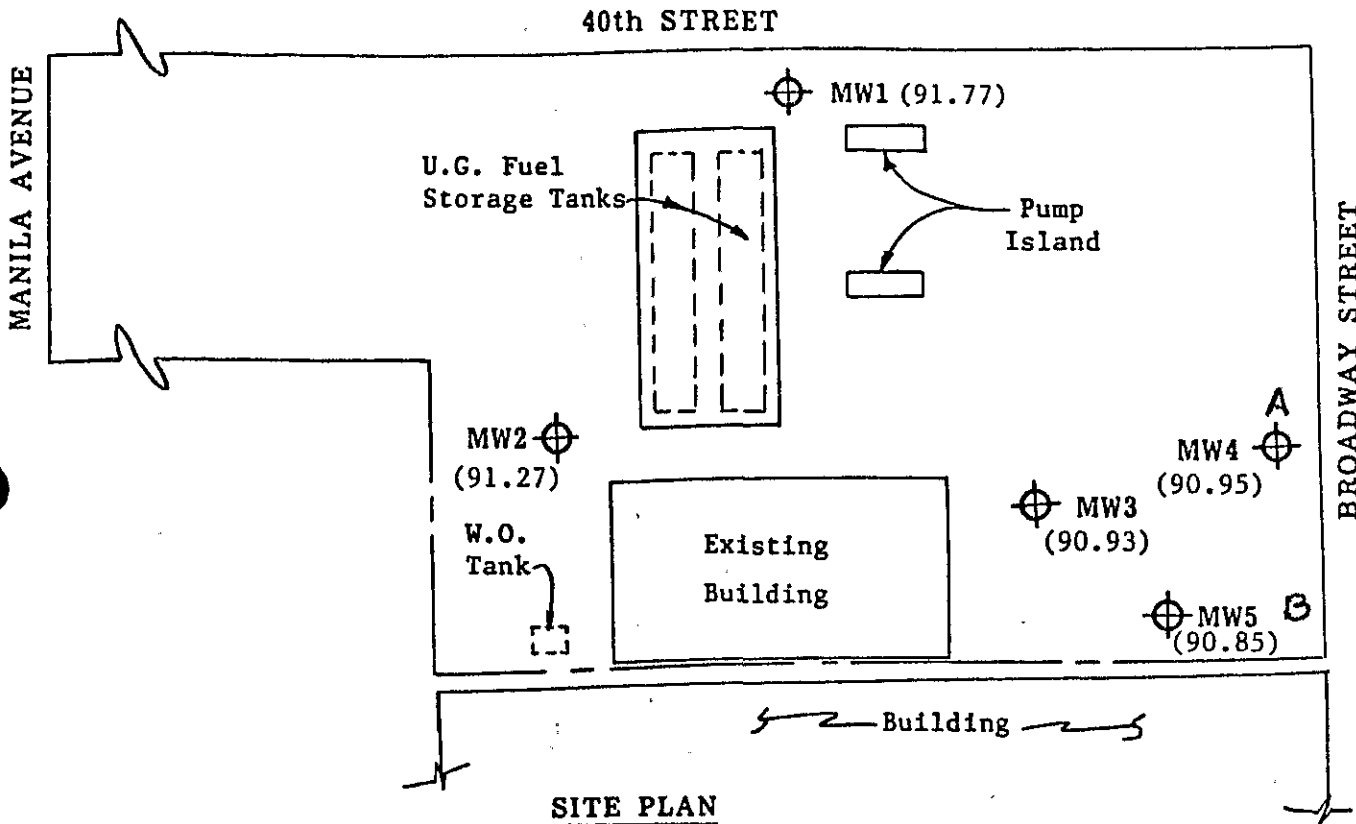
Unocal S/S #0746
3943 Broadway
Oakland, California






KAPREALIAN ENGINEERING, INC.
Consulting Engineers

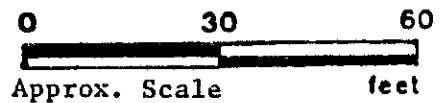
P.O. BOX 996 • BENICIA, CA 94510
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581

308393A/B



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

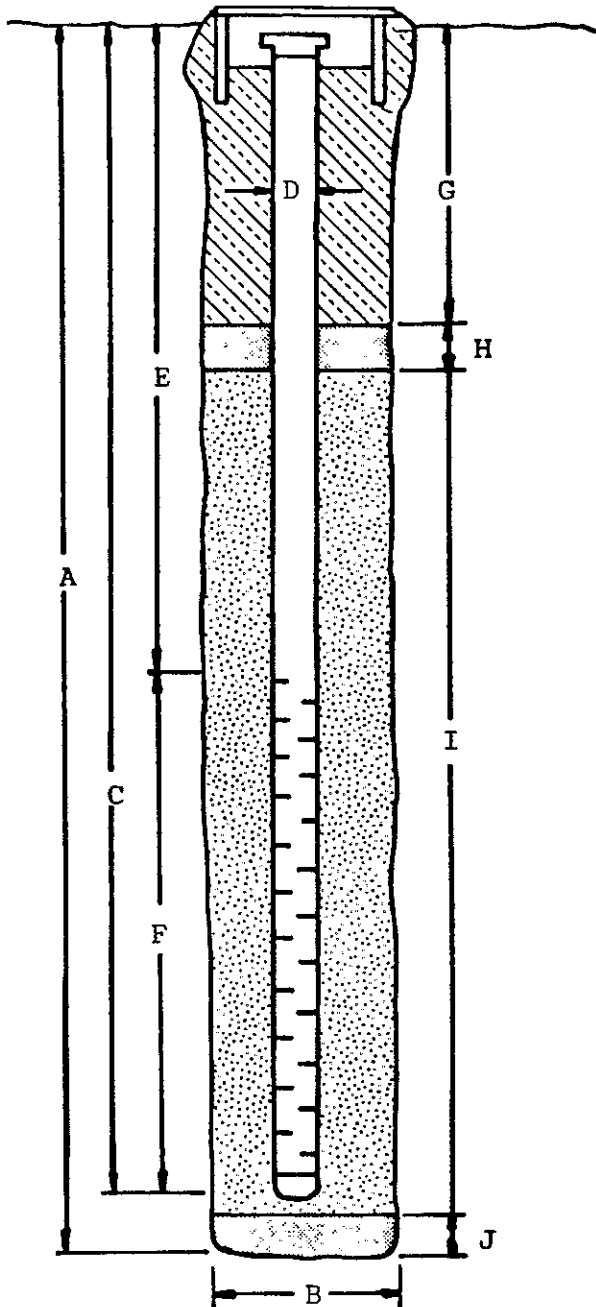
WELL COMPLETION DIAGRAM

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



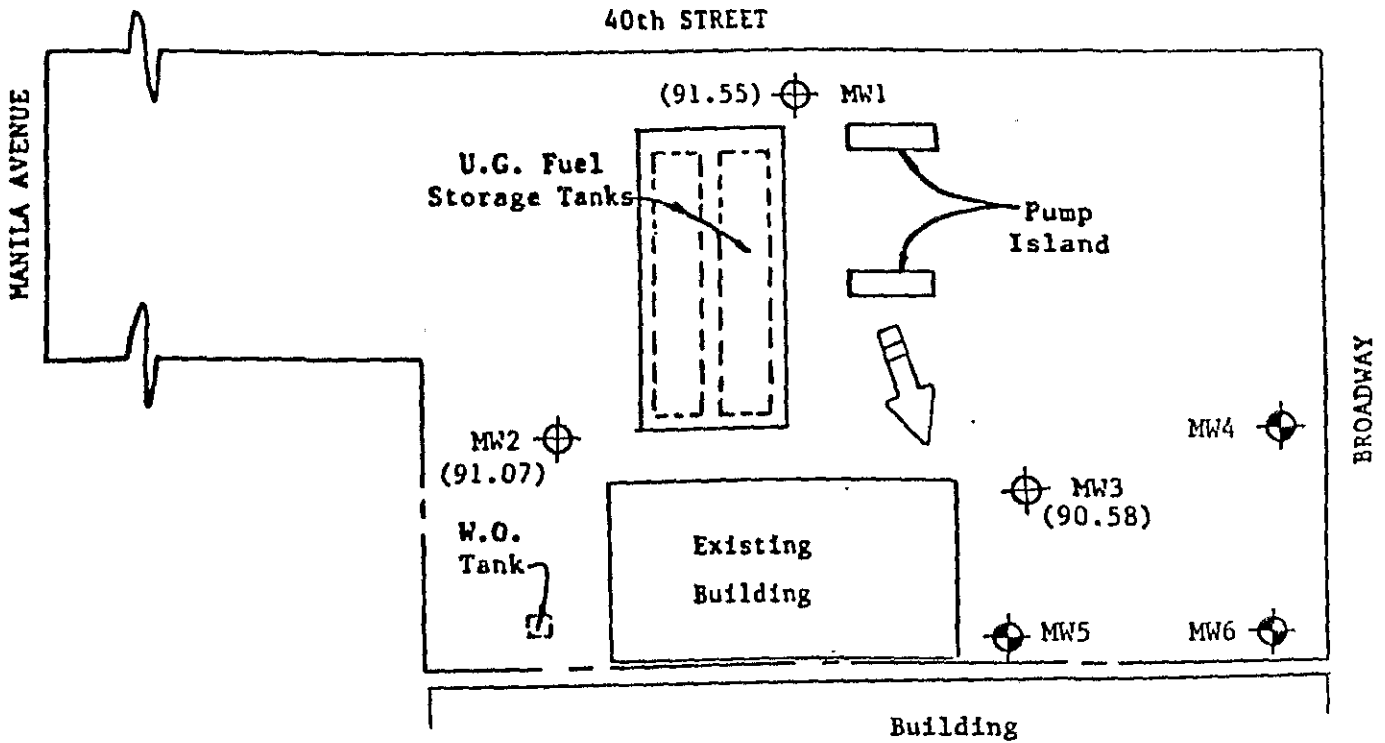
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Consulting Engineers

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BENICIA, CA 94510

(707) 746-6915

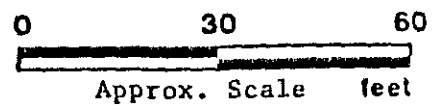


SITE PLAN

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

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

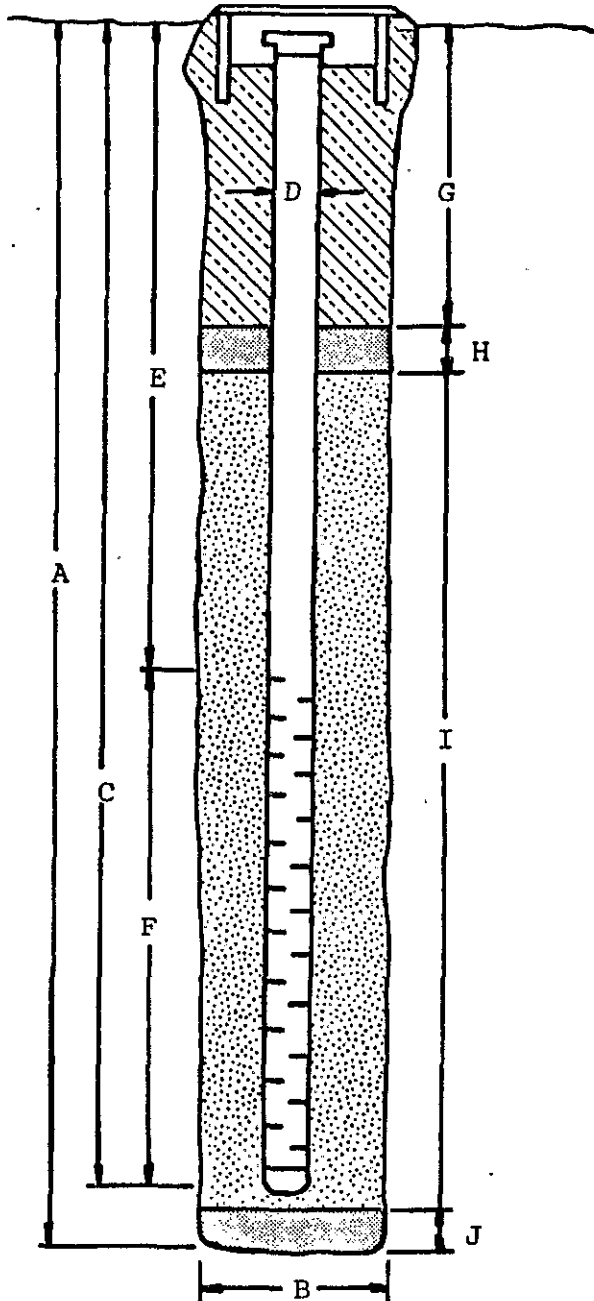
WELL COMPLETION DIAGRAM

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

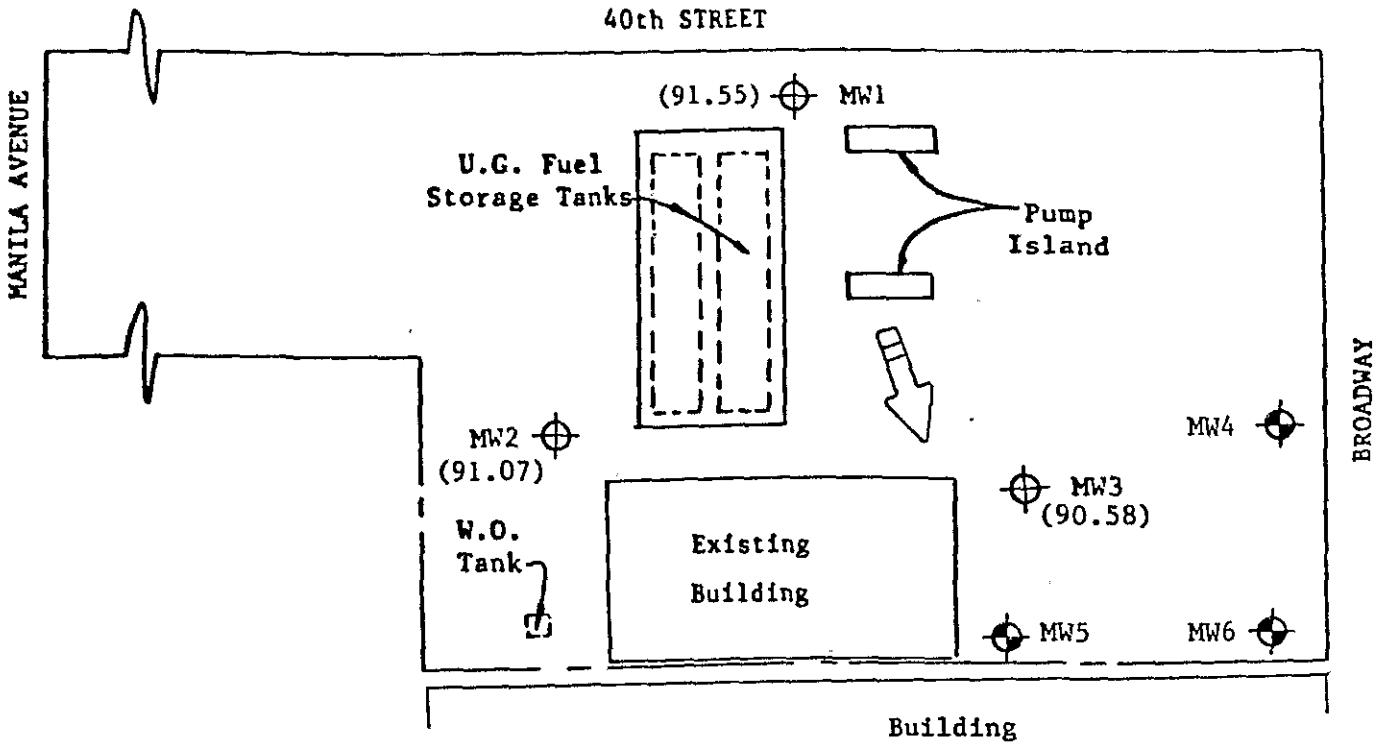
*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

15/4W 24LS
01-449K






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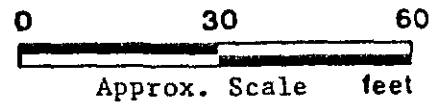
Consulting Engineers
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BENICIA, CA 94510
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SITE PLAN

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.	

15/4W 24L6
01-449L

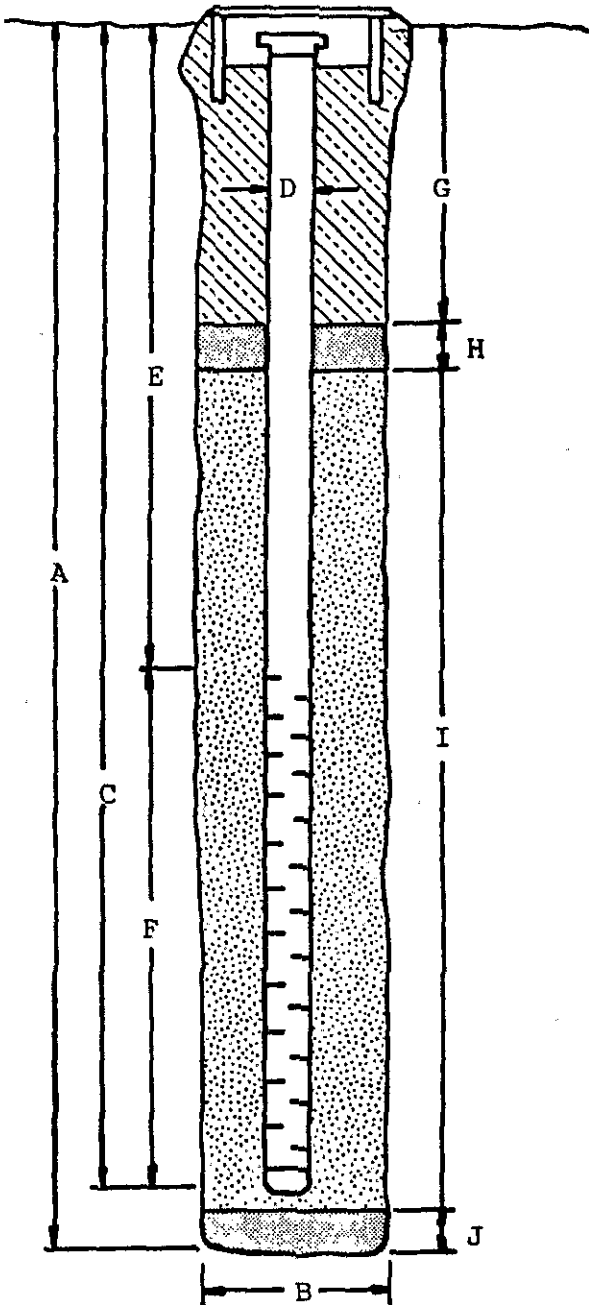
WELL COMPLETION DIAGRAM

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'

Machined
Perforation Type: Slot

Perforation Size: 0.020"

G. Surface Seal: 2'

Seal Material: Concrete

H. Seal: 2'

Seal Material: Bentonite

I. Gravel Pack: 18.5'

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.

15/4W 24L6

01-449L



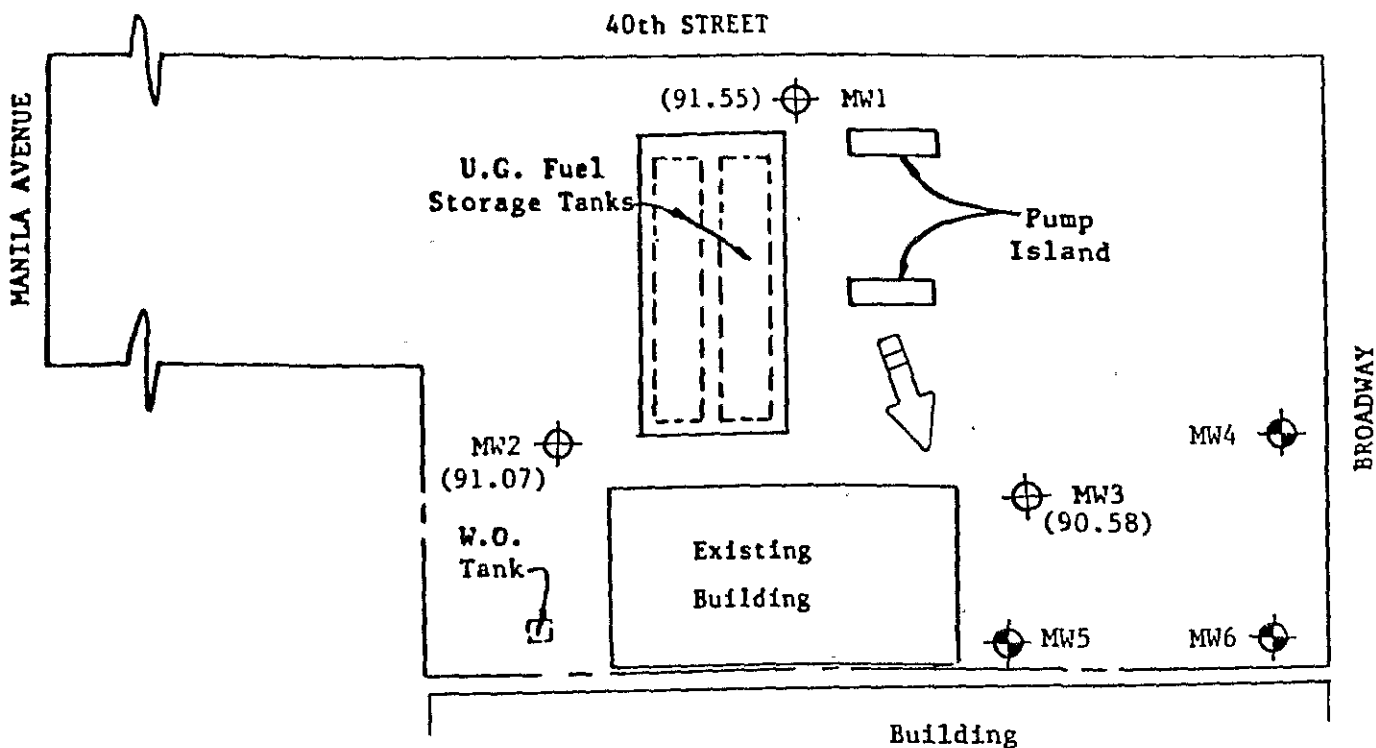
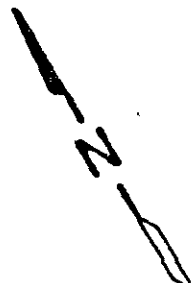
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Consulting Engineers

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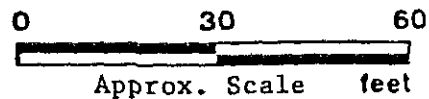


SITE PLAN

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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WELL COMPLETION REPORT
(WELL LOGS)

REMOVED



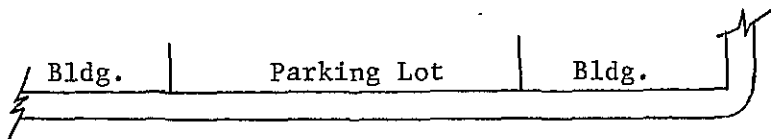
KAPREALIAN ENGINEERING, INC.

Consulting Engineers

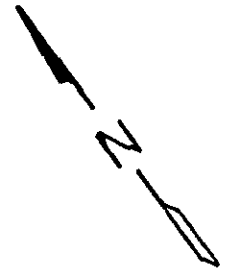
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364640 A-D

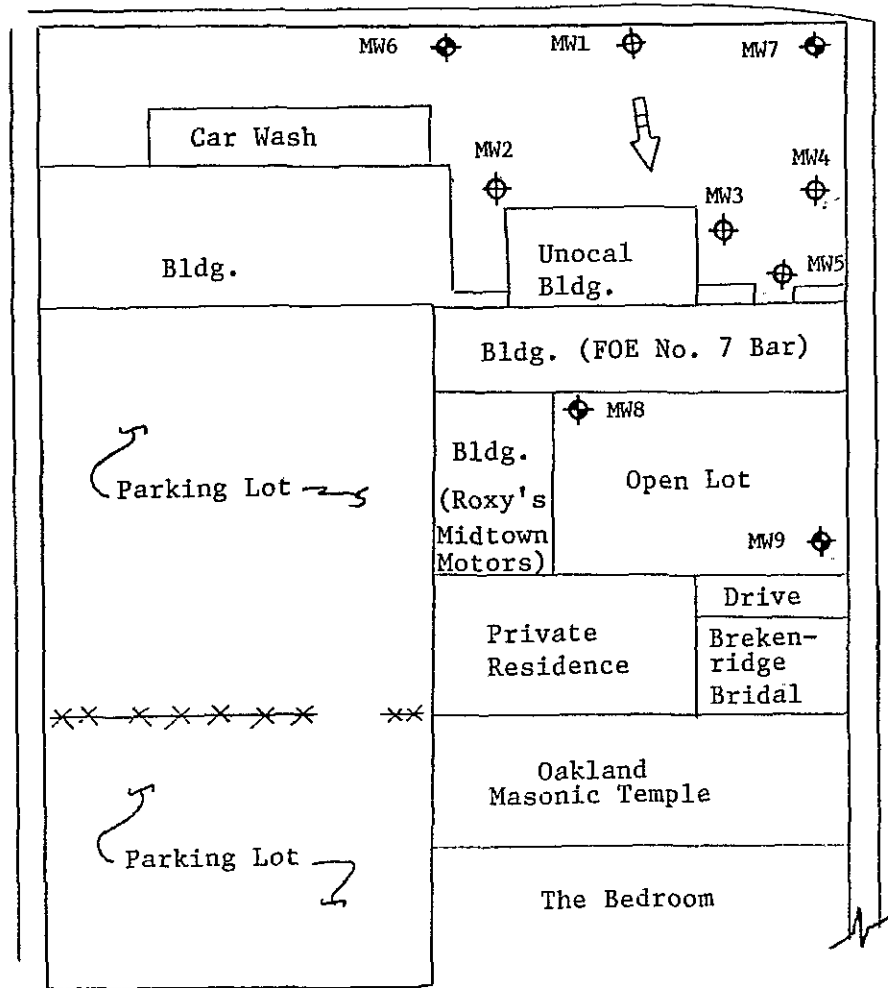
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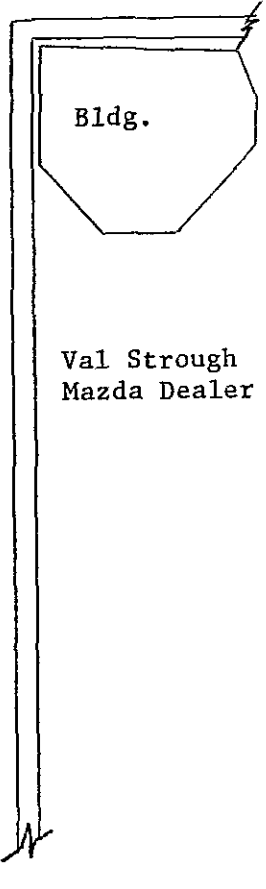
40th STREET



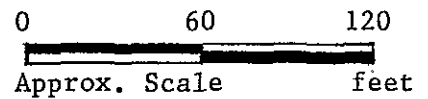
MANILA AVENUE



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

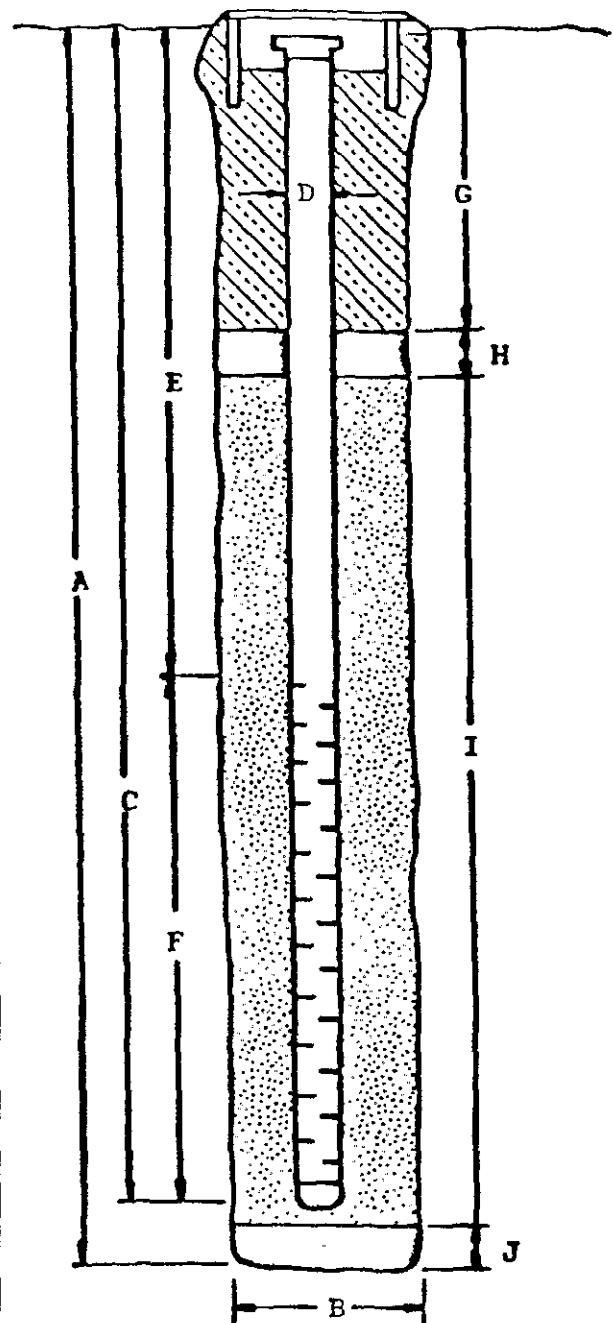
Project No. KEI-P89-0805		Boring & Casing Diameter 9" 2"		Logged By W.W.	
Project Name Unocal 3943 Broadway, Oaklnd		Well Head Elevation N/A		Date Drilled 10/22/90	
Boring No. MW6		Drilling Method Hollow-stem Auger		Drilling Company EGI	
Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy 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			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 24L7

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'	

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 sandstone, 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

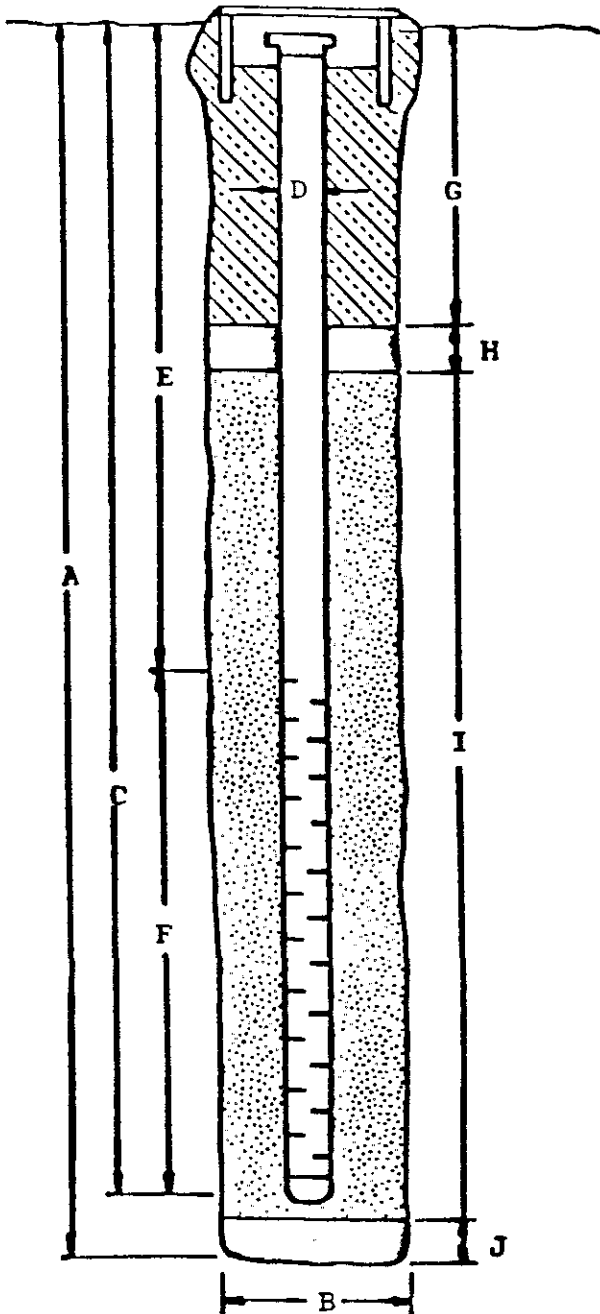
15/11/24L9

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'

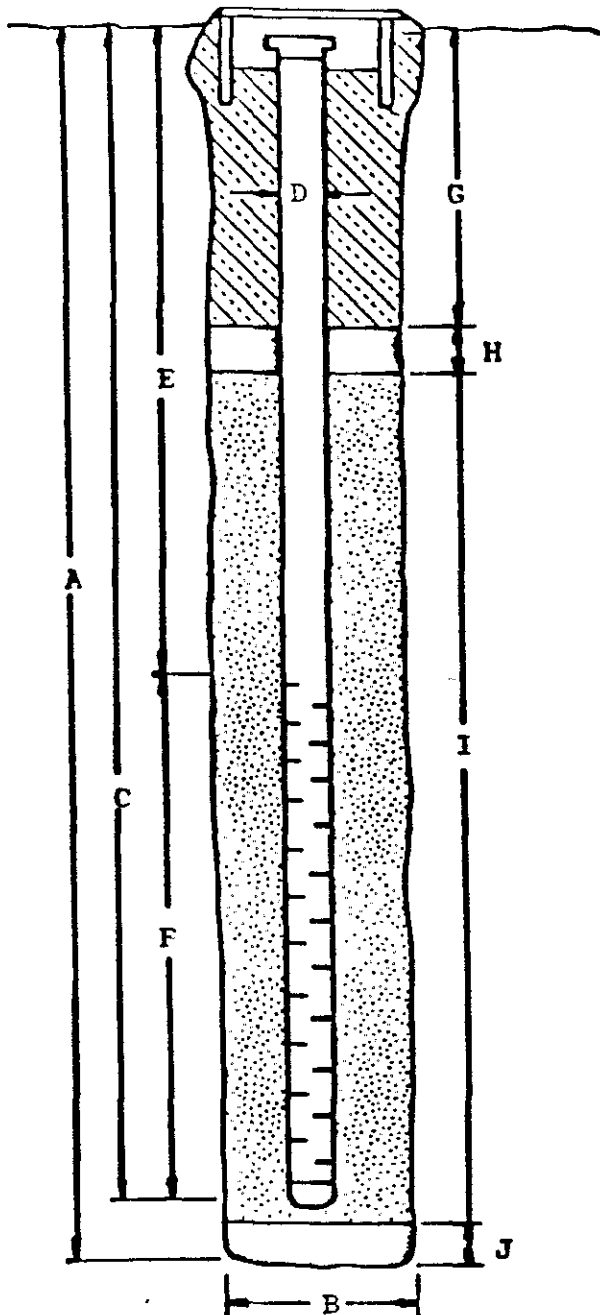
1S/4W 24L10

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'
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.

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

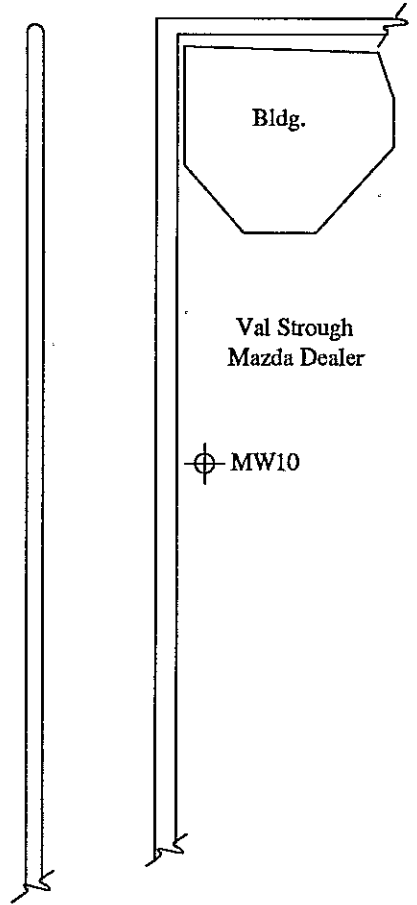
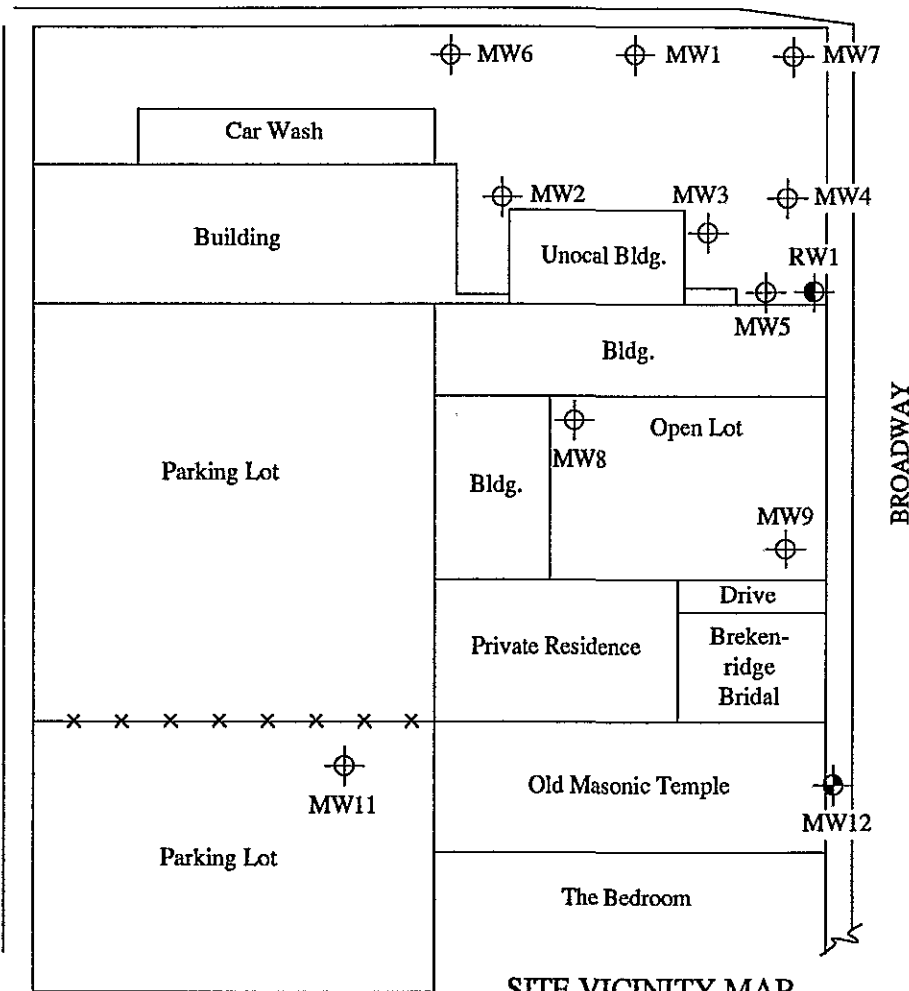
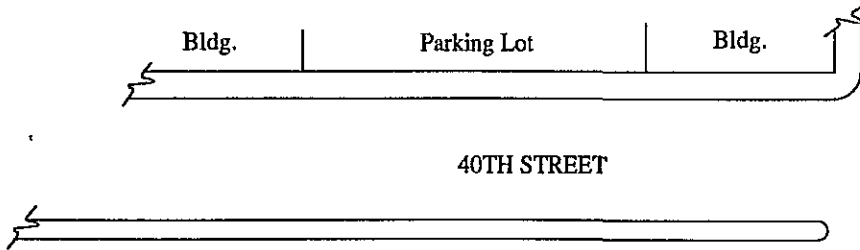
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KAPREALIAN ENGINEERING, INC.

Consulting Engineers

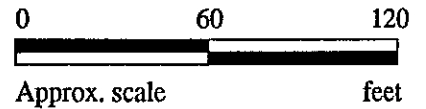
P.O. BOX 996 • BENICIA, CA 94510
(707) 746-6915 • (707) 746-6916 • FAX (707) 746-5581



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

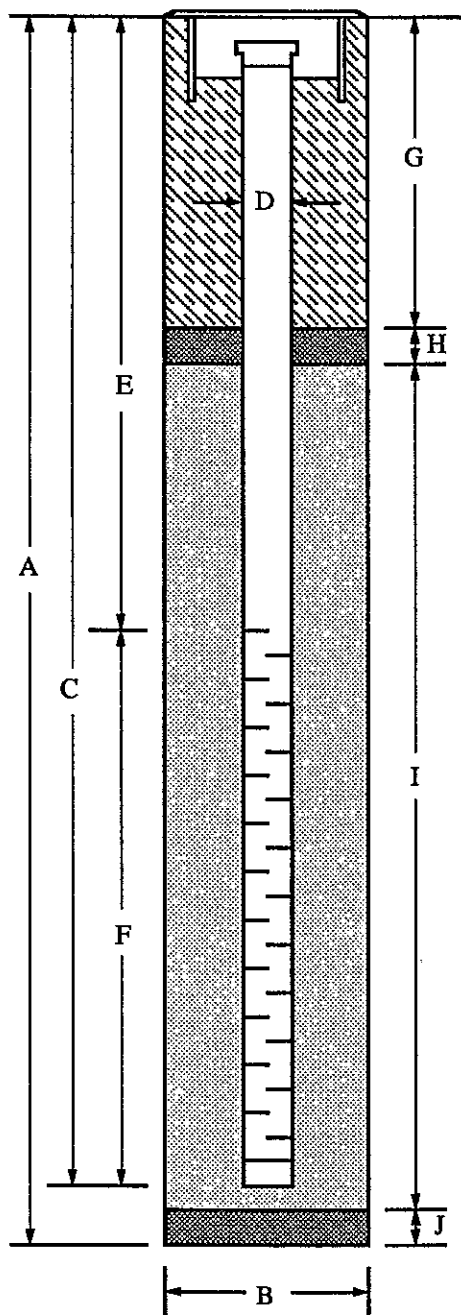
WELL COMPLETION DIAGRAM

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

PROJECT NUMBER: KEI-P89-0805

WELL PERMIT NO.: ACFD&WCD 91219

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: 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.

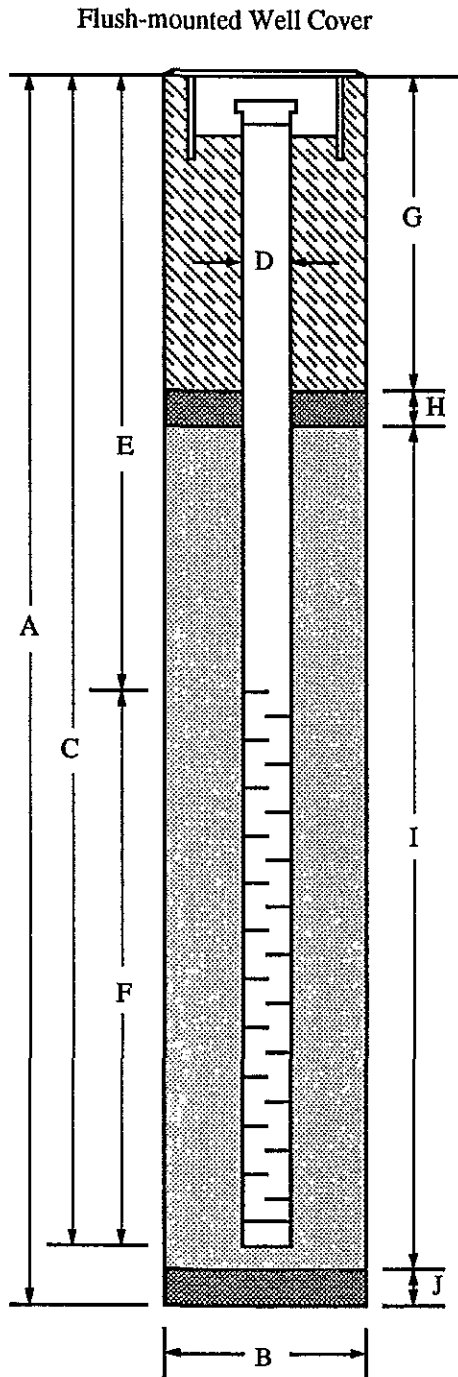
422134B OIS 04/24/15

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.

CONFIDENTIAL

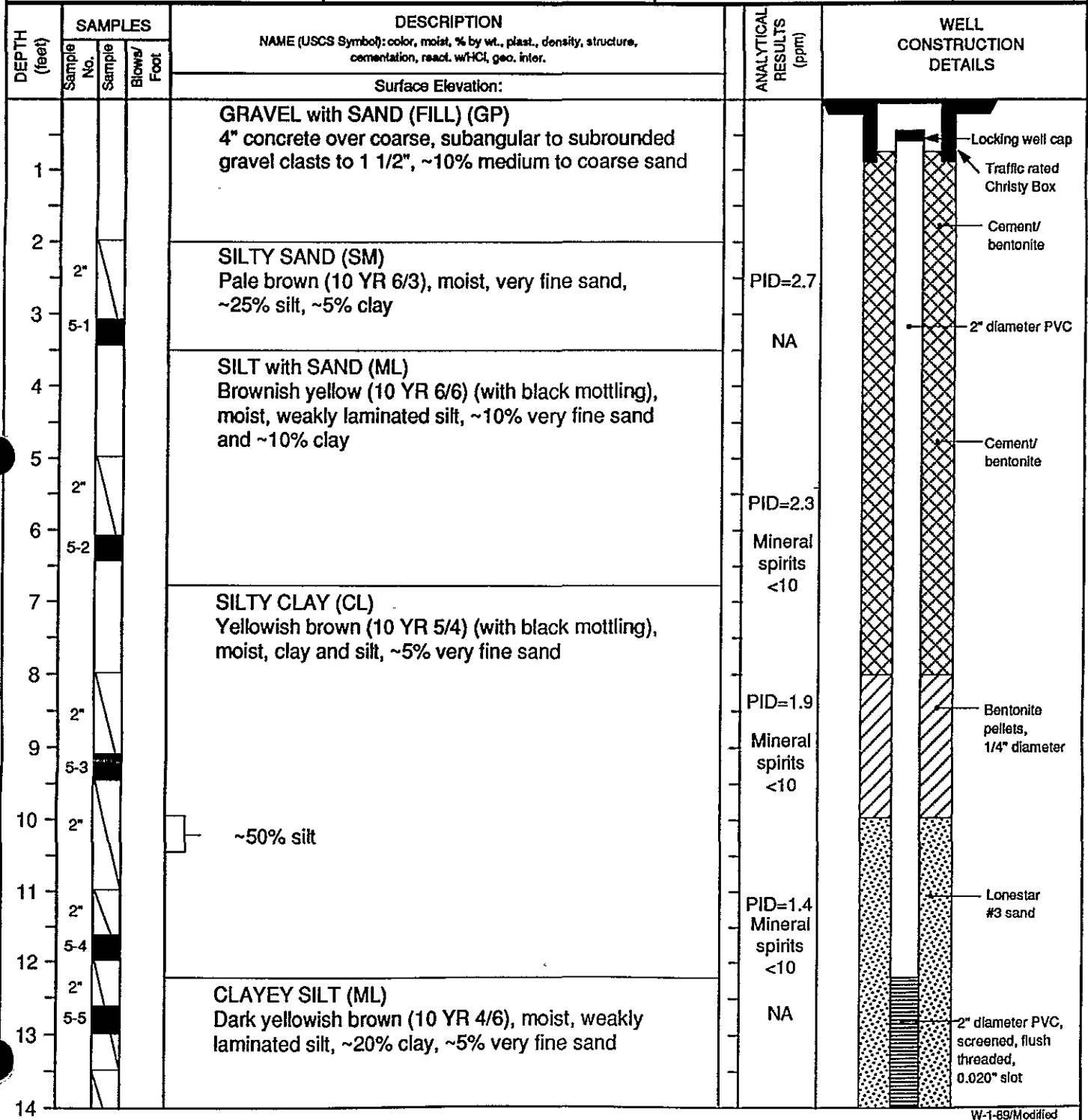
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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				SILTY CLAY (CL) Brownish yellow (10 YR 6/6), moist, clay and silt		
18	P			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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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

343409

1514W 24N13

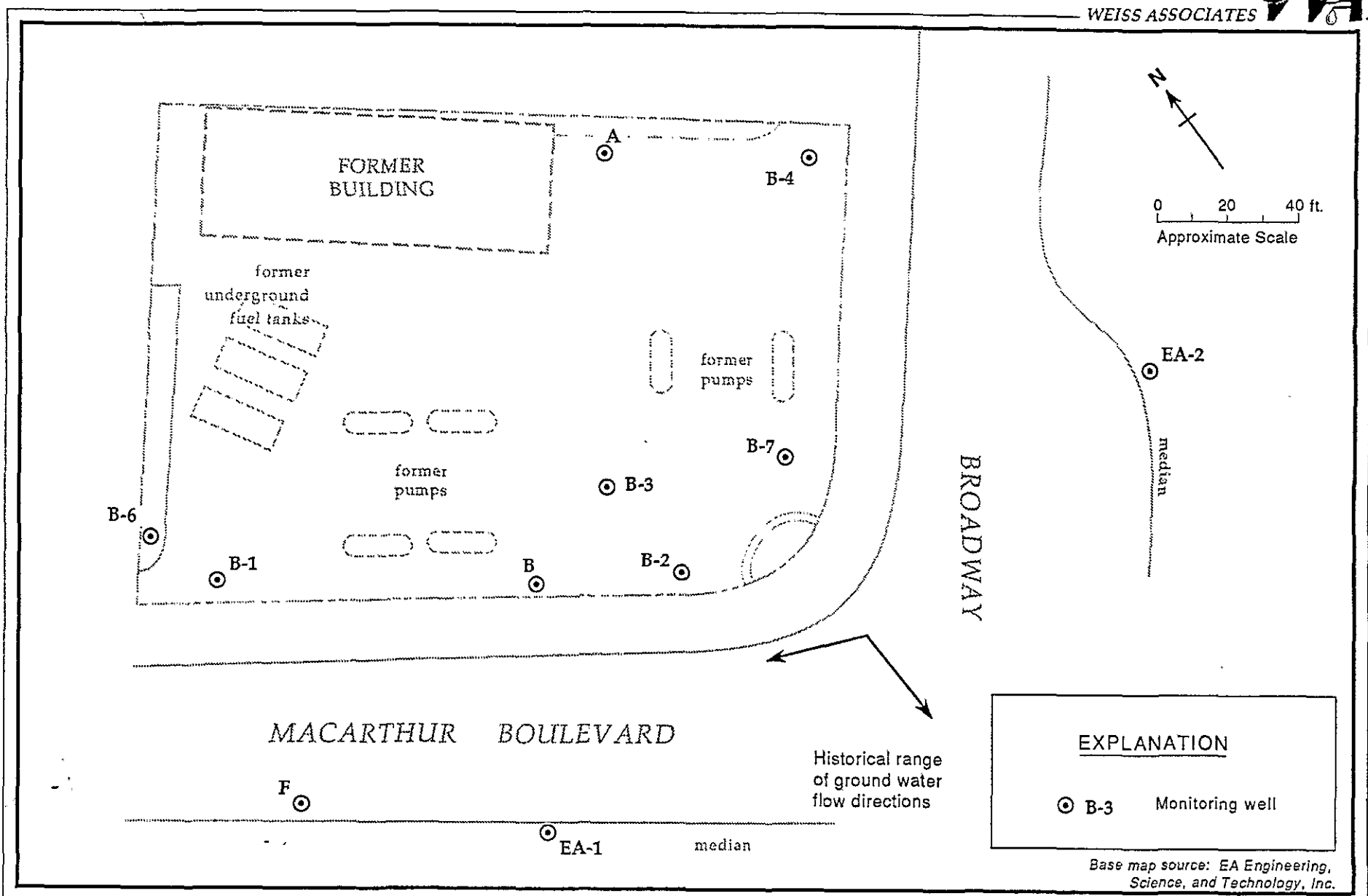
PROJECT: KAISER Oakland, California		Log of Well No. MW-6	
BORING LOCATION: Linen room, nearest east door		ELEVATION AND DATUM: 72.19 feet City of Oakland	
DRILLING CONTRACTOR: HEW/Schick		DATE STARTED: 1/27/91	DATE FINISHED: 1/27/91
DRILLING METHOD: 8" Hollow stem auger		TOTAL DEPTH: 10.5 feet	SCREEN 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	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	2"					
6	6-1				PID=1.5 Mineral spirits <10	
7	2"			Clay and silt, no sand 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	Mineral spirits <10	
10	6-3					
11				Bottom of hole at 10.5 feet		

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED



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

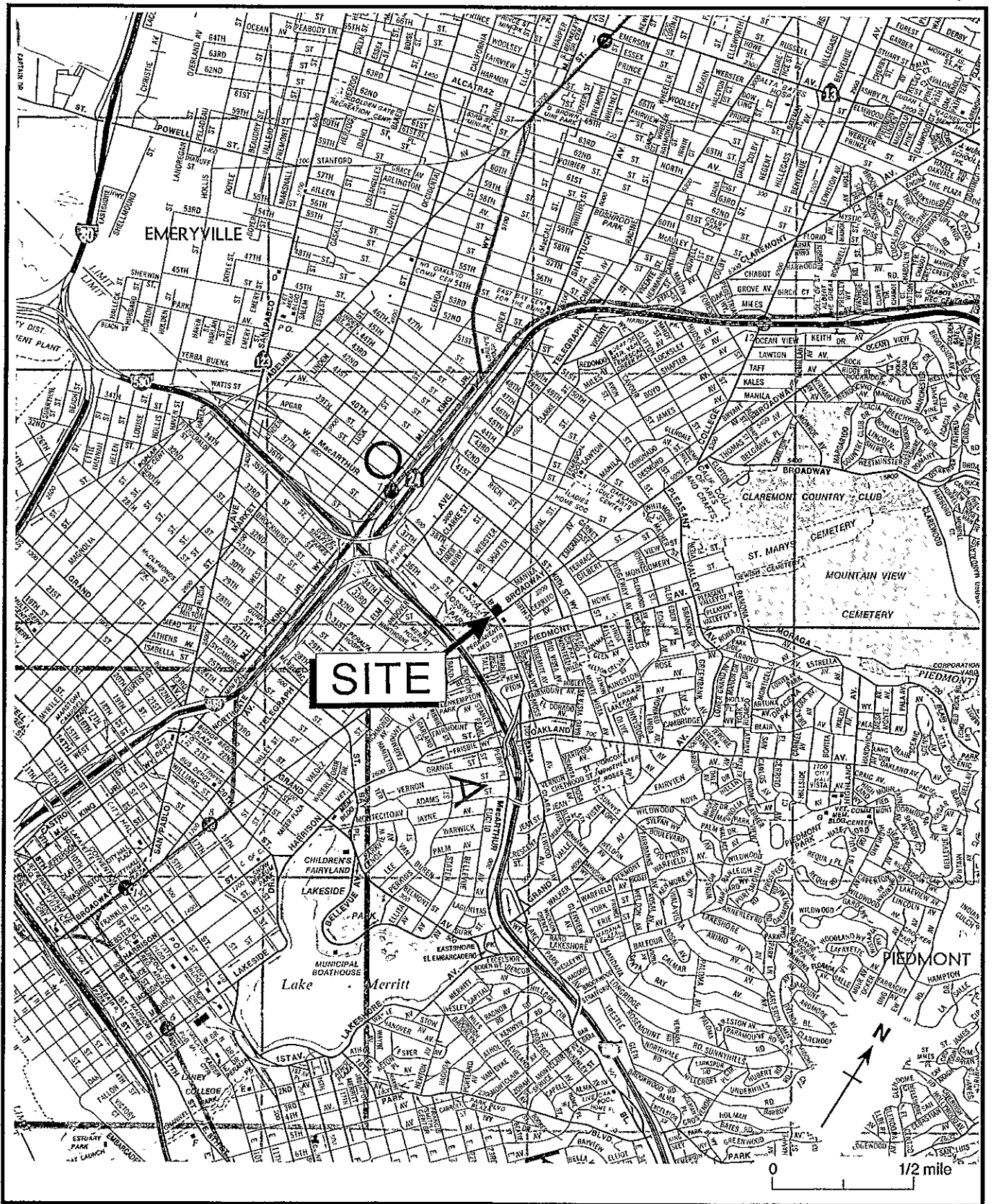


Figure 1. Site Location Map - Former Chevron Service Station #9-1026, 3701 Broadway, Oakland, California

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

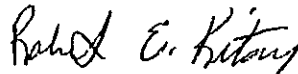
1514W 24N14
1514W 24N1-2
WEISS ASSOCIATES 

Ms. Nancy Vukelich
June 25, 1991

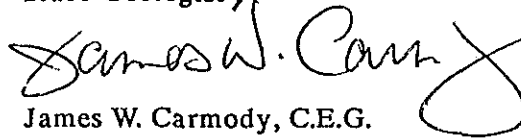
2

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

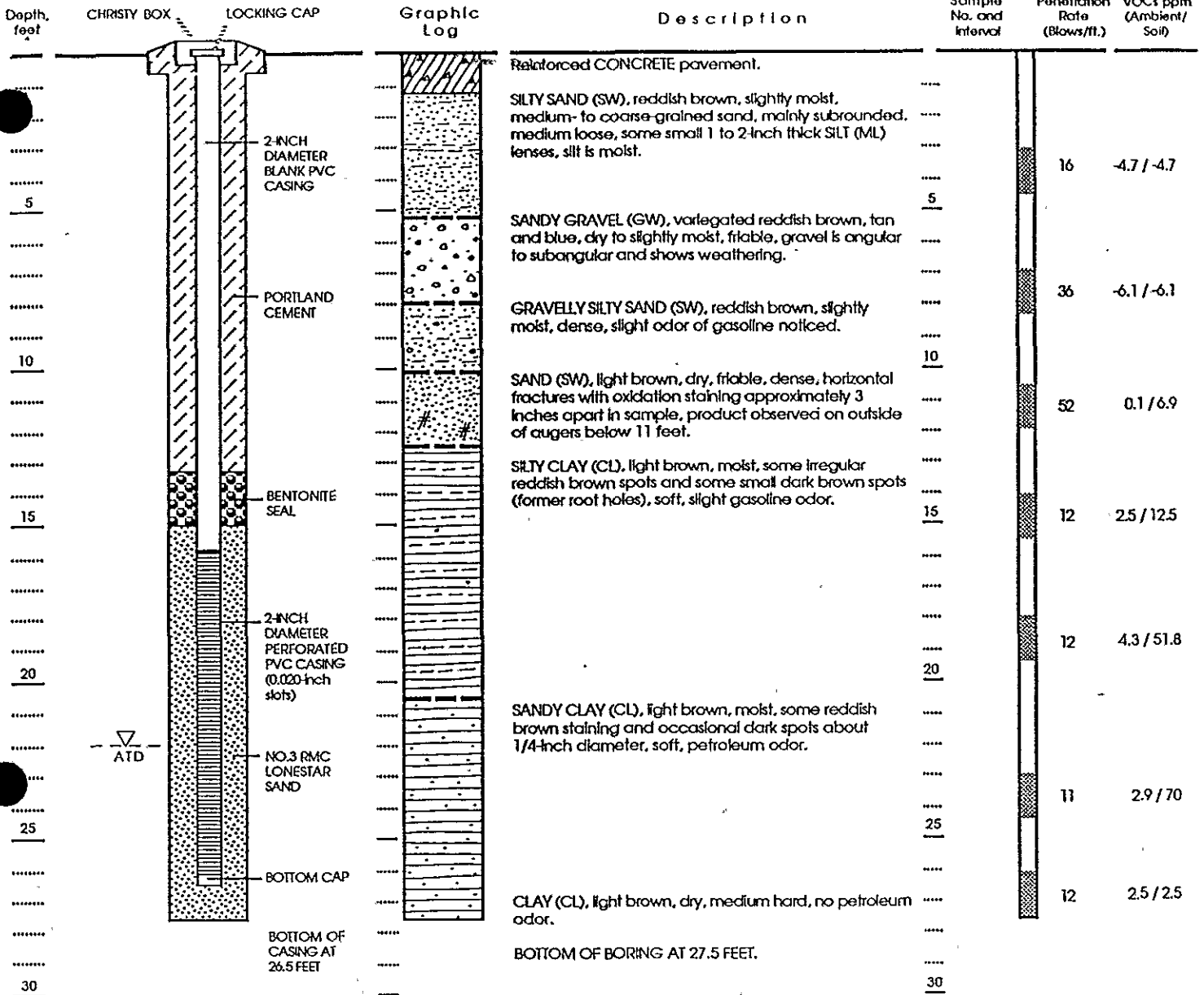
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cc: Mr. Wyman Hong, Alameda County Flood Control and Water Conservation District -
Zone 7, 5997 Parkside Drive, Pleasanton, CA 94588

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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

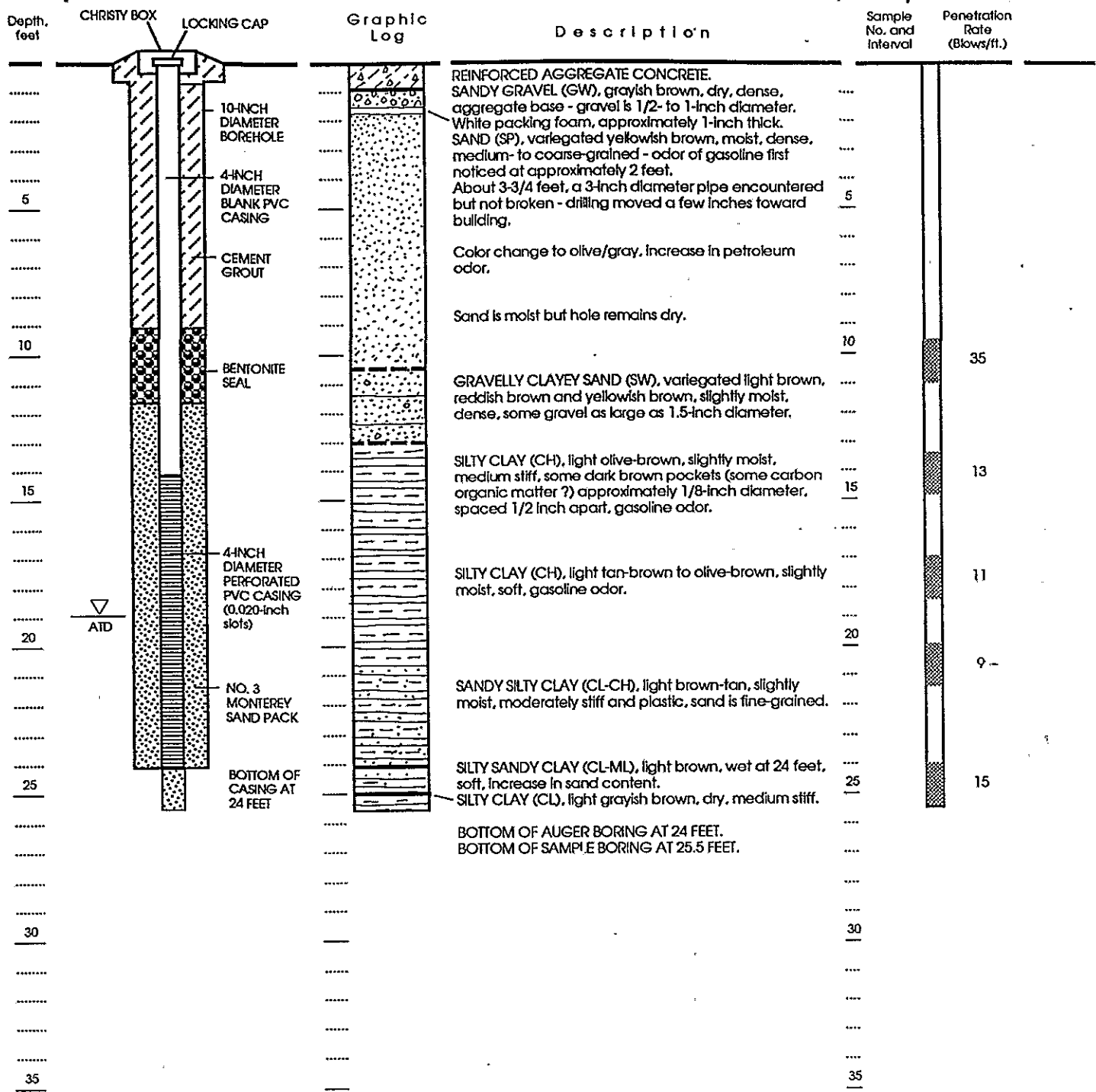
CONFIDENTIAL

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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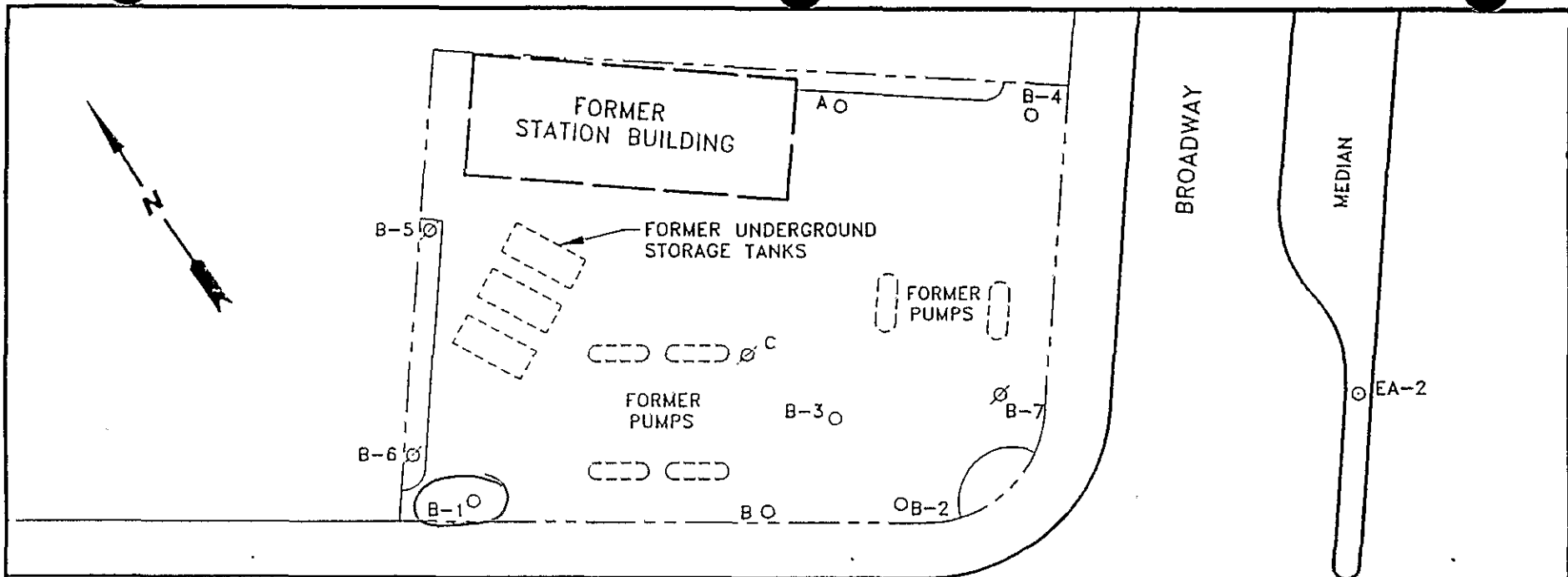
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

P. 2 of 4

403108


1S/AN 17
to npe m/s



LEGEND

- MONITORING WELL
- ⊘ 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>NRK</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						
6						Brown silty CLAY
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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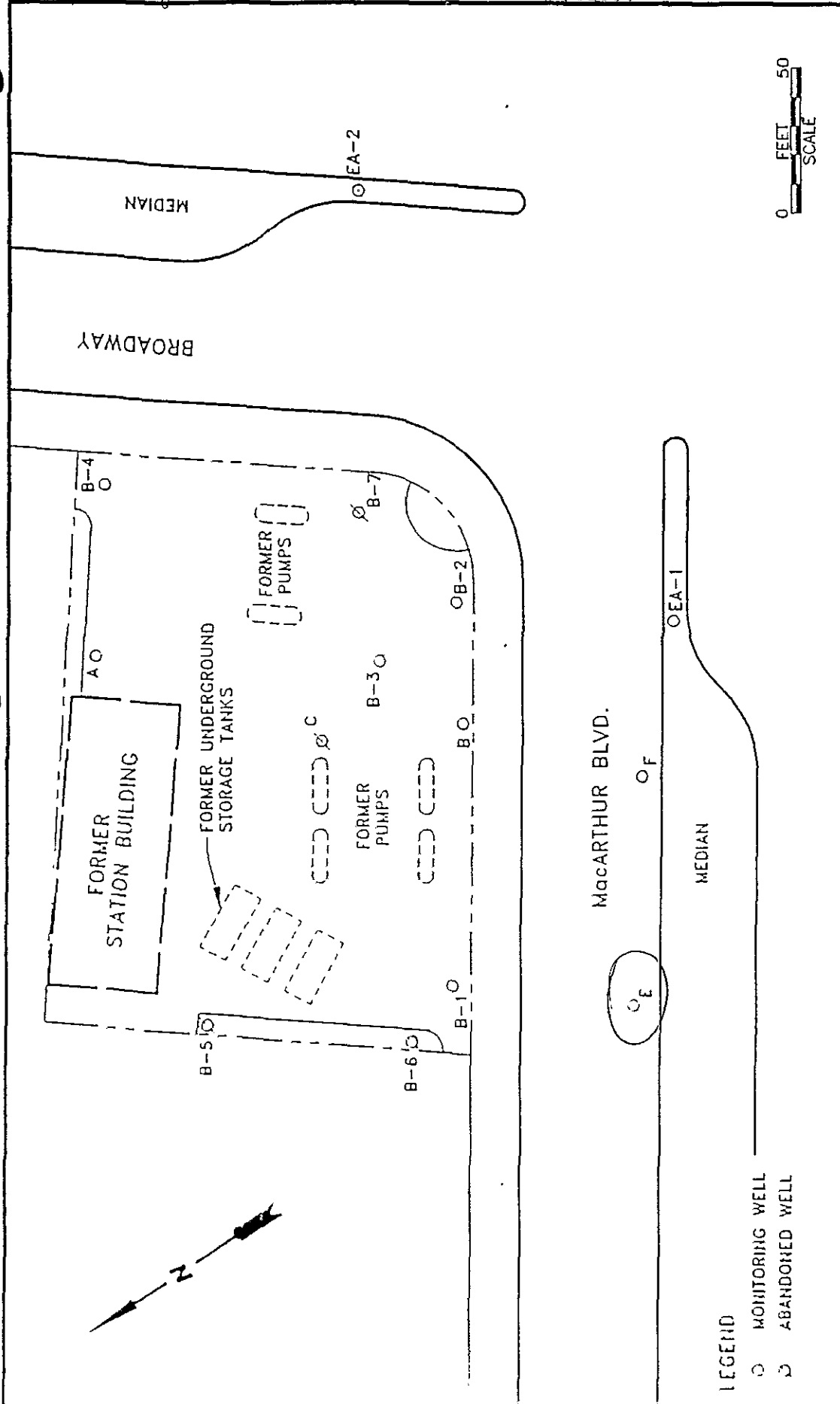
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

P. 2 of 4

403110

15/4W 2AN 18



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

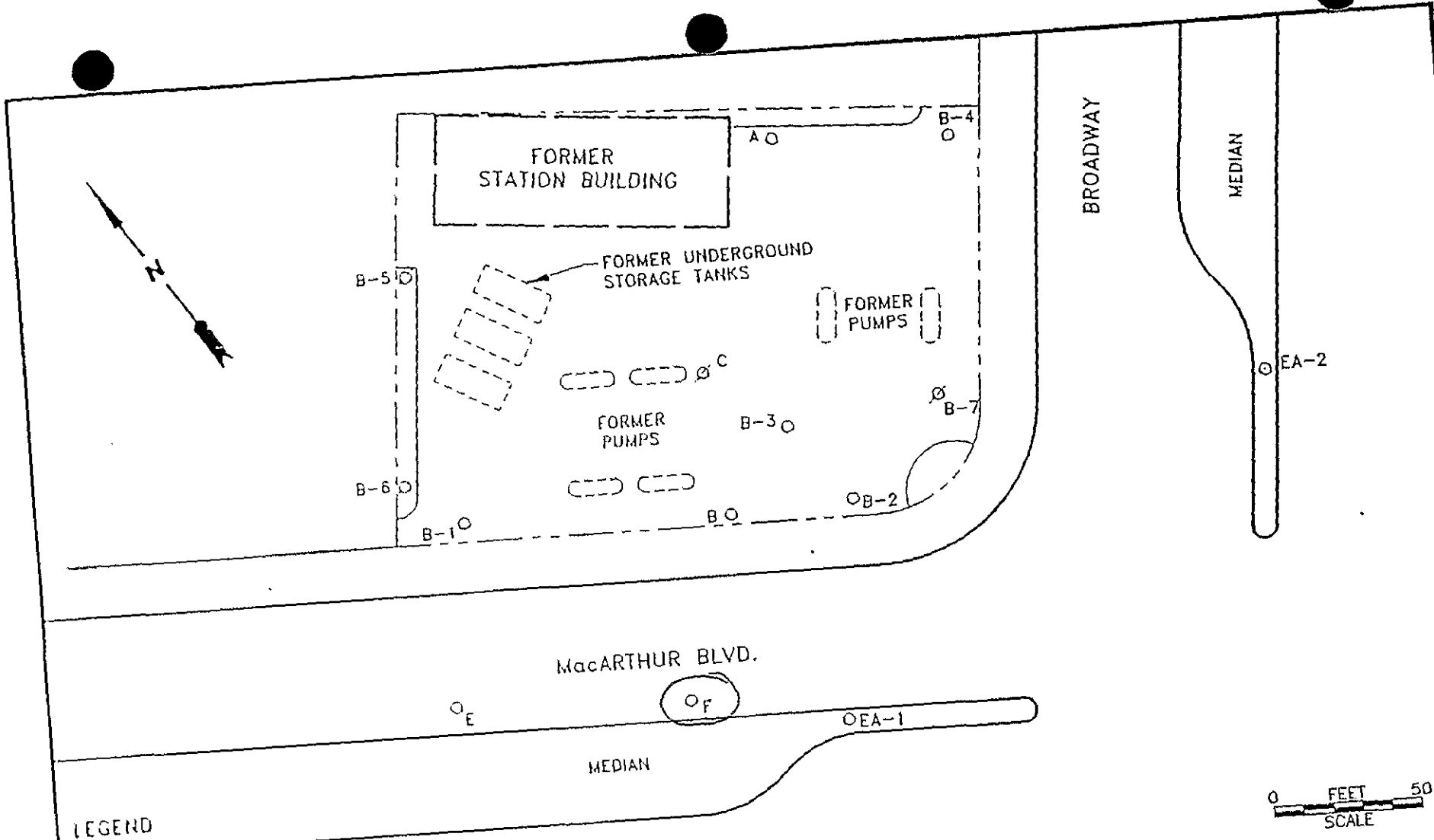
Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	
24							
26							
28							
30							
32							
34							
35							
36							
38							
40							
42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

15/4w 24 N 19

LEGEND
 ○ MONITORING WELL
 □ 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 JAW	PE/RG ORK	DESIGNED TW	DETAILED CSY	ACAD FILE: SP1292		PROJECT NO.: 020202782	
						FIGURE: 2	

P-394

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.

GPO# P6077

01-141A-D

INV# ADD ✓

(7)-1S/4W2P ✓ p/d/llh/ed

120077

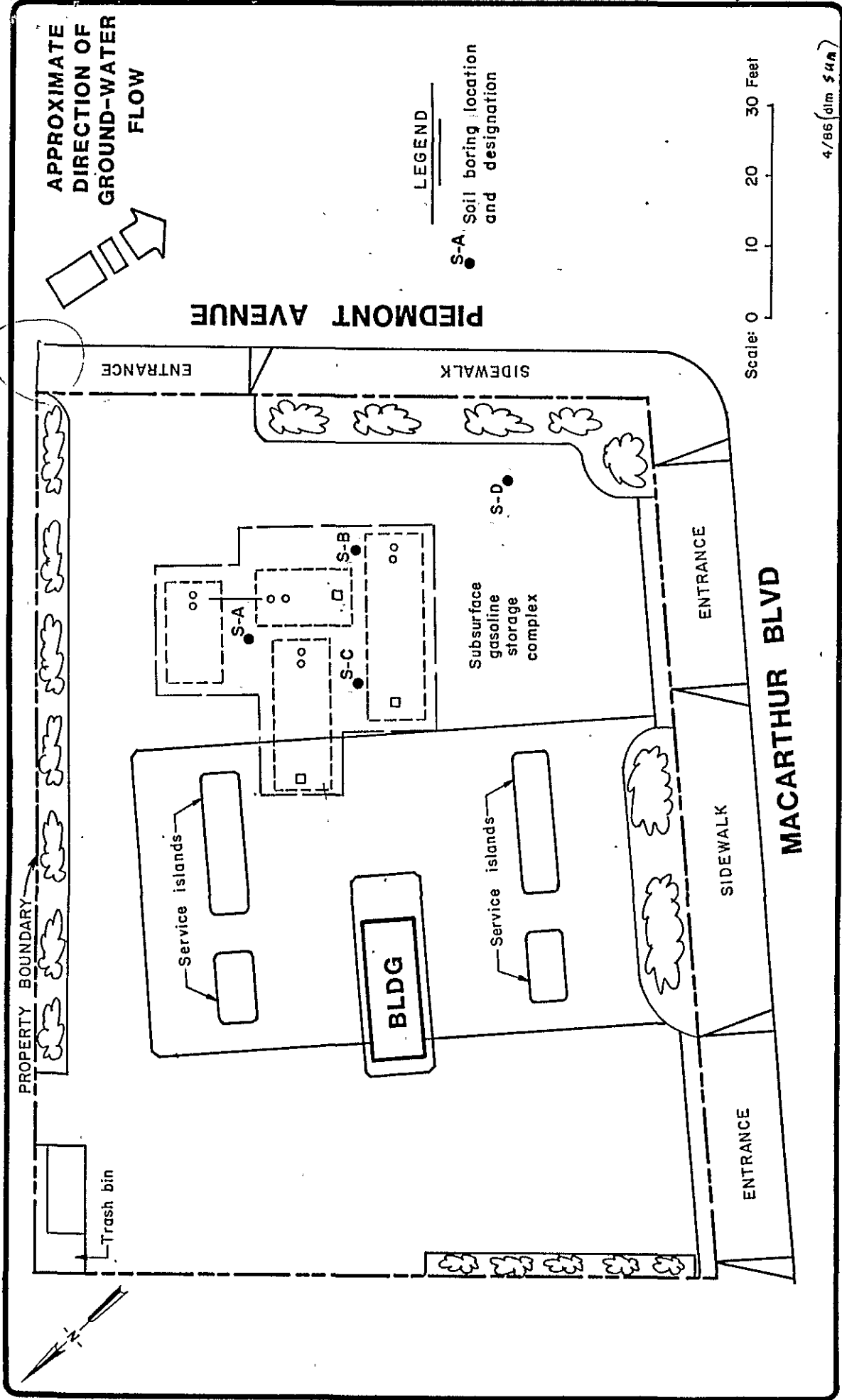


FIGURE 1

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.
						GP	GRAVEL - Fill; dark olive gray (5Y, 3/2); pea gravel; trace fine sand; trace fines; loose; moist to wet; moderate product odor.
				3	1	SP	SAND - Fill; dark olive gray (5Y, 3/2); fine grained; trace coarse sand; trace gravel; loose; moist; strong product odor.
				10	2	ML	SILT; gray (5Y, 5/1); slightly clayey; very stiff; wet; strong product odor.
2.5		29		13.2	3	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.
				51	4	CL-ML	@13½': moderate product odor.
							CLAY to SILT: pale brown (10YR, 6/3); very clayey; hard; moist to wet; no product odor.
2.7		48		20	5		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.





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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	BLOWS/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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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

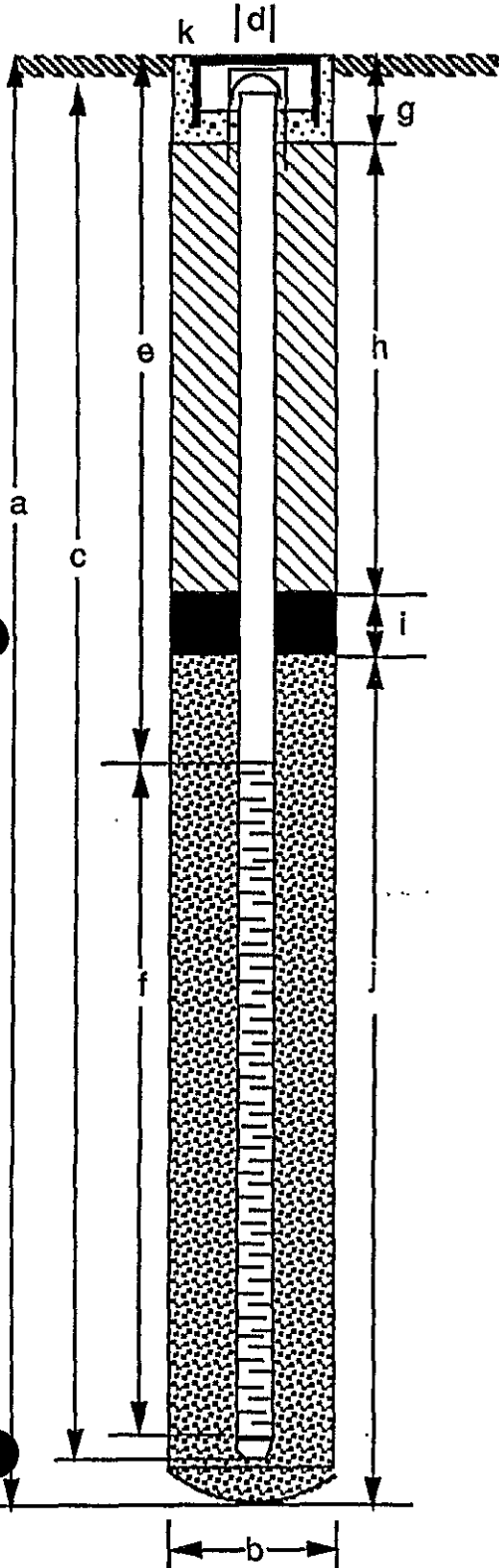
BORING / WELL NO. MW-4
 TOP OF CASING ELEV. 73.83
 GROUND SURFACE ELEV. 74.46
 DATUM 72.96

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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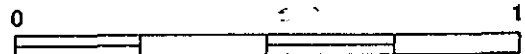
01-4455



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>T.P.B.</i>
	230 MacARTHUR BOULEVARD		JOB #:	DRAWN BY:
	OAKLAND, CALIFORNIA		1847G	SLS
		DATE:	DRAWING #:	
		9-16-88	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						

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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

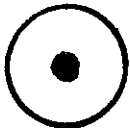
LOGGED BY: K.P.

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						

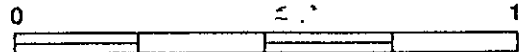
REVIEWED BY R.G./C.E.G.



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 24NG

WELL CONSTRUCTION

LITHOLOGY

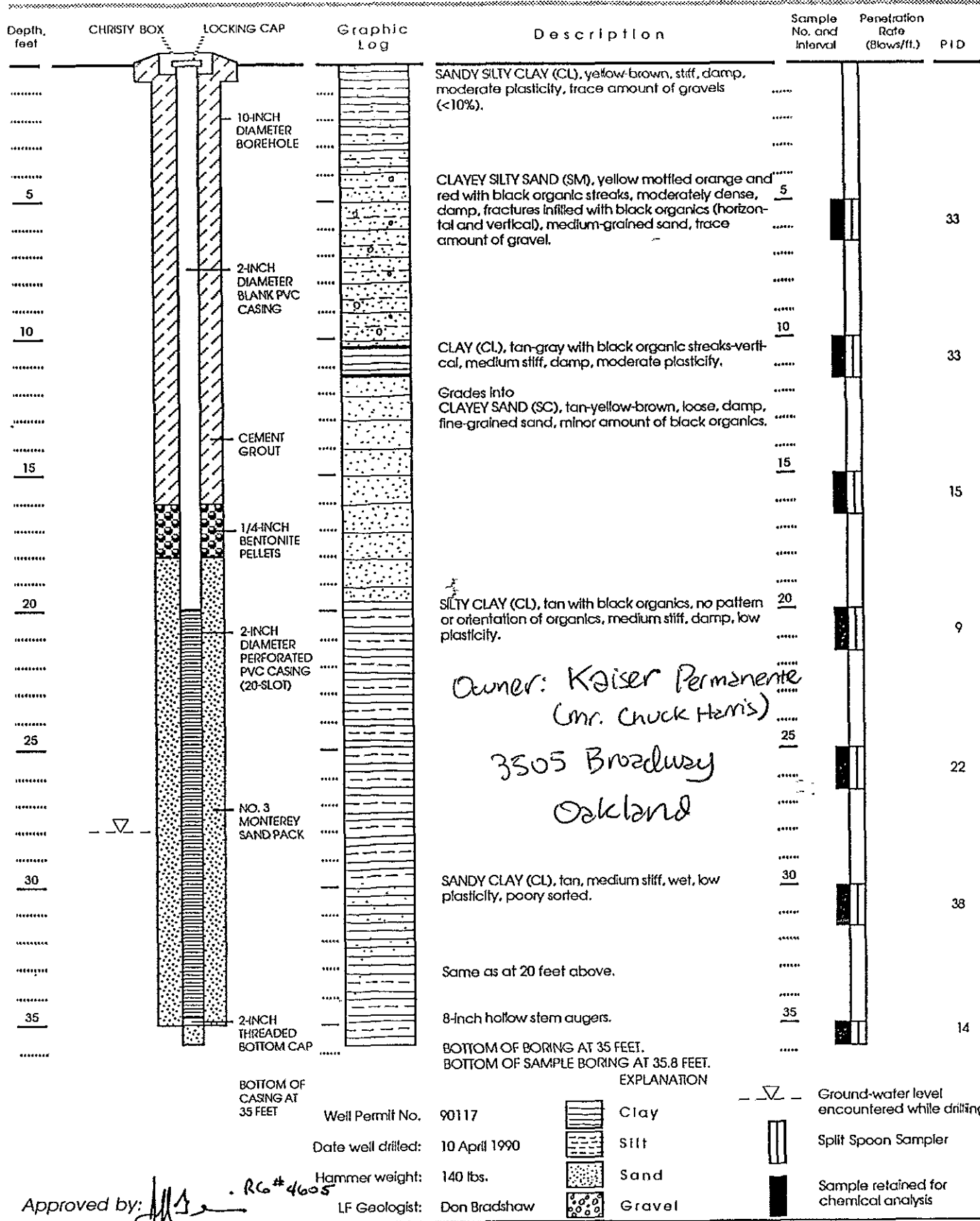


Figure : WELL CONSTRUCTION AND LITHOLOGY FOR WELL MW-4

Project No. 1547

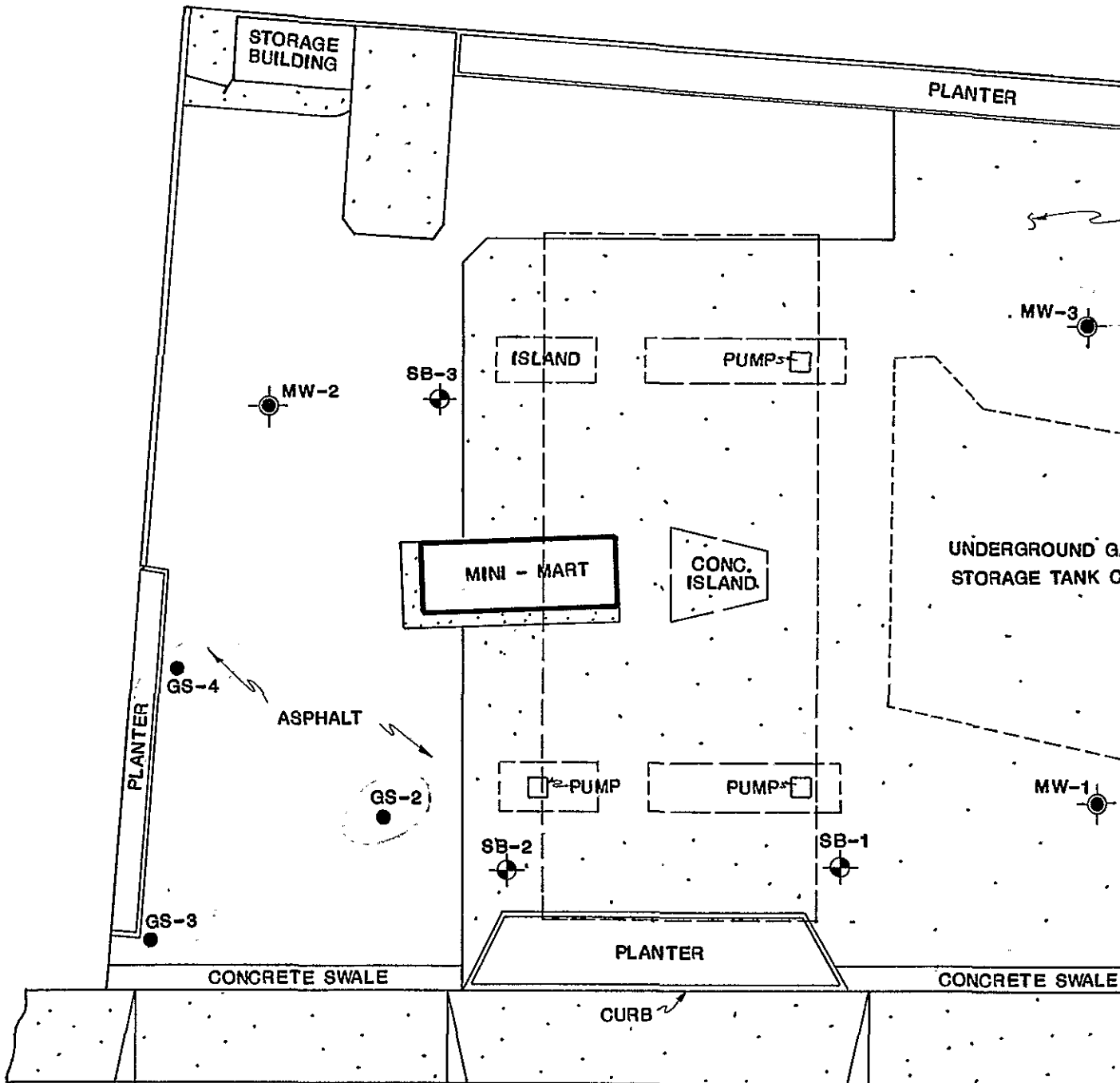
16/4W 24NG

LEVINE-FRICKE CONSULTING ENGINEERS AND HYDROGEOLOGISTS

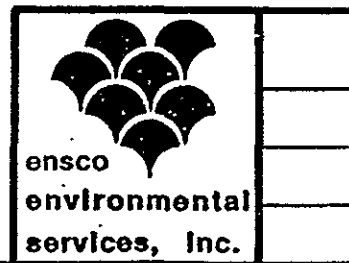
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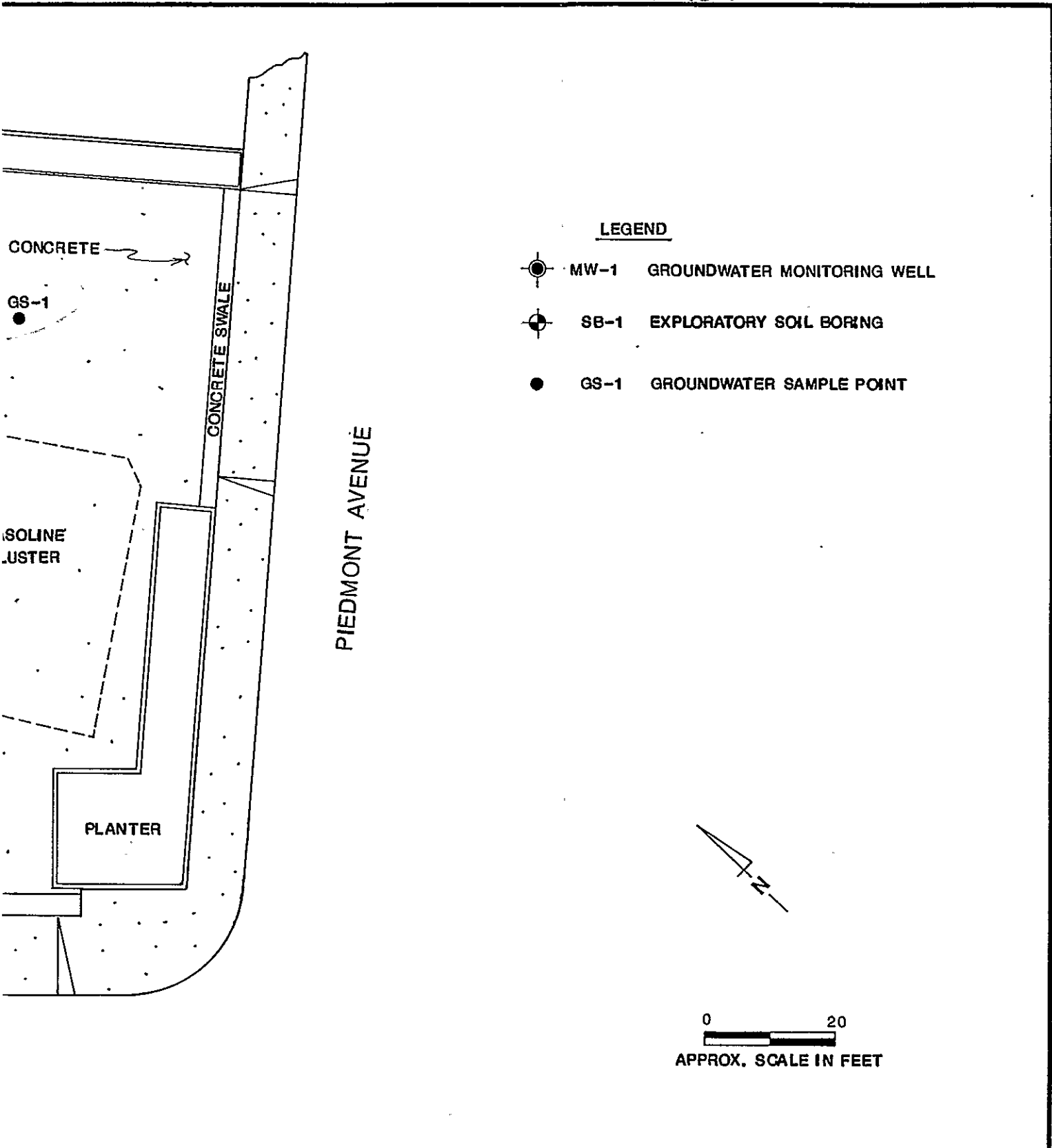
Drilling Lic # C57-834167 phone 415-652-4500

01-454L 1314W-2PP



MAC ARTHUR BOULEVARD





SITE PLAN

SHELL SERVICE STATION

230 MAC ARTHUR BOULEVARD

OAKLAND, CALIFORNIA

REVIEWED BY:	APPROVED BY:
JOB #: 1847G	DRAWN BY: J.C.
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		0
-23			CL	SANDY CLAY to SILTY CLAY, olive, 25% fine sand (locally sand <10%), low plasticity, hard, moist		
-24	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
-25						
-26						
-27						
-28						
-29						
-30				BOTTOM OF BORING 30'		
-31						
-32						
-33						
-34						
-35						
-36						
-37						
-38						
-39						
-40						

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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						



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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			SP-SC	SAND, light olive, fine to medium grained <10% clay fines, rare oxidation stains, dense, very moist to wet		
25						
26	1-5	48	SC	CLAYEY SAND, light olive, predominantly fine to medium sand, 40% clay, rare organics, dense, very moist to wet	1	
27						
28						
29						
30						
31	1-6	36	SP-SC	SAND, light olive, predominantly fine to medium grained, 15% coarse sand, <10% clay fines, dense, saturated		
32						
33						
34				BOTTOM OF BORING 31.5'		
35						
36						
37						
38						
39						
40						



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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					Σ	
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						

01-454N 1S74W 24P



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

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	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	
21						
22						
23	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	
24						
25						
26	2-6	26		-- as above: becomes sandy and orangish brown, 30% fine sand, abundant silt, very stiff	0	
27						
28						
29	BOTTOM OF BORING 30.0'					
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						

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Page 2 of 2



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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						
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	X	
17						2
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

BOHRING 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							
32							
33							
34							
35							
36							
37							
38							
39							
40							
				BOTTOM OF BORING 30'			

01-141 E.F.G

#87064

plum work

WV
AD



gettler - ryan inc.
general contractors

15/7W24P-3

Shell Service Station
230 MacArthur Boulevard
Oakland, California

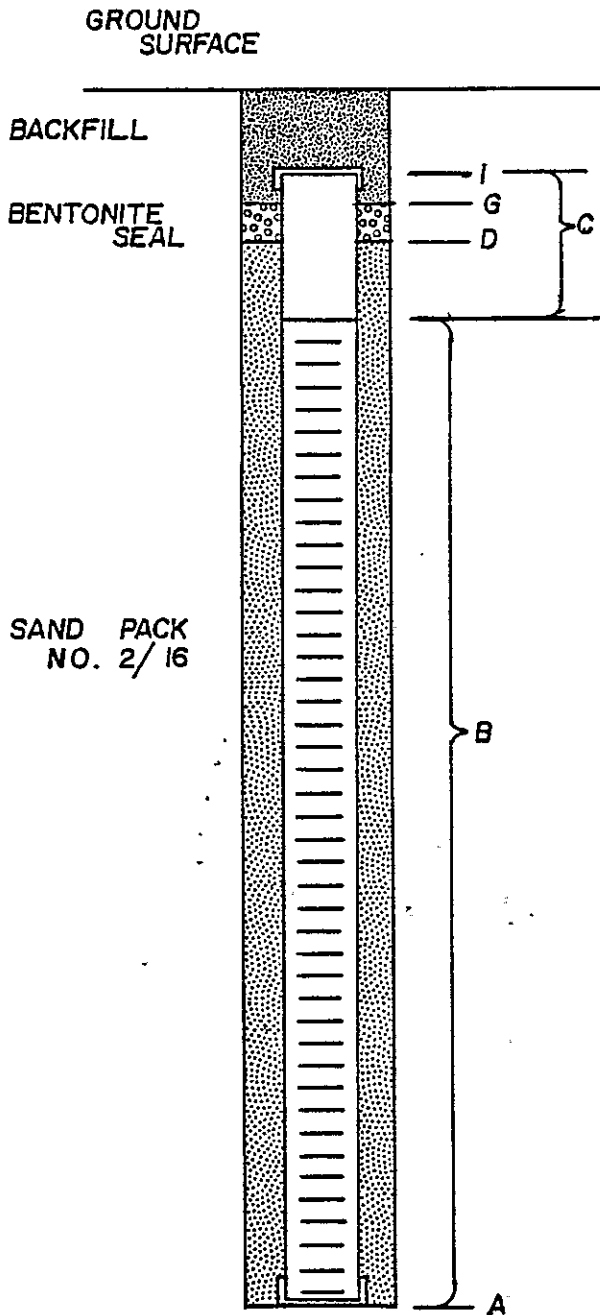
The work performed at this site under permit #87064 involved the installation of three vadose wells in approximately the same locations as borings S-A, S-B, and S-C shown on the attached site sketch. The vadose wells were constructed of four inch PVC well casing to a depth of fifteen feet. As the vadose 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.

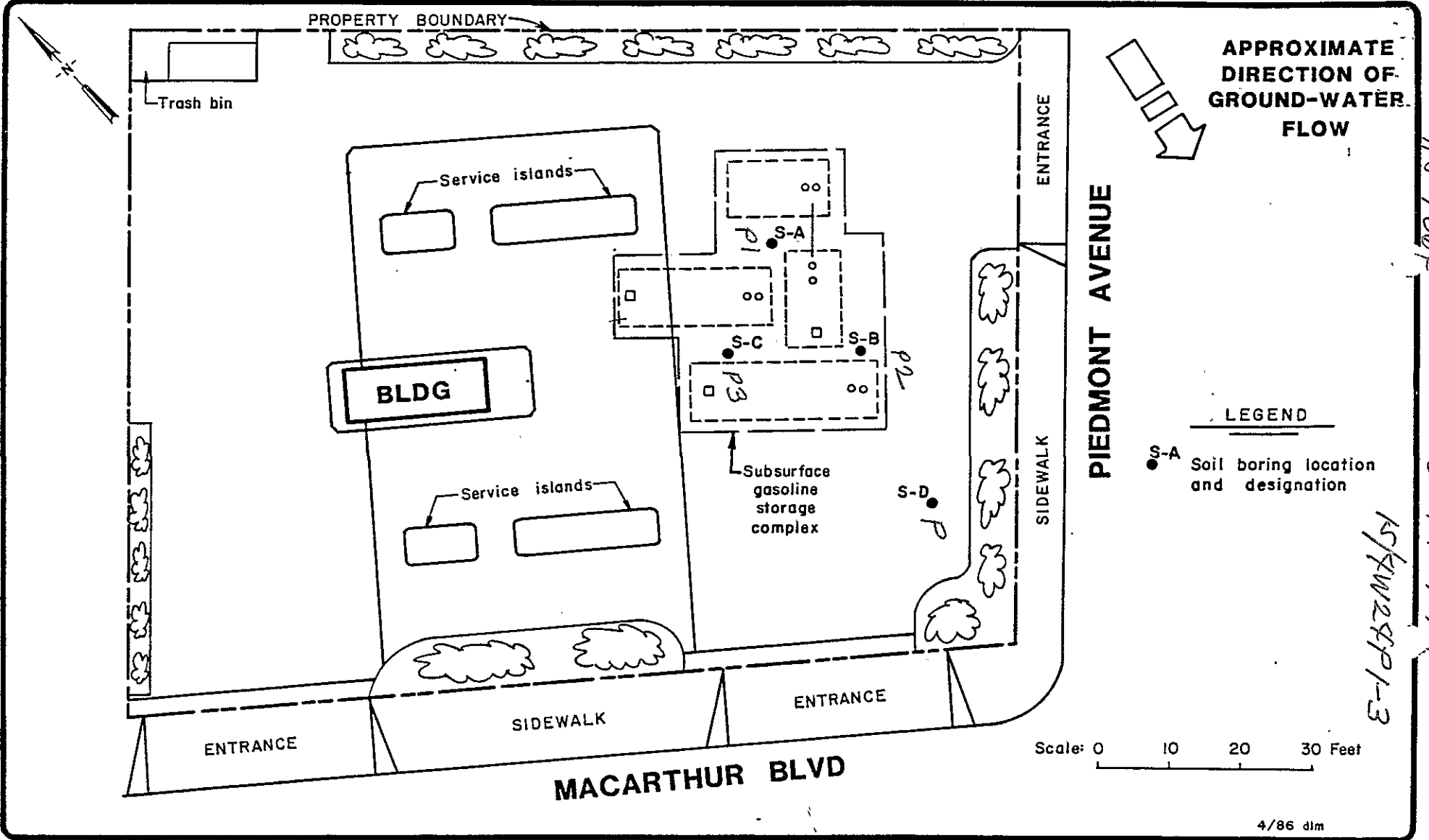
SAND PACK
NO. 2/16

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

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

DRILLER: BAYLAND
Permit # 87064

487064
01-141E, FIG
15/4/22/8/1-3



APPROXIMATE
DIRECTION OF
GROUND-WATER
FLOW

LEGEND

● S-A Soil boring location and designation

Scale: 0 10 20 30 Feet

4/86 dm



EMCON
Associates

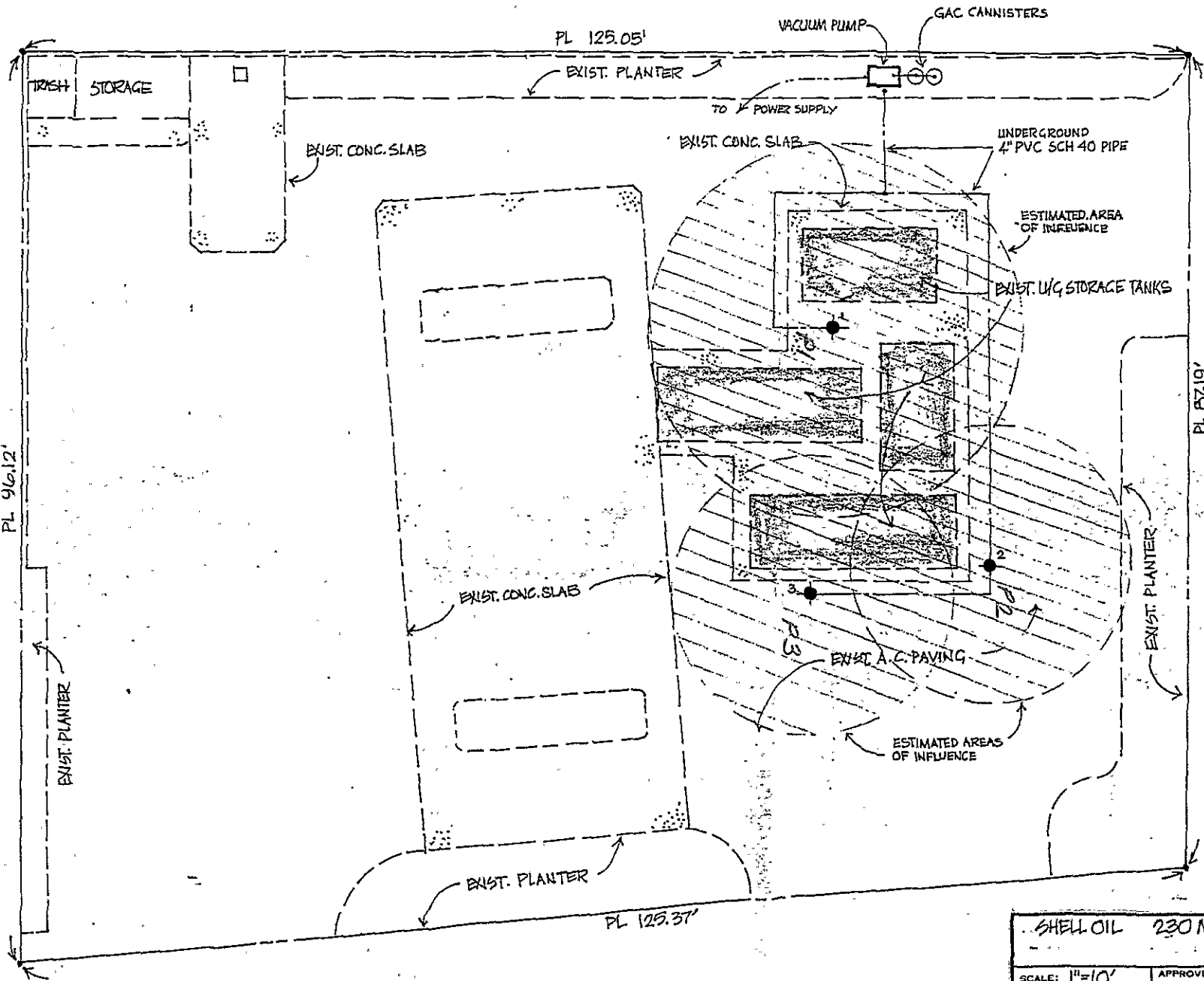
GETTLER-RYAN INC.
SUBSURFACE HYDROGEOLOGIC INVESTIGATION
SHELL STATION, 230 MACARTHUR BLVD
OAKLAND, CALIFORNIA

SITE PLAN

FIGURE

1
PROJECT NO.
800-41.01

#P7064



KEY

APPROXIMATE LOCATIONS

SCALE

01-141 E, F, G
 15/KW2/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	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/KW24P2

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	ALLUVIUM
		15			Clayey SILT: yellow brown, moist, stiff; slightly mottled; occasional decaying organics.
		20			ALLUVIUM
		25			Silty SAND: fine-grained, green gray, moist, dense; some gravel and cobbles below 12 feet.
		30			ALLUVIUM
		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.: 3

#87067

01-1419

15/FW29P3

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 []

P. # 111

(6) CASING INSTALLED:

STEEL: OTHER: SINGLE [] DOUBLE []

If gravel packed

Table with 7 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 5 columns: From ft., To ft., Perf. per row, Rows per ft., Size in. x in.

Water Code Sec. 13752

(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.

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?

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

Table with 2 columns: Depth (ft.), Formation description

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

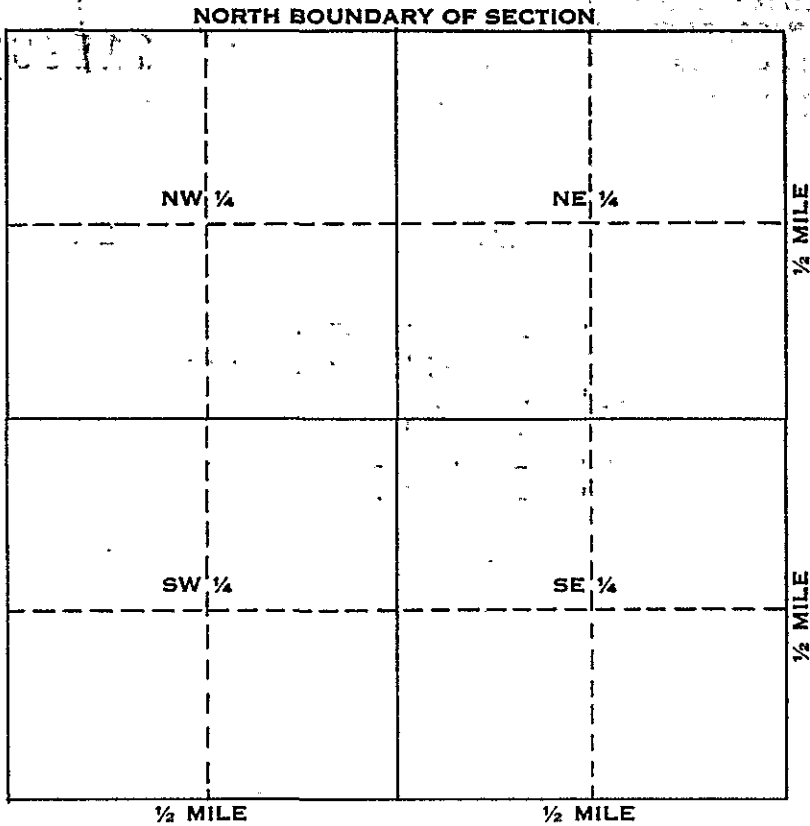
[SIGNED] White M. Pitcher (Well Driller)

License No. State Contractors Dated 7/3 1974

SKETCH LOCATION OF WELL ON REVERSE SIDE

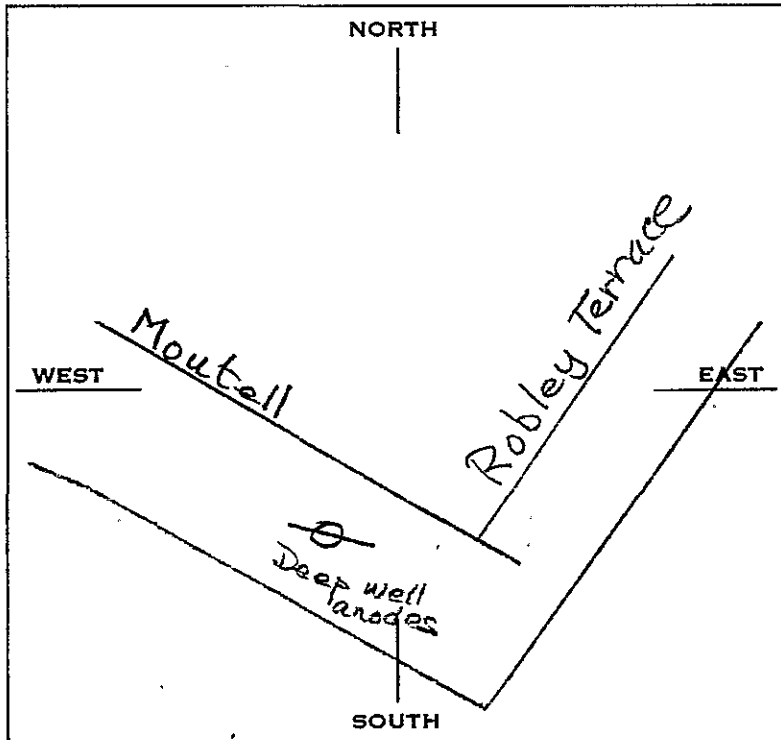
WELL LOCATION SKETCH

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.

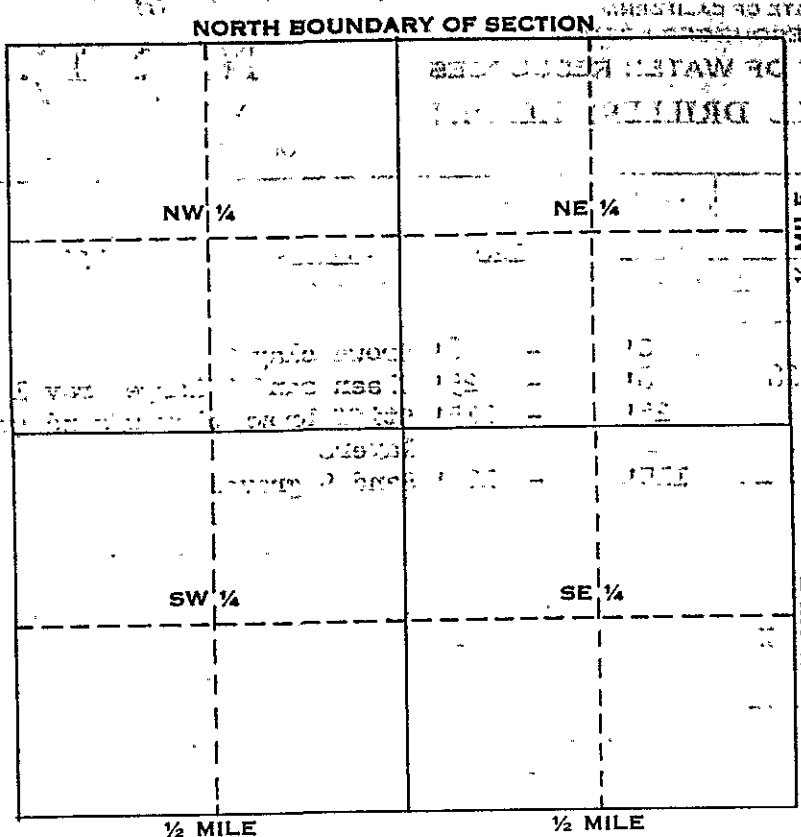


B. Location of well in areas not sectionized.
 Sketch roads, railroads, streams, or other features as necessary.
 Indicate distances.

1974 JUL 12 AM 11 01
 DEPT. OF WATER RESOURCES

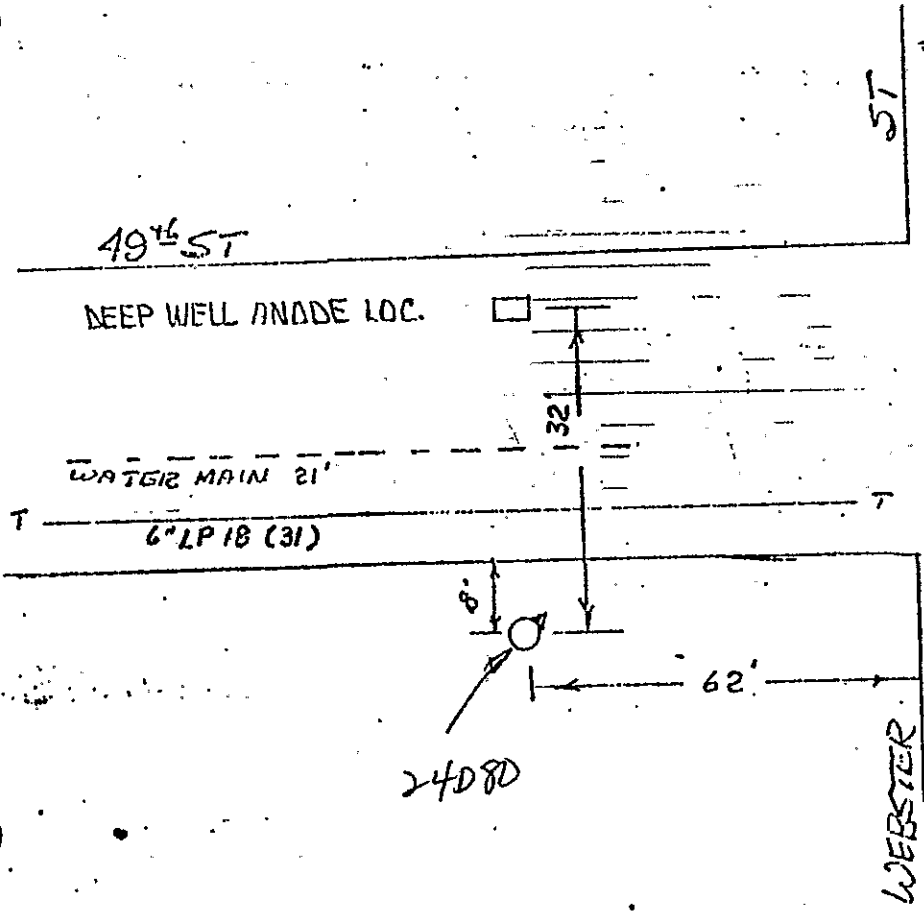
WELL LOCATION SKETCH

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.

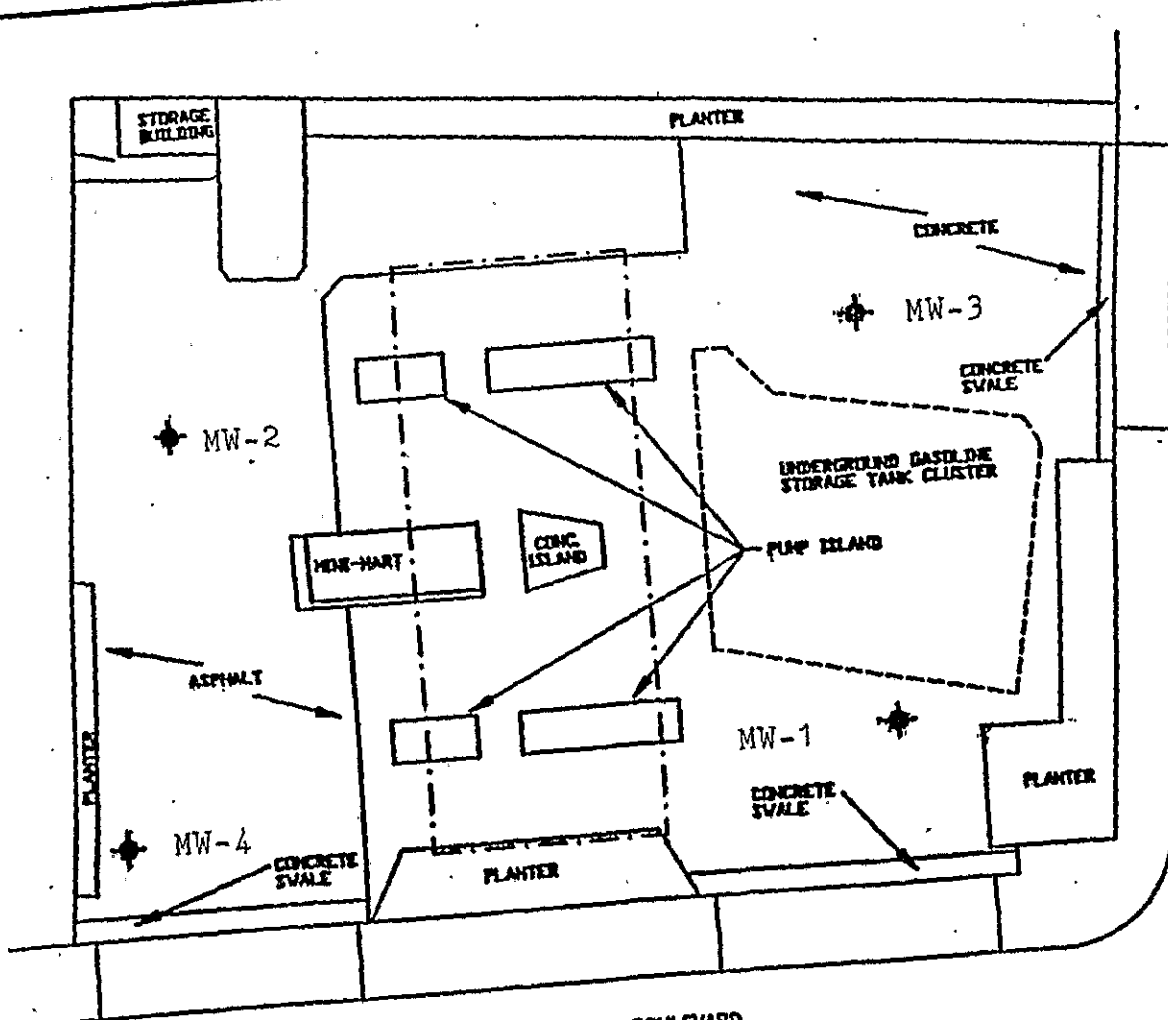


1976 SEP 2 PM 1 31
 DEPARTMENT OF WATER RESOURCES
 LAMEDA WORKS
 DEPARTMENT

PLACE LOCATION OF WELL ON REVERSE SIDE

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 [Signature]
 Date [Signature]

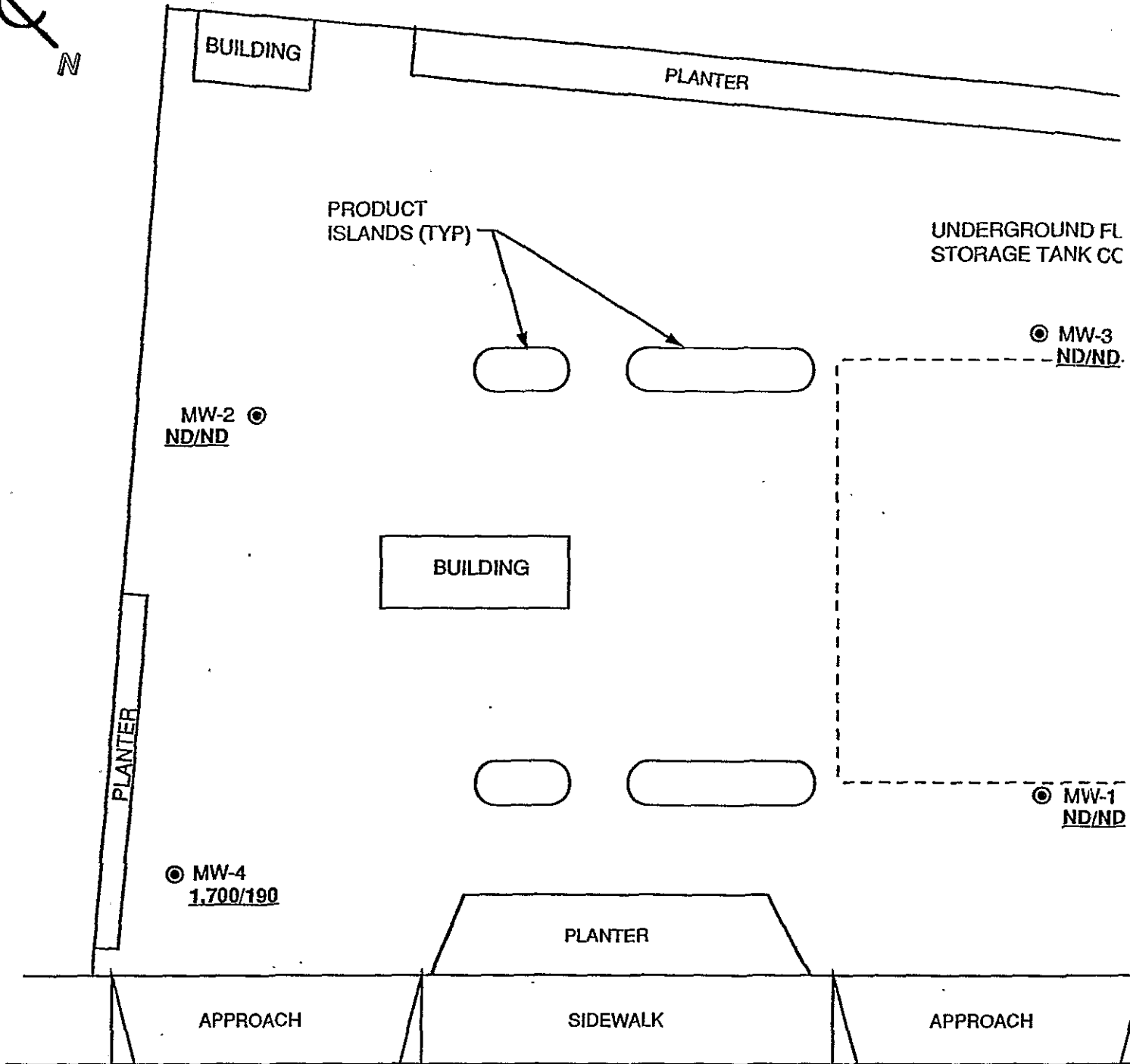
Mac ARTHUR BOULEVARD

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

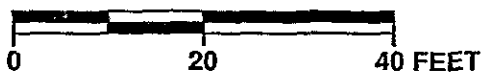


MAC ARTHUR BOULEVARD

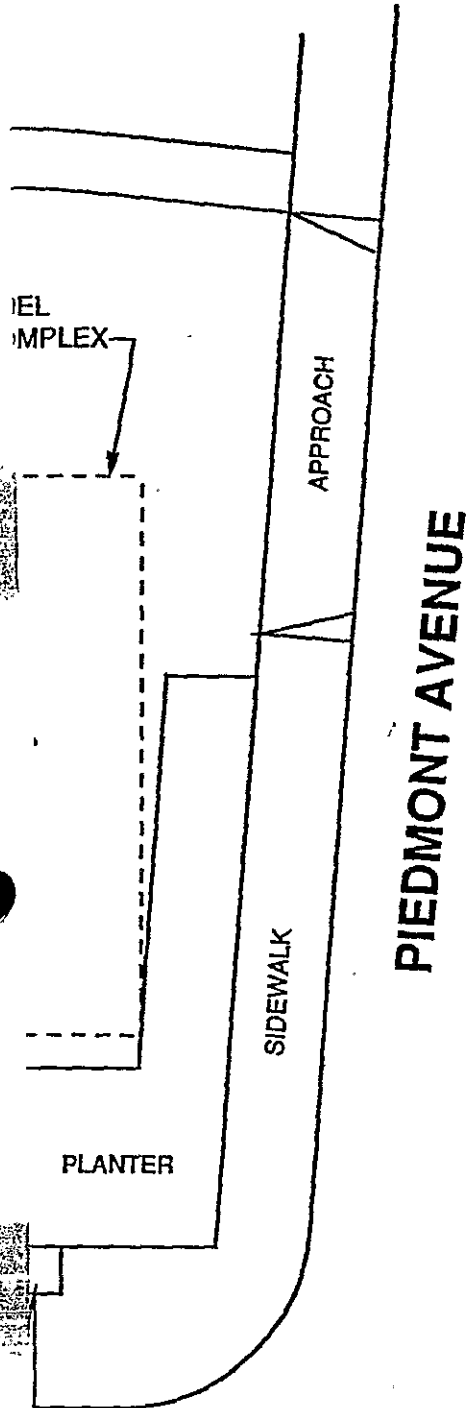


PACIFIC ENVIRONMENTAL GROUP, INC.

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

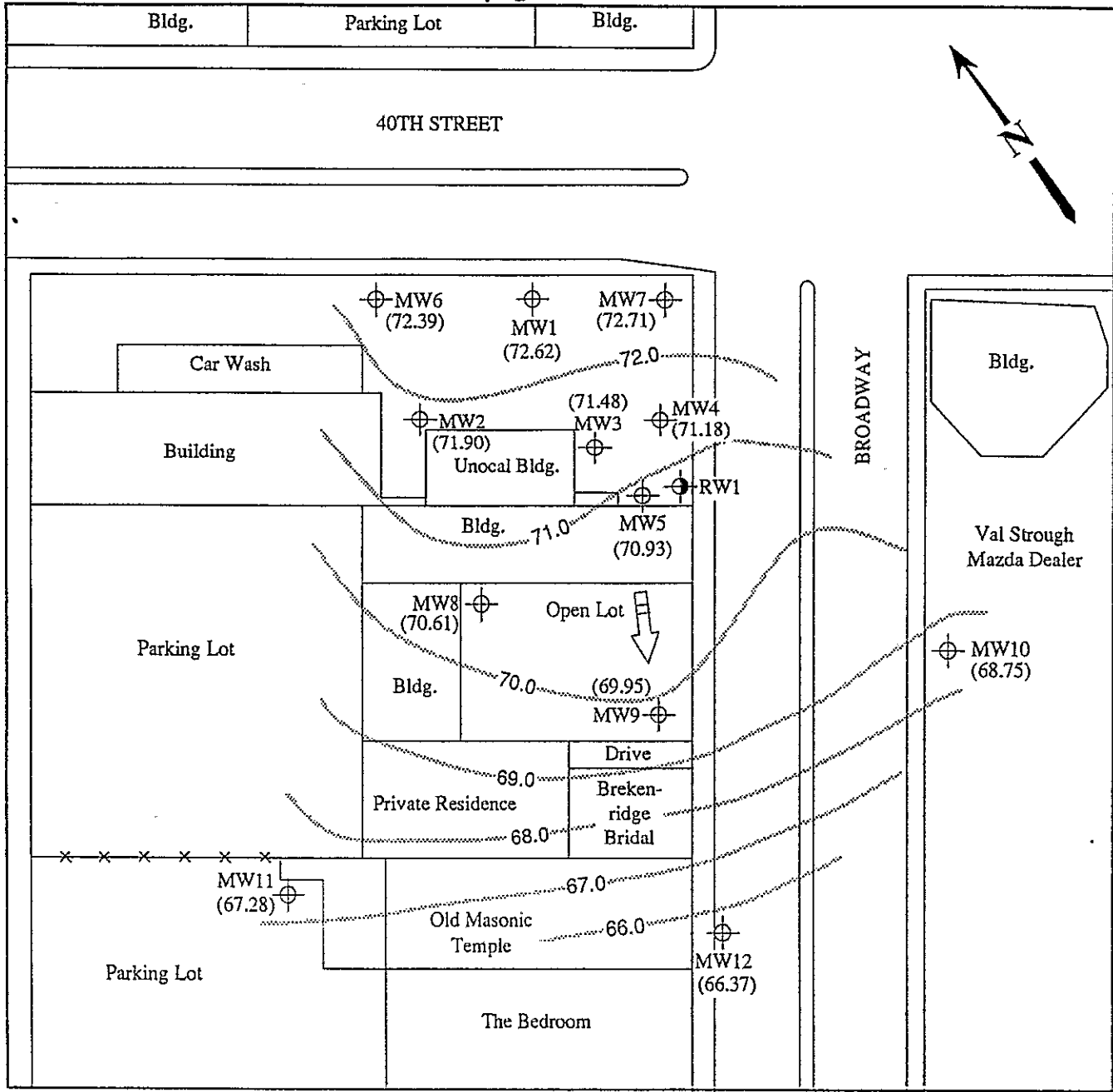
CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

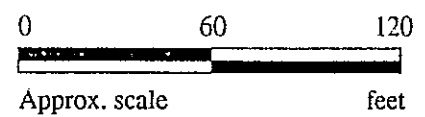
15/4W 24 L19E, 28

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

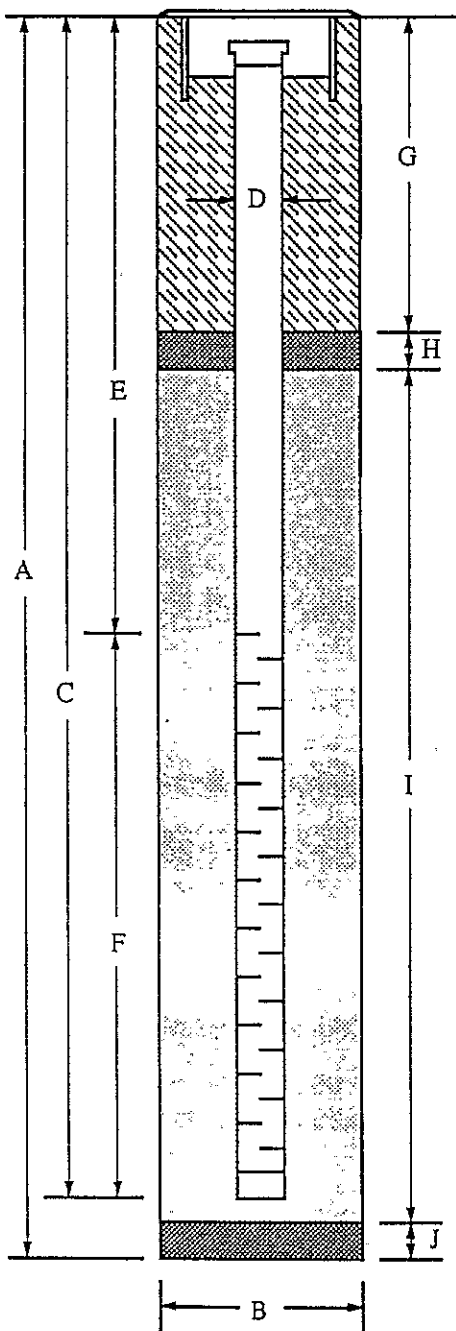
Project No. KEI-P89-0805		Boring & Casing Diameter 8' 2'	Logged By <i>JGG</i> D.L. <i>CEG 1633</i>
Project Name Unocal S/S #0746 3943 Broadway, Oakland		Well Cover Elevation	Date Drilled 6/26/92
Boring No. MW12		Drilling Method Hollow-stem Auger	Drilling Company Woodward Drilling

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 <i>JGG</i> D.L. <i>LEG 1633</i>
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.
			CL	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.
			SC	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

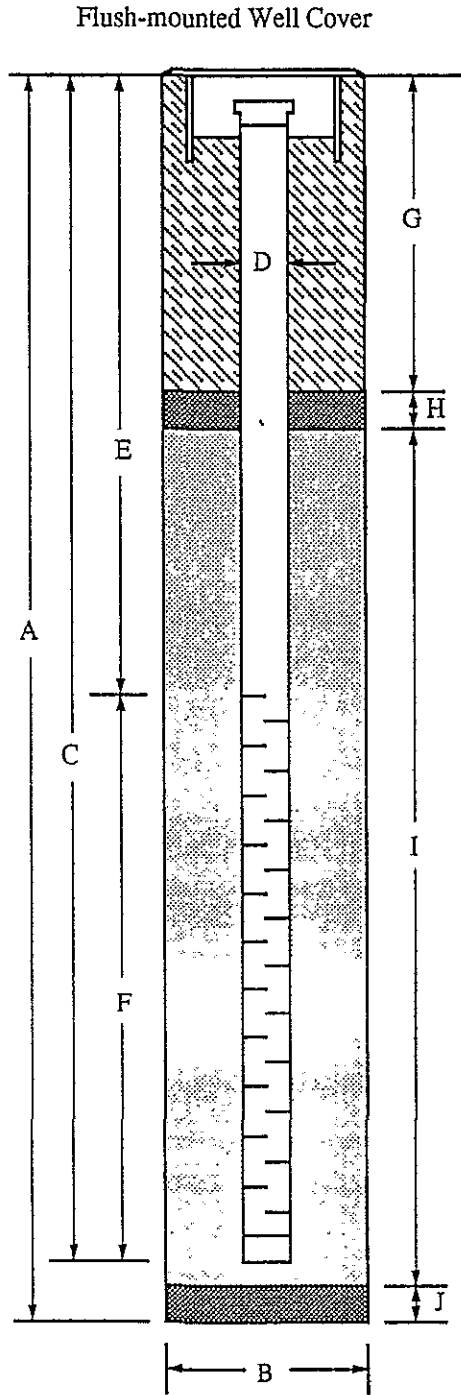
No recovery from 11.25 to 12.5 feet.

WELL COMPLETION DIAGRAM

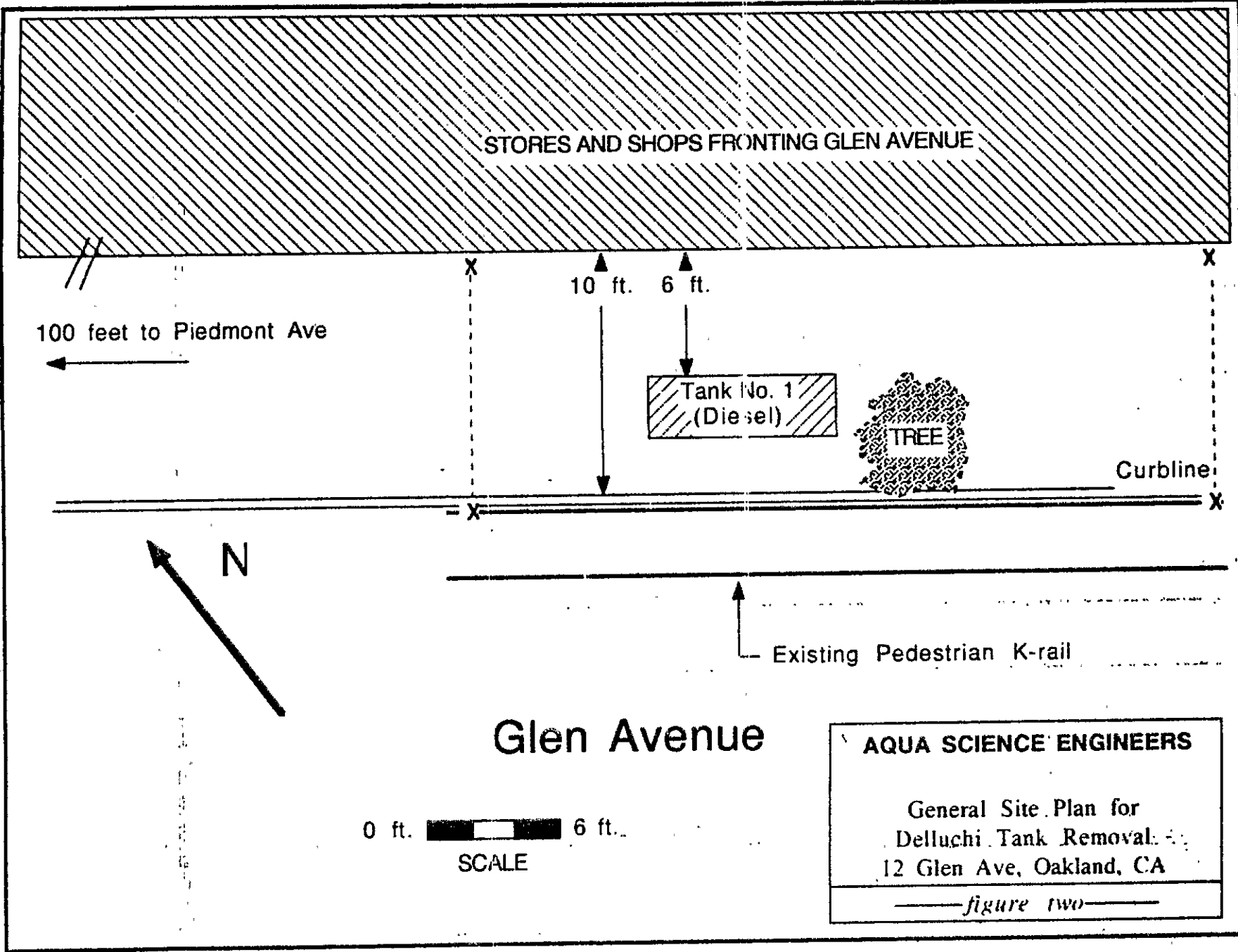
PROJECT NAME: Unocal S/S #0746, 3943 Broadway, Oakland WELL NO. RW1

PROJECT NUMBER: KEI-P89-0805

WELL PERMIT NO.: ACFC & WCD 92270



- 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



STORES AND SHOPS FRONTING GLEN AVENUE

100 feet to Piedmont Ave

10 ft. 6 ft.

Tank No. 1
(Diesel)

TREE

Curbline

N

Existing Pedestrian K-rail

Glen Avenue

0 ft. 6 ft.

SCALE

AQUA SCIENCE ENGINEERS

General Site Plan for
Delluchi Tank Removal
12 Glen Ave, Oakland, CA

—figure two—

2 of 3


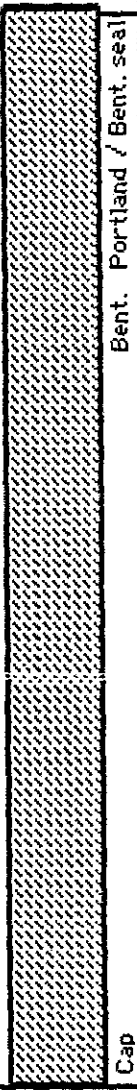









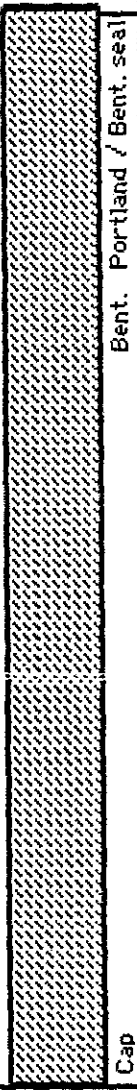










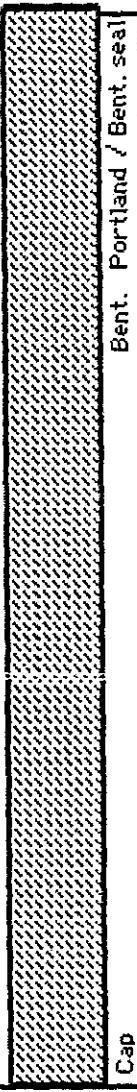





01-5254-5

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%			0-
2-	Clayey gravels, poorly graded gravel - sand			1-
3-	Clay Mixtures			2-
4-	Slight odor			3-
5-	No discoloration of soil			4-
6-				5-
7-				6-
8-			7-	
9-			8-	
10-	lt brown Clayey Silt, poorly graded sand, very fine 40%, clayey silts with slight plasticity			10-
11-	ML			11-
12-	Strong odor			12-
13-				13-
14-				14-
15-	brown Silt and Clay, cmf sand well graded 40%,			15-
16-	ML			16-
17-	Slight odor		17-	
18-			18-	
19-			19-	
20-	Inorganic Clays of medium plasticity, sandy and silty clays with moderate plasticity			20-
21-	CL			21-
22-	No odor			22-
23-				23-
24-	Sealed off saturation zone			24-
25-	No odor CH			25-
Total Depth 25'				soil sample 25-26.5' 12/16/31


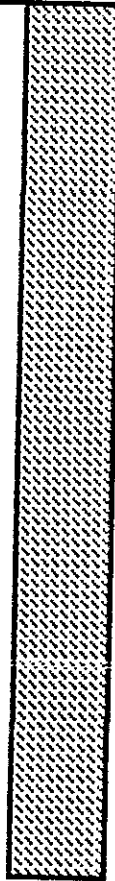
























Logged by: C. Hertz Date Logged: 7/7/92
 Rig/Driller: S. M. 50, McCully - WESTHAZMAT

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			
21-	clays with moderate plasticity			
22-	CL			
23-	No odor			
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.

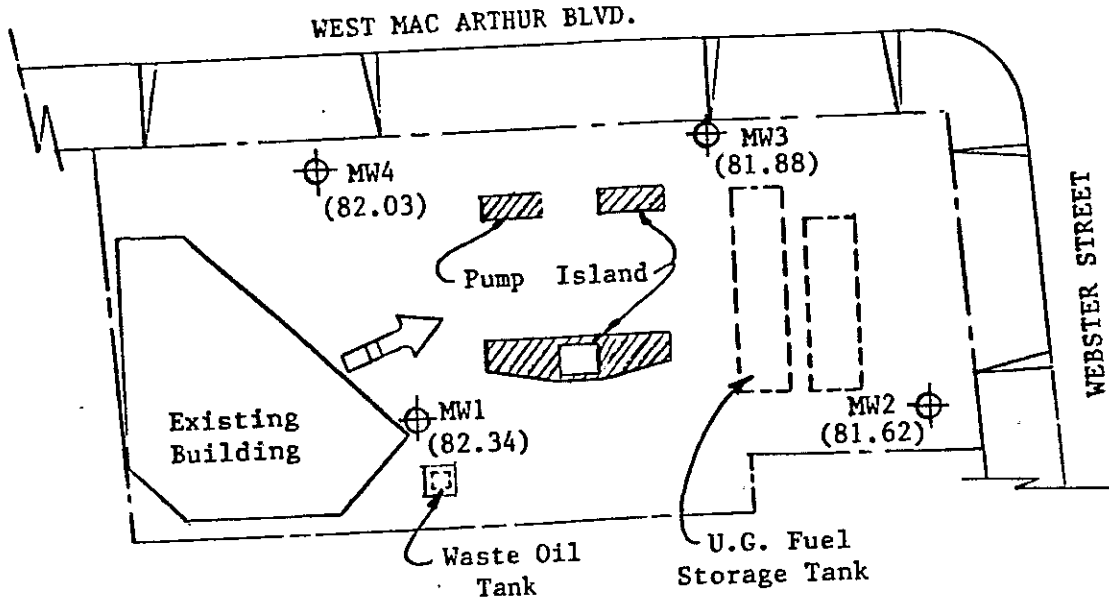


KAPREALIAN ENGINEERING, INC.

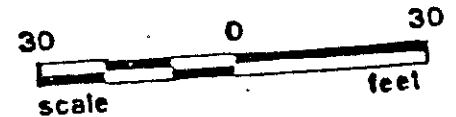
Consulting Engineers
P. O. BOX 913
BENICIA, CA 94510
(707) 746-6915

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

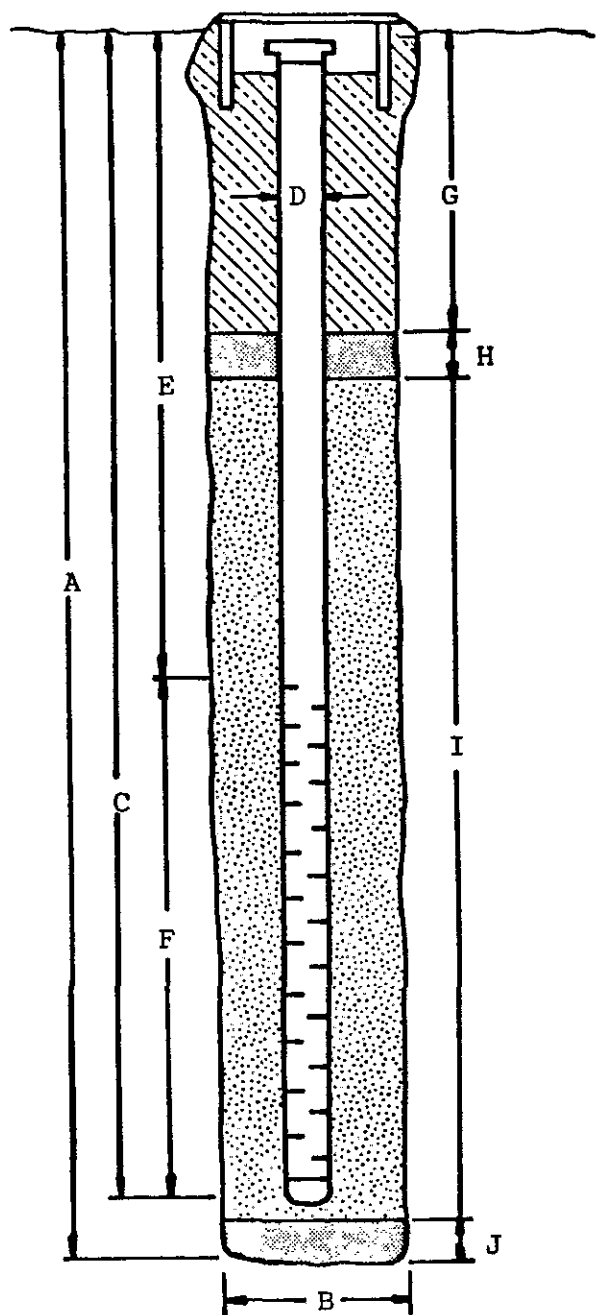
WELL COMPLETION DIAGRAM

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

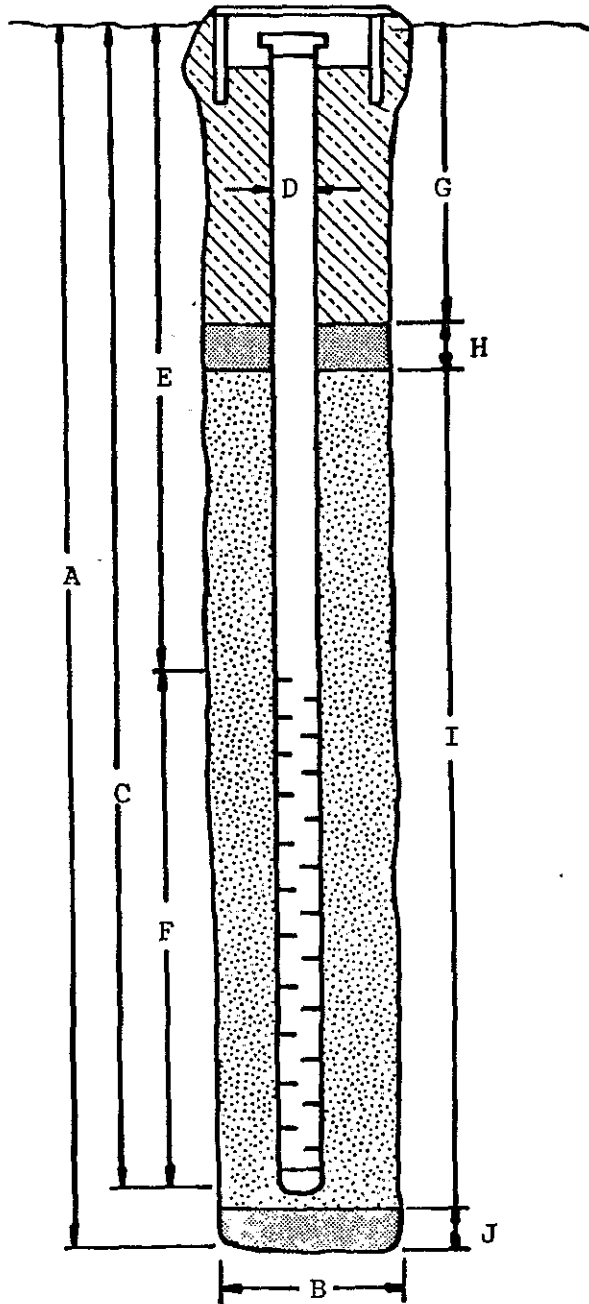
WELL COMPLETION DIAGRAM

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.

BORING LOG

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"		25	GP- GC	Sandy clay, as above. Poorly graded gravel with clay and sand, very dense, wet, dark yellowish brown.
		30	GC	Clayey gravel, very dense, moist, yellowish brown.
		35		
		40		
				TOTAL DEPTH 29'

01-442W

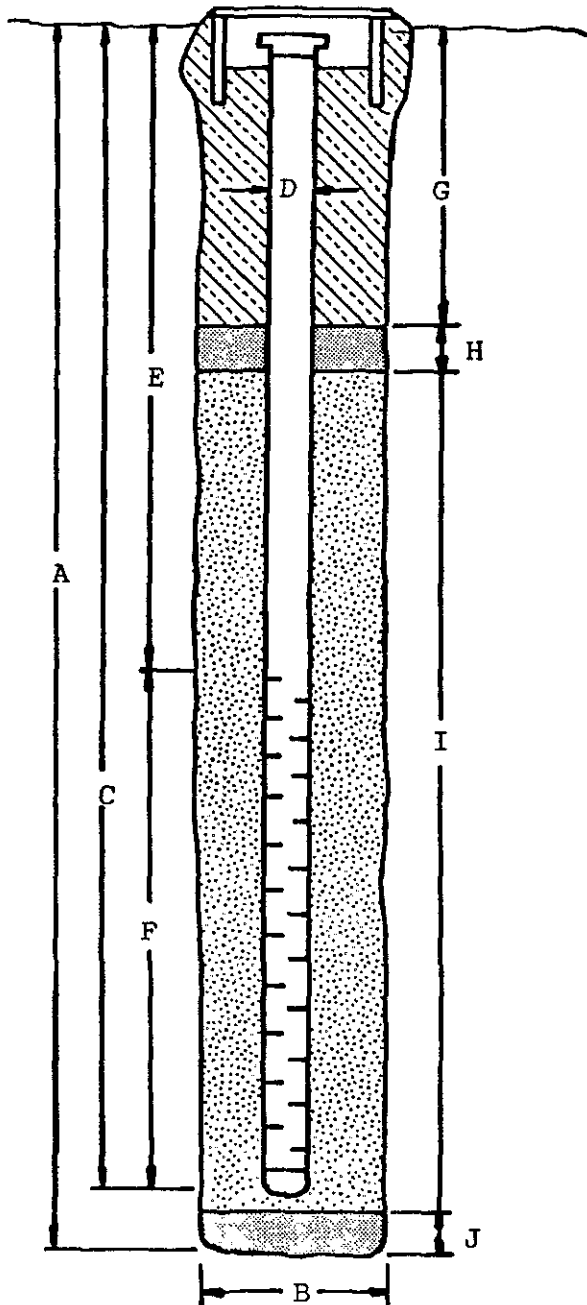
WELL COMPLETION DIAGRAM

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

01-442x

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

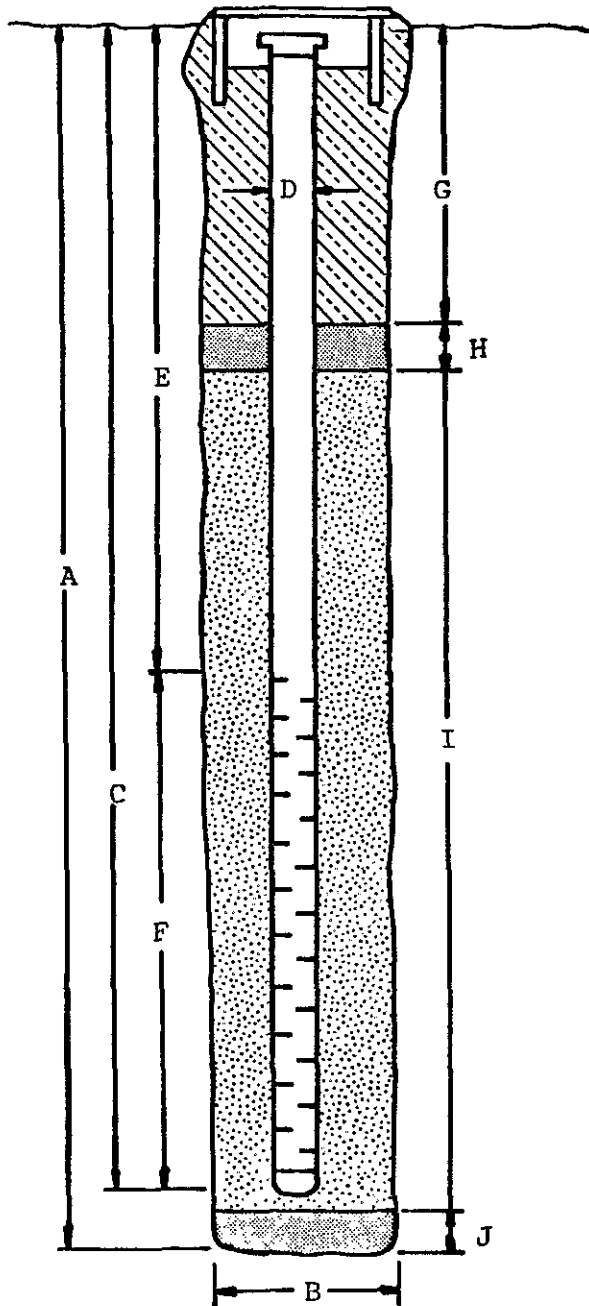
WELL COMPLETION DIAGRAM

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

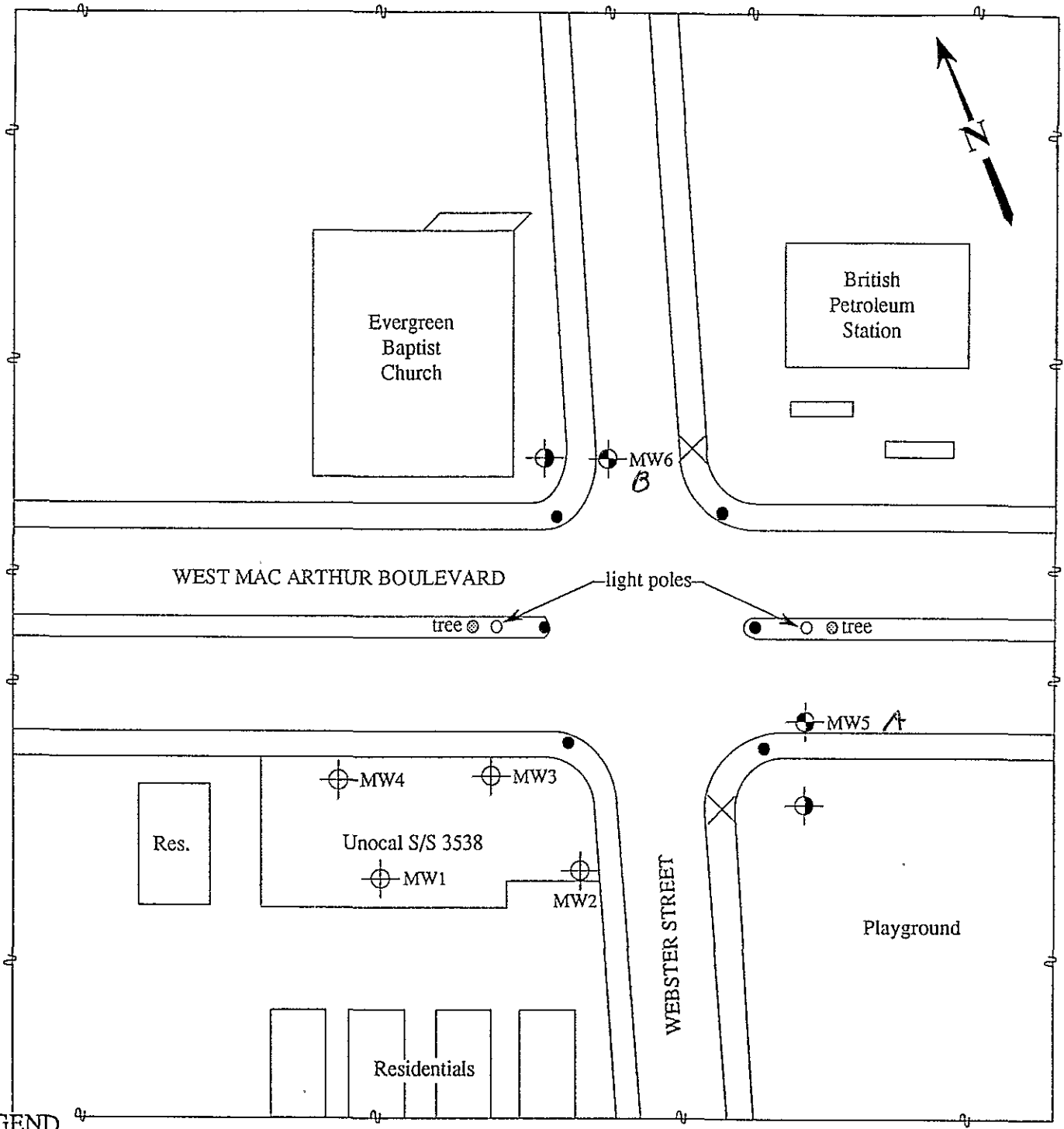
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

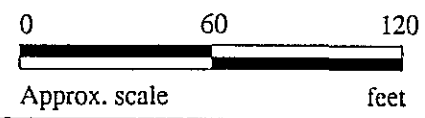
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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



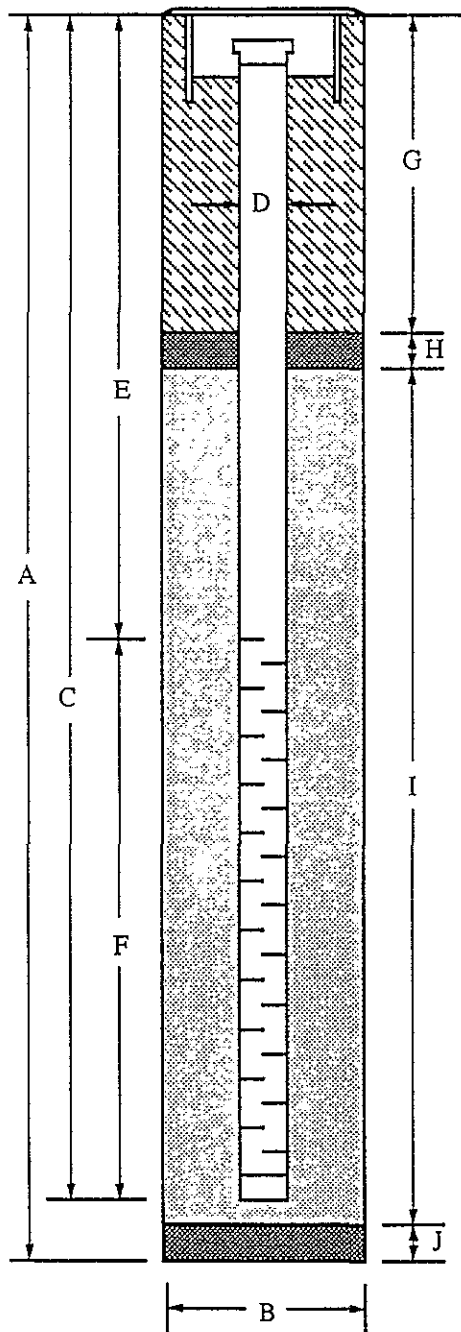
**UNOCAL SERVICE STATION # 3538
411 W. MACARTHUR BOULEVARD
OAKLAND, CA**

**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

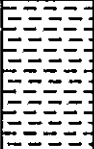
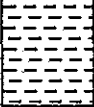


BORING LOG

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		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.
6/10/17		15		Silty clay, estimated at 35-40% silt, hard, moist, very pale brown (10YR 5/4) mottled.
			ML	Clayey silt, estimated at 15% clay and 5-10% sand, hard, very moist, pale yellow (2.5Y 7/3).
10/20/24		20		
8/13/25				

413649A

BORING LOG

Project No. KEI-P89-0703		Boring Diameter 9" Casing Diameter 2"		Logged By <i>JGG</i> W.W. <i>CEG1633</i>	
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

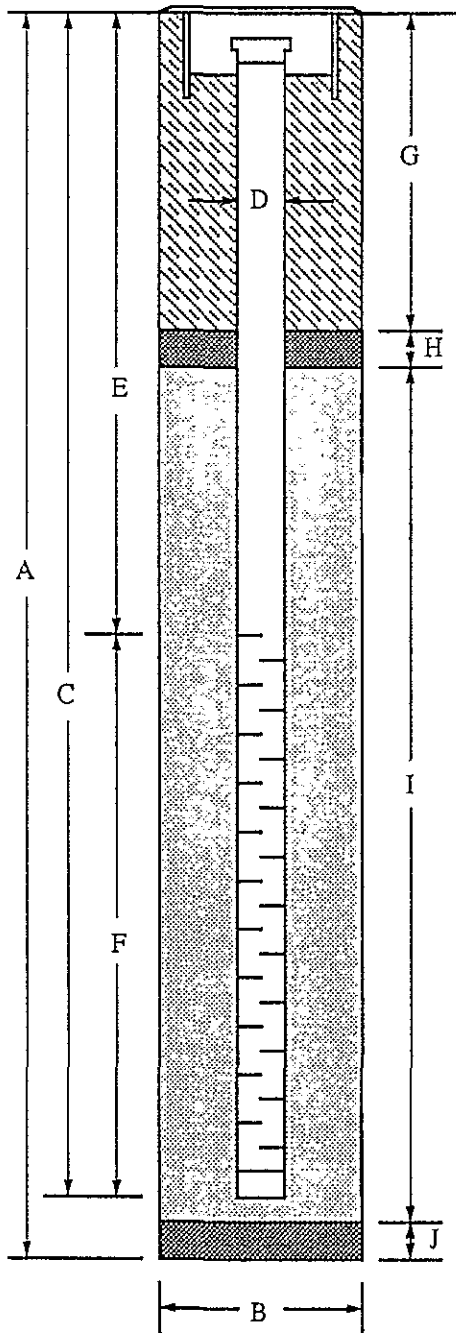
WELL COMPLETION DIAGRAM

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"	Logged By <i>JGG</i> W.W. <i>CEG/633</i>
		Casing Diameter 2"	
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	Stratigraphy 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.

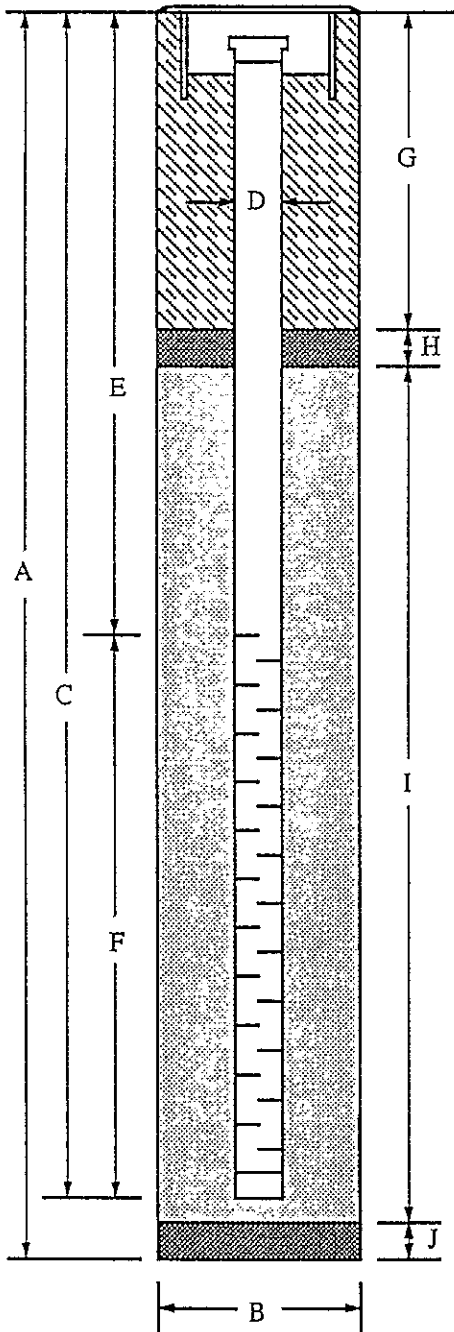
Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy USCS	Description
7/10/13		25	ML	Clayey silt, estimated at 15% clay and trace sand, very stiff. very moist, light yellowish brown.
			CL	Silty clay, estimated at 20-30% slightly elastic silt, very stiff. moist, very pale brown.
8/15/21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

Flush-mounted Well Cover

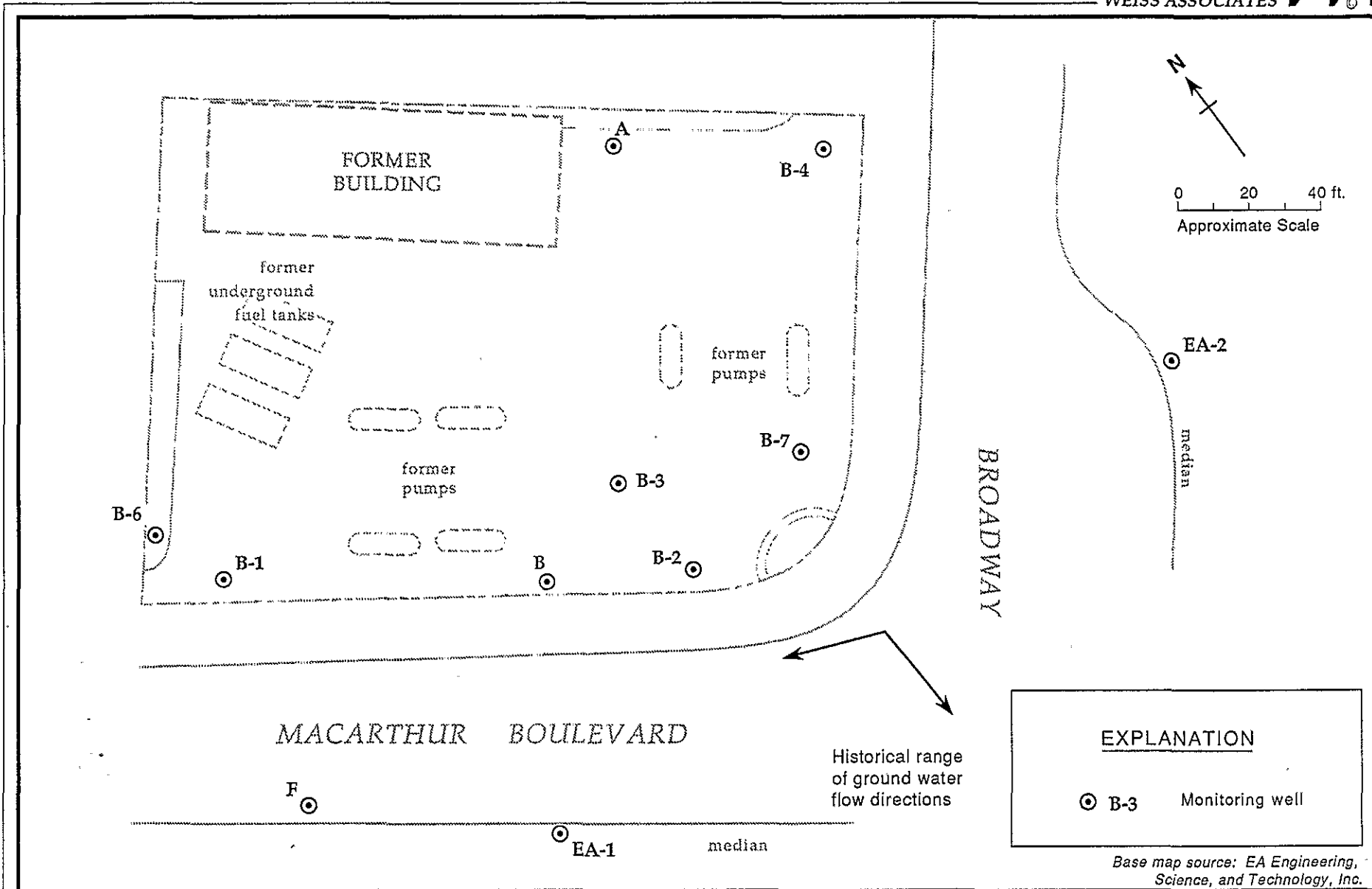


- A. Total Depth : 30'
- B. Boring Diameter: 9"
 Drilling Method: Hollow Stem Auger
- C. Casing Length: 30'
 Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 13'
- F. Perforated Length: 17'
 Perforation Type: Machined Slot
 Perforation Size: 0.010"
- 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

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

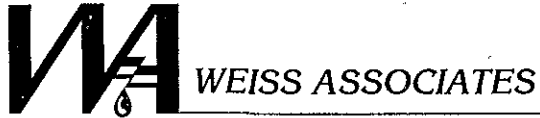


925191

15/40 2ANI-2, 14

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

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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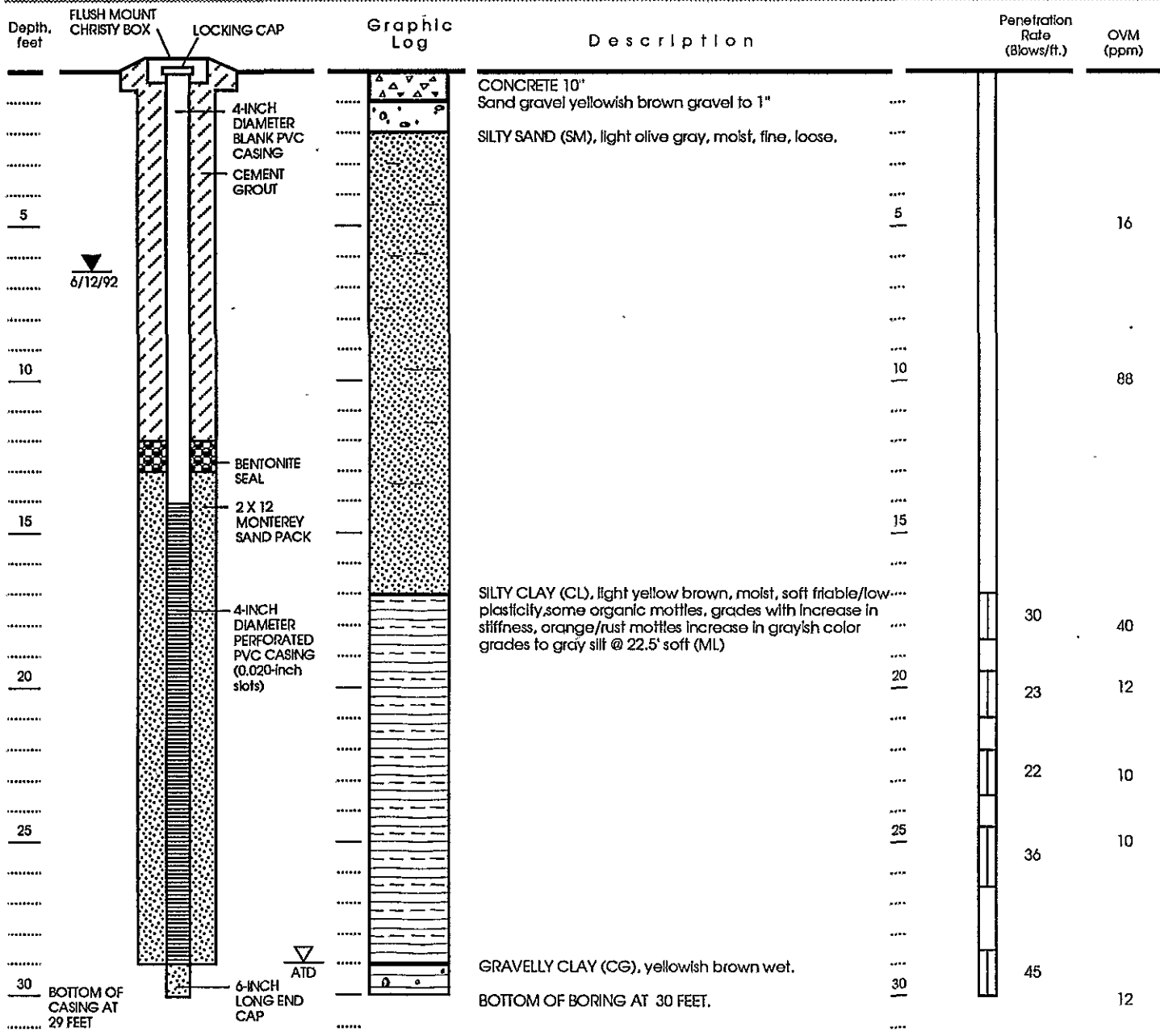
292

905226

WELL CONSTRUCTION

LITHOLOGY

SAMPLE DATA



EXPLANATION

- Clay
- Silt
- Sand
- Gravel

- Split Spoon Sampler
- Water level at time of drilling
- 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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WELL COMPLETION REPORT
(WELL LOGS)

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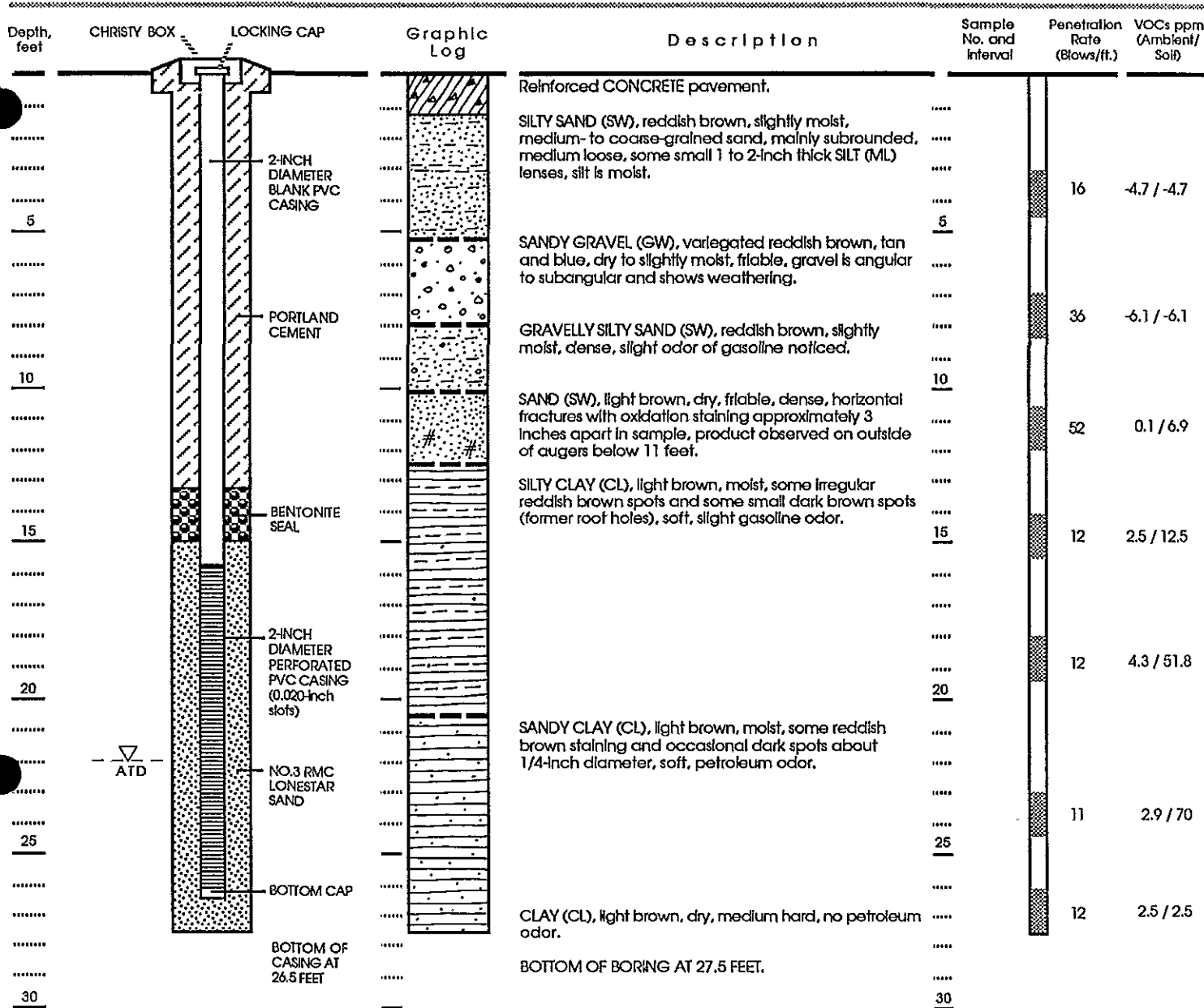
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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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

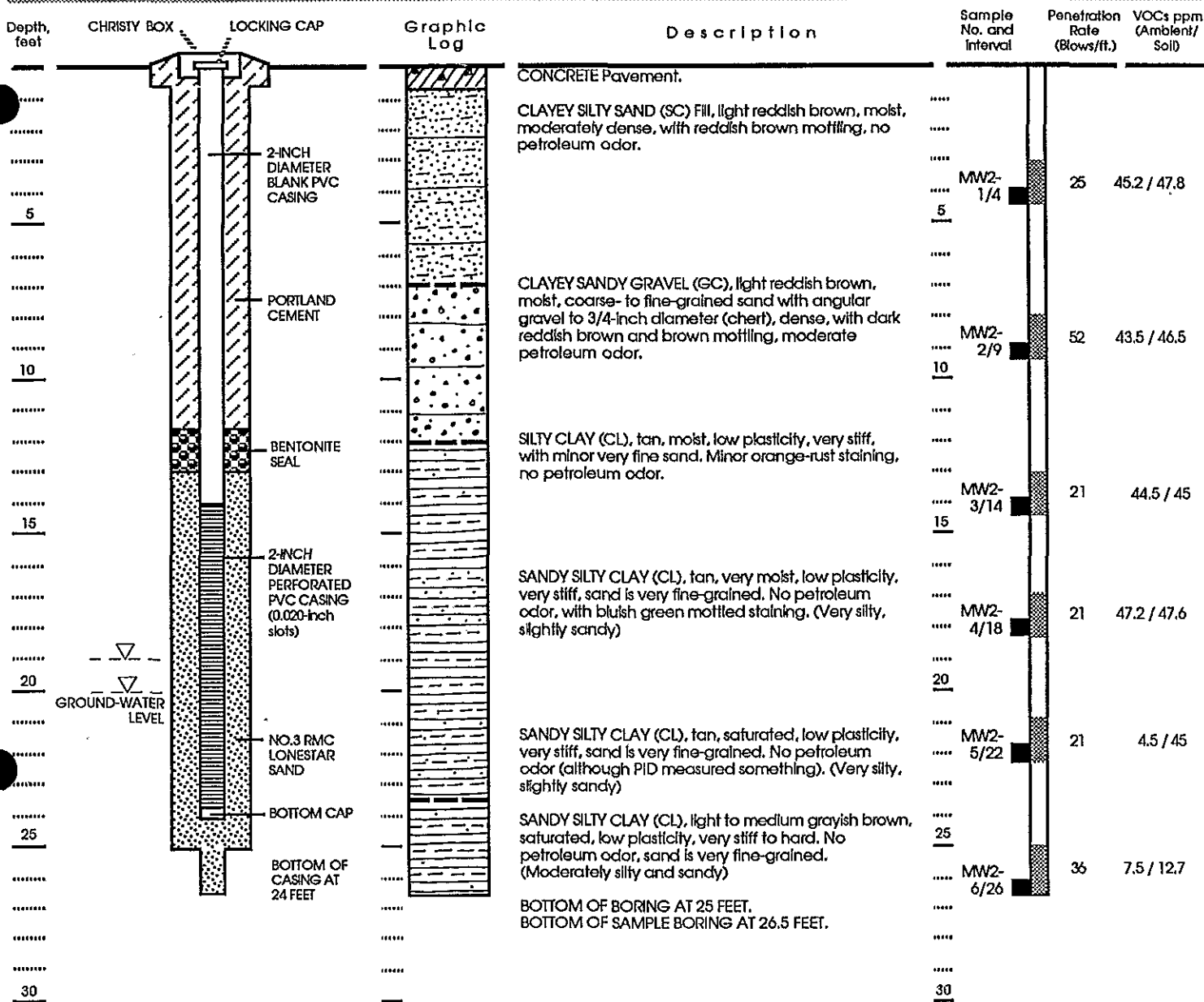
- Clay
- Silt
- Sand
- Gravel
- Modified California Sampler
- ATD At Time of Drilling

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

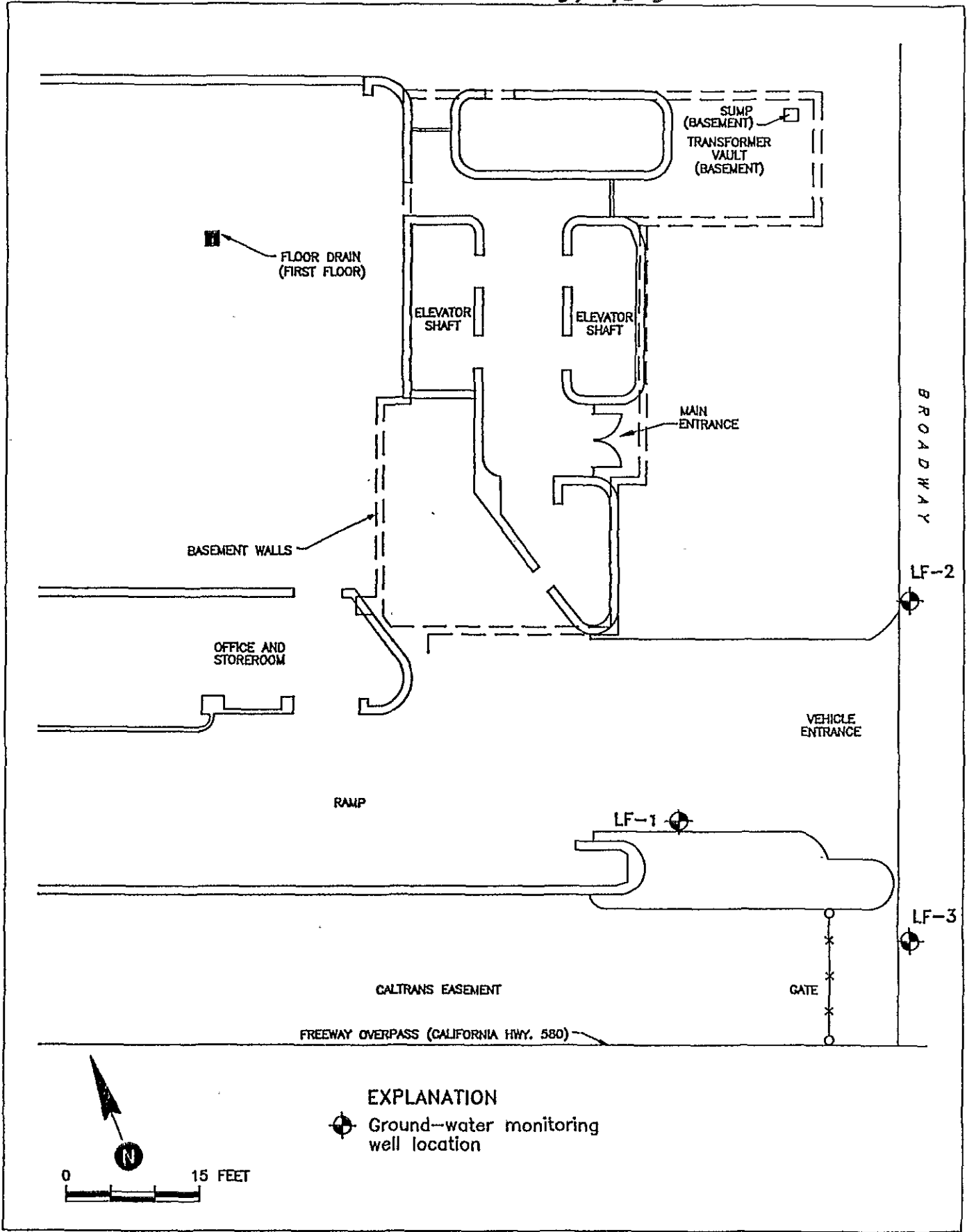
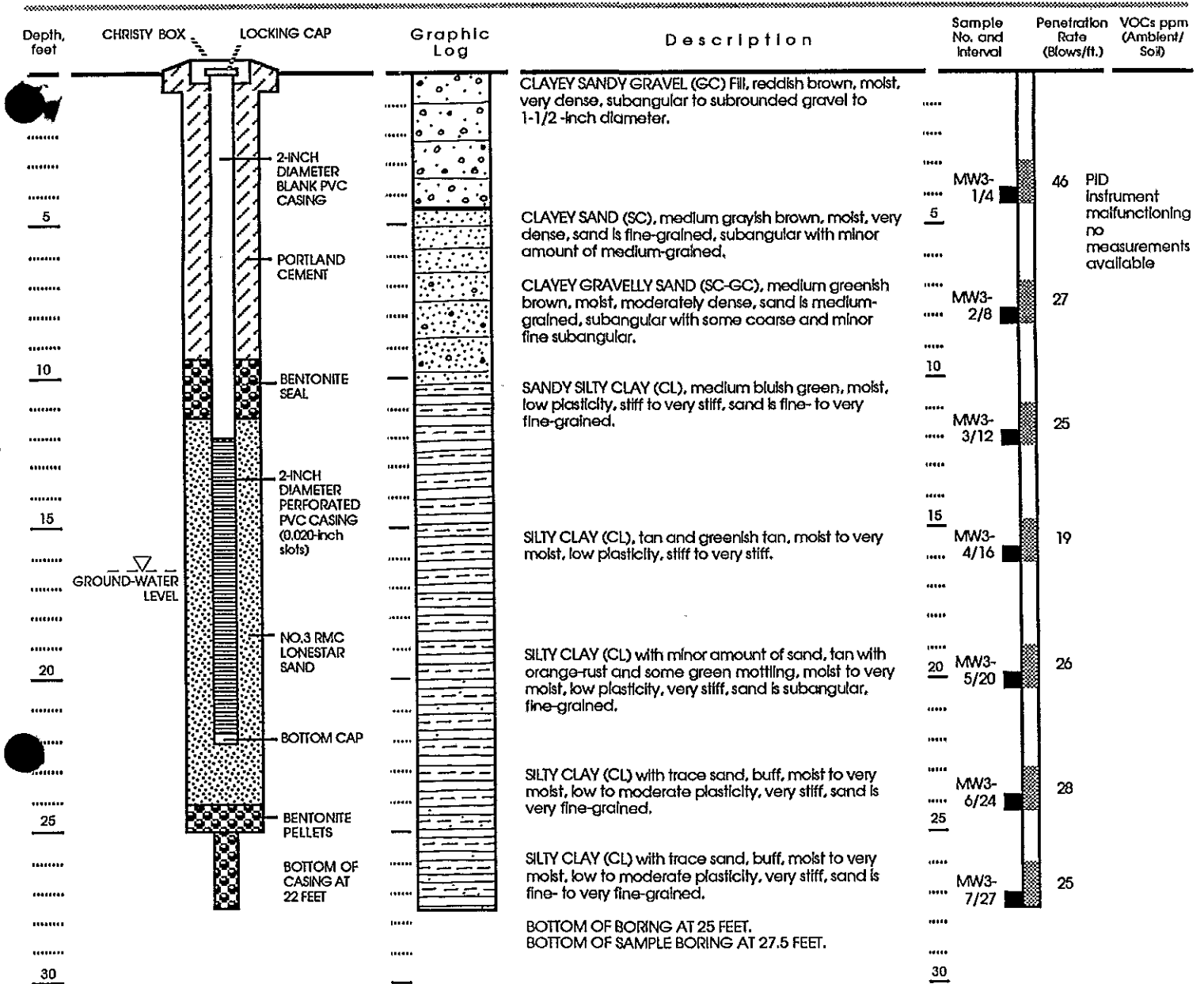


Figure 2 : SITE PLAN AND MONITORING WELL LOCATIONS

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

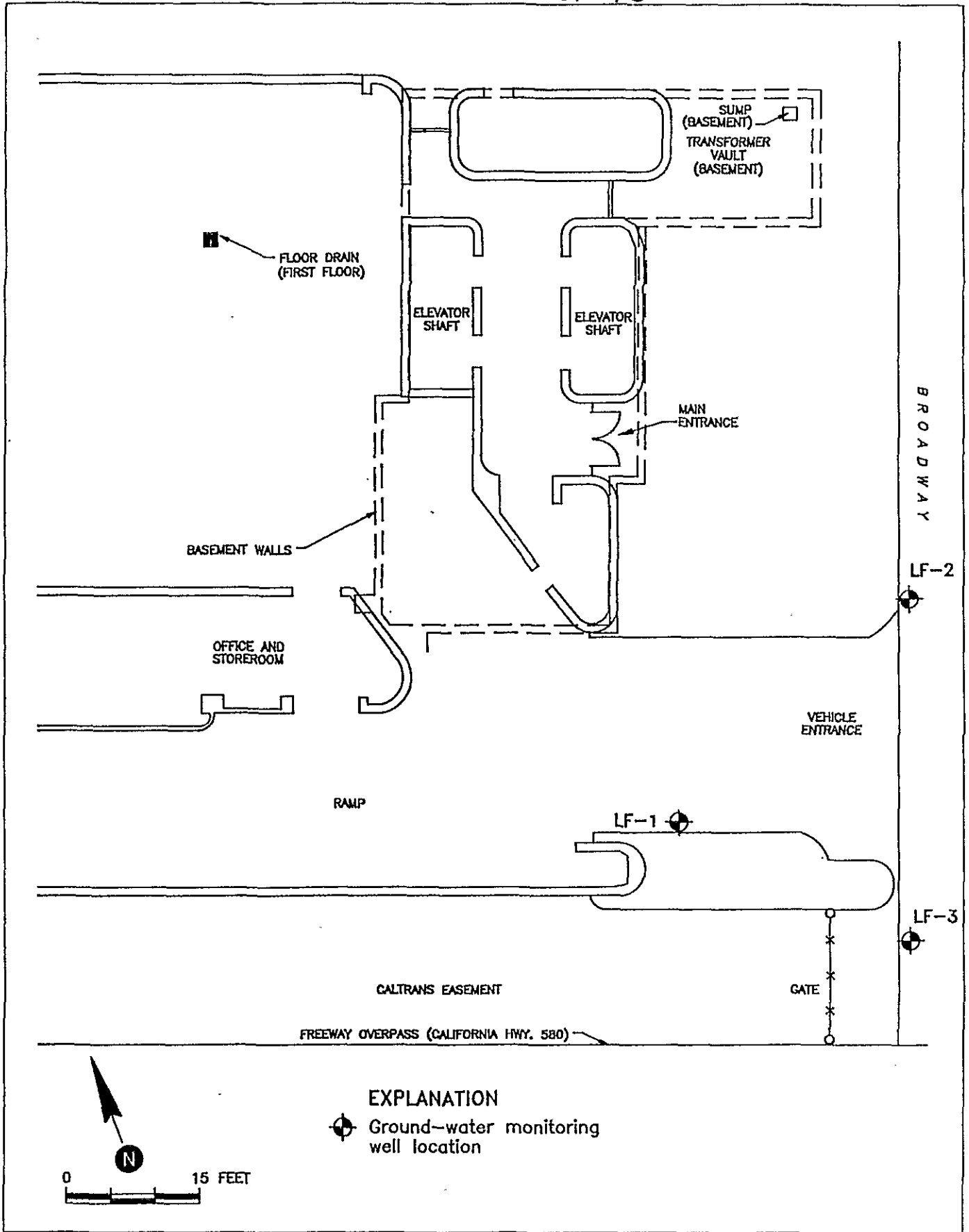


Figure 2: SITE PLAN AND MONITORING WELL LOCATIONS

15/4W

24N7

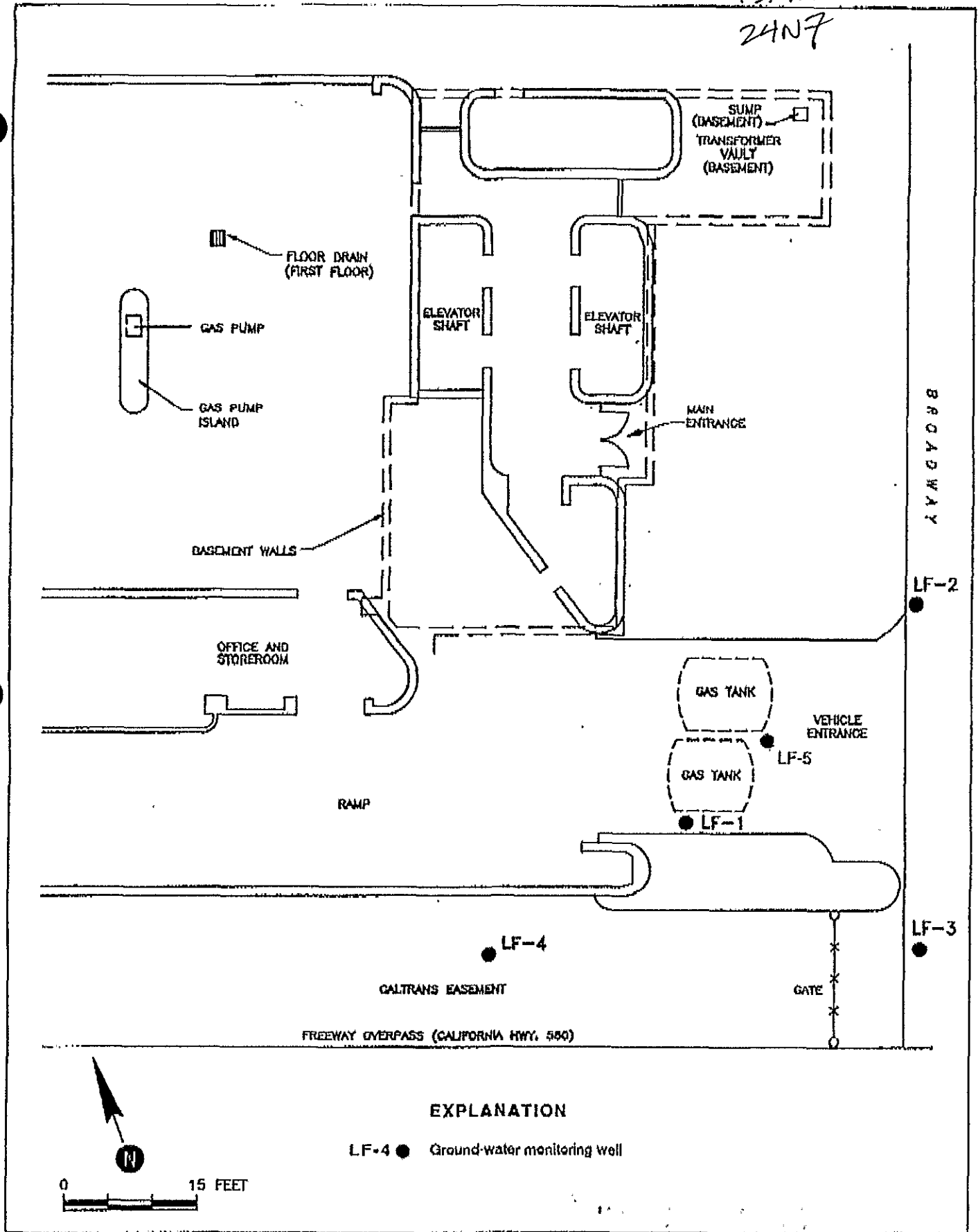
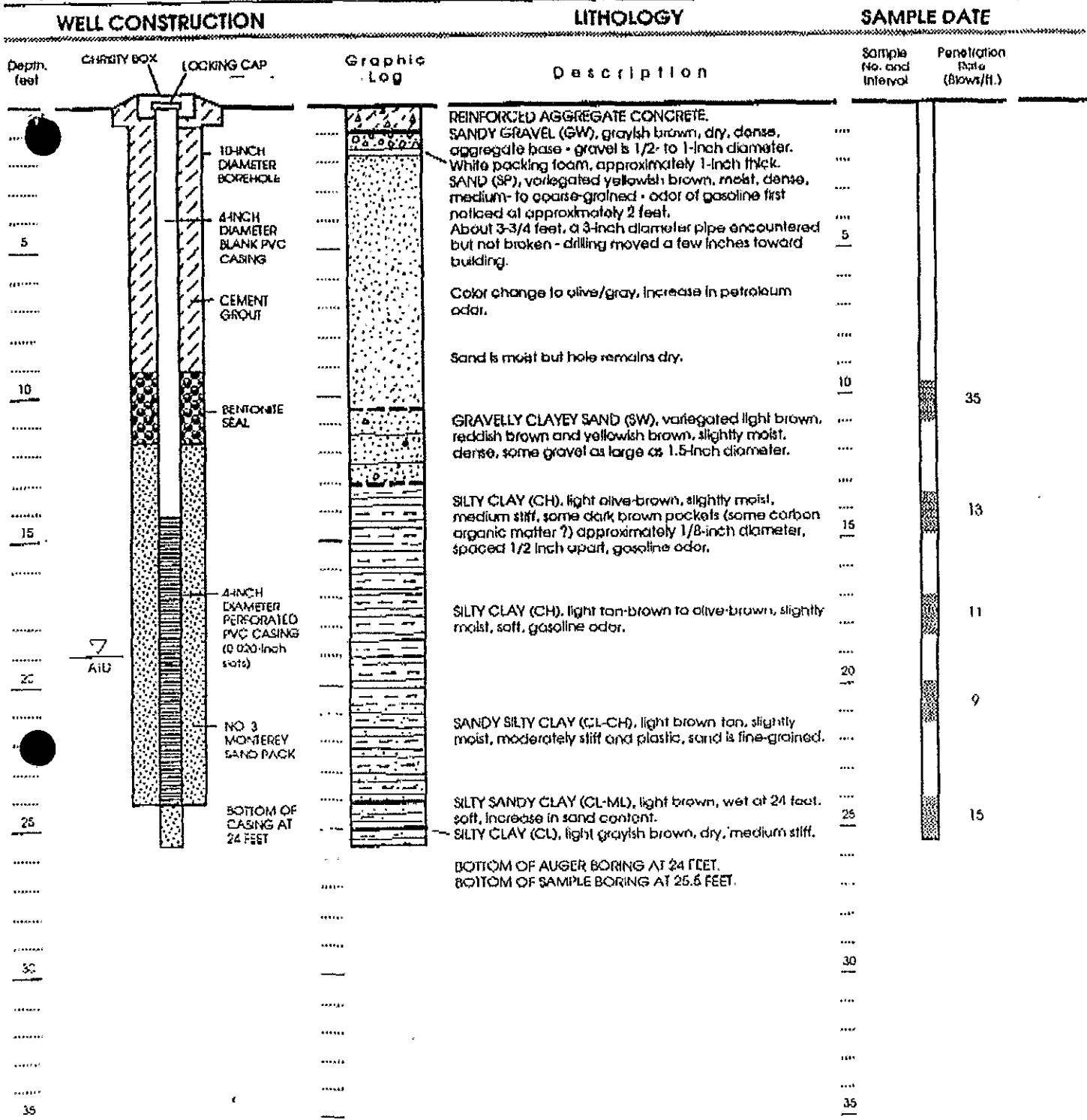


Figure 2 : SITE LOCATION MAP



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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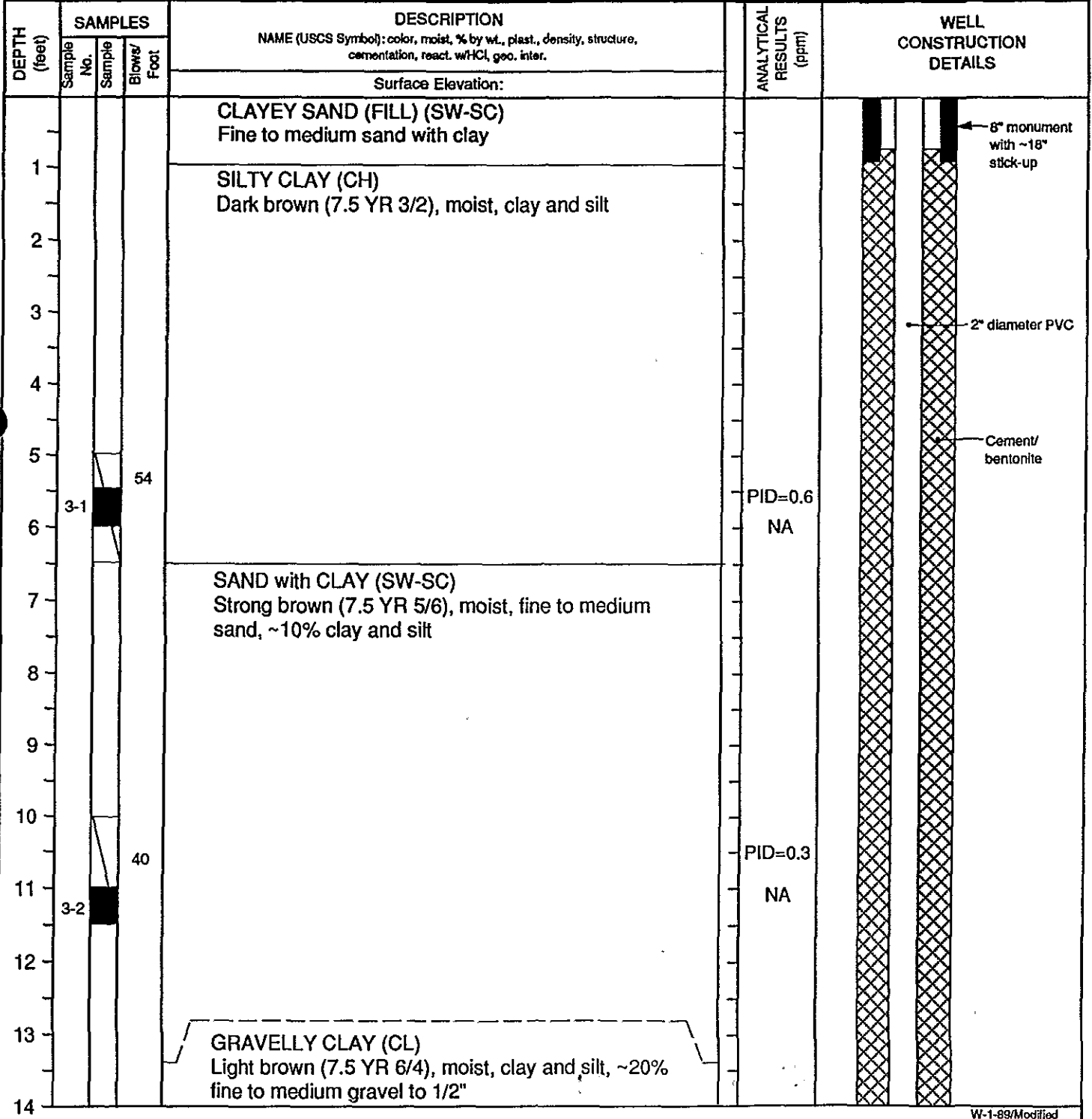
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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

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			
68	3-6			SILTY CLAY (CL) Brownish yellow (10 YR 6/6), moist, clay and silt	PID=0.3 Mineral spirits <10	Cement grout 2" diameter PVC
32						
33						
34						
35						
36						
37					PID=0	Bentonite pellets, 1/4" diameter
38	3-7			SANDY SILT (ML) Brownish yellow (10 YR 6/6), silt, ~50% fine to very fine sand, ~5% clay		
39						Lonestar #3 sand
40						2" diameter PVC, screened, flush threaded, 0.020" slot
41				SILTY CLAY (CL) Brownish yellow (10 YR 6/6), moist, clay and silt		
42						Bentonite pellets, 1/4" diameter, hydrated
43	3-8				Mineral spirits <10	
43.5				Bottom of hole at 43.5 feet		
44						
45						
46						
47						
48						

W-2-89/Modified

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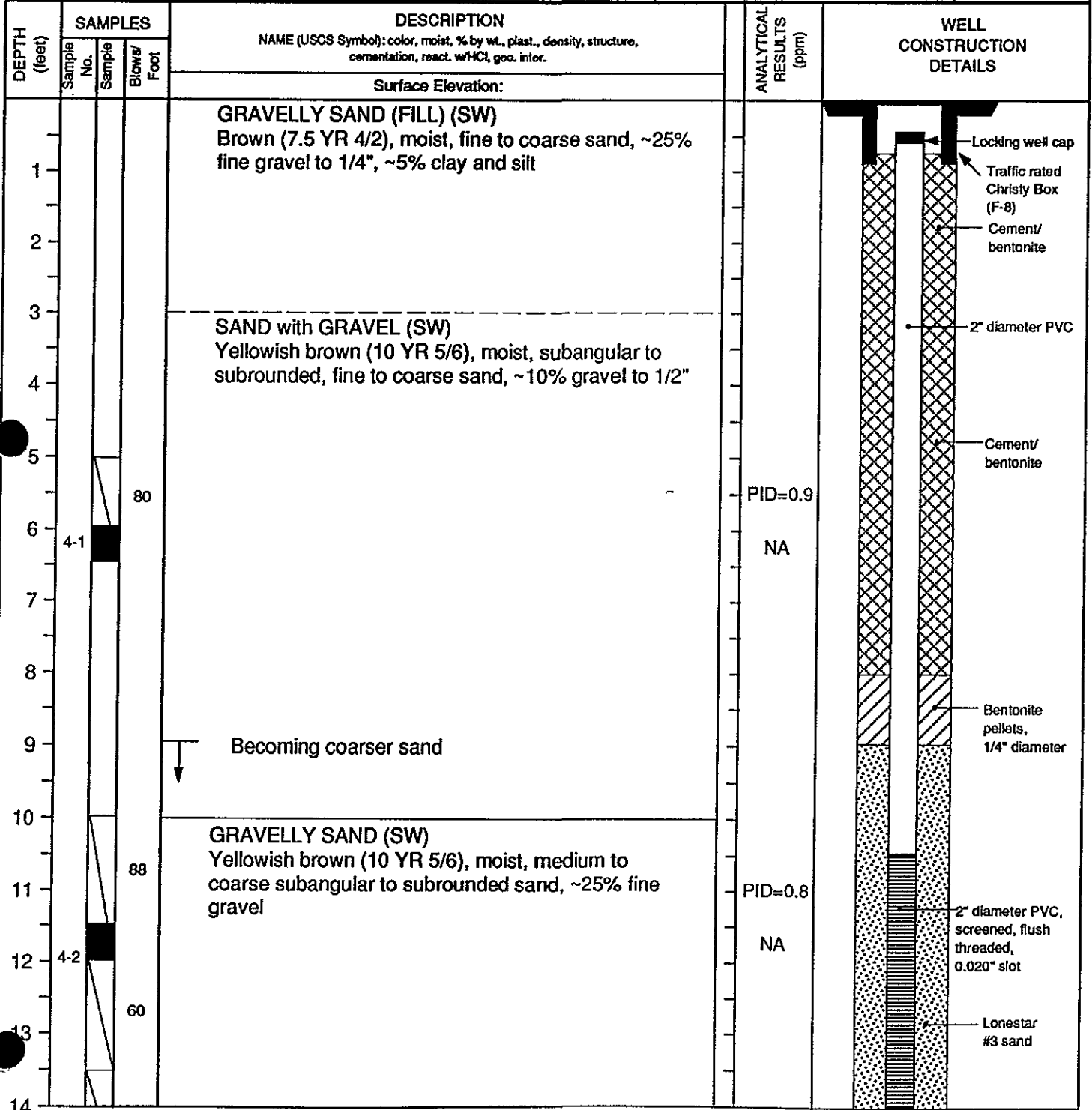
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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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



W-1-89/Modified

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			44	SILTY CLAY (CL) Pale brown (10 YR 6/3), moist, clay and silt, no sand	Mineral spirits <10	
20	4-4		73			
21			4-5	Bottom of hole at 22 feet	Mineral spirits <10	
22						
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)

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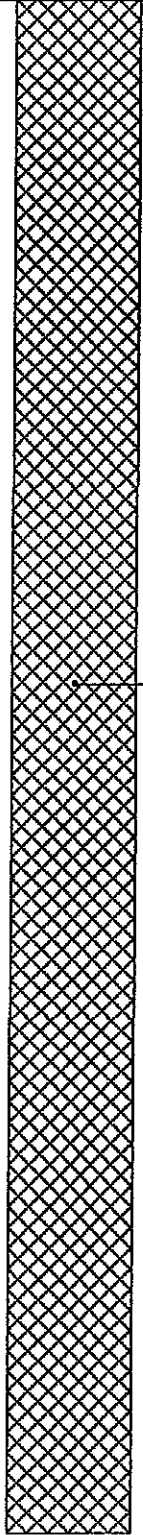
IS/4W/24N10

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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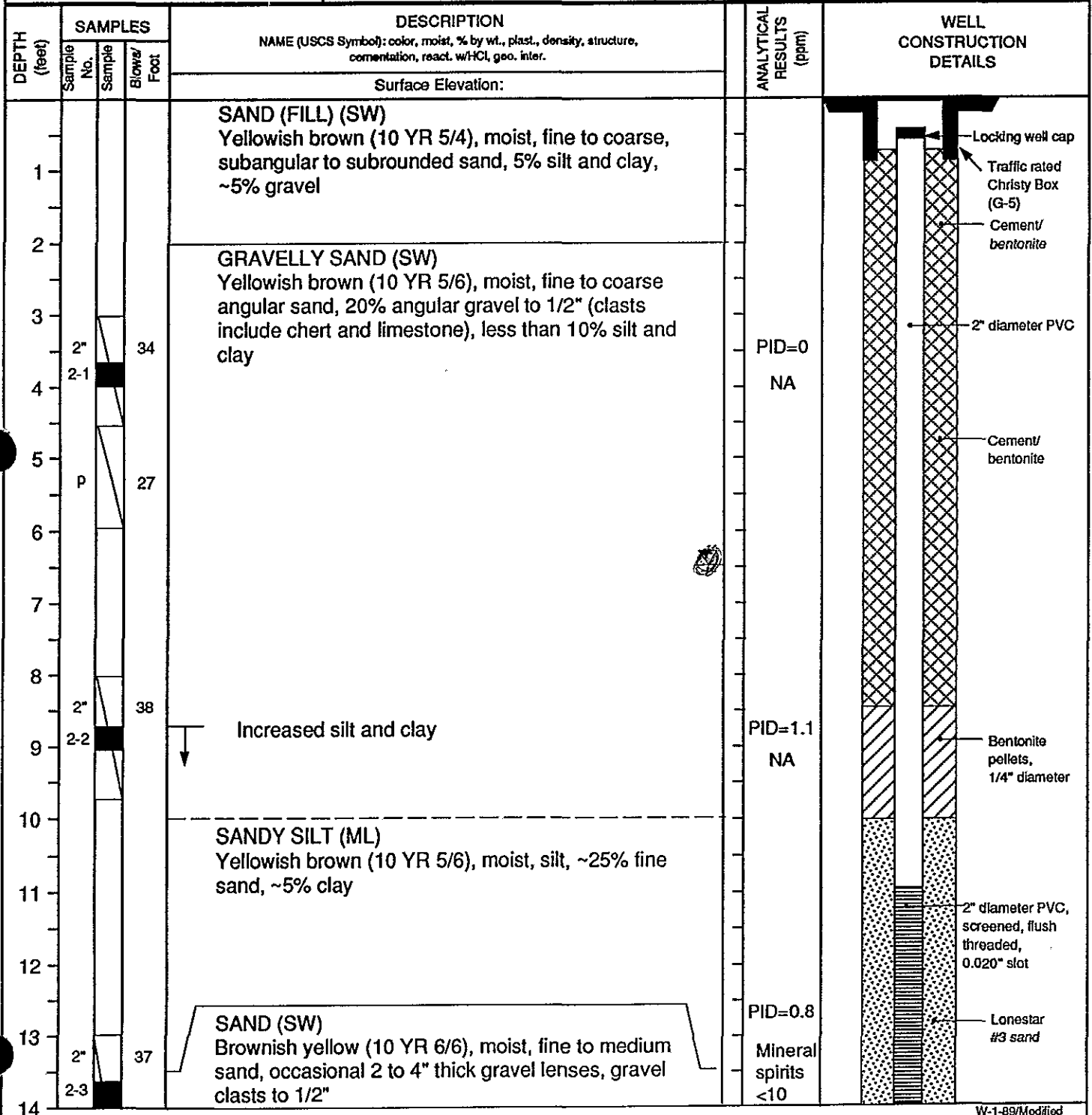
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

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WELL COMPLETION REPORT
(WELL LOGS)

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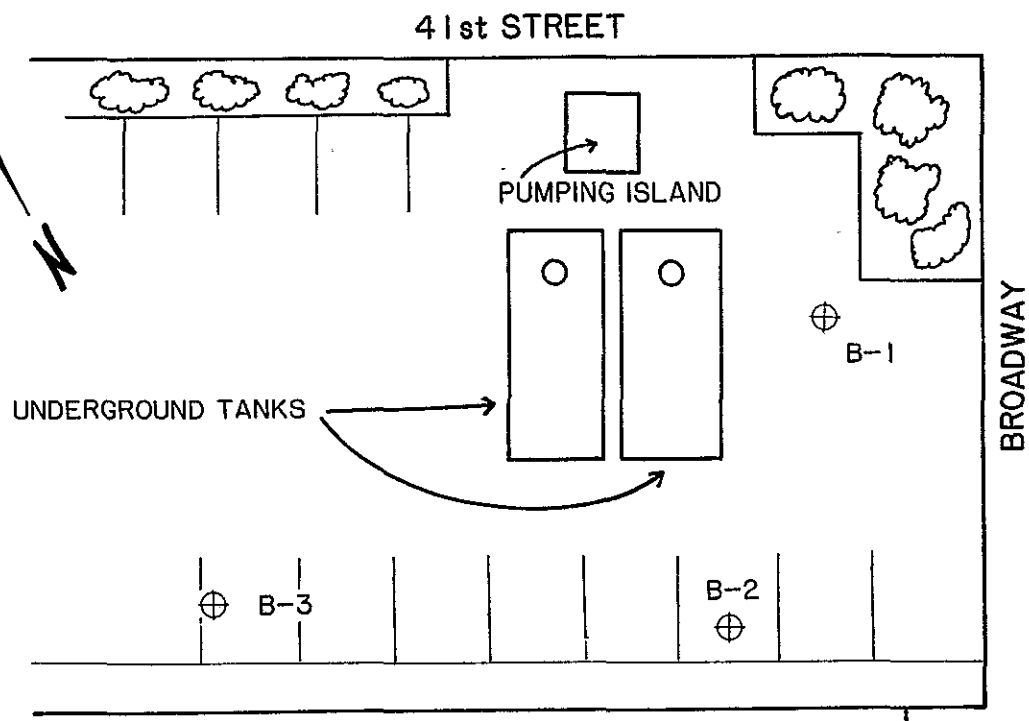
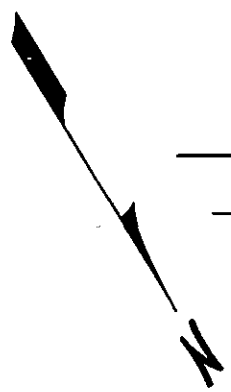
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WELL COMPLETION REPORT
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WELL COMPLETION REPORT
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LEGEND

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					
32				Total Depth of Borehole = 30 feet Drilled by Steve Fox 9/17/86	



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

PROJECT NO. B-1628-1



SOUTHLAND CORPORATION
 7-11
 4100 BROADWAY, OAKLAND
 LOG OF BORING NO. B-1

PLATE
4

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				
10			SILT - light brown, minor fine sand, moist, firm, NOSC	▼ =
12	S-10-2	ML		
14			SILTY SAND - reddish-brown, very moist to wet, fine sand, medium dense, few sub- rounded gravel to 1/4-inch diameter, NOSC.	
16		SM		
18	S-15-2			
20			SAND - wet; no sample recovery	
22		SW		
24				
26			CLAY - light brown, moist, medium plasticity, stiff, NOSC	
28		CL		
30			Total Depth of Borehole - 27 feet Drilled by Steve Fox 9/17/86	
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				

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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

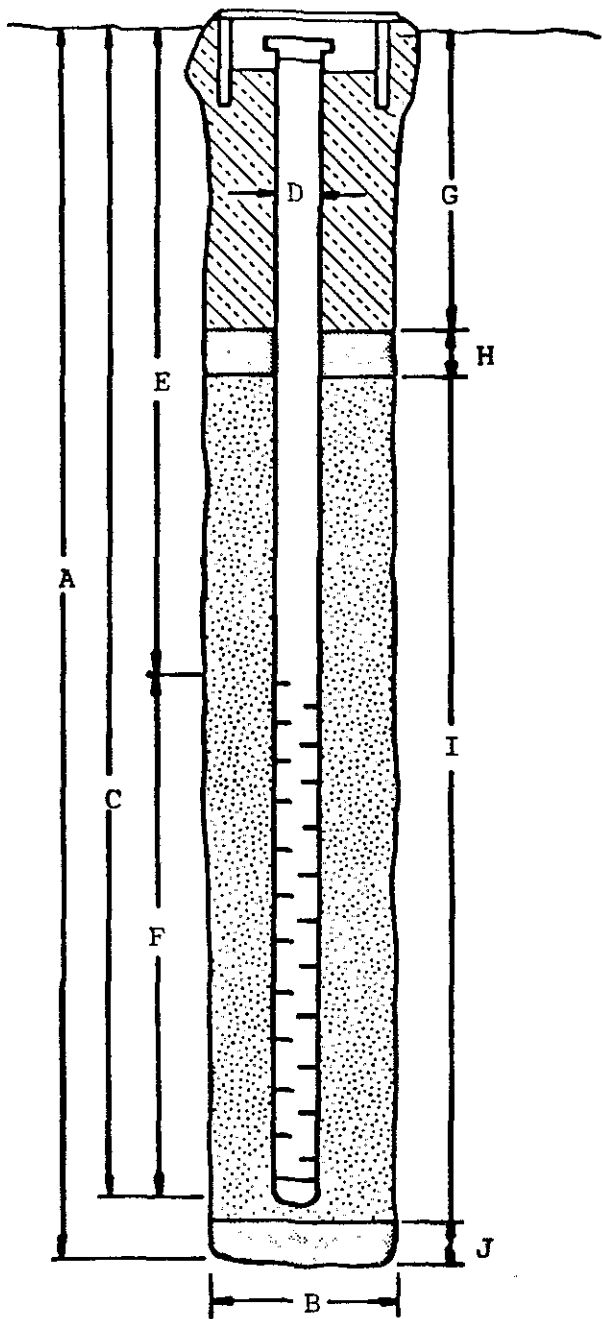
WELL COMPLETION DIAGRAM

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'
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: 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.

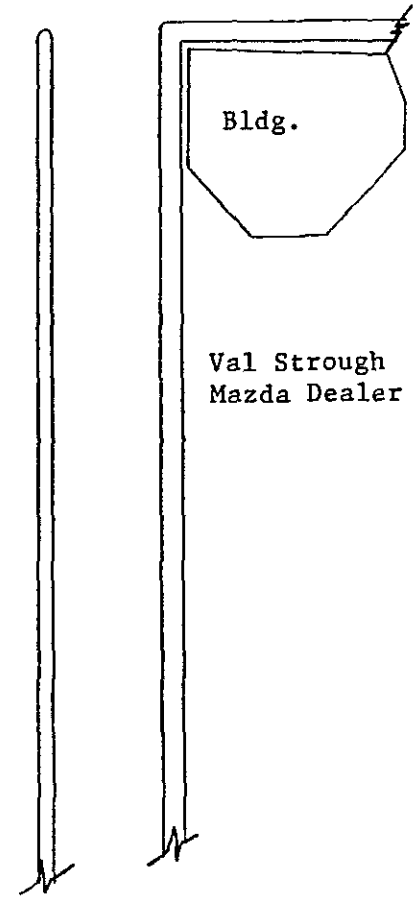
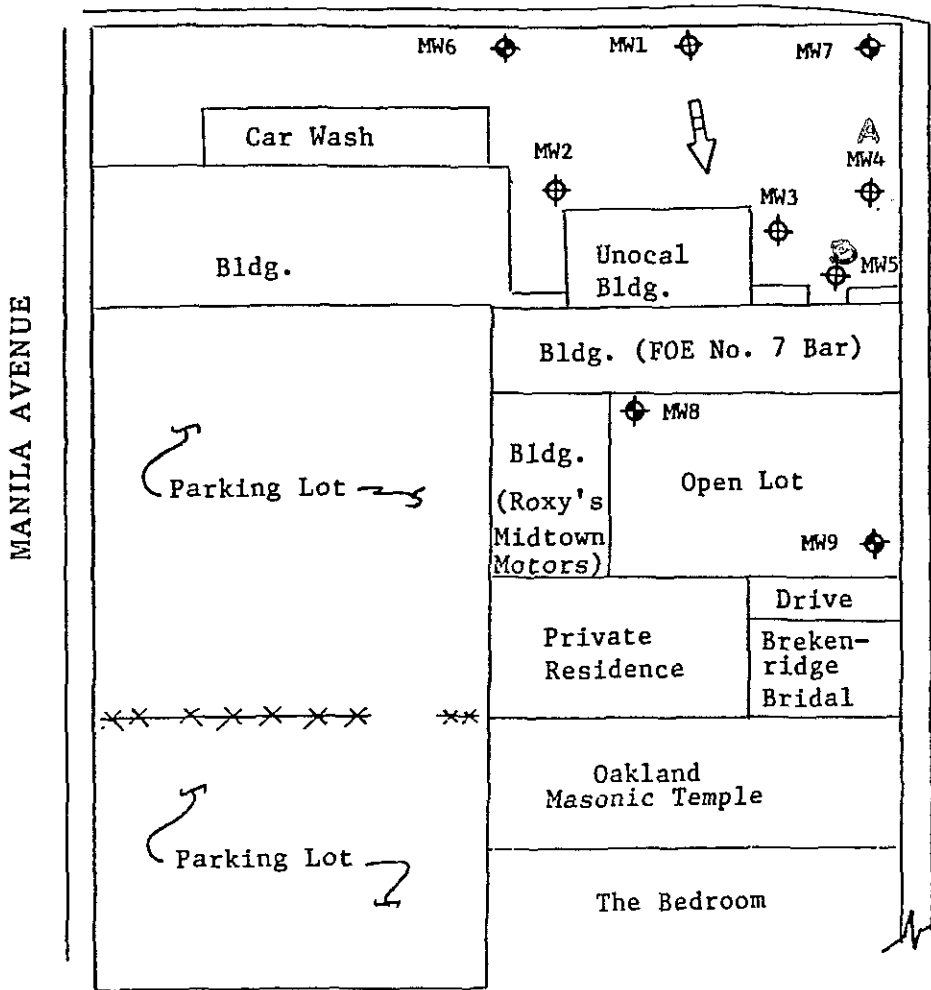
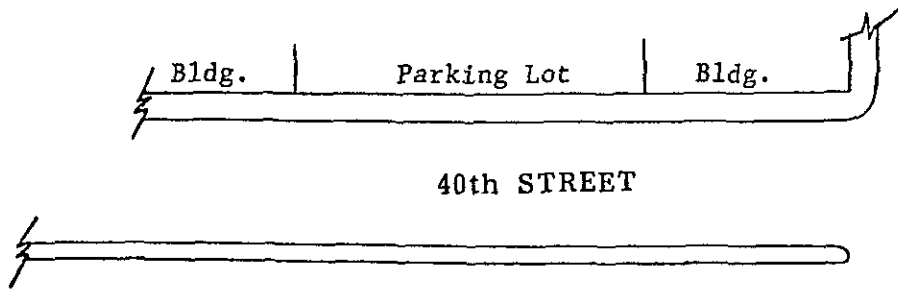


KAPREALIAN ENGINEERING, INC.

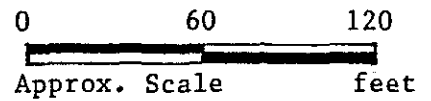
Consulting Engineers

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308393 A.8



SITE VICINITY MAP



LEGEND

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

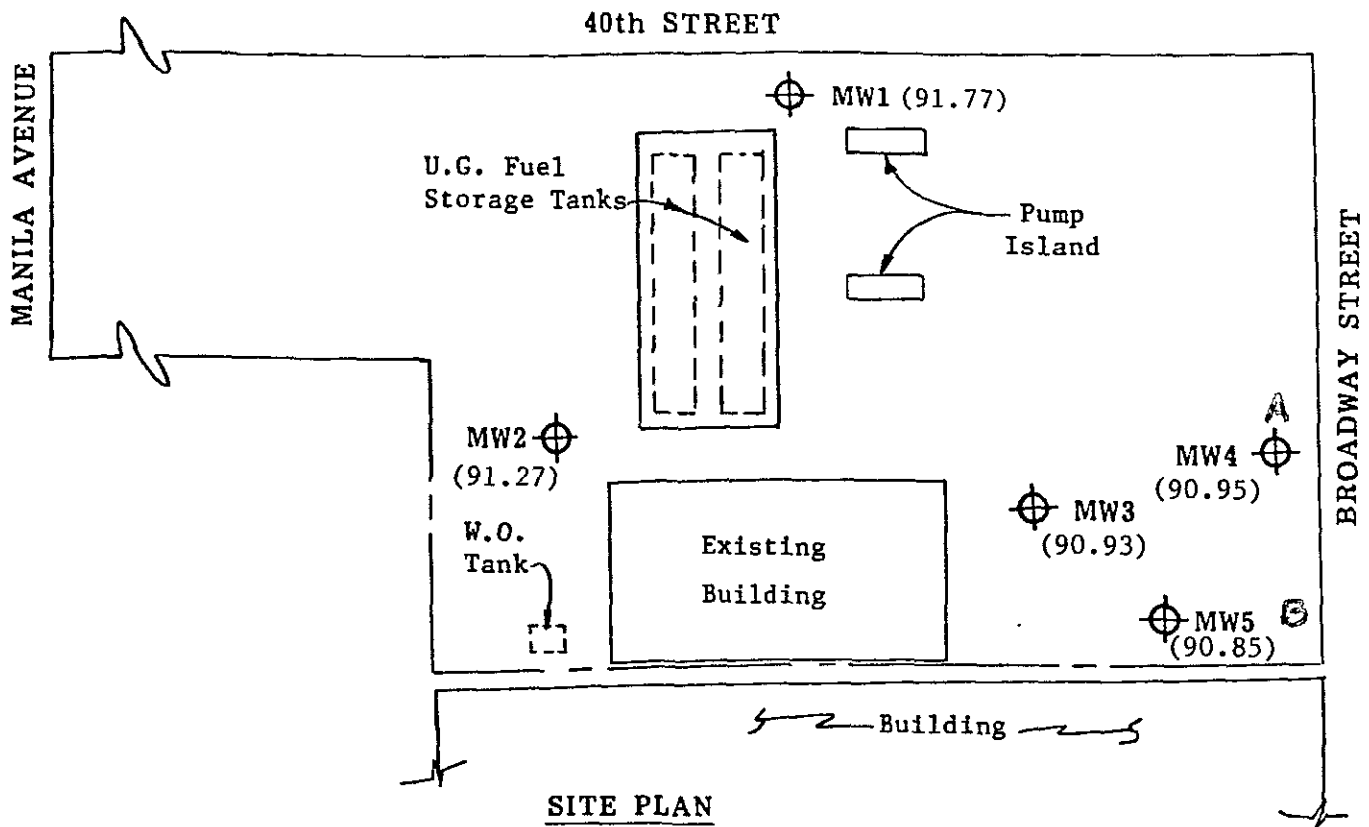
Unocal S/S #0746
 3943 Broadway
 Oakland, California



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Consulting Engineers



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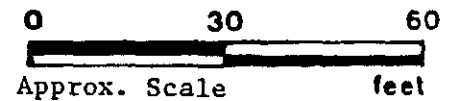


SITE PLAN

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

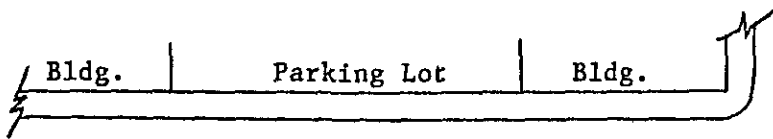


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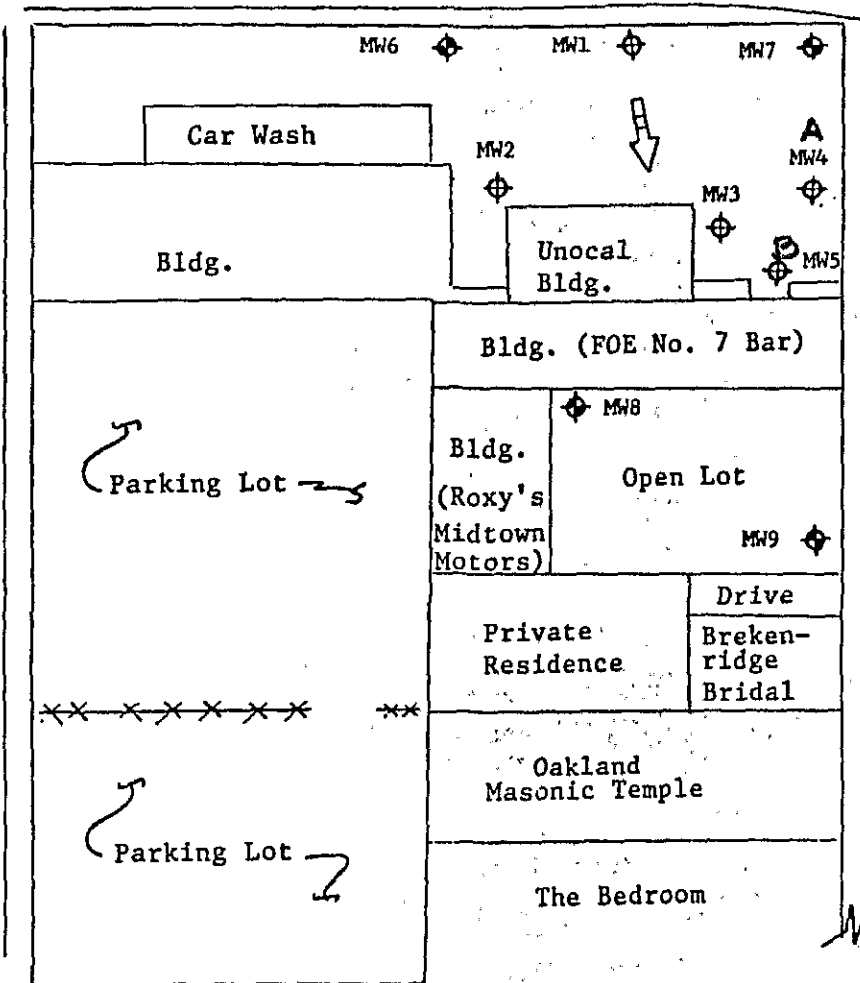
308393 A.B



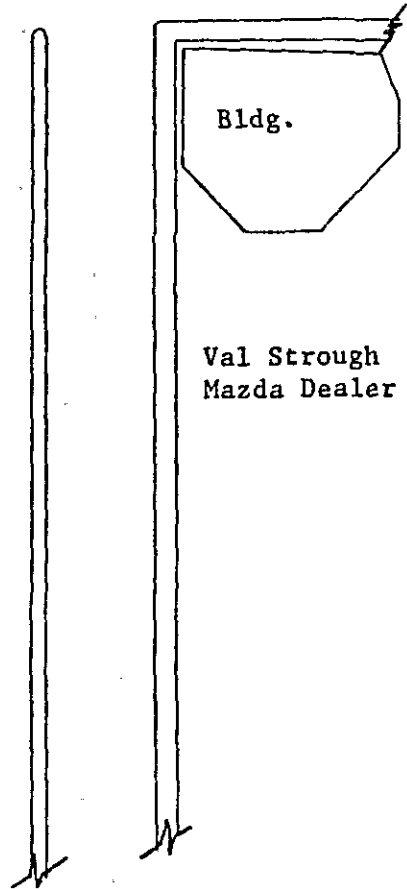
40th STREET



MANILA AVENUE






BROADWAY



SITE VICINITY MAP

0 60 120
Approx. Scale feet

LEGEND

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

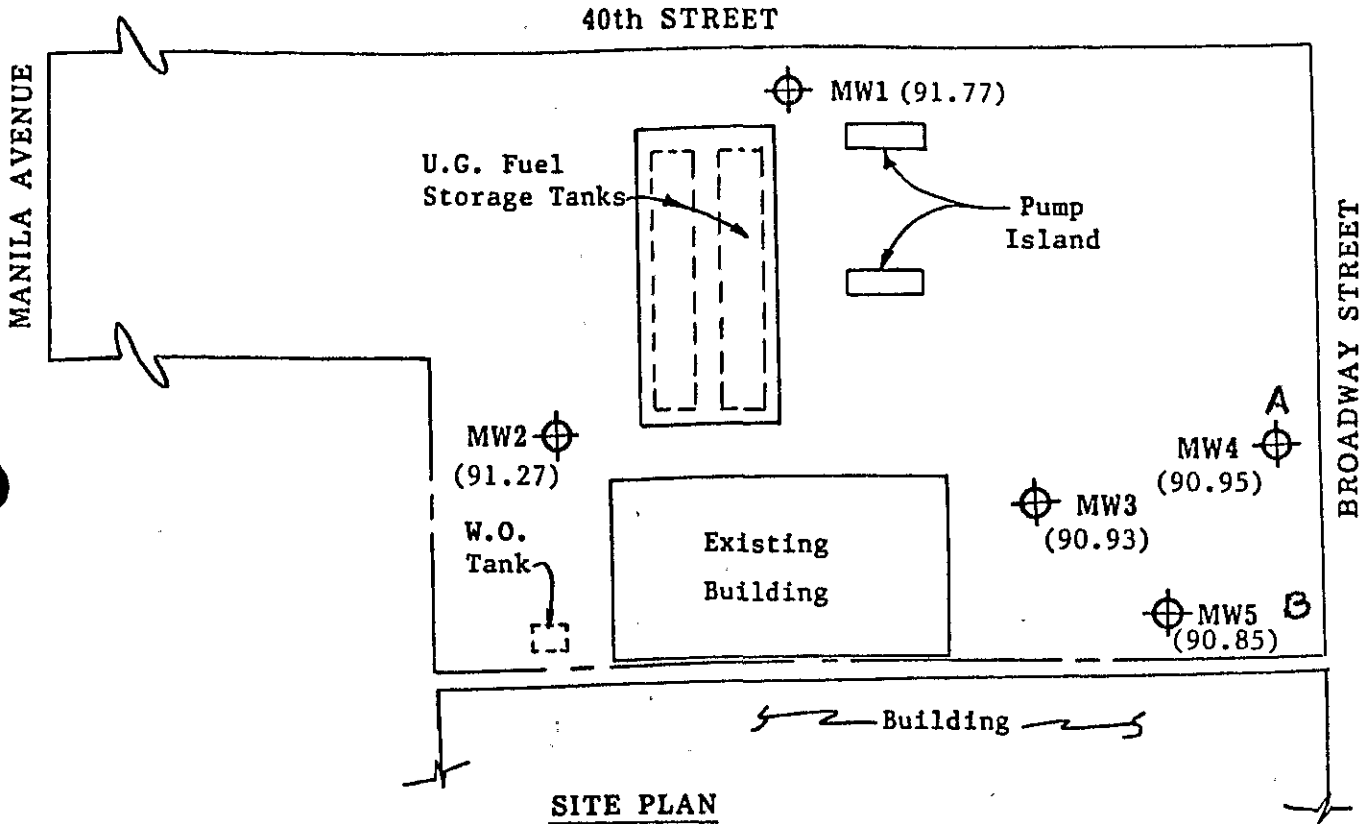
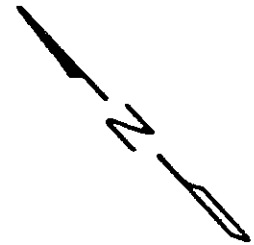
Unocal S/S #0746
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Oakland, California



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

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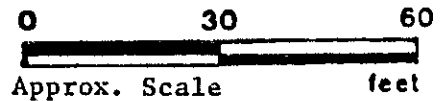
308393A.B



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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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)


REMOVED

15/4W 29L3

BORING LOG

308393B

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

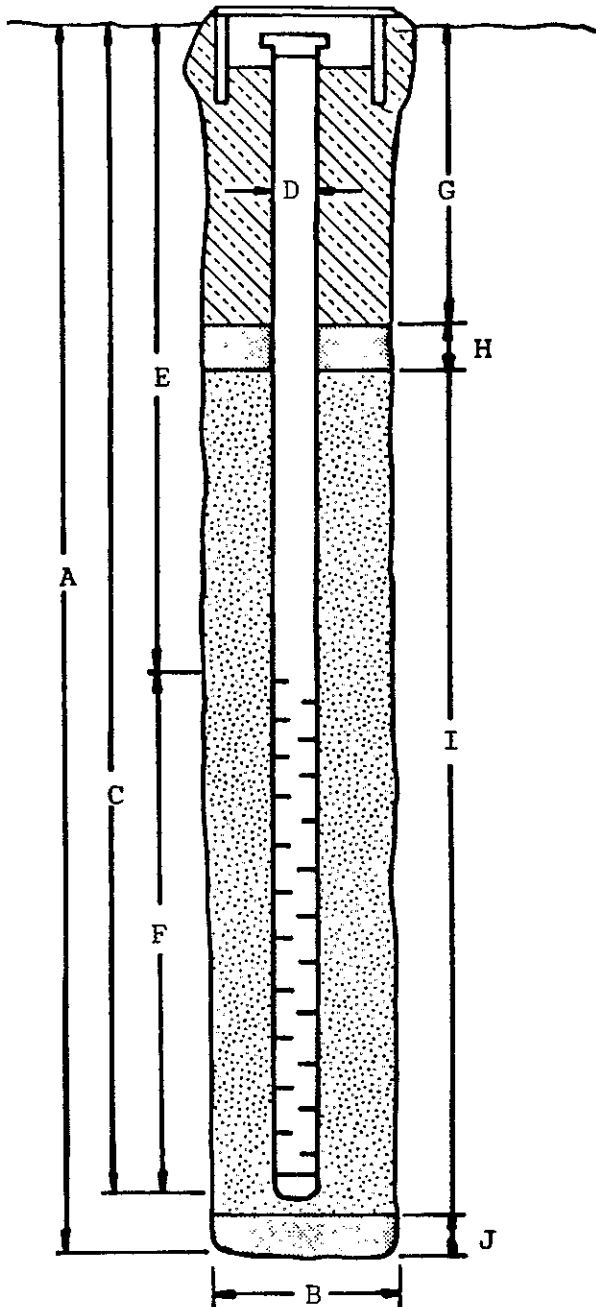
WELL COMPLETION DIAGRAM

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

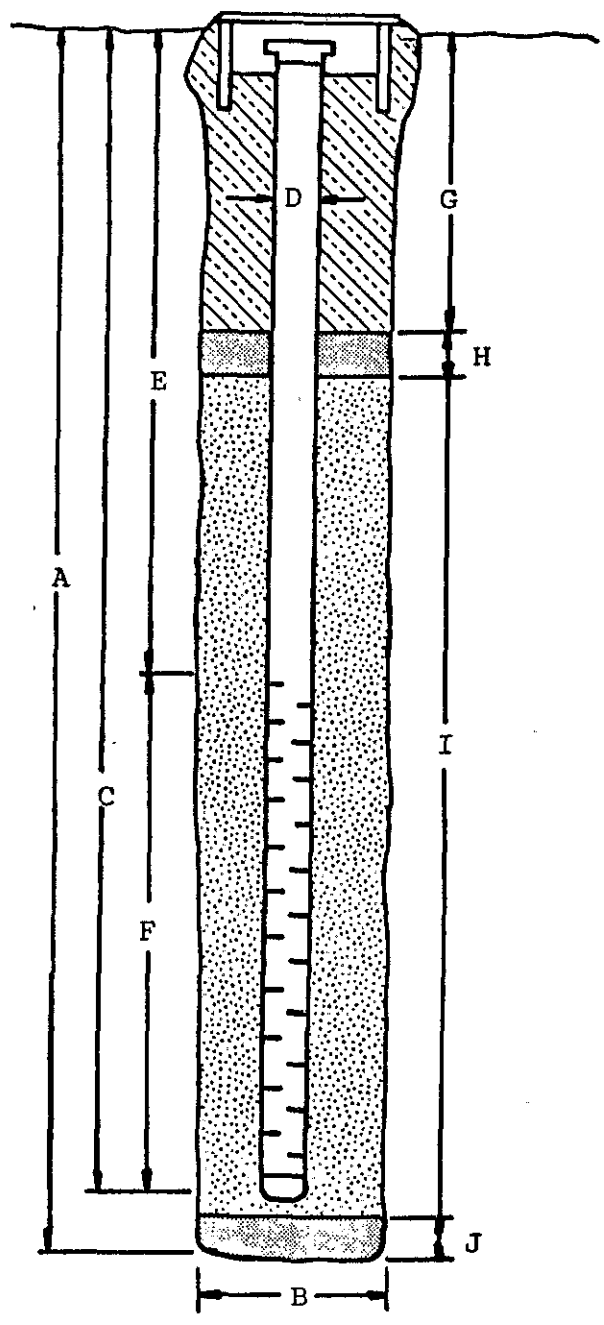
Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
		0		A.C. Pavement Clay, sand and gravel: fill.
5/7/15		5	CH	Silty clay, high plasticity, very stiff, moist, black, trace gravel. Sandy clay, high plasticity, trace gravel, very stiff, moist, dark olive gray.
7/10/16		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

WELL COMPLETION DIAGRAM

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



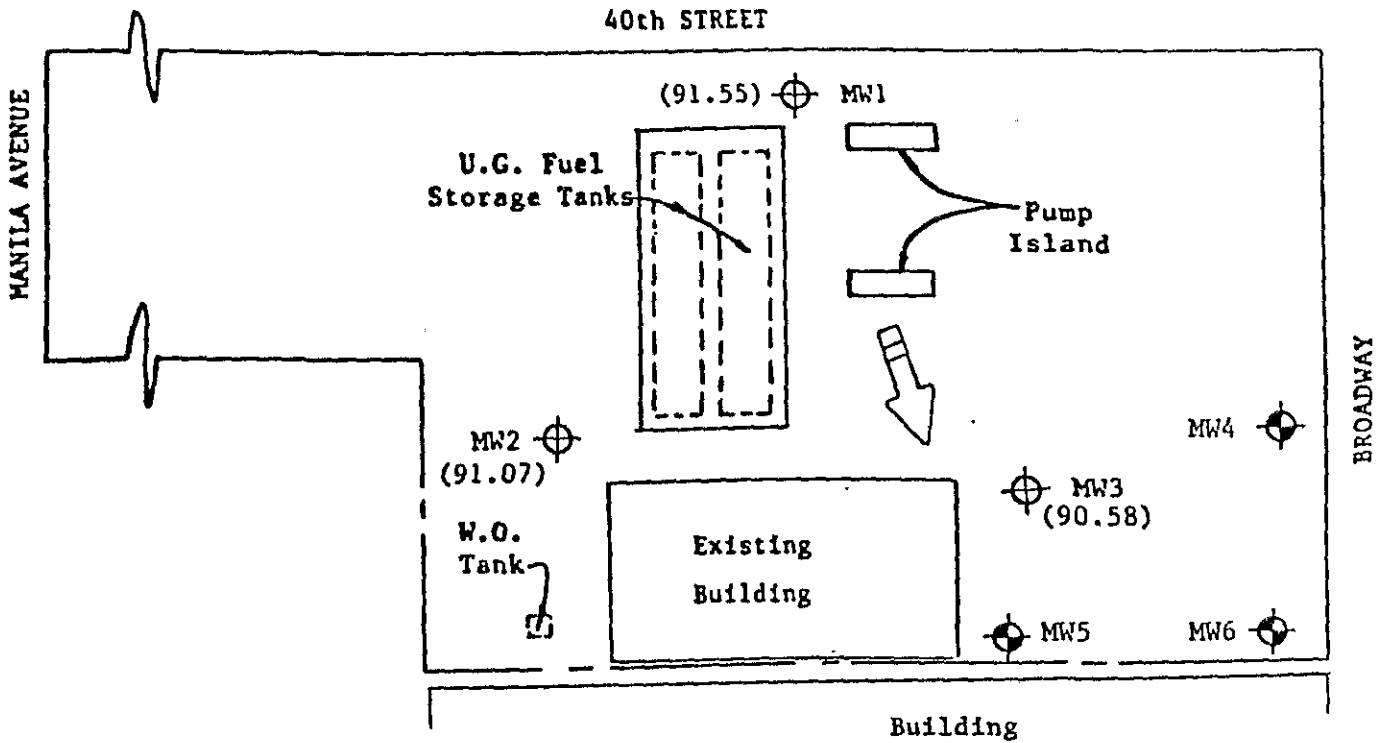
KAPREALIAN ENGINEERING, INC.

Consulting Engineers

P. O BOX 813

BENICIA, CA 94510

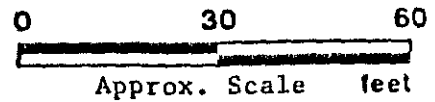
(707) 746-6915



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

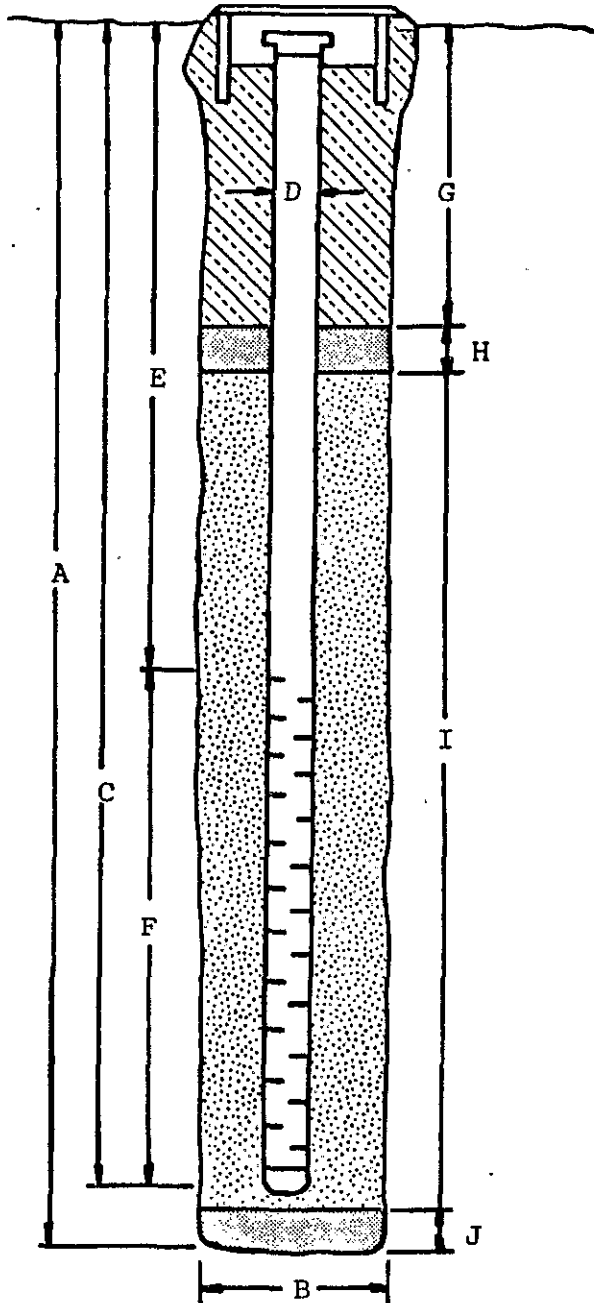
WELL COMPLETION DIAGRAM

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

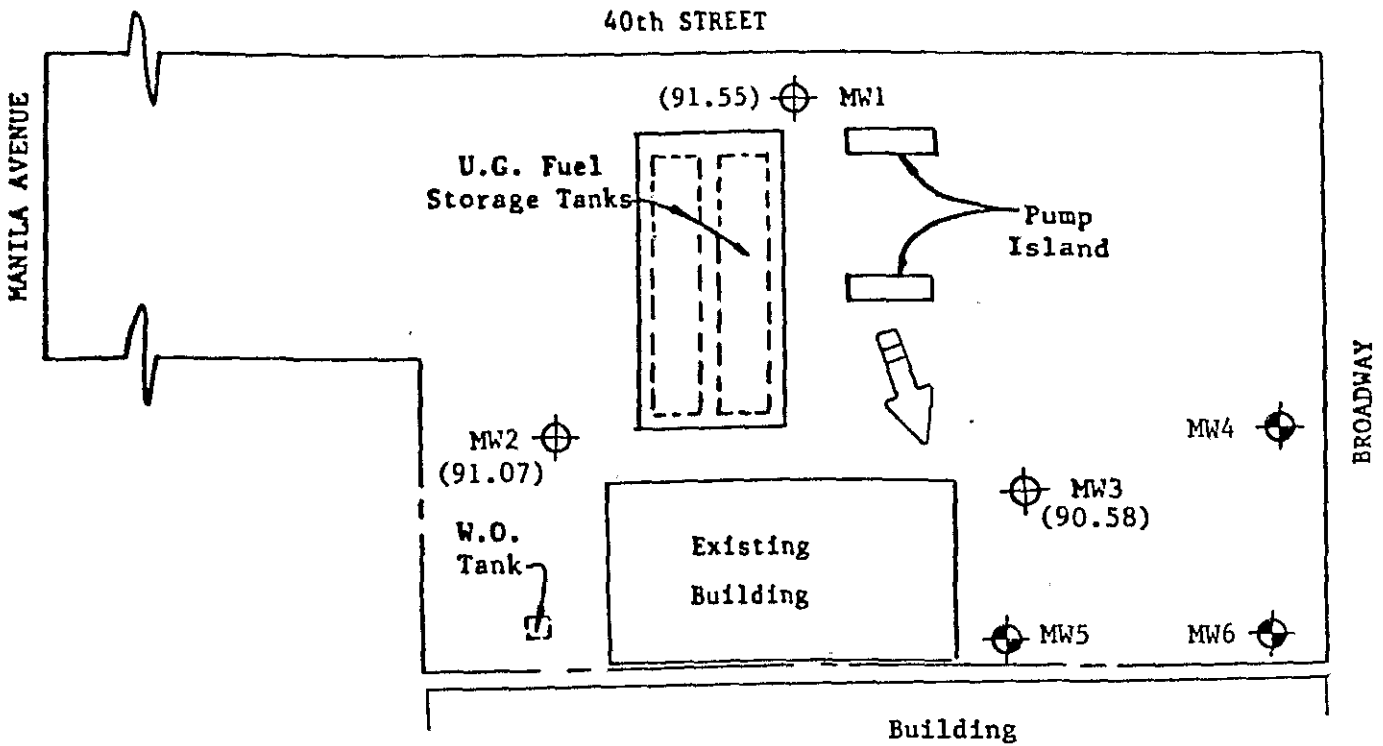
*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

15/4W 24LS
01-449K



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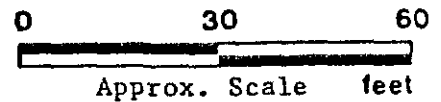
Consulting Engineers
P. O. BOX 913
BENICIA, CA 94510
(707) 746-6915



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

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

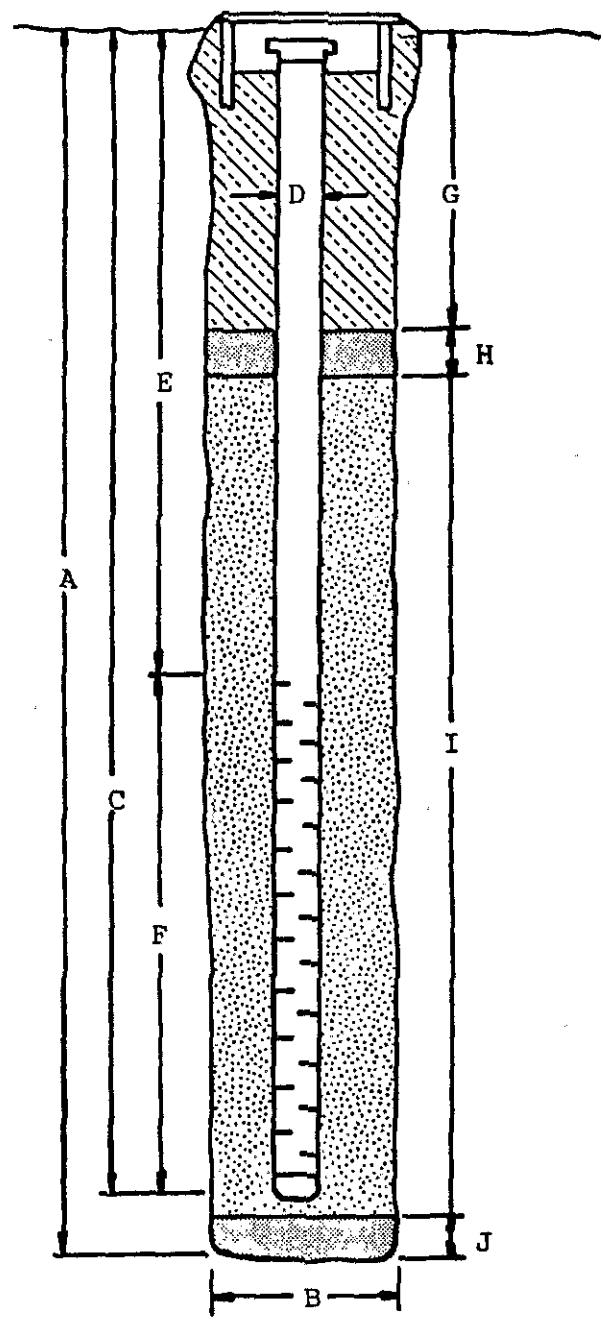
Penetra- tion blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
9/12/15			CL/ CH	<p>Sandy clay, with gravel to 1/2", very stiff, moist, light olive brown.</p> <hr/> <p>Clay with silt, high plasticity, very stiff, moist light olive brown.</p>
				TOTAL DEPTH 22.5'

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



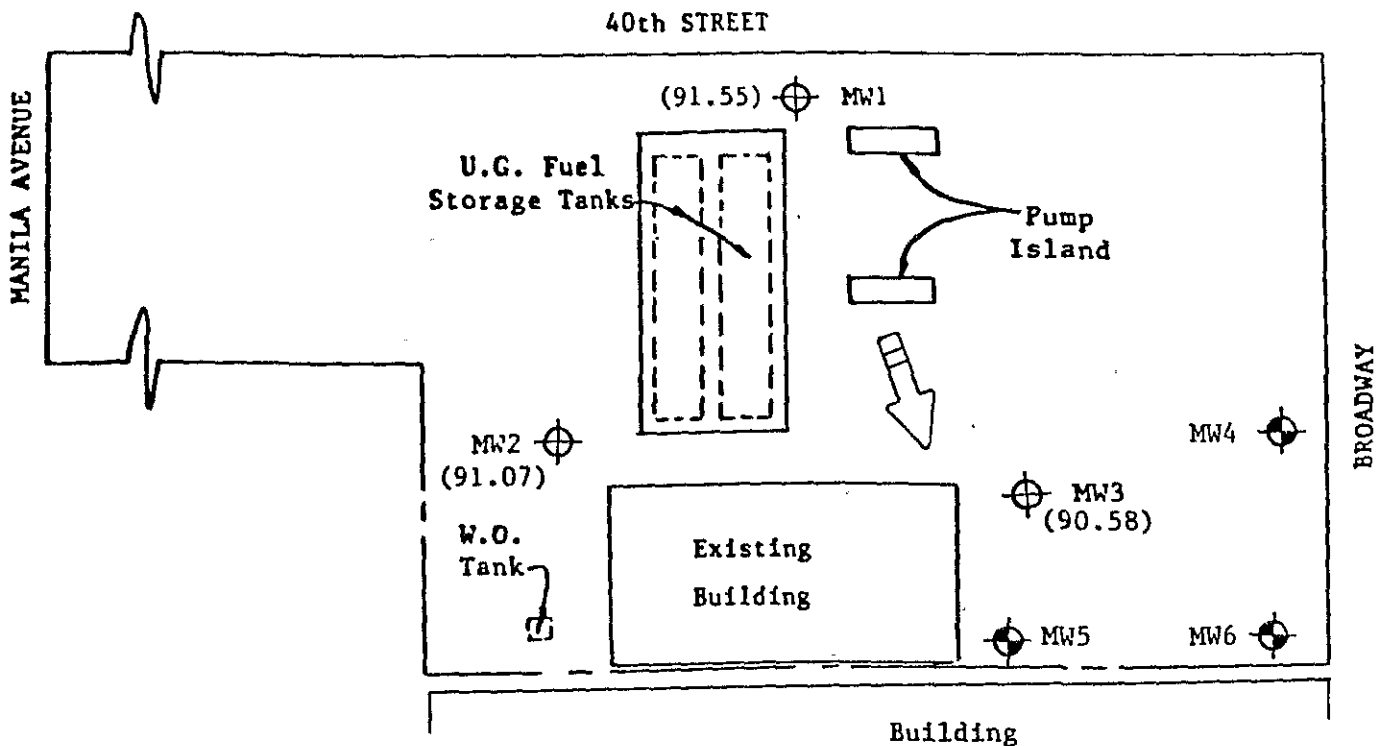
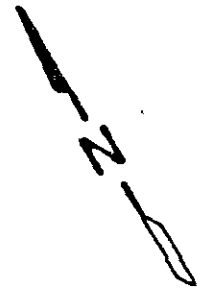
KAPREALIAN ENGINEERING, INC.

Consulting Engineers

P. O. BOX 913



BENICIA, CA 94510


(707) 746-6915

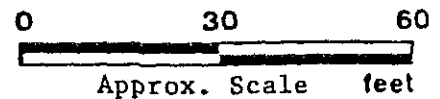


SITE PLAN

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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WELL COMPLETION REPORT
(WELL LOGS)

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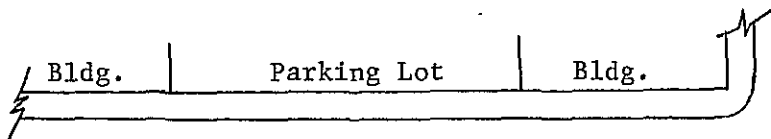
KAPREALIAN ENGINEERING, INC.

Consulting Engineers

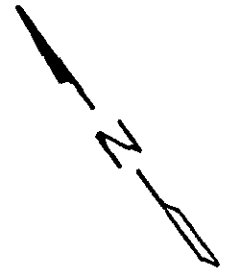
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364640 A-D

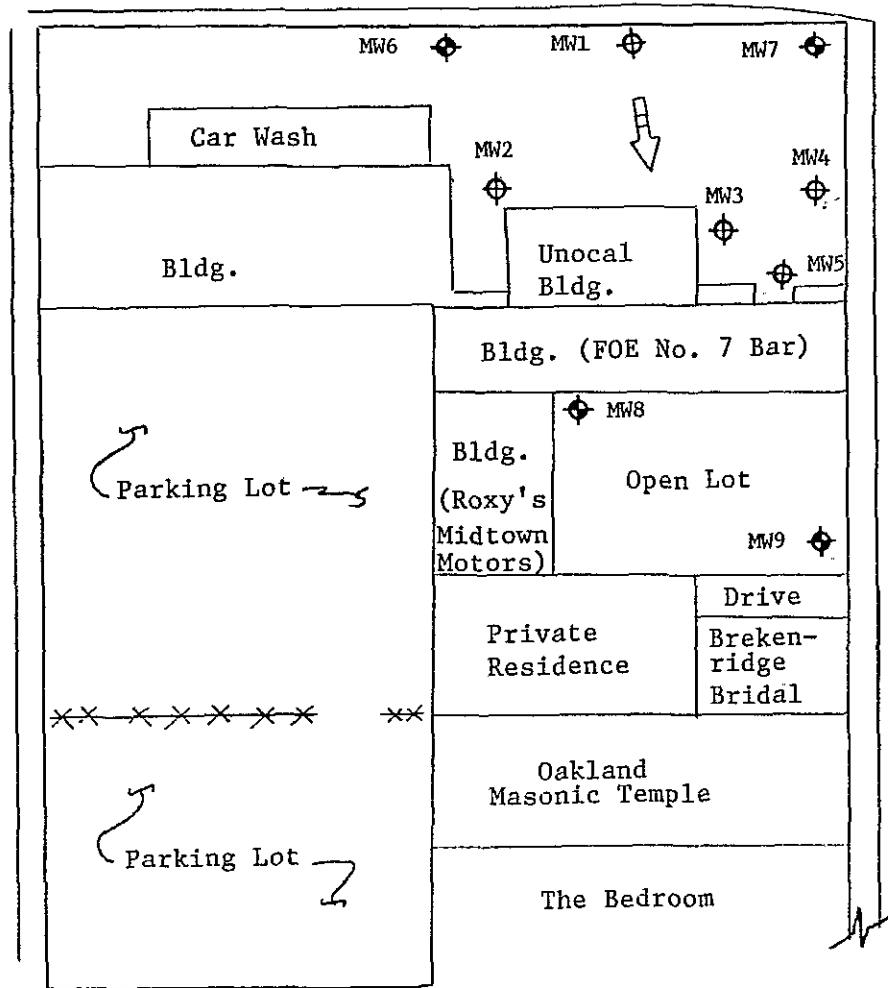
15/4W 24/17-10



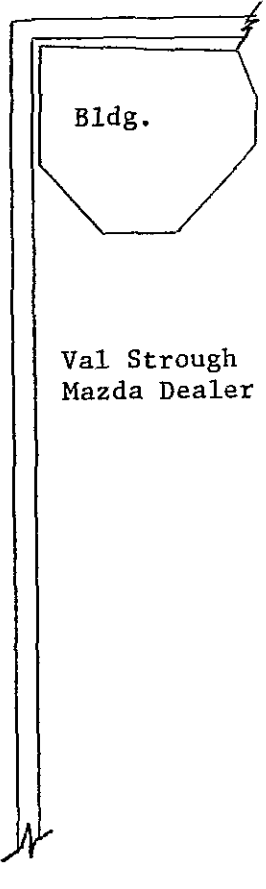
40th STREET



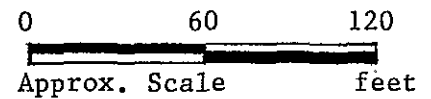
MANILA AVENUE



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

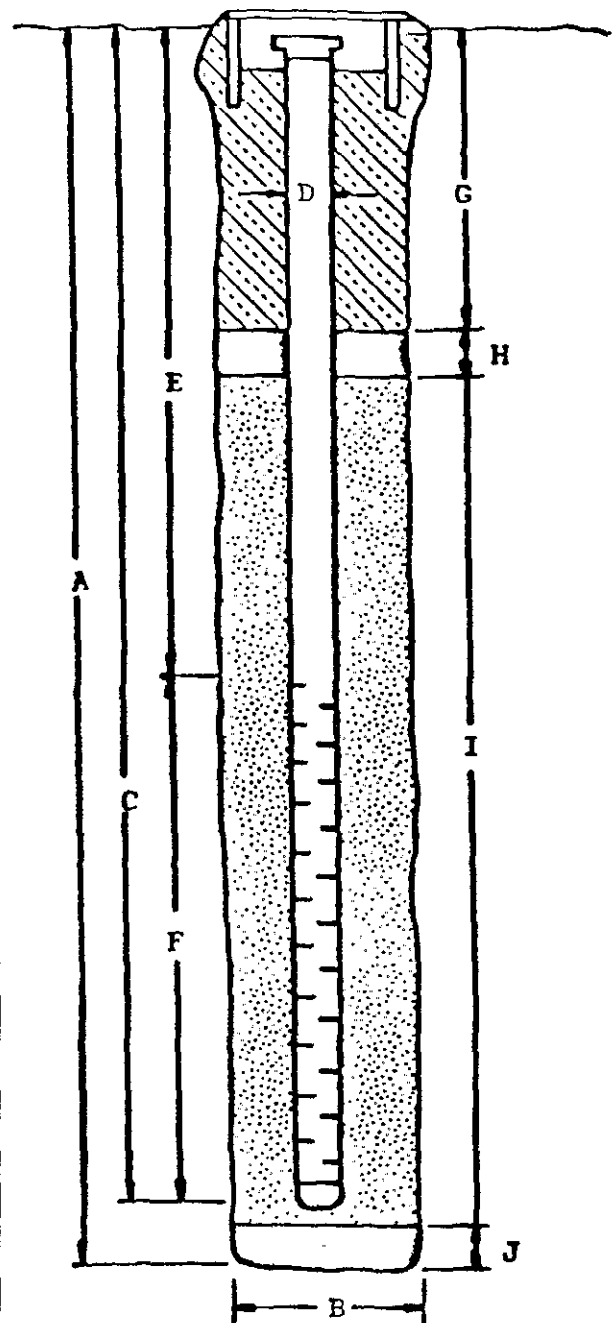
Project No. KEI-P89-0805		Boring & Casing Diameter 9" 2"		Logged By W.W.	
Project Name Unocal 3943 Broadway, Oaklnd		Well Head Elevation N/A		Date Drilled 10/22/90	
Boring No. MW6		Drilling Method Hollow-stem Auger		Drilling Company EGI	
Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati- graphy 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

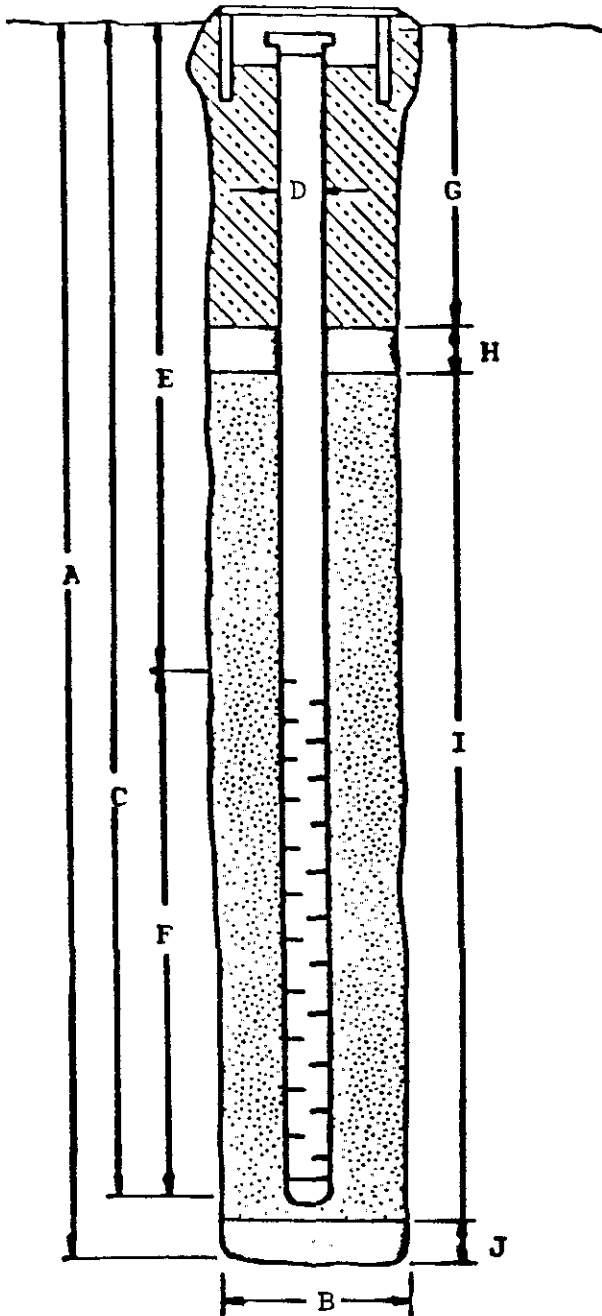
WELL COMPLETION DIAGRAM

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	Stratigraphy 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 sandstone, 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

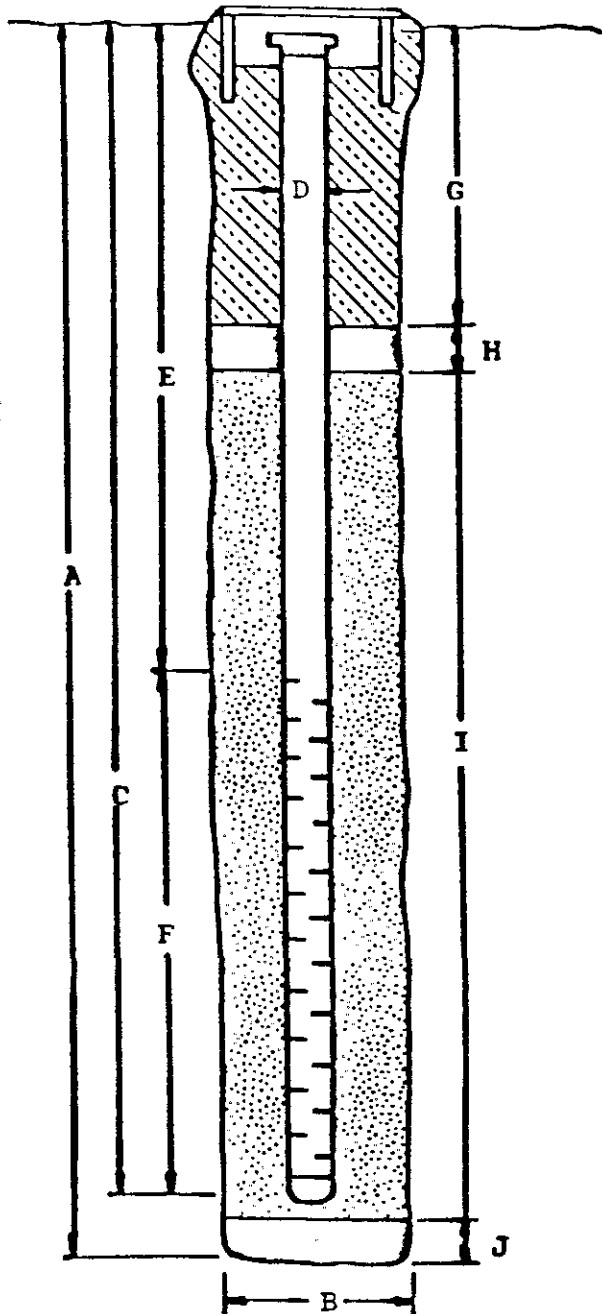
15/11/24L9

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
15/4W 24L10

B O R I N G L O G

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'

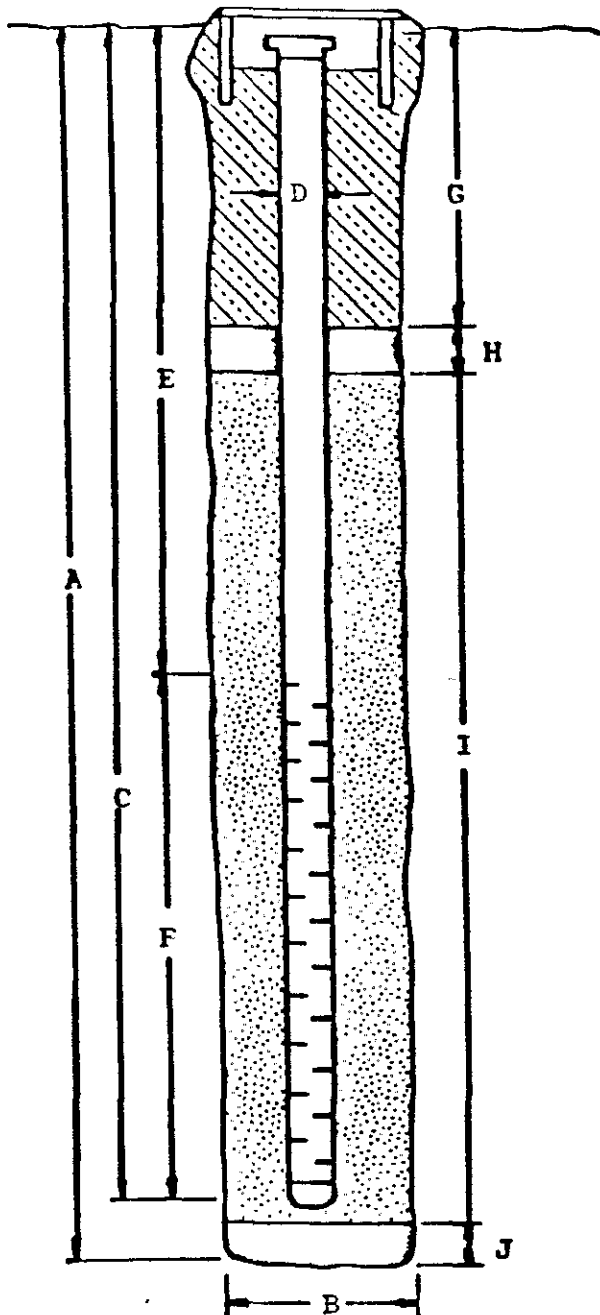
1S/4W 24L10

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'
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.

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WELL COMPLETION REPORT
(WELL LOGS)

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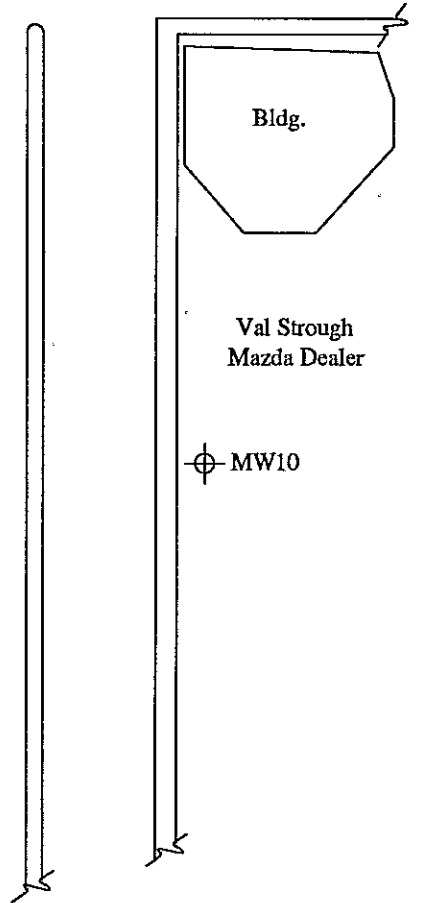
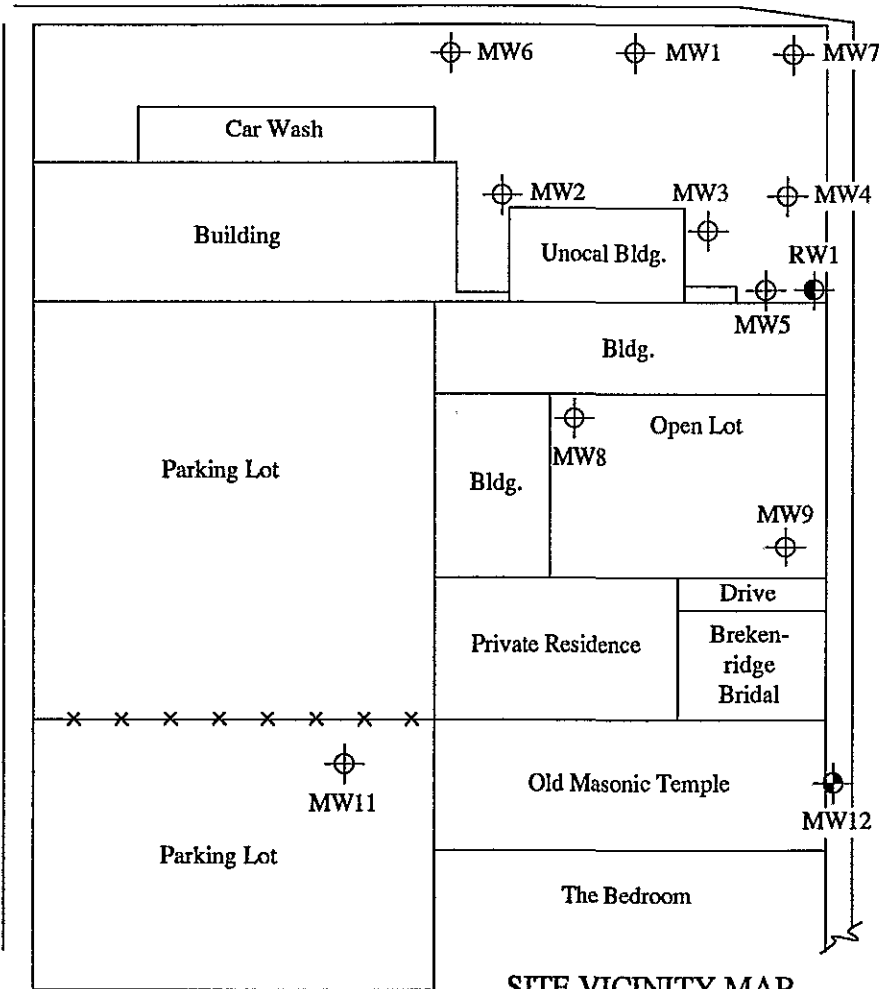
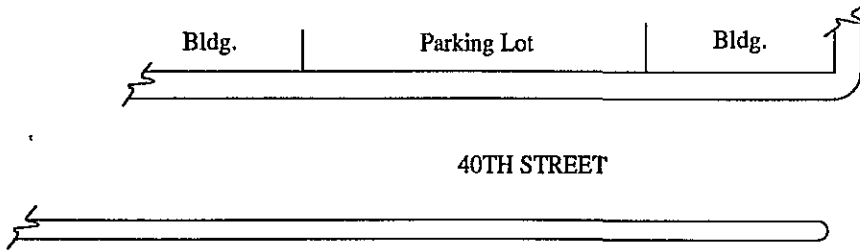
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L15



KAPREALIAN ENGINEERING, INC.

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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.
				Clay with silt and trace sand, clay is slickensided, hard, moist, olive.
13/20/20		15	CL	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'

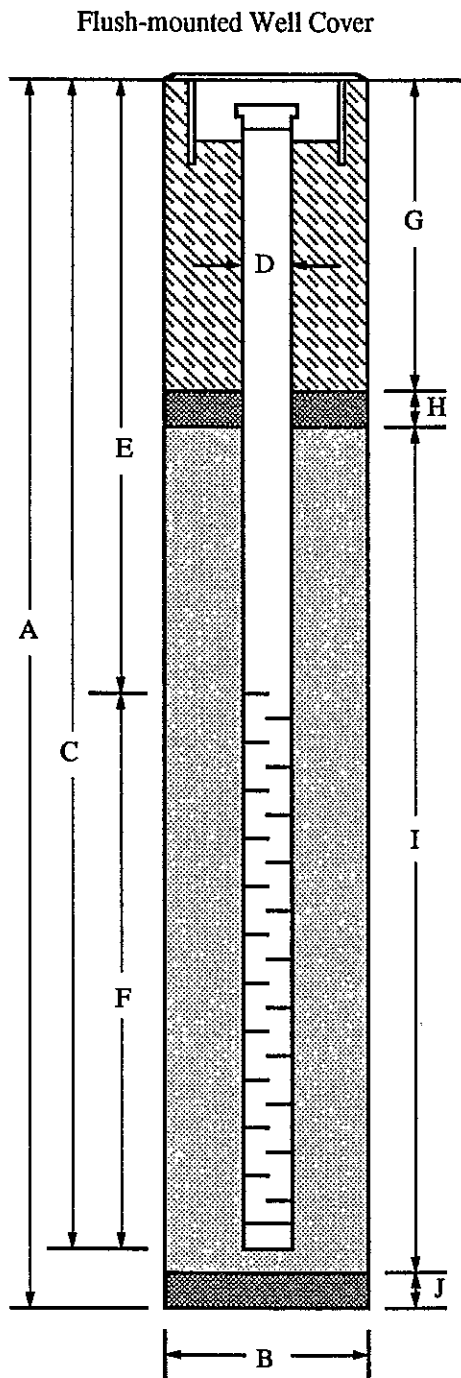
472734A
 OIS 04/24/14

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.

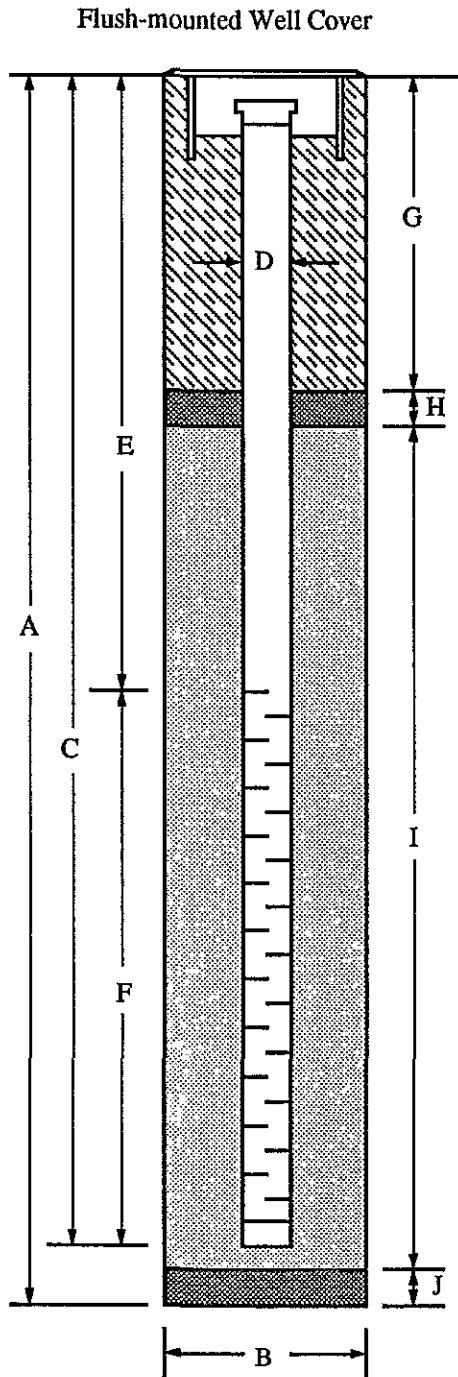
422134B OIS 04/24/15

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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CONFIDENTIAL

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.

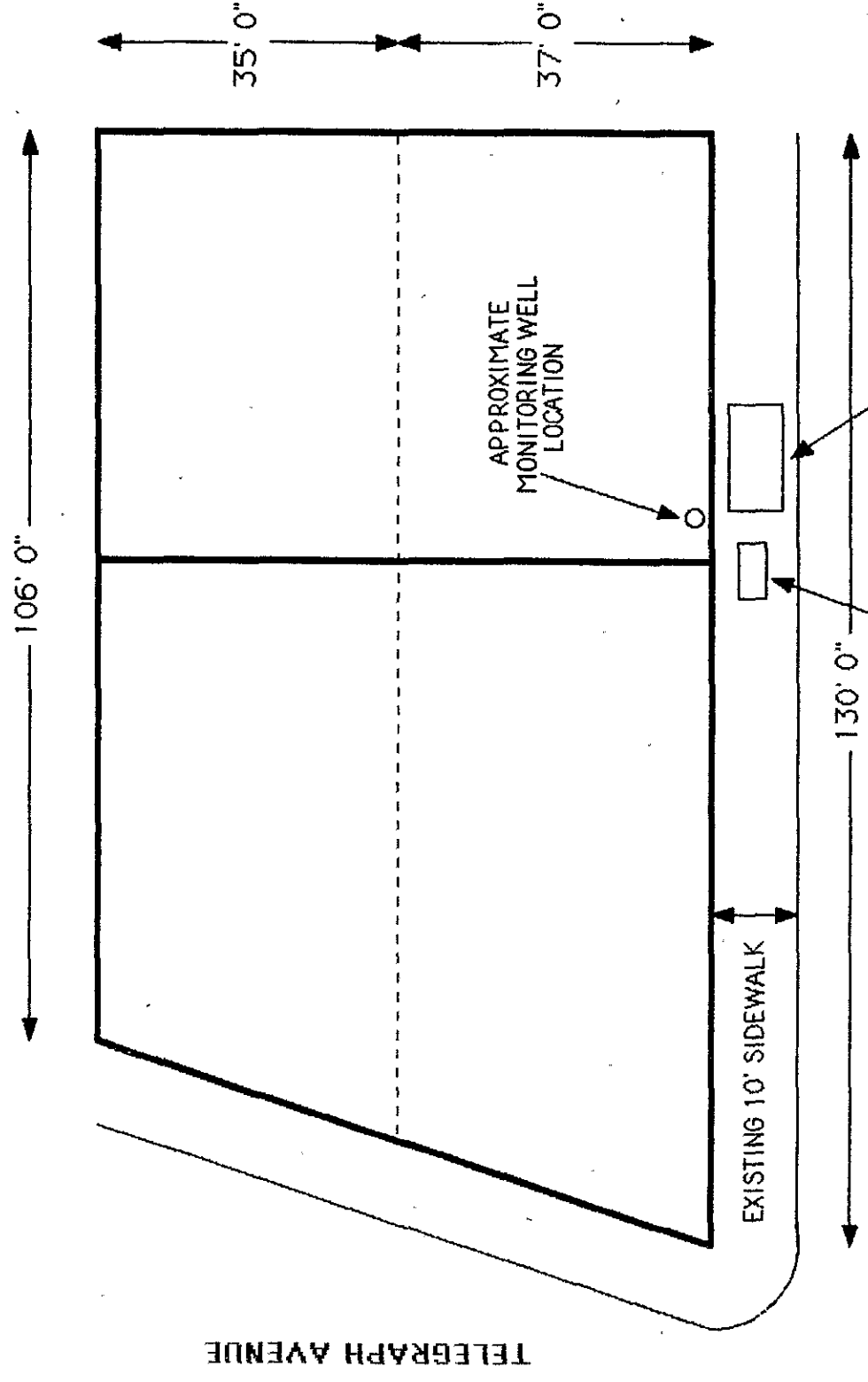
Surface soil		4 feet
Sandy yellow clay	4 to 20	"
Dry Gravel	20 "	26 "
Sandy clay	26 "	50 "
Cement gravel	50 "	60 "
Yellow clay	60 "	115 "
Cement gravel	115 "	120 "
Yellow clay	120 "	160 "
Sandy yellow clay	160 "	225 "
Blue clay	225 "	235 "
Decomposed sandstone	235 "	270 "
Sandy clay	270 "	285 "
Sandstone	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" clay covered 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'



TELEGRAPH AVENUE

EXISTING 10' SIDEWALK

44th STREET

550 GALLON TANK
(REMOVED)

6000 GALLON TANK
(REMOVED)

APPROXIMATE
MONITORING WELL
LOCATION

35' 0"

37' 0"

106' 0"

130' 0"

Add Inv

15/01

23 2 1

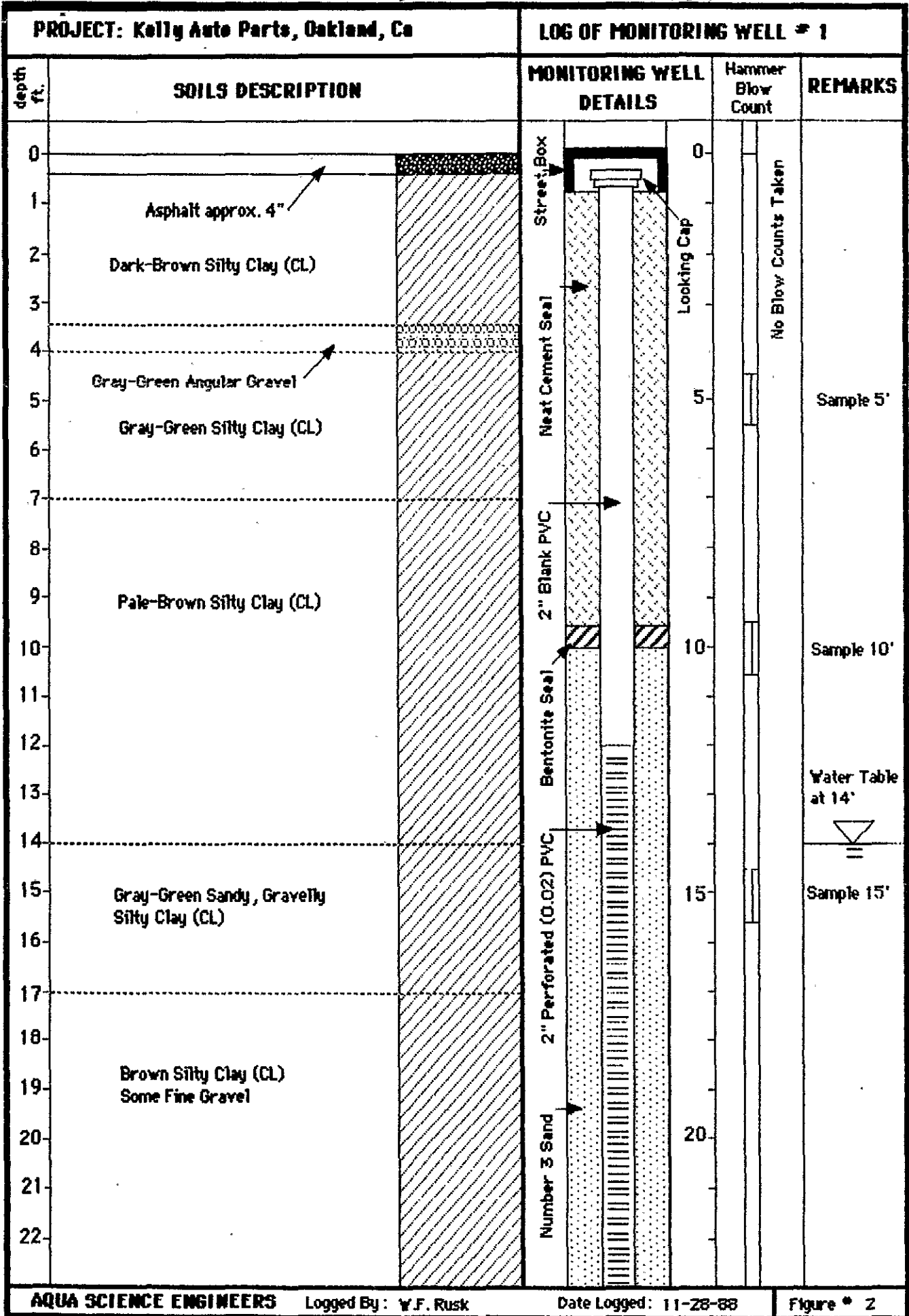
01-4222J



01-4225

Inval Addr

1514W 23A1



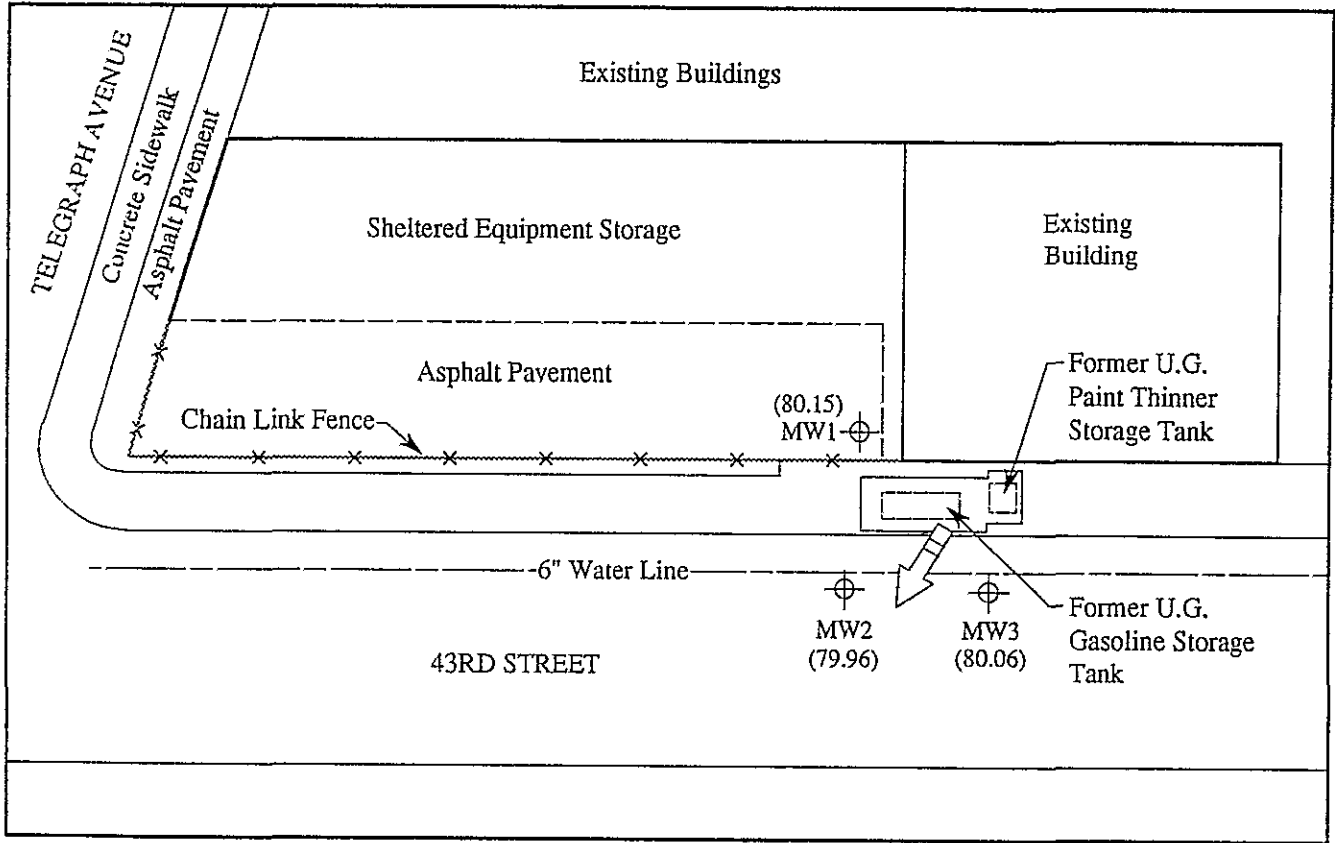
01-422J
1S/4W-23A1

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					

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED



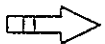
LEGEND



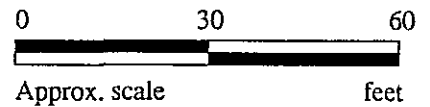
Monitoring well



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**

495481A

01504W 23A02

BORING LOG

Project No. KEI-P91-1201	Boring Diameter	8"	Logged By JGG D.L. LEG1633
	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
		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 D.L. <i>JGG</i> <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'

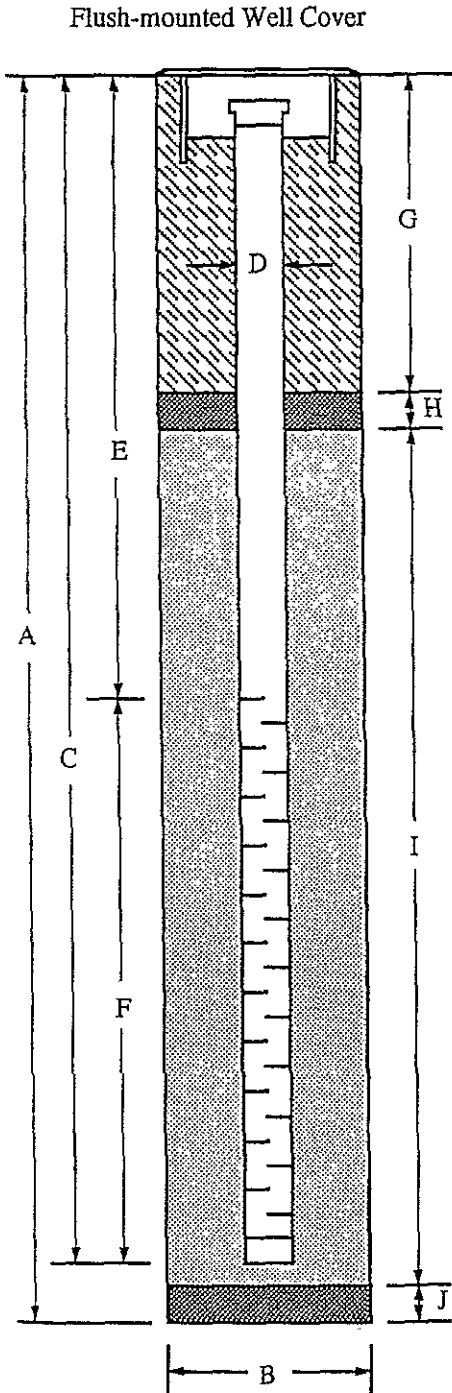
WELL CONSTRUCTION DIAGRAM

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

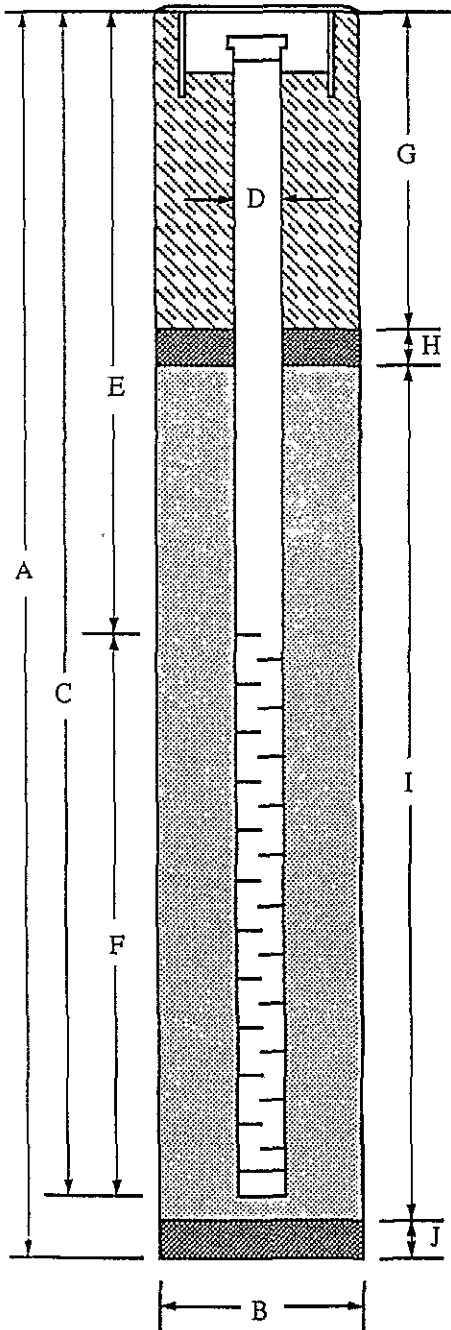
PROJECT NAME: Wells Fargo Bank, 490 43rd. Street, Oakland

WELL NO.: MW2

PROJECT NUMBER: KEI-P91-1201

WELL PERMIT NO.: ACFC&WCD #53077

Flush-mounted Well Cover



- 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'

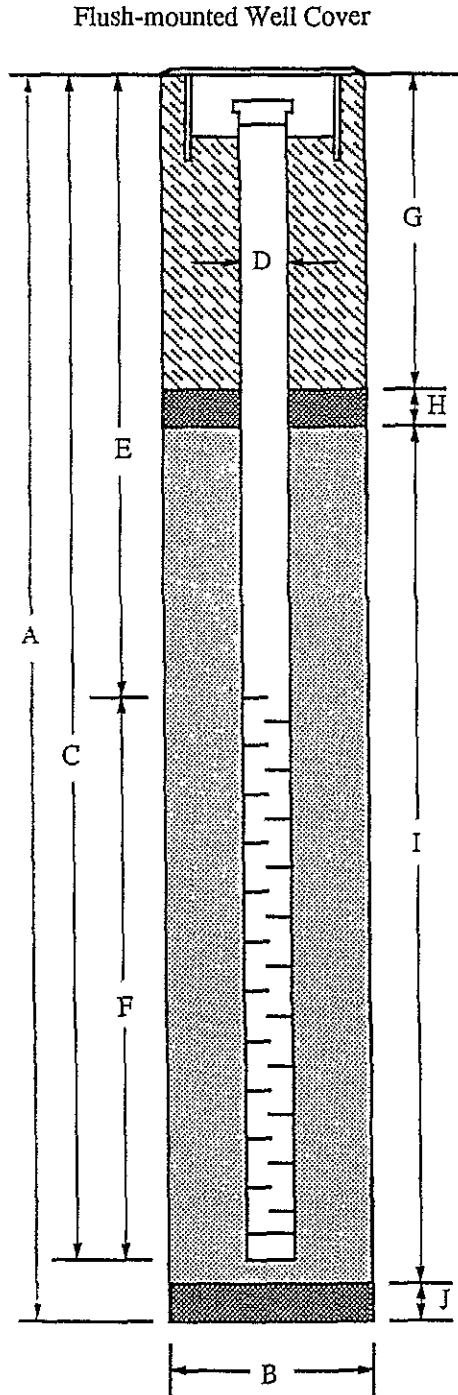
WELL CONSTRUCTION DIAGRAM

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

STATE OF CALIFORNIA
THE RESOURCES AGENCY

Do Not Fill In

No 91502

ORIGINAL
File with DWR

CONFIDENTIAL LOG DEPARTMENT OF WATER RESOURCES
Water Code Sec. 1 WATER WELL DRILLERS REPORT

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**

(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 Protection

(5) EQUIPMENT:

Rotary
Cable
Other

(6) CASING INSTALLED:

STEEL: _____ OTHER: _____
SINGLE DOUBLE

If gravel packed

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 _____

From ft.	To ft.	Perf. per row	Rows per ft.	Size in. x in.

(8) CONSTRUCTION:

Was a surface sanitary seal provided? Yes No To what depth **120** ft.

Were any strata sealed against pollution? Yes 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 _____

(11) WELL LOG:

Total depth _____ ft. Depth of completed well _____ ft.

Formation: Describe by color, character, size of material, and structure

ft. to _____ ft.

0	-	35'	Clay & gravel
35	-	70'	Clay
70	-	84'	Gravel
84	-	102'	Clay & gravel
102	-	120'	Clay

Work started **5/16** 19 **73**, Completed **5/16** 19 **73**

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]

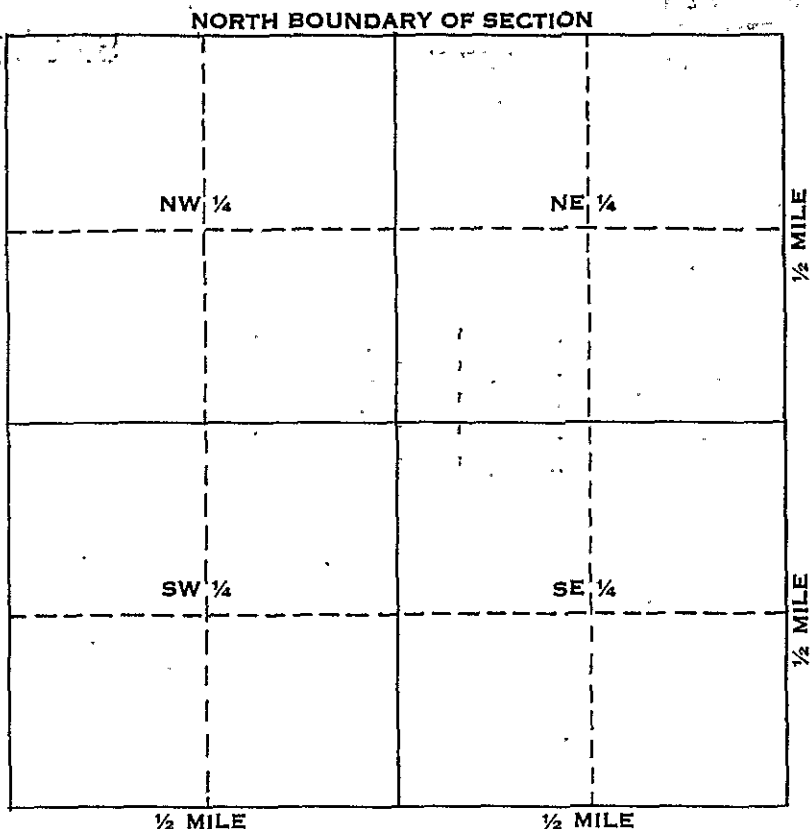
Quita Pitcher
(Well Driller)

License No. **263085** Dated **6/21**, 19 **73**

SKETCH LOCATION OF WELL ON REVERSE SIDE

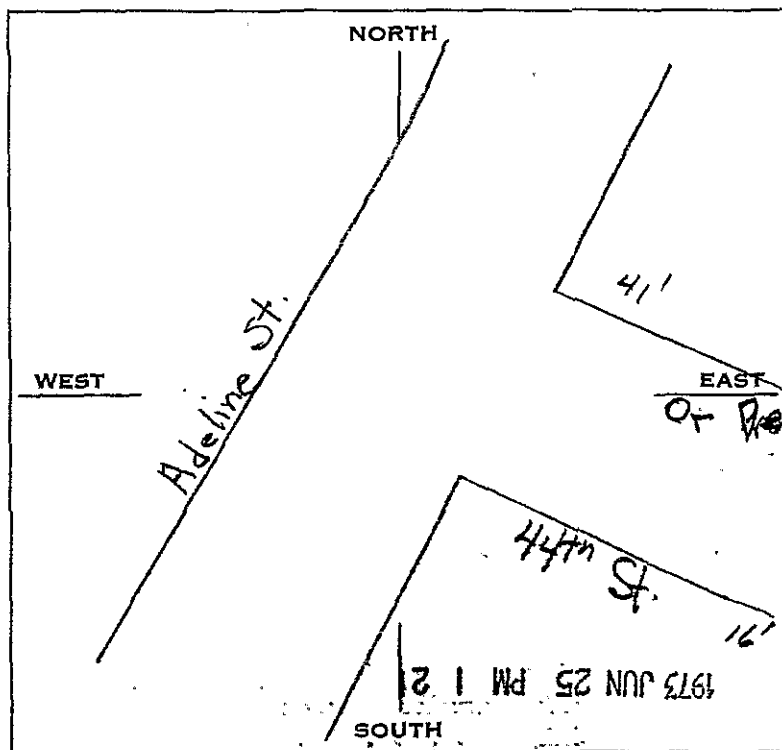
WELL LOCATION SKETCH

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.



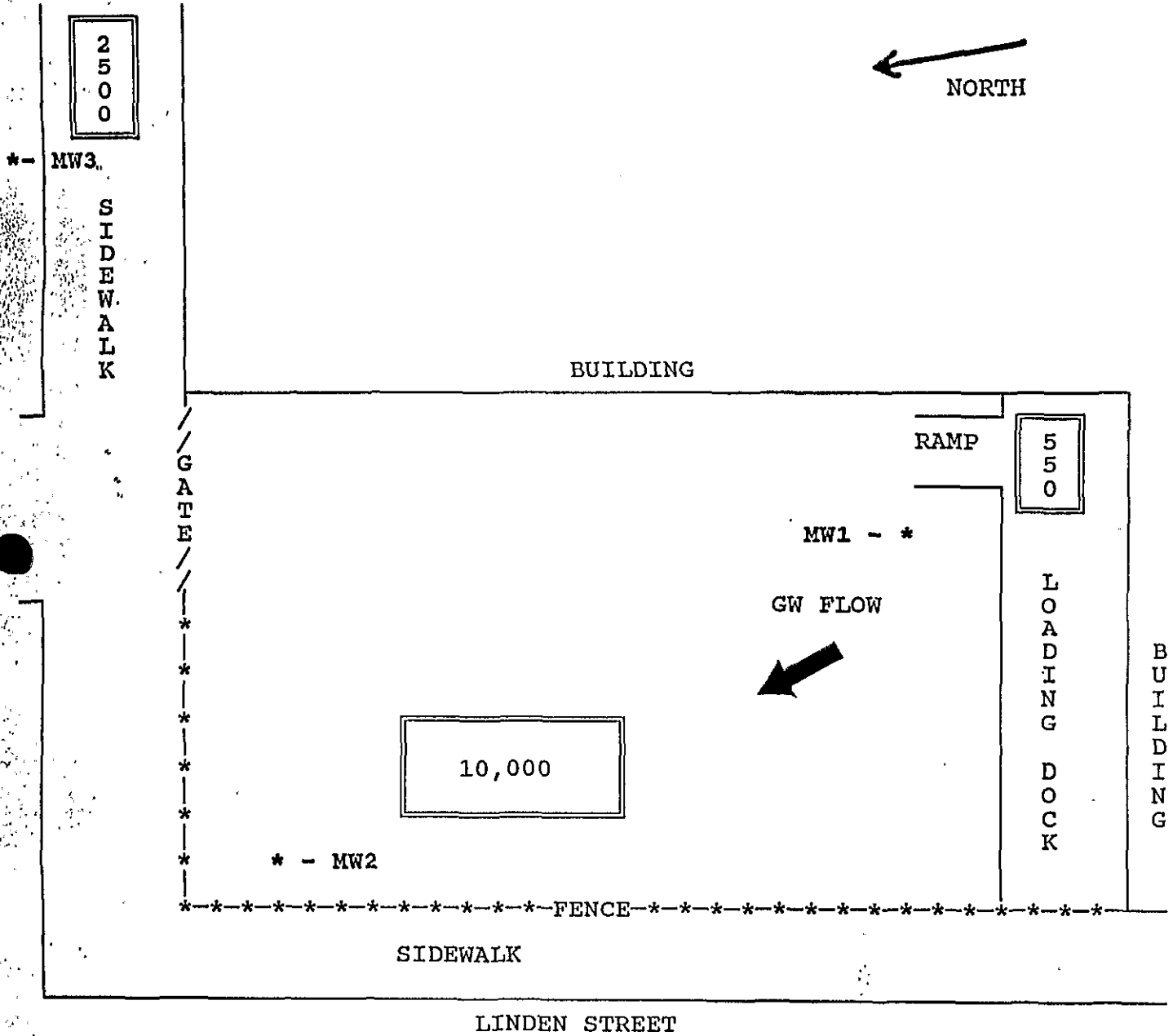
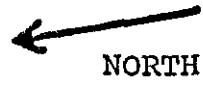
B. Location of well in areas not sectionized.
 Sketch roads, railroads, streams, or other features as necessary.
 Indicate distances.

1973 JUN 25 PM 1 21
 DEPT. OF WATER
 RESOURCES

FIGURE 1

01-445G

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



10'

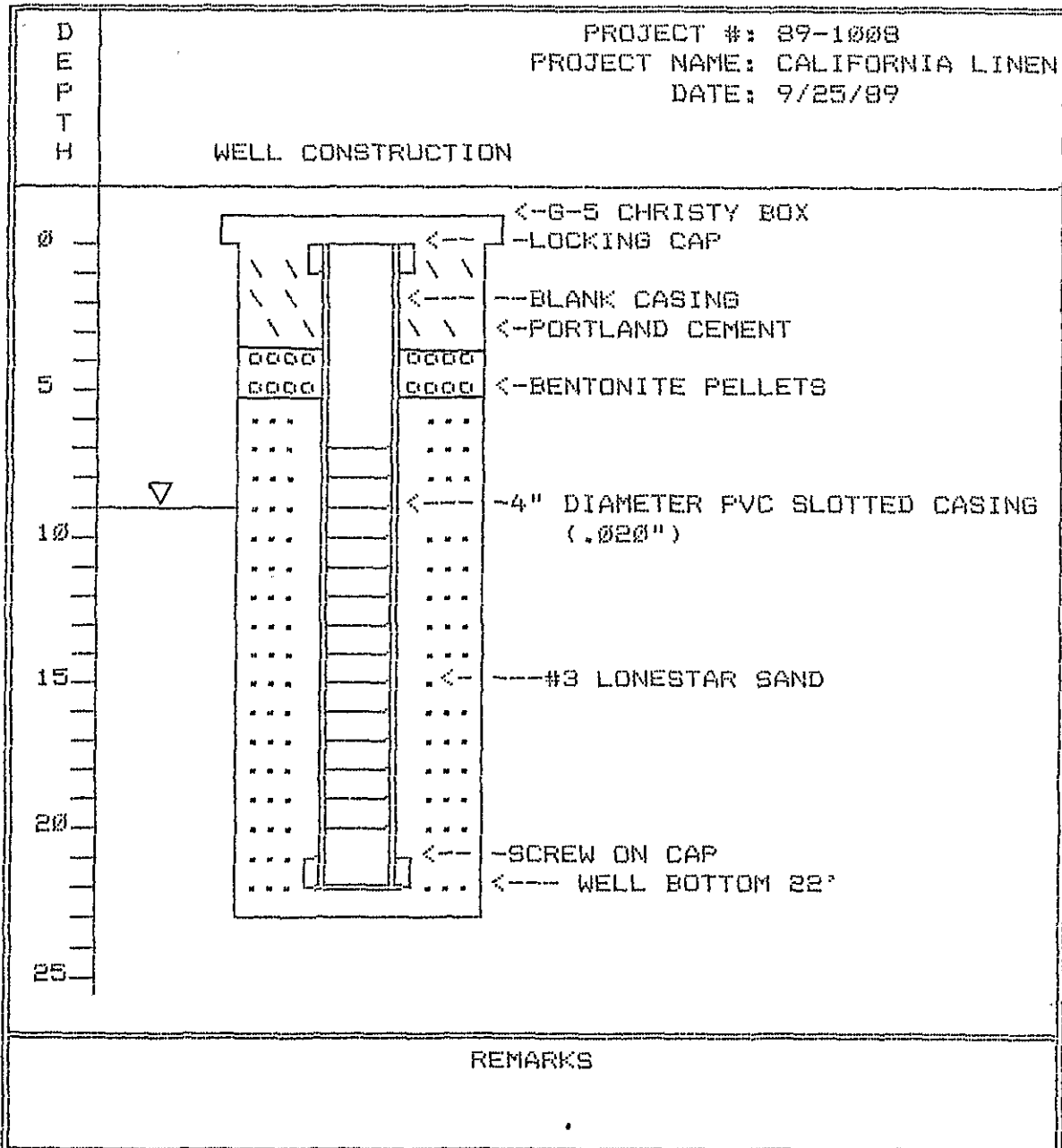
* - Monitoring well location

01-4459

MILLER ENVIRONMENTAL COMPANY

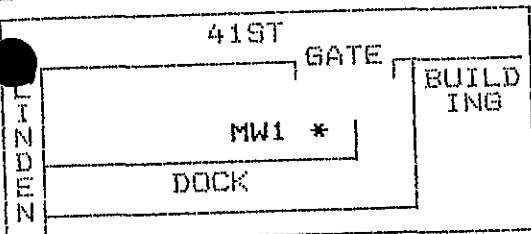
WELL CONSTRUCTION LOG

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.		
	MW1B	18"	9:45	6-9-11			▽
10					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

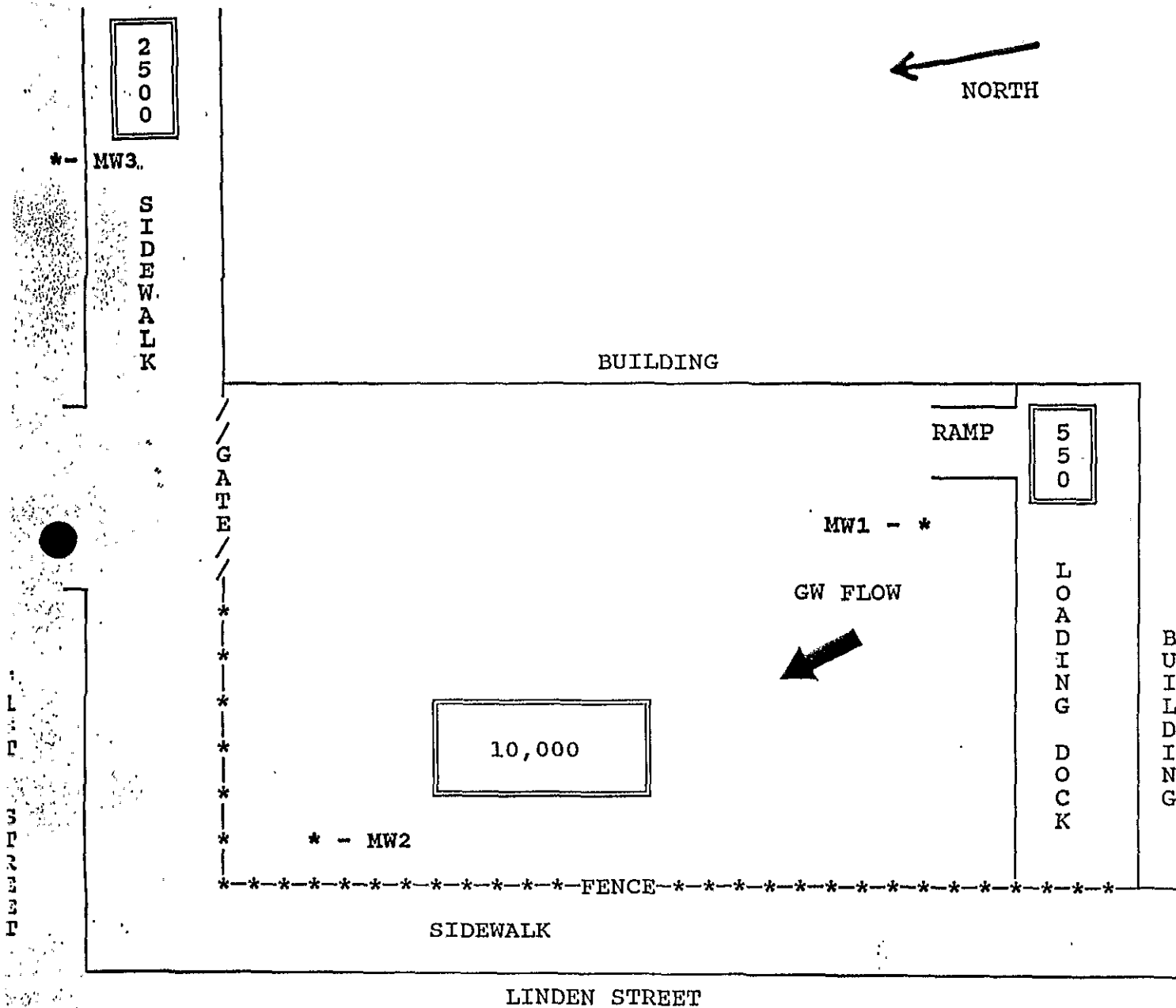
TOC=Top of casing

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

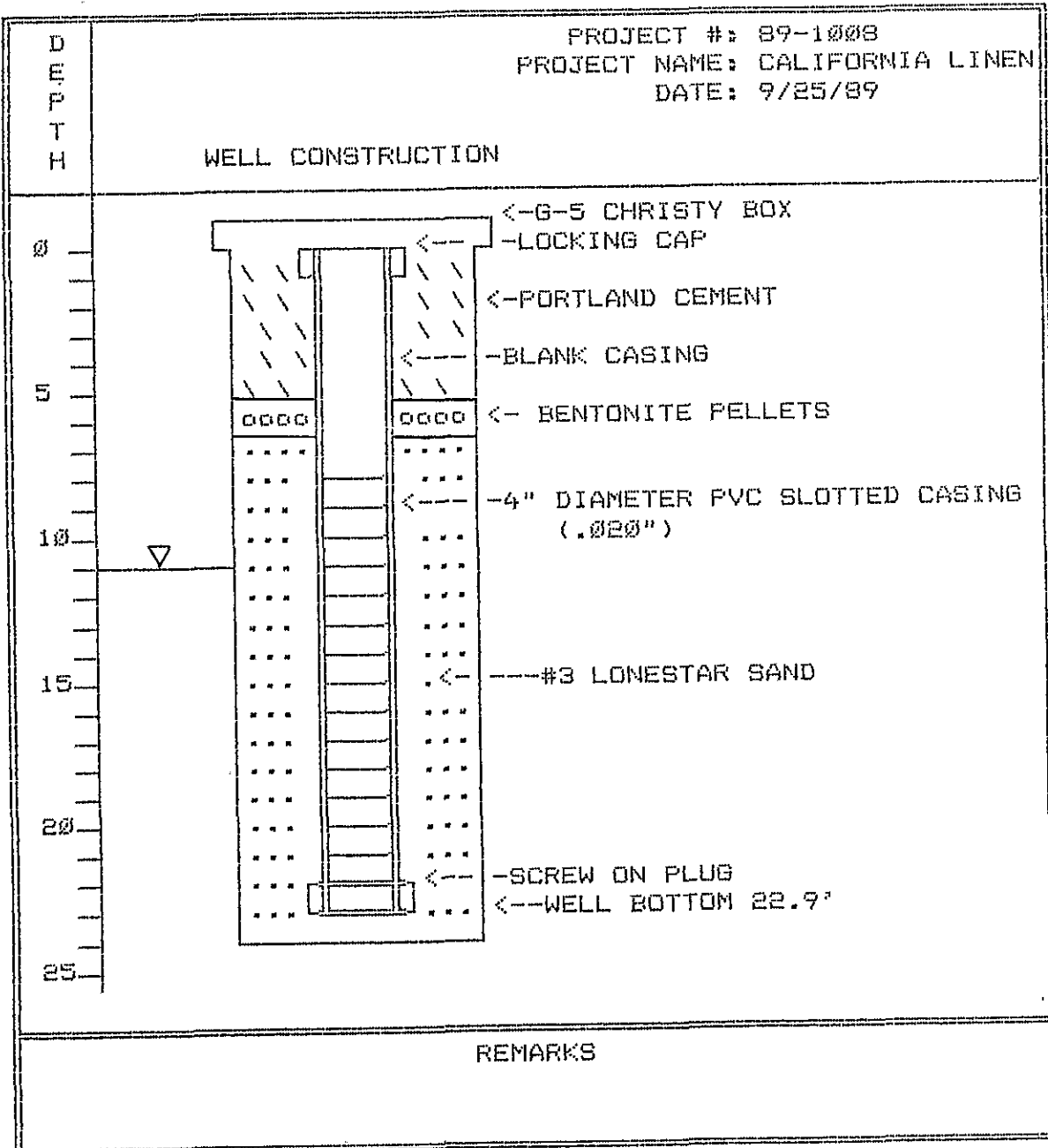


* - Monitoring well location

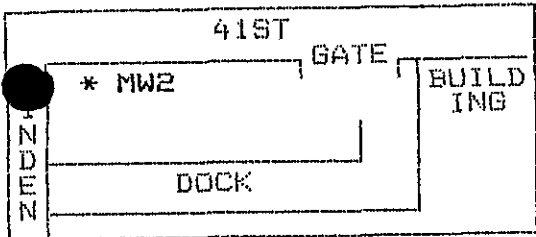
MILLER ENVIRONMENTAL COMPANY

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

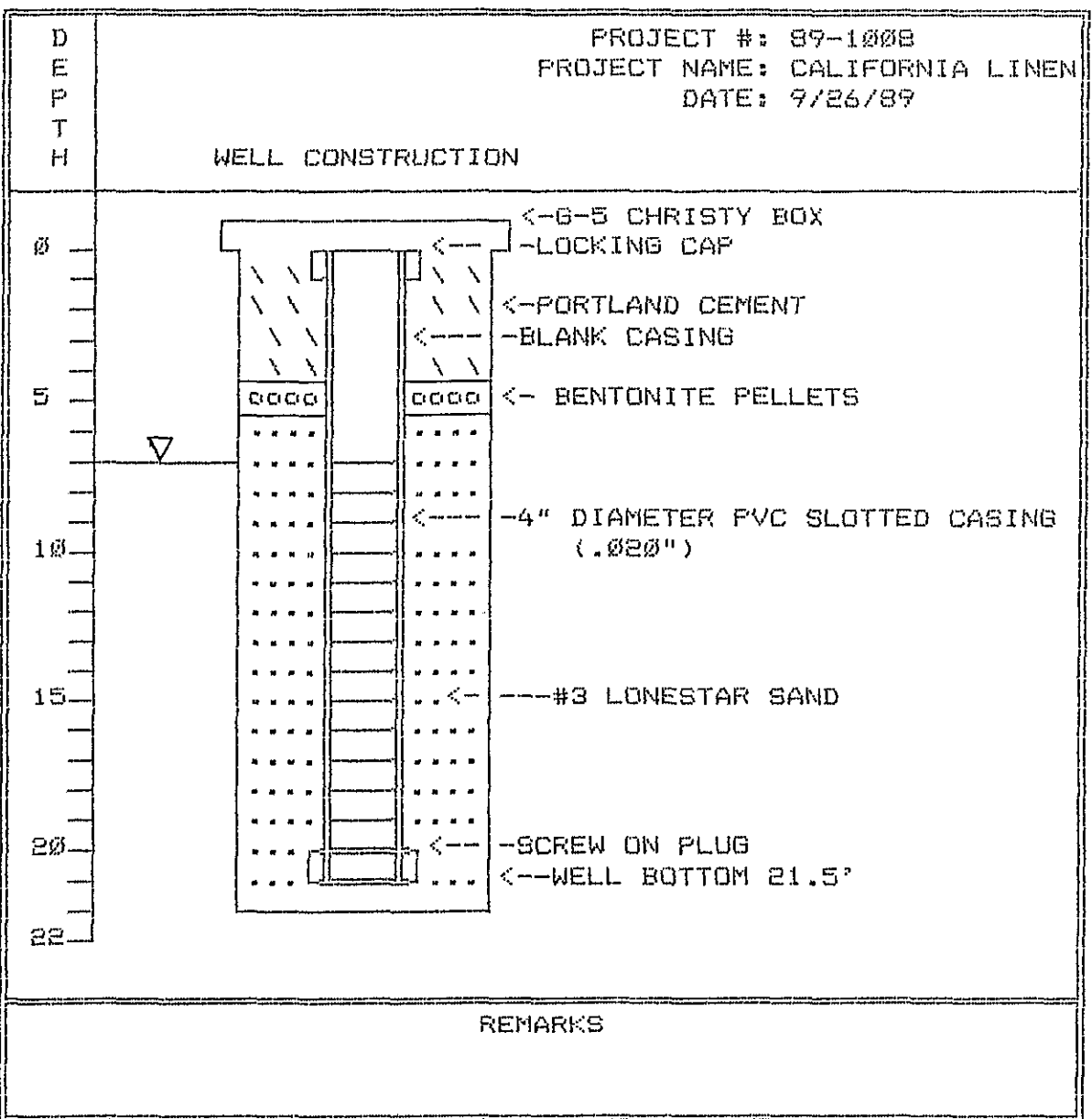
Based on the present data ground water is flowing in a north-northwest direction towards the intersection of 41st and Linden Streets. This data is shown on Figure 1.

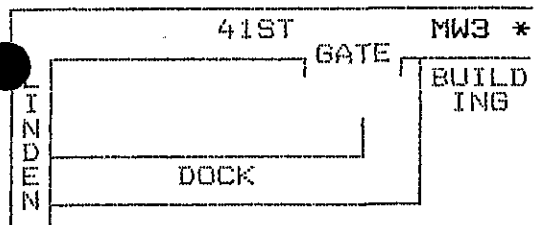
01-445F

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

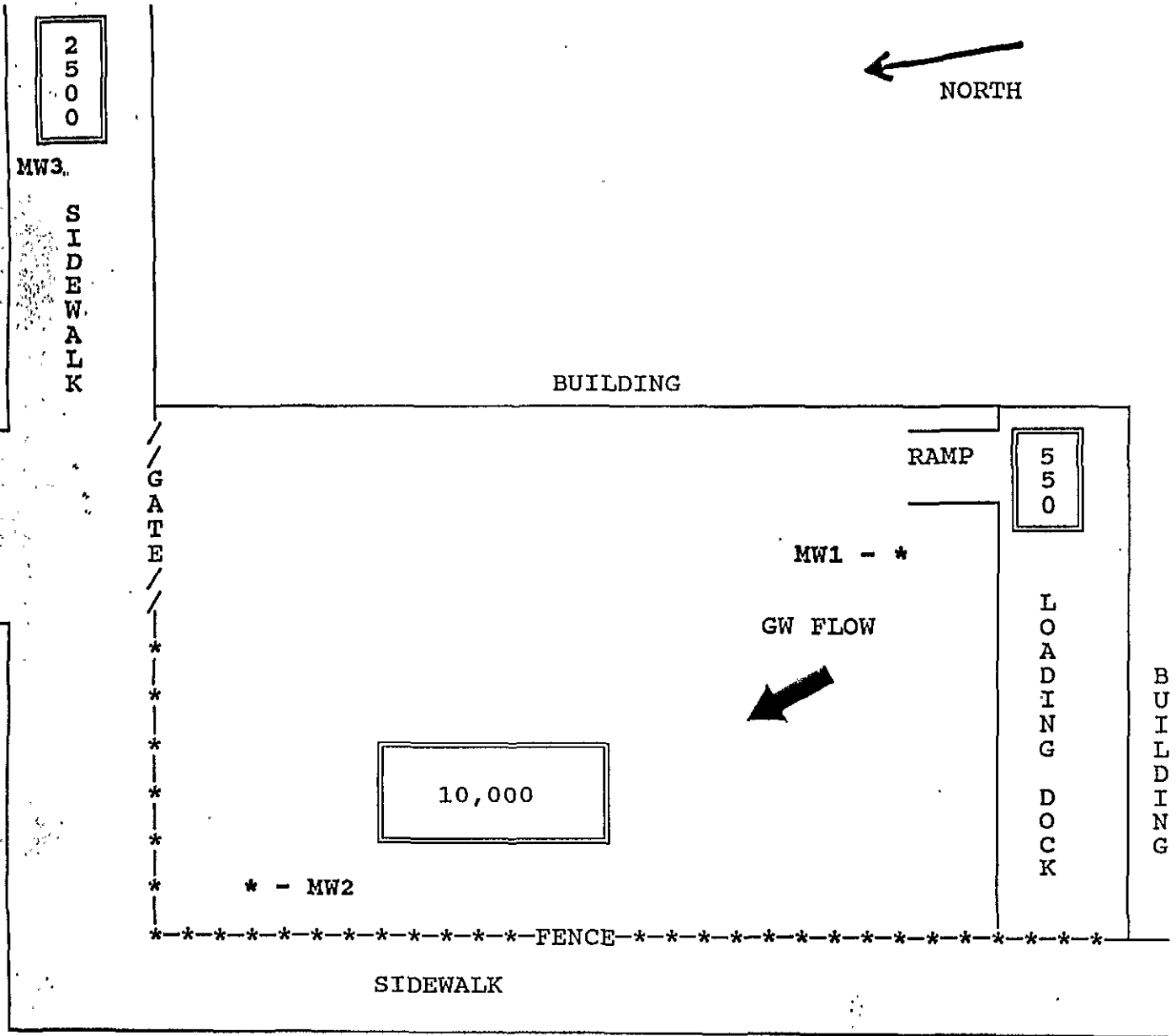
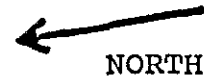
DEPTH	SAMPLE #	RECOVERY	TIME	BLOWS	DESCRIPTION	USCS	SYMBOL
0					3" ASPHALT 3" GRAVEL BASE ROCK DARK BROWN-BLACK SILTY CLAY; DRY.	CL	
					BROWN PEBBLY FINE SAND; LOOSE; DRY; WELL-SORTED; LITTLE CLAY.	SP	
5	MW3A	18"	9:00	3-2-3	BROWN SILTY CLAY.		
							▽
	MW3B	18"	9:15	5-6-7	DARK GRAY-BROWN SILTY CLAY; 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 feet
Sandy clay -----	50 to	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	28 "
Sandy clay	28 "	35 "
Cement gravel	35 "	43 "
Yellow clay	43 "	48 "
Loose gravel	48 "	65 "
Yellow clay	65 "	70 "
Cement gravel	70 "	120 "
Yellow clay	120 "	125 "
Dry cement gravel	125 "	150 "
Cement gravel (wet)	150 "	175 "
Yellow clay	175 "	198 "
Cement gravel	198 "	210 "
Yellow clay	210 "	240 "
Cement gravel	240 "	285 "
Yellow clay	285 "	295 "
Cement gravel		
Sand rock		

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 10285

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 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 []

(4) PROPOSED USE (check): Domestic [] Industrial [] Municipal [] Irrigation [] Test Well [] Other [] Cathodic X (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. Content: None

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. 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 []

(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 for Total depth, Formation, and various codes (D.P.W, E.M., A.E.M., P.&R, C&M, ENG, R.E., W.P., F.I.S., O.E.S., FILE)

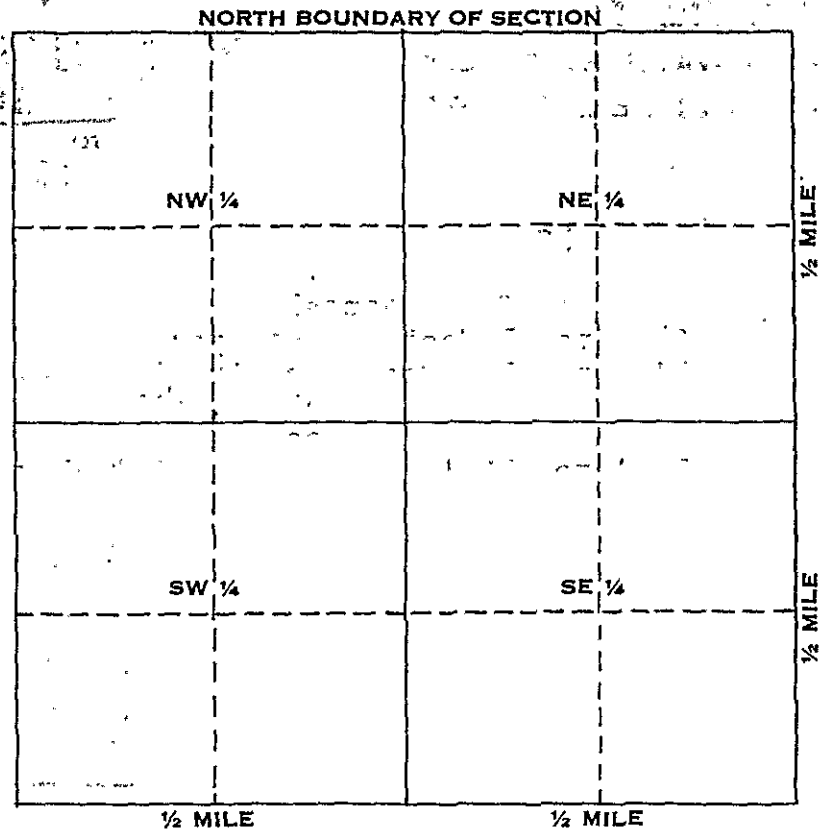
Water Code Sec. 13752

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. 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

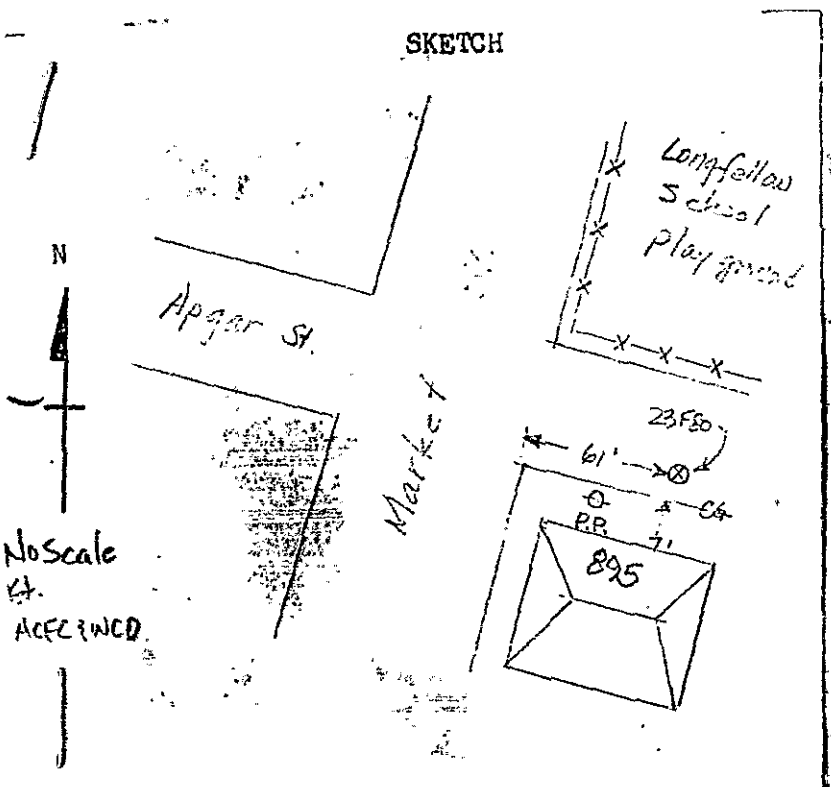
WELL LOCATION SKETCH

~~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.

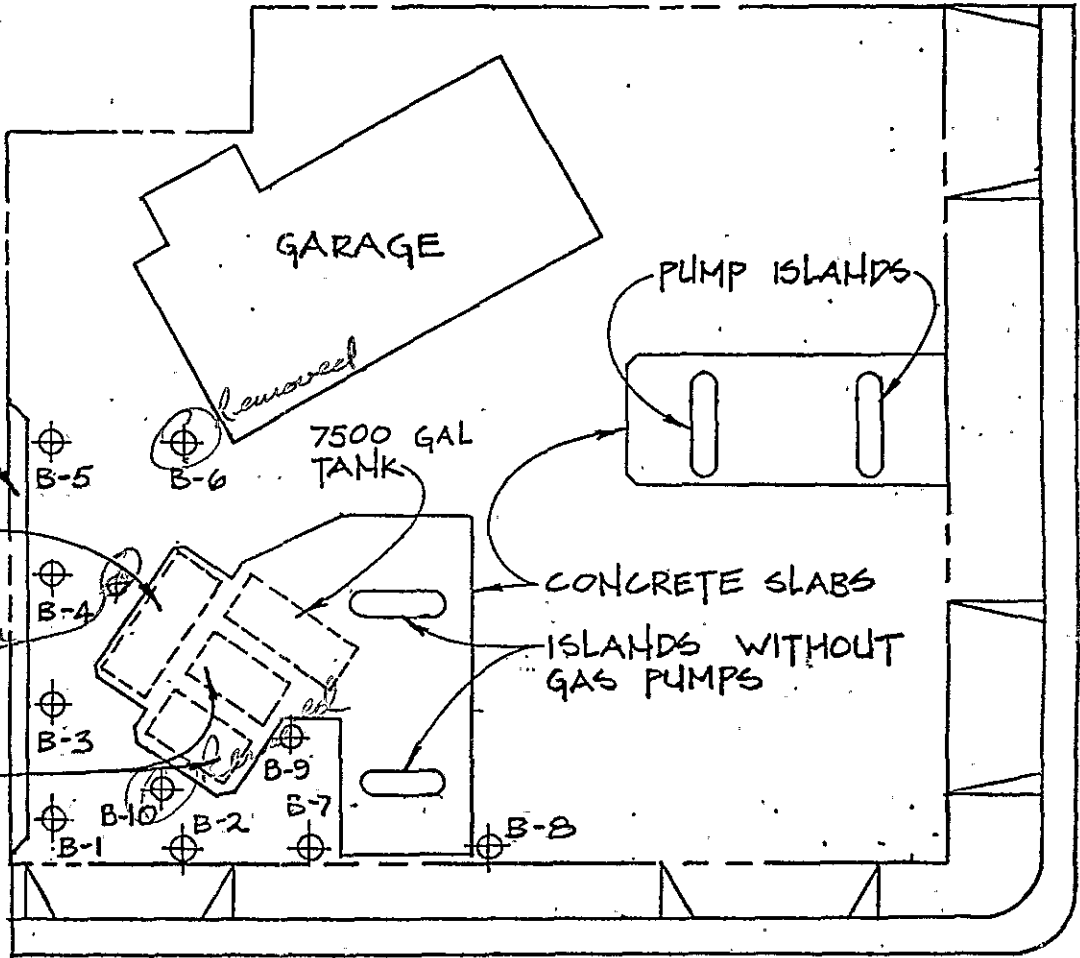
1974 JUL 12 AM 11 01

LEFT 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


15/4W 23H
S Drains
Trench
Aug 81

01-728

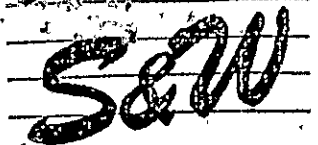
LEGEND
⊕ MONITORING WELL

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

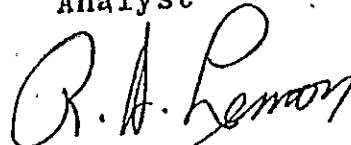
Detection Limit: 1 ppm

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

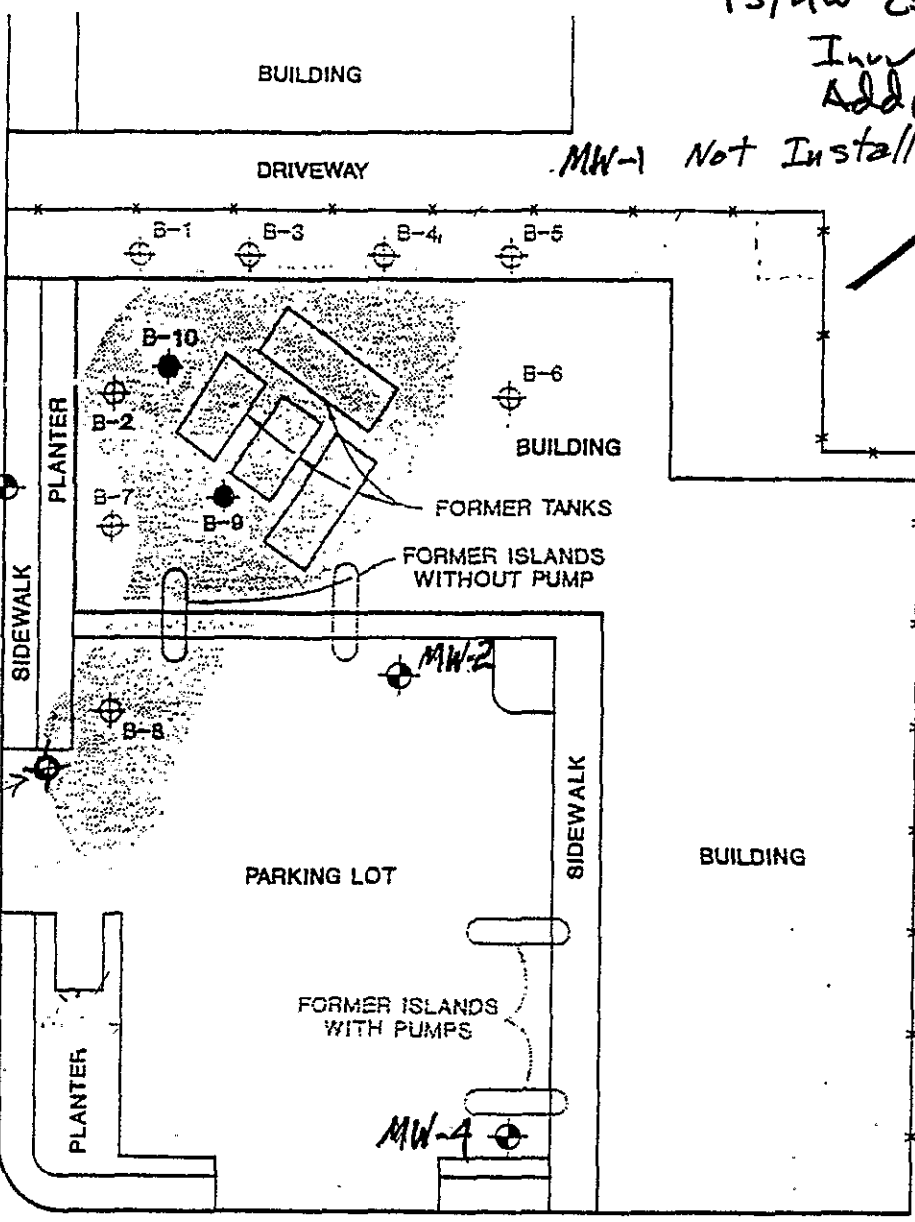
Inn ✓
Add ✓

MW-1 Not Installed

GROUNDWATER
FLOW DIRECTION



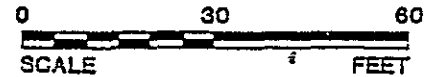
40th STREET



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



15/4W 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 Sandy Gravel to silt	GM	1000		
19	24		ST	Mott	Silty Clay	CI			
20	4								
21	9								
22	9								
23	14		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 _____

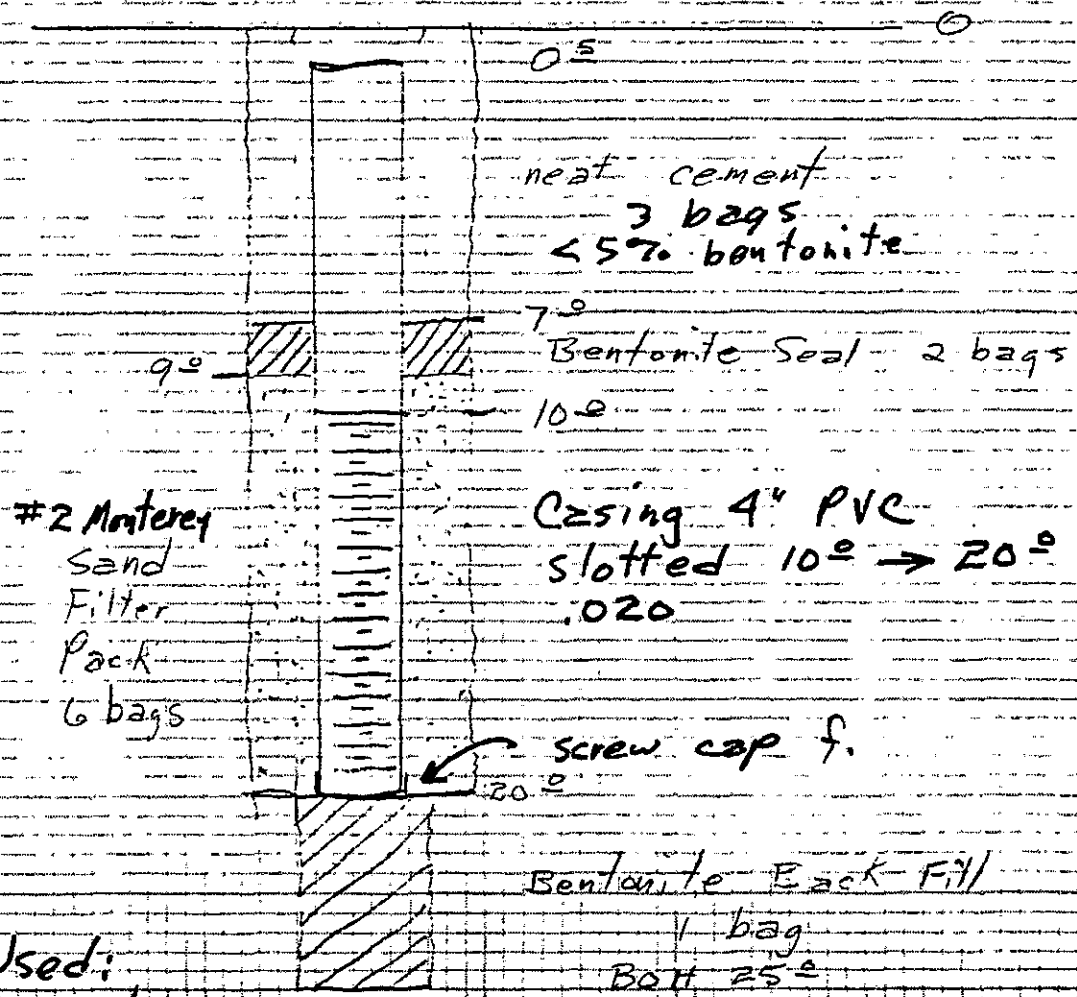
DRILLING METHOD & DIAM. 8 x 3 3/4" < 12 x 8" DRIVING WEIGHT 140 AVERAGE DROP 30

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 MW-2 SHEET NO. 1 OF 1
CHKD. BY _____ DATE _____ 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 JCK REFERENCE _____

FIELD ENGINEER D. Coy 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 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	5								
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						order		
26	6		W	Tan	lense Sandy Clay				
27	8		VM	MOIST	Silty Clay				less odor
28	16			RUST					
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 _____

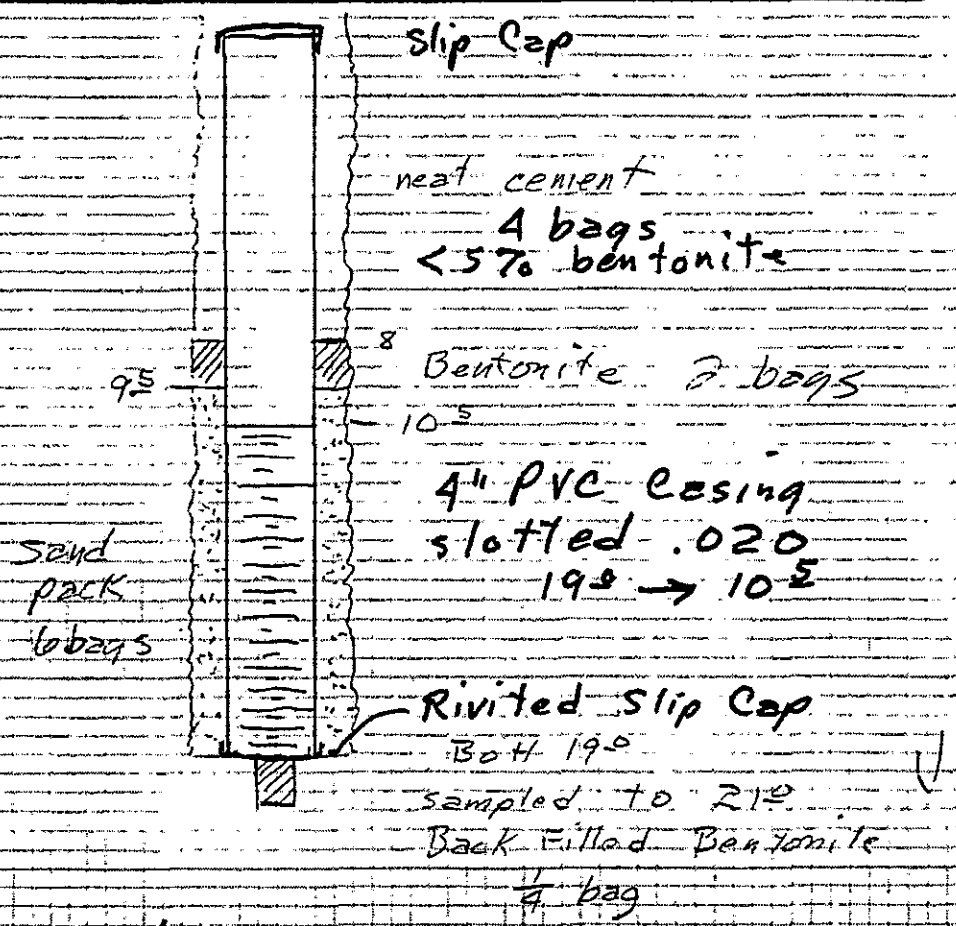
AVERAGE DROP 30
Auto H

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)				
3					Sample Hole to				
4					21 ⁰				
5					BE Bentonite				
6					to 19 ⁰				
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 5/1/89 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 _____
 DRILLING METHOD & DIAM. 8x3³/₄ < 12x8 DRIVING WEIGHT 140 AVERAGE DROP 30
Auto Ham

DEPTH	BLOWS PER LENGTH - IN.	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	GROUP SYMBOL	OVM		REMARKS
							PERCENT GRAV. SAND-FINES		
0			M	Brn	Gravelly Sand fill	GP			O3 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 gravel			not working	
9		12							
10		15							
11		6							
12		9	ST						
13		12							
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 Sand	CI			
22		4	W						
23		6							
24		7	MD		Sandy Gravel and silt	GM			
25	3	17							
26		6	VM	ST	Silty Clay some gravel	CI			
27		9							
28		10	M						
29		11							
30		2	VM		Tan Mott Rust				
31		5							
32		5							
33		5							
34		2							
35		4			increasing sand				

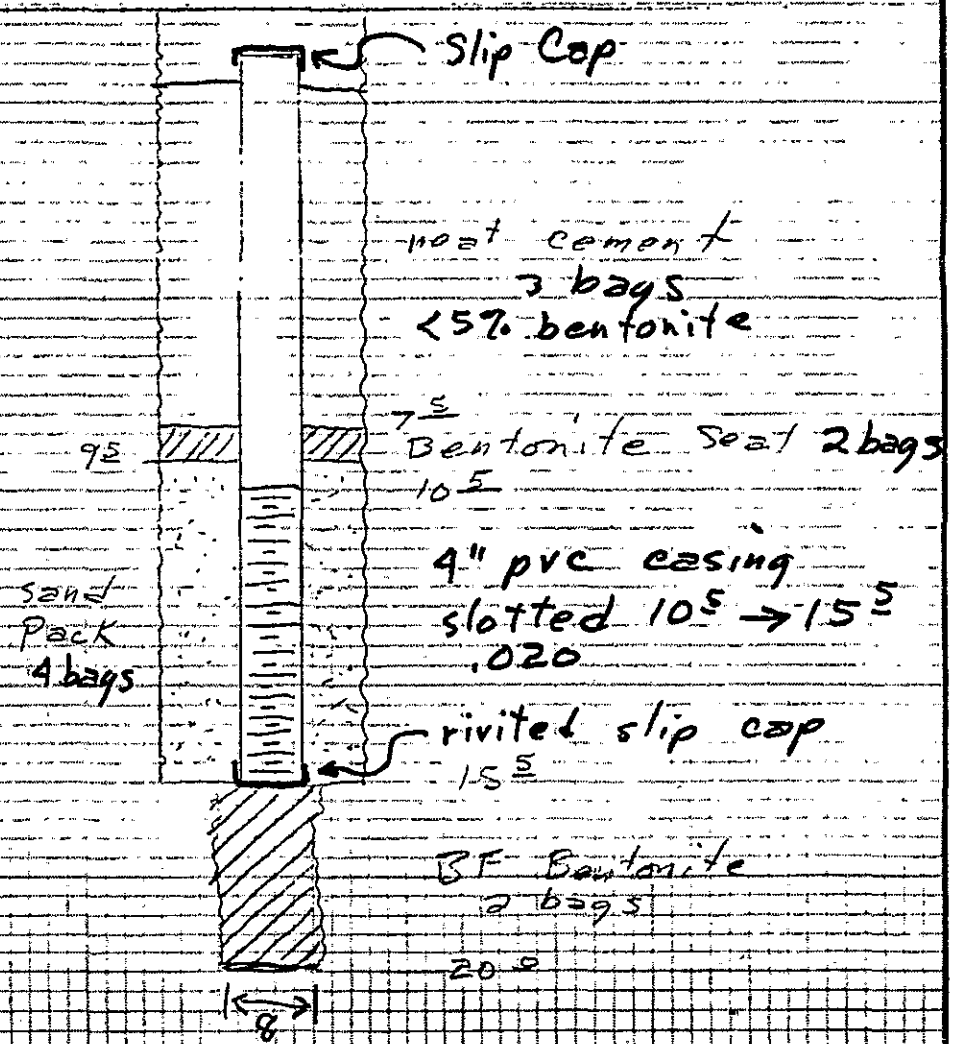
FINES: FRACTION OF MATERIAL SMALLER THAN NO. 200 SIEVE SIZE.

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. 85-44-1-01
 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



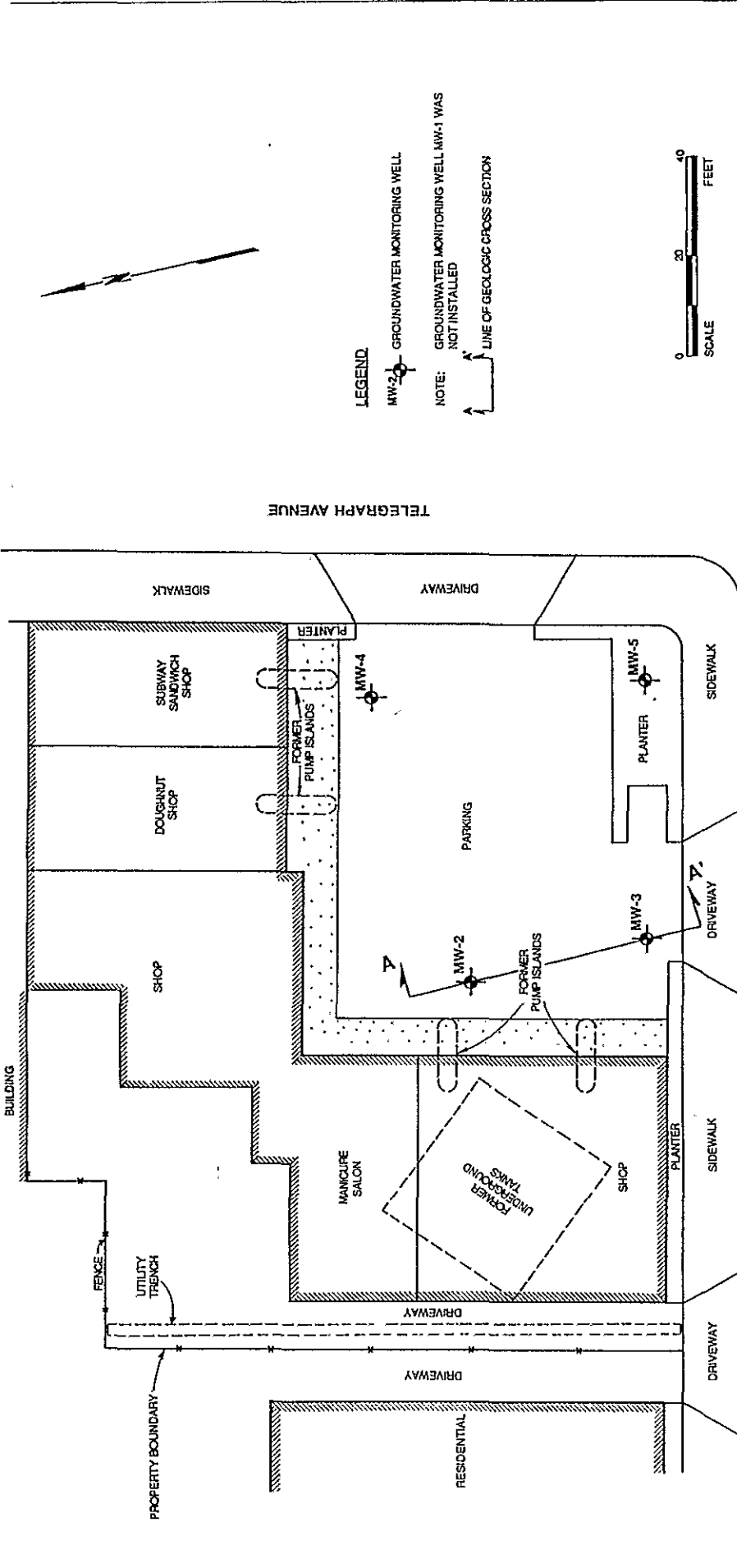
Converse Consultants

SIGNED _____
 REG. NO. _____

SHEET NO.

01-452Z

1S/4W 23H4



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	7/8/89	88-44-381-01	
Prepared By	KGC	Drawing No	3
Checked By	RMB	Approved By	DWC



Converse Environmental Consultants California

Base Map: Surveyed with EDM, Converse 1989.

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



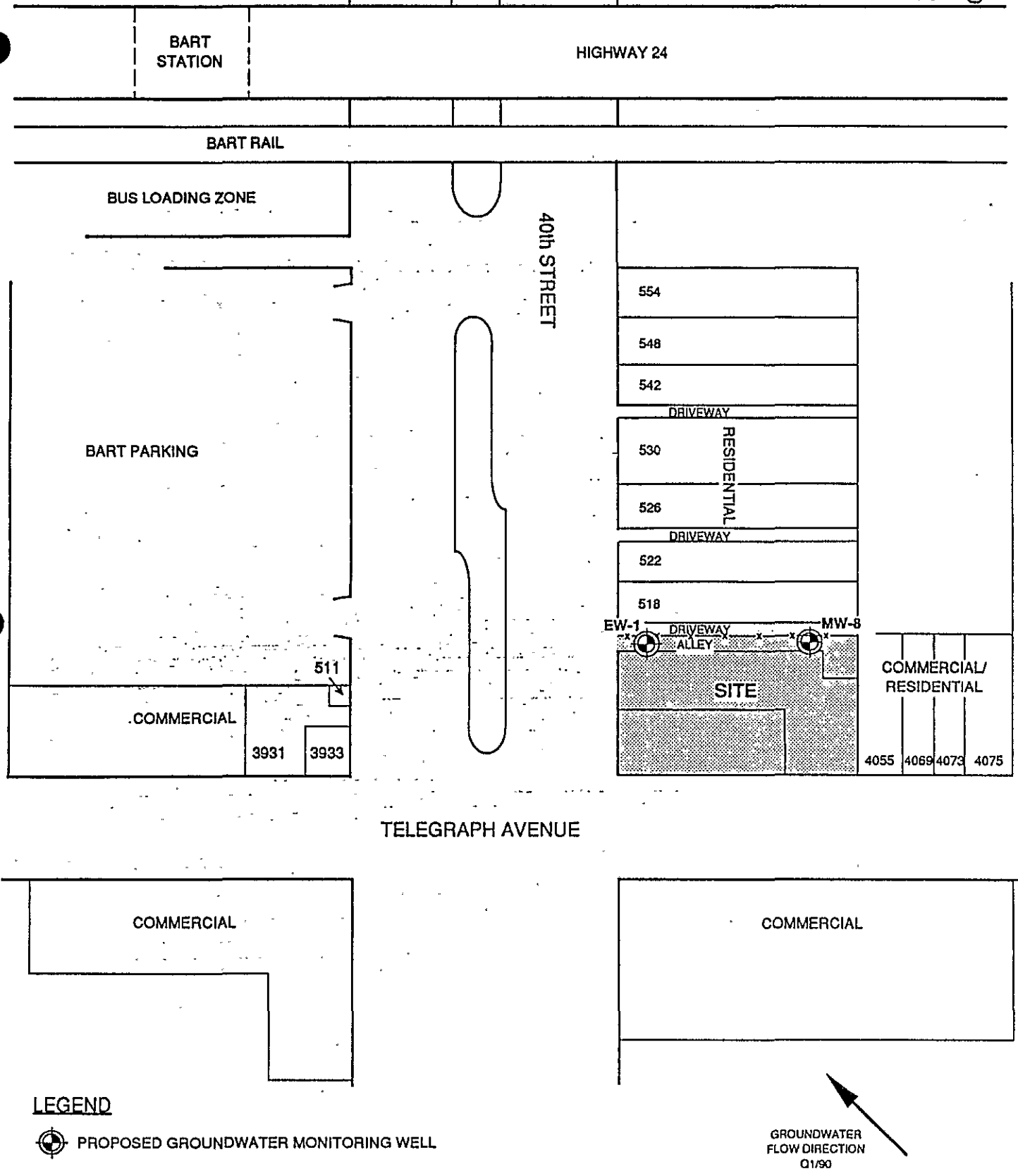
Converse Environmental Consultants California

Drawing No.
A-2

01-4654, Z

inv Addr

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	medium dense	tan	Sandy fine to coarse GRAVEL, some Clay, some Silt. GC		13		
25	S			wet	medium dense	tan	Sandy GRAVEL, trace Gravel. CL		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	Sandy fine to coarse GRAVEL, some Clay, some Silt. GC		12		
	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		18		
	S			wet	loose		Sandy GRAVEL. GP		4		
	S			wet	medium dense		Sandy GRAVEL. GP		8		
	S			wet	medium dense		Sandy GRAVEL. GP		10		
30	S			wet	very dense		Silty SAND and GRAVEL, trace Clay. GM		12		
	S			wet	dense	tan	Silty SAND and GRAVEL, trace Clay. GM		30		
	S			wet	dense	tan	Silty SAND and GRAVEL, trace Clay. GM		27		
	S			wet	dense	tan	Silty SAND and GRAVEL, trace Clay. GM		8		
	S			wet	dense	tan	Silty SAND and GRAVEL, trace Clay. GM		17		
	S			wet	dense	tan	Silty SAND and GRAVEL, trace Clay. GM		25		
	S			wet	dense	tan	Silty SAND and GRAVEL, trace Clay. GM		27		
	S			wet	loose		Silty SAND and GRAVEL, trace Clay. GM		5		
	S			wet	loose d=33,75 medium dense		Silty SAND and GRAVEL, trace Clay. GM		4		
	S			wet	medium dense		Silty SAND and GRAVEL, trace Clay. GM		3		
	S			wet	medium dense		Silty SAND and GRAVEL, trace Clay. GM		18		
35	S			wet	dense	tan	Silty SAND and GRAVEL, trace Clay. GM		10		
	S			wet	dense	tan	Silty SAND and GRAVEL, trace Clay. GM		16		
	S			wet	dense	tan	Silty SAND and GRAVEL, trace Clay. GM		15		
	S			wet	dense	tan	Silty SAND and GRAVEL, trace Clay. GM		25		
	S			wet	dense	tan	Silty SAND and GRAVEL, trace Clay. GM		13		
	S			moist			Fine SAND and Silt, some Clay. SM		14		
	S			moist			Fine SAND and Silt, some Clay. SM		8		
	S			moist			Fine SAND and Silt, some Clay. SM		8		
	S			moist			Fine SAND and Silt, some Clay. SM		7		
	S			moist	stiff		Silty CLAY, tr fine Sand. CL		14		
	S			moist	hard	brownish gray	Gravelly SAND, little Clay. GC		35		
40	S			moist			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	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	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		
				slightly moist	stiff	dark gray	Silty CLAY. CL		2		
	S					dark gray	Silty CLAY. CL		3		
				slightly moist	stiff	dark gray	Silty CLAY. CL		8		
	2					dark gray	Silty CLAY, some fine Sand. CL		5		
				moist	dense		Clayey GRAVEL. GC		8		
10							Clayey GRAVEL. GC		17		
					medium dense	dark gray	Clayey GRAVEL. GC		15		
	S			slightly moist	very stiff	tan	Silty CLAY. CL		12		
							Silty CLAY. CL		14		
				slightly moist	very stiff	grayish brown	Silty CLAY. CL		16		
	3						Silty CLAY, trace Gravel. CL		7		
				slightly moist	very stiff	tan	Silty CLAY, trace Gravel. CL		18		
15							Silty CLAY, trace Gravel. CL		15		
				slightly moist	hard	tan	Silty CLAY, trace Gravel. CL		14		
	S						Silty CLAY, tr fine Sand. CL		15		
				slightly moist	very stiff	light brown	Silty CLAY. CL		10		
	4						Silty CLAY. CL		14		
				slightly moist	hard	brown	Silty CLAY. CL		18		
20									10		

SHELL OIL COMPANY
500 40th Street
Oakland, California

Project No.
88-44-361-20

Drawing No.
A-5

1369

13/4/23 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)
				slightly moist			Silty CLAY. CL		7		
	S			moist	hard	reddish brown	Silty CLAY, trace Gravel. CL		19		
				moist			Last 2" Clayey Sandy Gravel. CL		20		
							Sandy GRAVEL, some Silt, trace Clay. GM		22		
	S						0.2' Sandy CLAY. GM		12		
				very moist	dense	reddish brown	Sandy GRAVEL, some Silt. GM		17		
							Gravelly CLAY. GC		20		
25				wet	medium dense	brown	Sandy GRAVEL, some Clay, some Silt. GM		5		
	S						Gravelly SAND, some Silt. GC		11		
							Increasing Gravel. GC		12		
				wet	dense	brown	Sandy GRAVEL, some Silt. GM		15		
	S								17		
									18		
	S								12		
				wet	medium dense	brown	Silty SAND, some Gravel, SC/GC trace Clay. GC		18		
				wet			Fine to coarse Sandy fine to coarse GRAVEL. GM		20		
30	S				dense	brown			15		
									23		
									15		
	S				dense	brown	Increasing Gravel. GP		16		
				wet			Sandy GRAVEL. GP		19		
									24		
	S								17		
									18		
				wet	v stiff		Silty CLAY, tr fine Sand. CL		20		
									23		
	S						Sandy GRAVEL. GP		17		
35				wet			Fine to medium GRAVEL, some Sand, some Clay. GP		22		
									22		
	S								20		
				wet		brown			14		
						rusty red	GRAVEL. little SAND. GP		17		
									16		
	S					rd brn	Silty fine SAND. SM		22		
				moist			Fine SAND and GRAVEL, some Silt. GP		50/5"		
					very dense				16		
40	S			moist	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 (ft)	SAMPLE	WATER LEVEL	SYMBOL	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	WELL CONSTRUCTION	BLDG./BDN.	D.V.M. (ppm)	T.P.H. (ppm)
	S		[diagonal lines]	moist			Sandy CLAY, some GRAVEL. CL	[cross-hatch]	12		
										13	
					hard	brown			27		
							Sandy CLAY, some GRAVEL. CL		29		
	S		[diagonal lines]						6		
							Gravelly SAND, some Clay. SC		23		
				moist					33		
45					very dense	brown			60		
	S		[diagonal lines]	slightly moist	very stiff	tan	Silty CLAY, black organics. CL		6		
50									14		
									12		
	S		[diagonal lines]	slightly moist	very stiff	tan	Silty CLAY. CL		16		
								19			
								22			
								10			
	S		[diagonal lines]	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

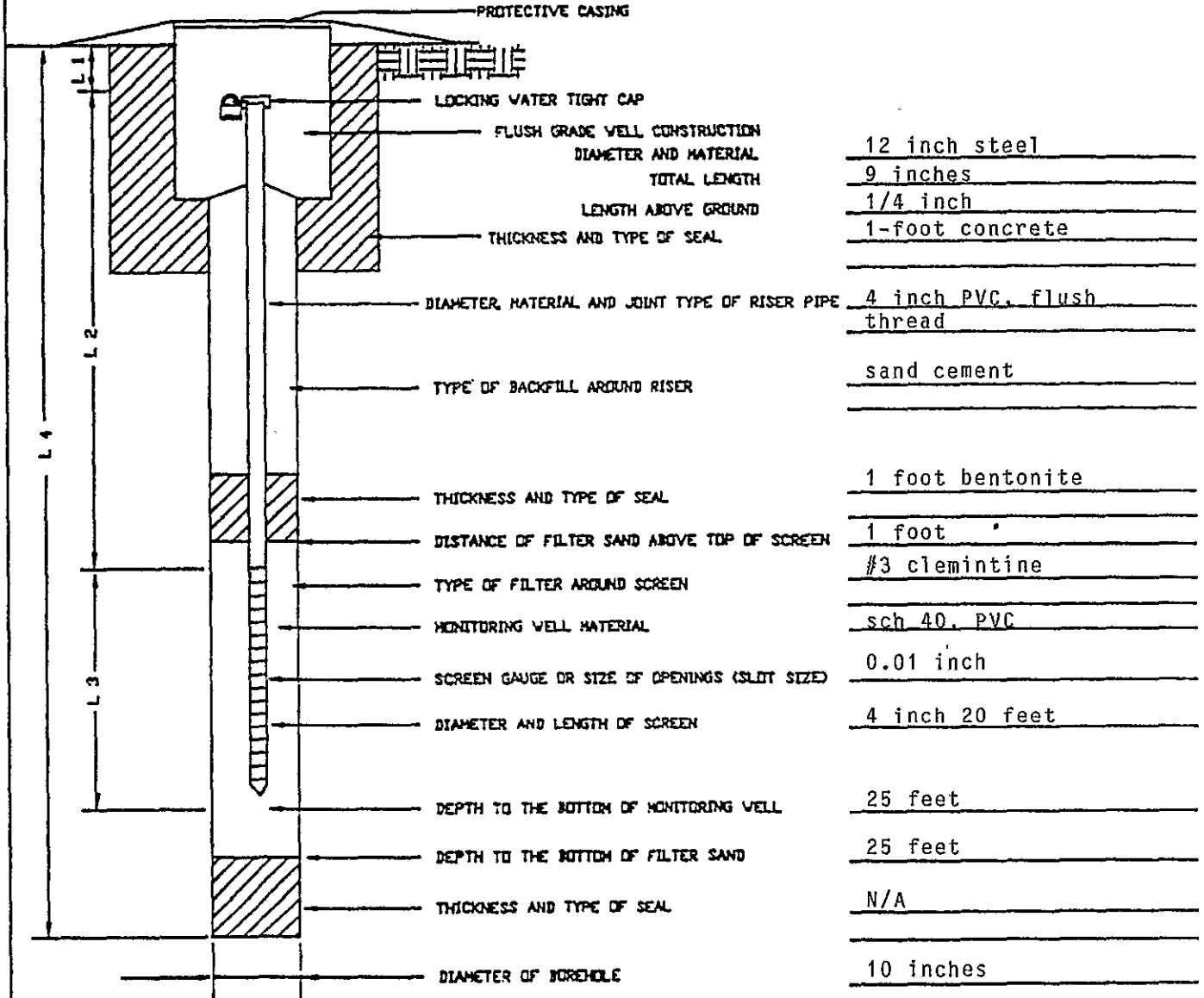
WATER LEVEL DATA				PROFESSIONAL GEOLOGIST	
DATE				SIGNATURE	
TIME					
GWL					
CASING DEPTH				TYPED NAME	

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

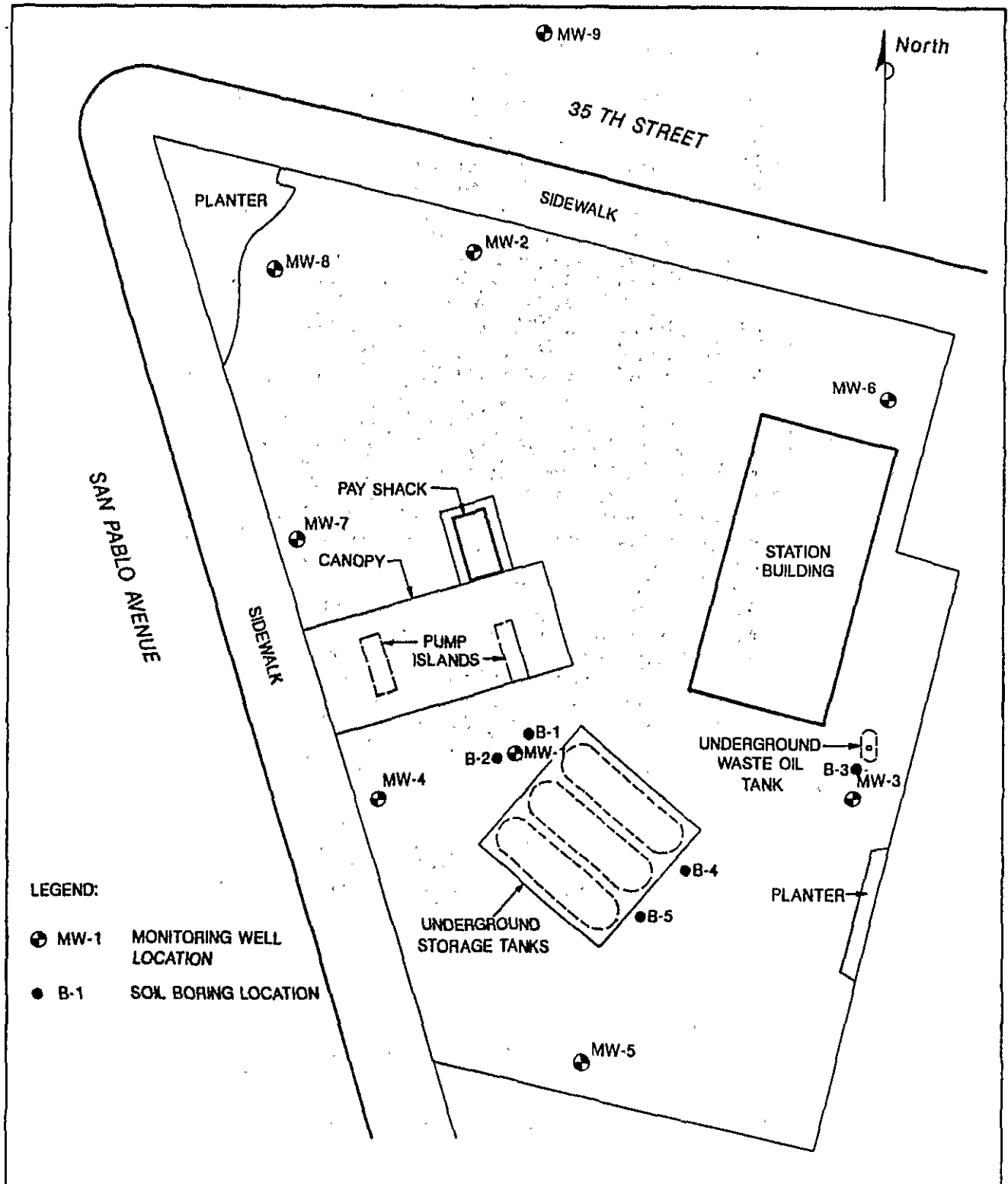
MONITORING WELL WATER LEVEL MEASUREMENTS		
DATE	TIME	WATER LEVEL *
2-2-90	11:59	7.89

* MEASURE POINT: Top of casing



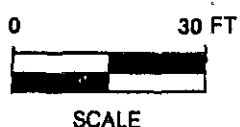
Delta Environmental Consultants, Inc.

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
AUTOCAD NO. —	REVIEWED BY

**Delta
Environmental
Consultants, Inc.**

Li# 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	50		Slight odor
					2	CLAY; very dark gray, highly plastic, slightly moist, (CH)			
					3				
					4				
					5	SANDY CLAY; yellowish brown, moderately plastic, slightly moist, (CL)			
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	

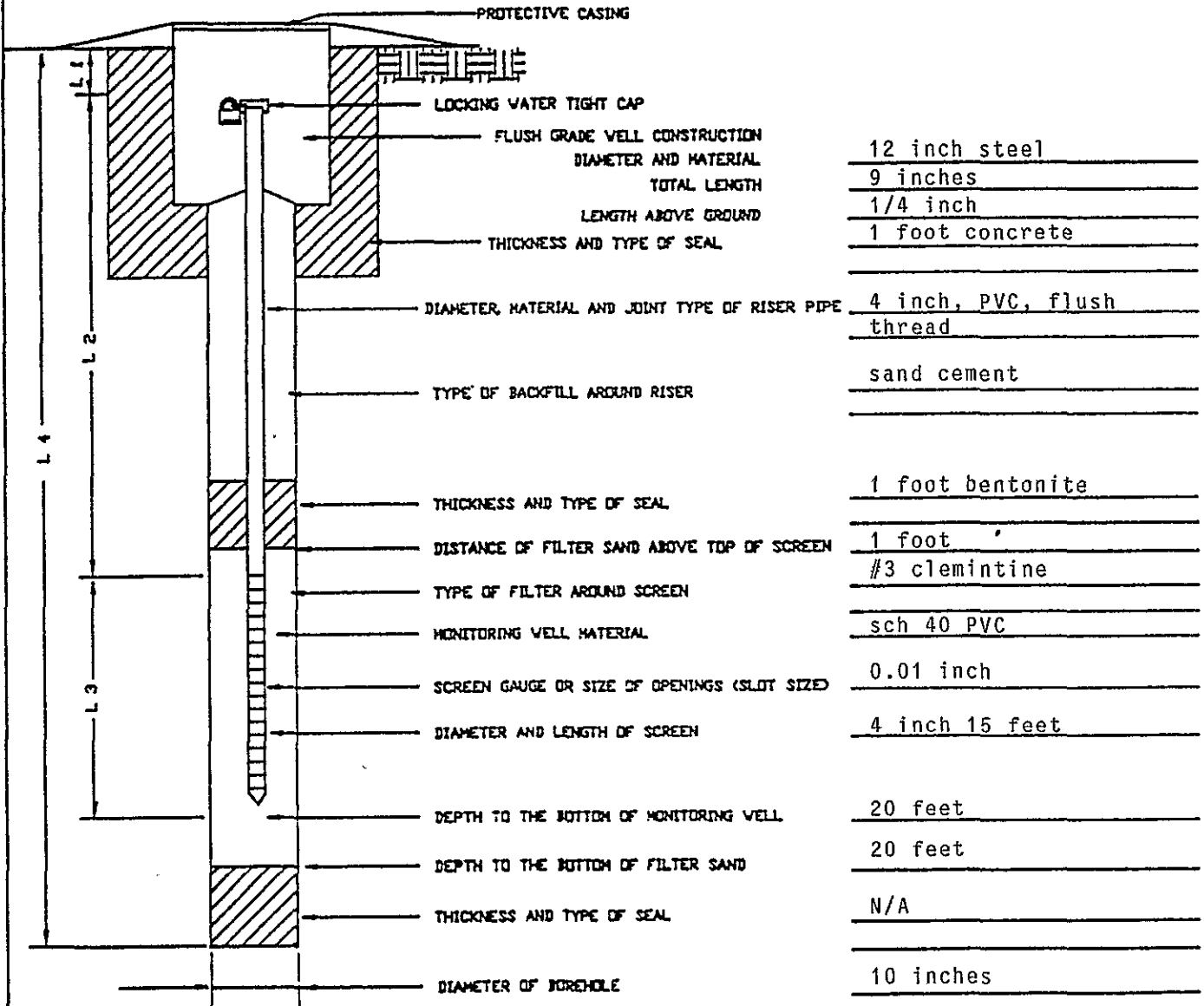
S T A Y P E L E	S N A U M P L E R	B C L O U N T S	S I A N T P L E(ft)	S R A E M P O L Y E(in)	DEPTH SCALE 1"= 4'	DESCRIPTIONS OF MATERIALS AND CONDITIONS	CONTAMINANT OBSERVATION	GENERAL OBSERVATION NOTES
							INSTRUMENT: OVM UNITS: ppm	
CA	MW-6-1	10/12/38	5.0-6.5	18	1	Asphalt road base		
					2	CLAY;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

WATER LEVEL DATA				PROFESSIONAL GEOLOGIST	
DATE				SIGNATURE	TYPED NAME
TIME					
GWL					
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



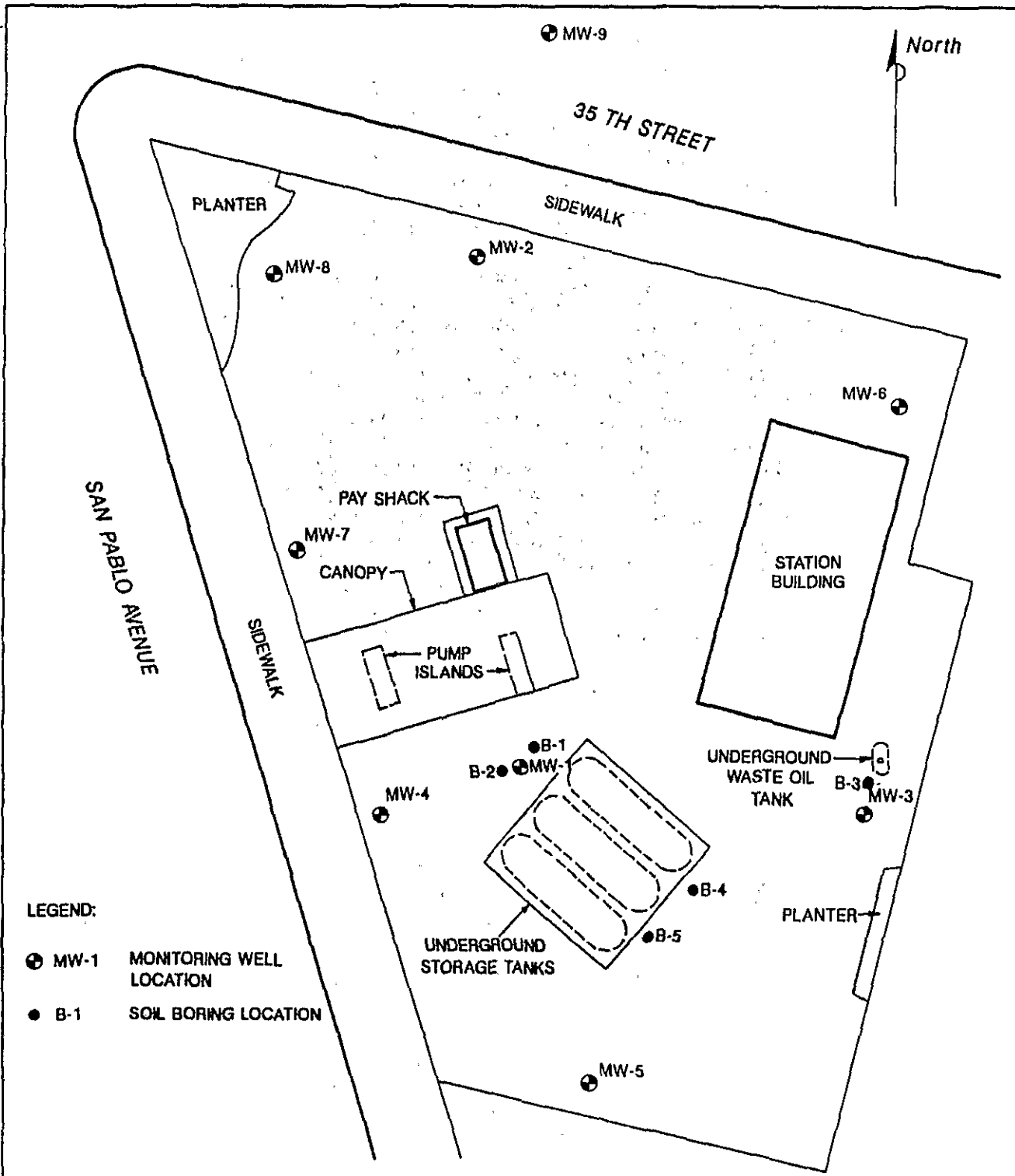
- 12 inch steel
- 9 inches
- 1/4 inch
- 1 foot concrete
- 4 inch, PVC, flush thread
- sand cement
- 1 foot bentonite
- 1 foot
- #3 clemintine
- sch 40 PVC
- 0.01 inch
- 4 inch 15 feet
- 20 feet
- 20 feet
- N/A
- 10 inches

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: 10:00

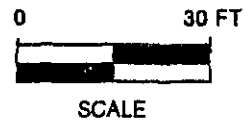
MONITORING WELL WATER LEVEL MEASUREMENTS		
DATE	TIME	WATER LEVEL #
2-2-90	11:41	7.86

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.**

606# 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	

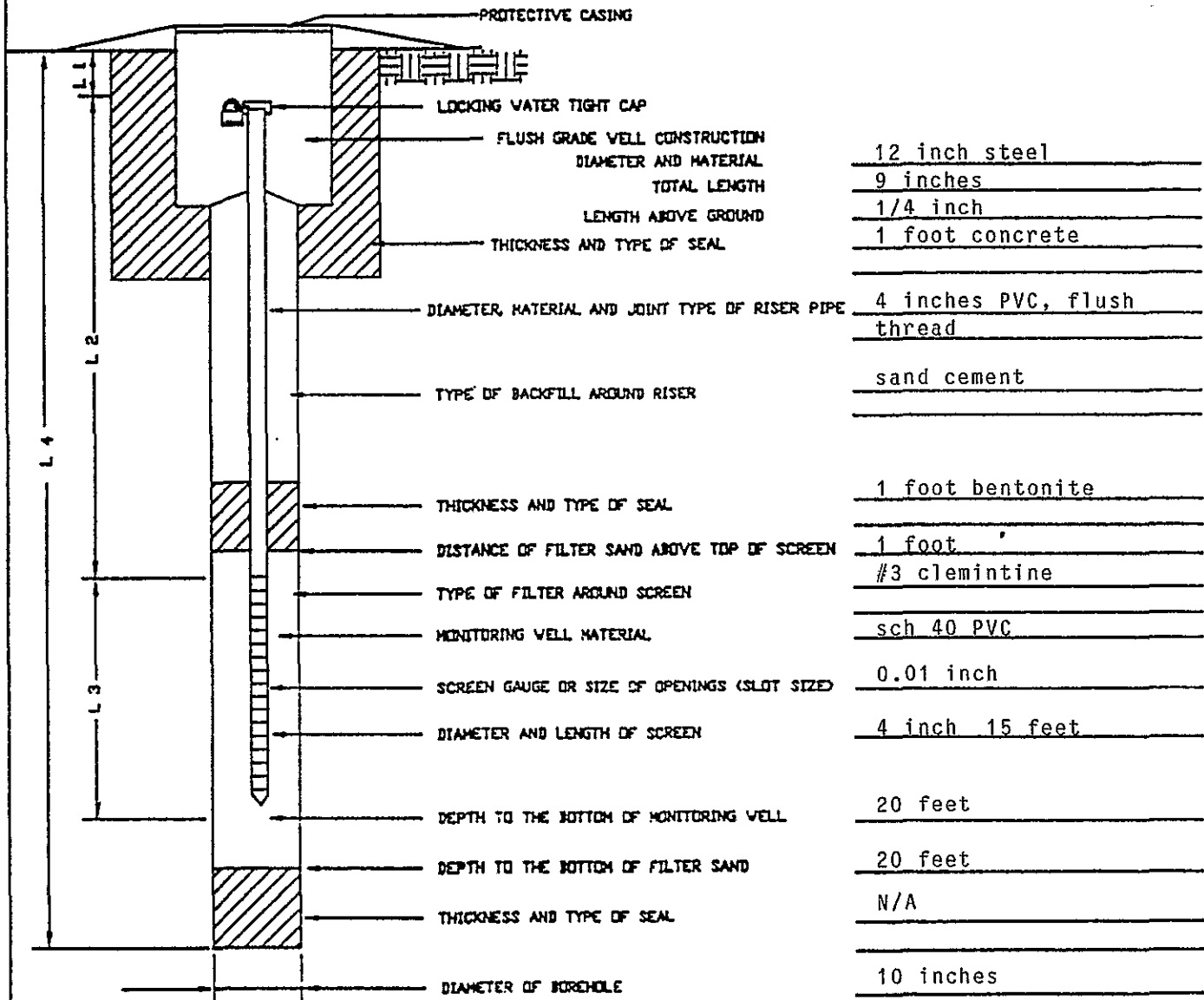
SAY MPE LE	STA MPE LE	B C O U N T S	S I A N T P L E(ft)	S R A E M C P O L V E(in)	DEPTH SCALE 1"= 4'	DESCRIPTIONS OF MATERIALS AND CONDITIONS	CONTAMINANT OBSERVATION	GENERAL OBSERVATION NOTES
							INSTRUMENT: OVM UNITS: ppm	
					1	Asphalt road base		
					2	CLAY; very dark gray, highly plastic, slightly moist, (CH)		
CA	MW-7-1	16/22/30	5.0-6.5	18	5	SANDY CLAY; greenish gray, moderately plastic, slightly moist, (CL)	95	Moderate odor
CA	MW-7-2	9/15/25	10.0-11.5	18	10	Color change to yellowish brown	85	Moderate odor
					11	Saturated		
CA	MW-7-3	6/8/10	15.0-16.5	18	15		5	Slight odor
					16	SILTY CLAY; yellowish brown, moderately plastic, saturated, (CL)		
CA	MW-7-4	6/8/14	20.0-21.5	18	20		0	No odor
					22	Total Depth at 21.5 feet		

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



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

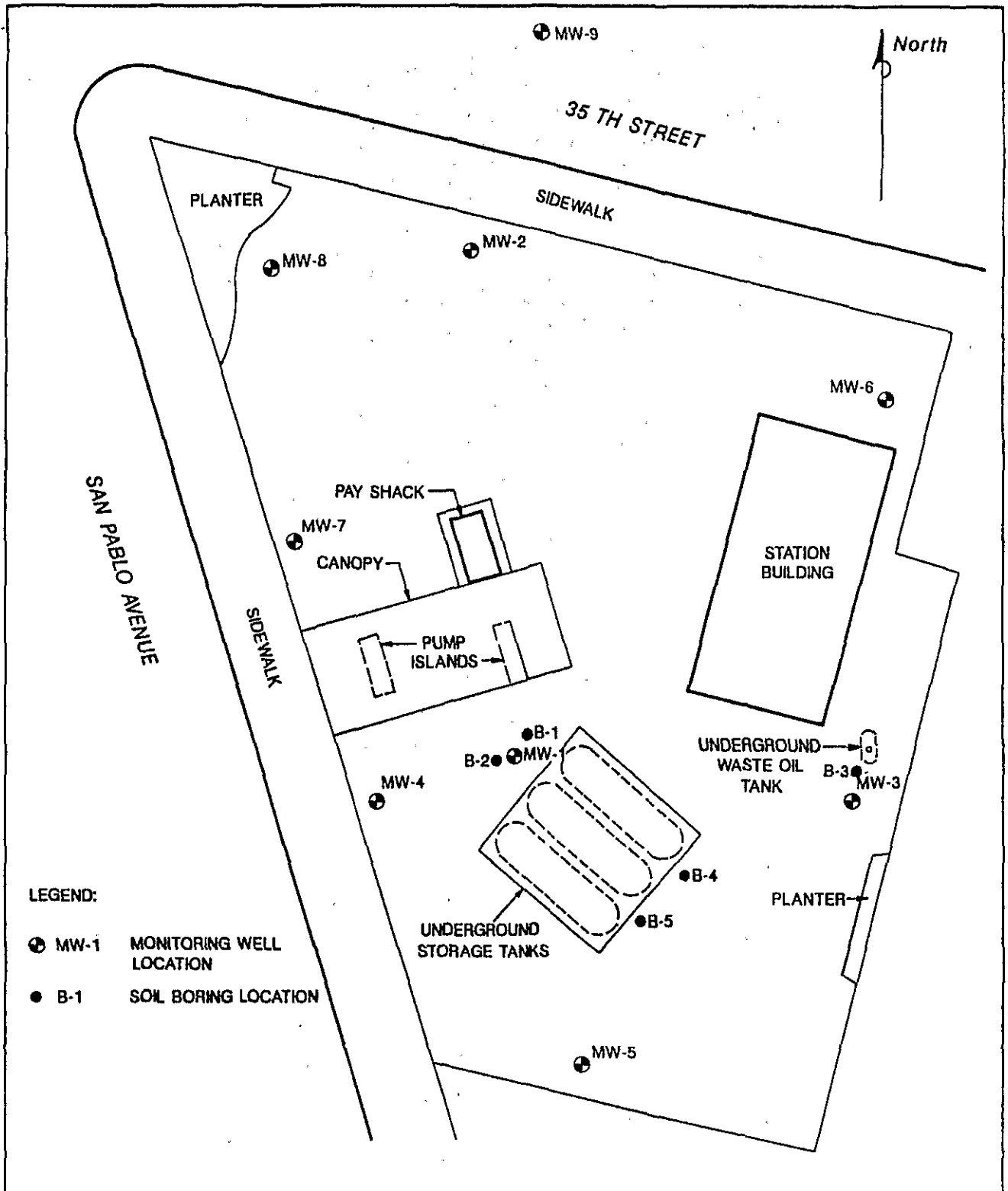
INSTALLATION COMPLETED:
 DATE: 1-19-90
 TIME: 12:00

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

* MEASURE POINT: top of casing

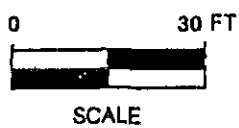


Delta
 Environmental
 Consultants, Inc.



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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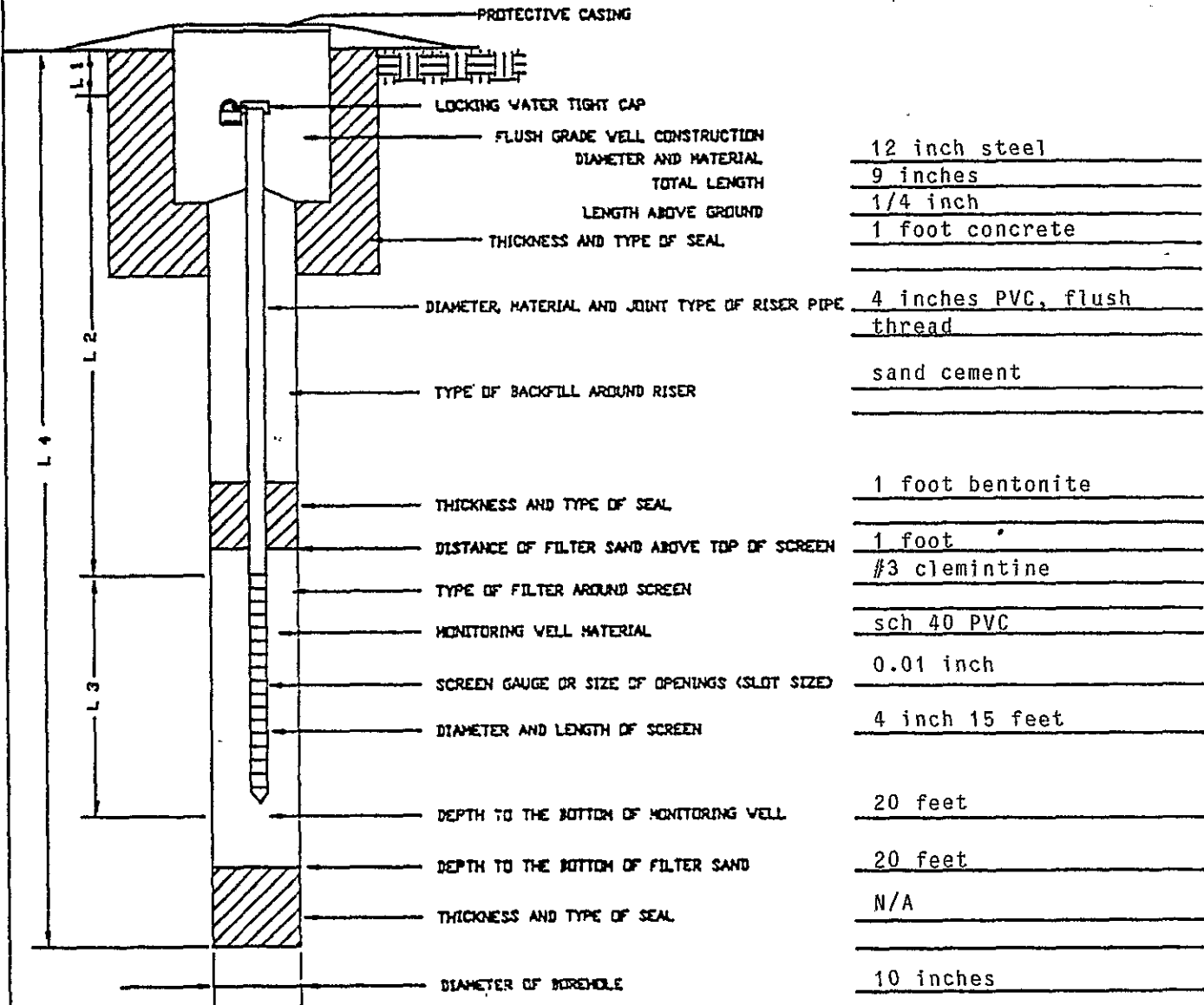
STAY MPE LE	SN MPE LE	B C S	I A N P L	S R A E M C P O L V E	DEPTH SCALE 1"= 4'	DESCRIPTIONS OF MATERIALS AND CONDITIONS	CONTAMINANT OBSERVATION	GENERAL OBSERVATION NOTES
							INSTRUMENT: OVM UNITS: ppm	
CA	MW- 8- 1	16/ 27/ 28	5.0- 6.5	18	1	Asphalt road base	3	Slight odor
					2	CLAY; very dark gray, highly plastic, slightly moist, (CH)		
					3			
					4			
					5	SANDY CLAY; greenish gray, moderately plastic, slightly moist, (CL)		
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

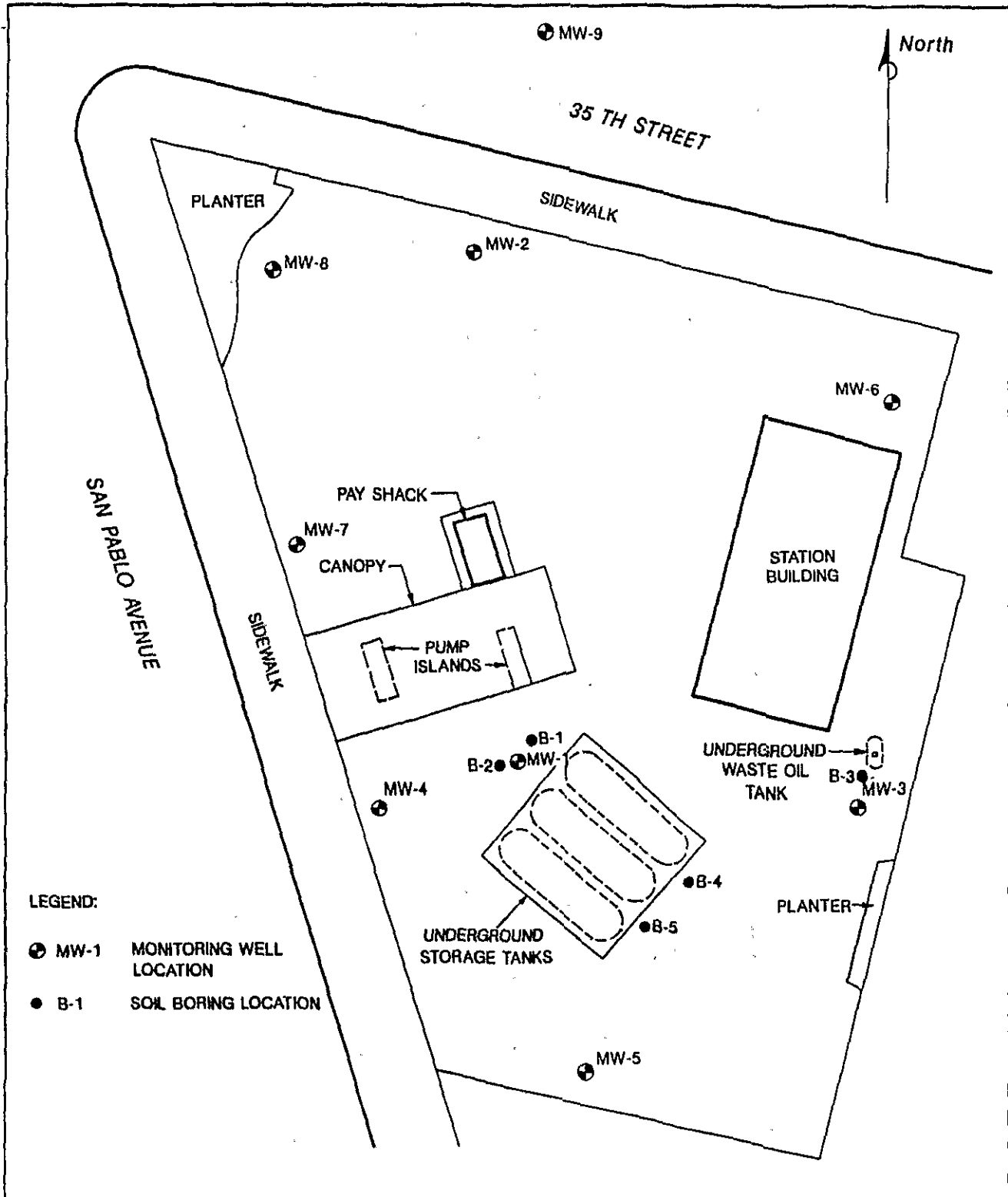
MONITORING WELL WATER LEVEL MEASUREMENTS

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

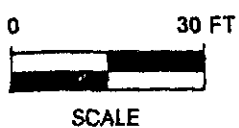
* MEASURE POINT: top of casing




Delta
 Environmental
 Consultants, Inc.



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

01-442T
 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	

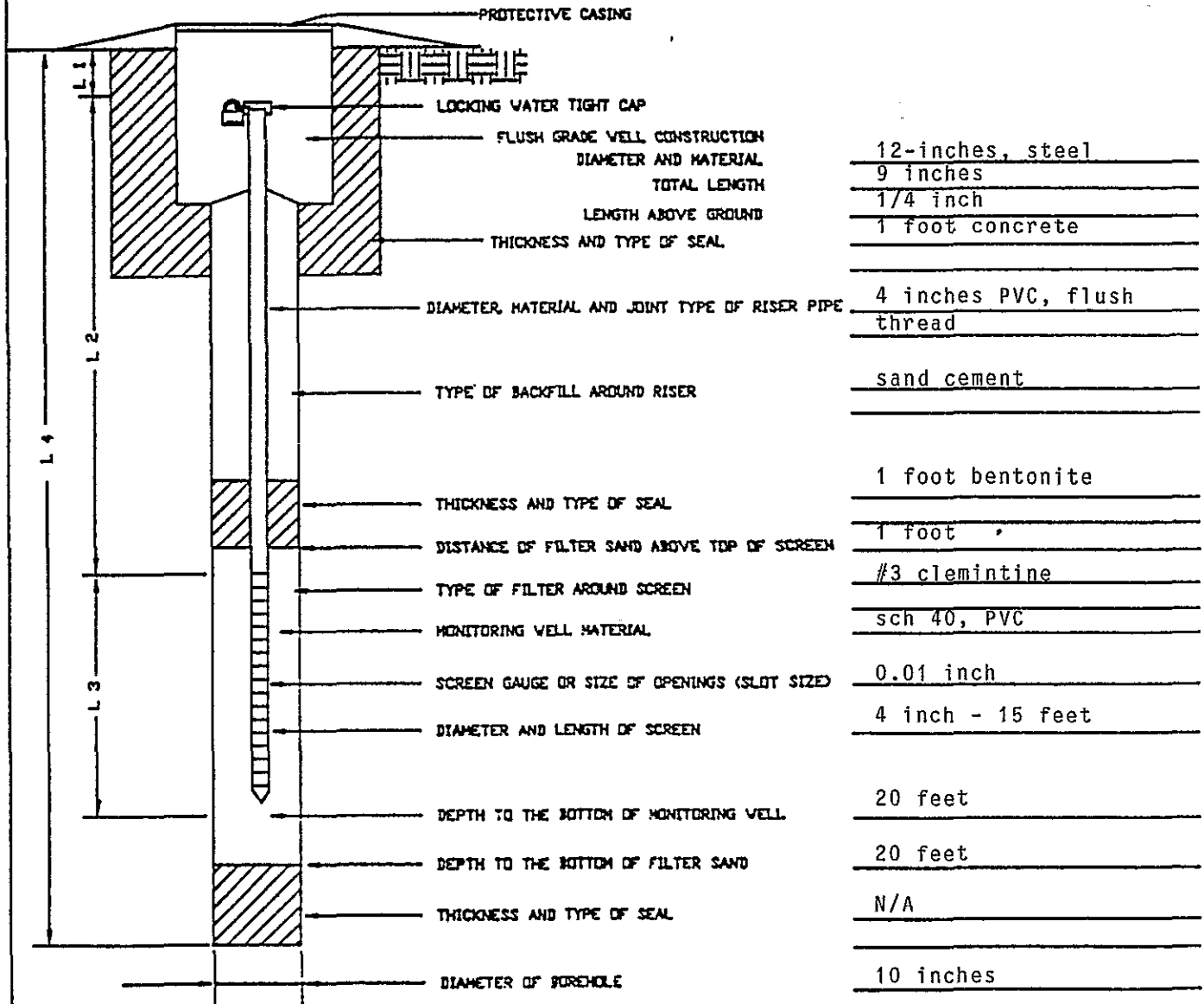
S T A Y P L E	T M P E	S N M P L E	A U M P L E	B C L O U N T S	S I A N T P L E(ft)	S R A E M C P O L V E(in)	DEPTH SCALE 1"= 4'	DESCRIPTIONS OF MATERIALS AND CONDITIONS	CONTAMINANT OBSERVATION	GENERAL OBSERVATION NOTES
									INSTRUMENT: OVM UNITS: ppm	
							1	Asphalt road base		
							2	CLAY; very 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.

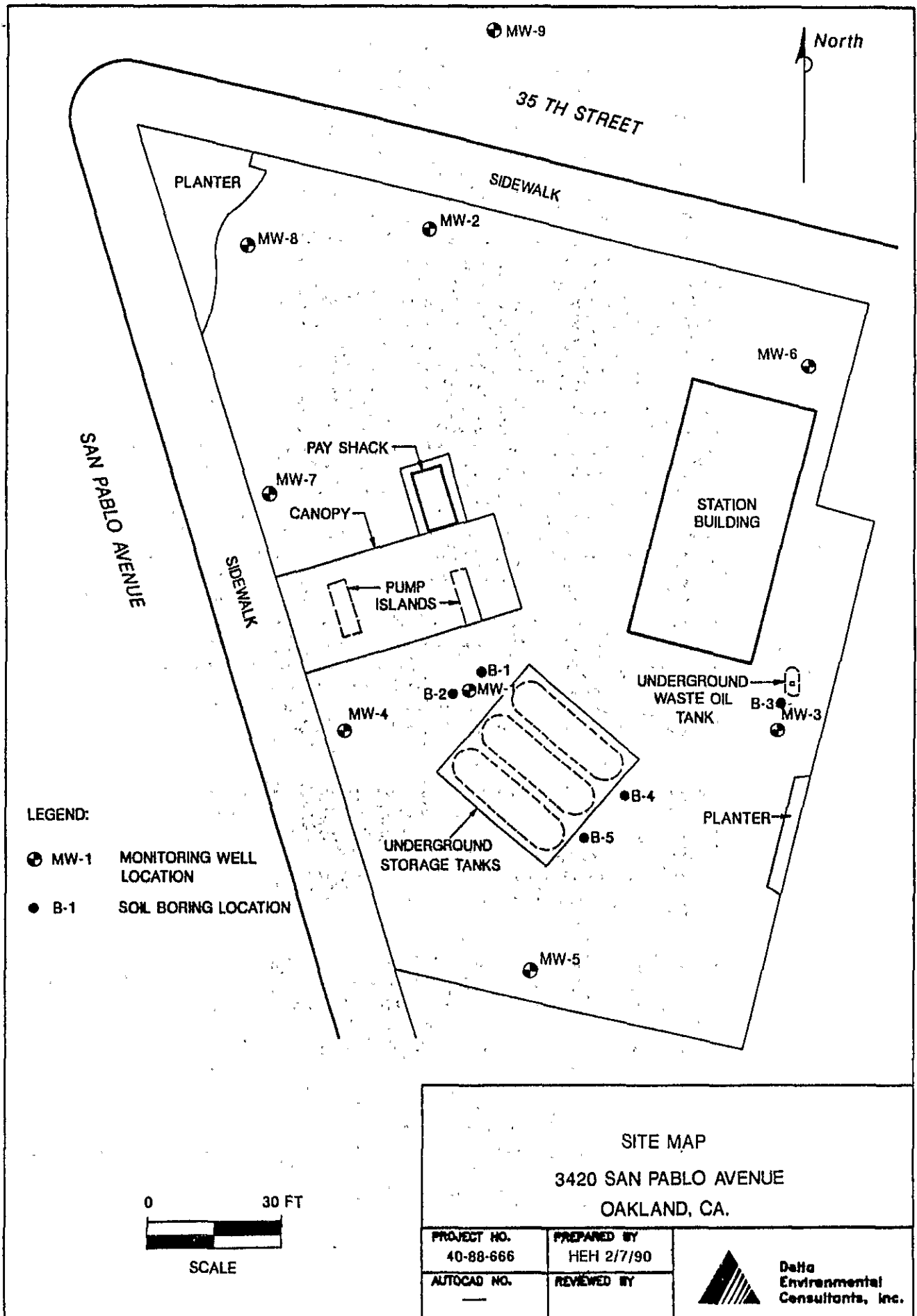
INSTALLATION COMPLETED:

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

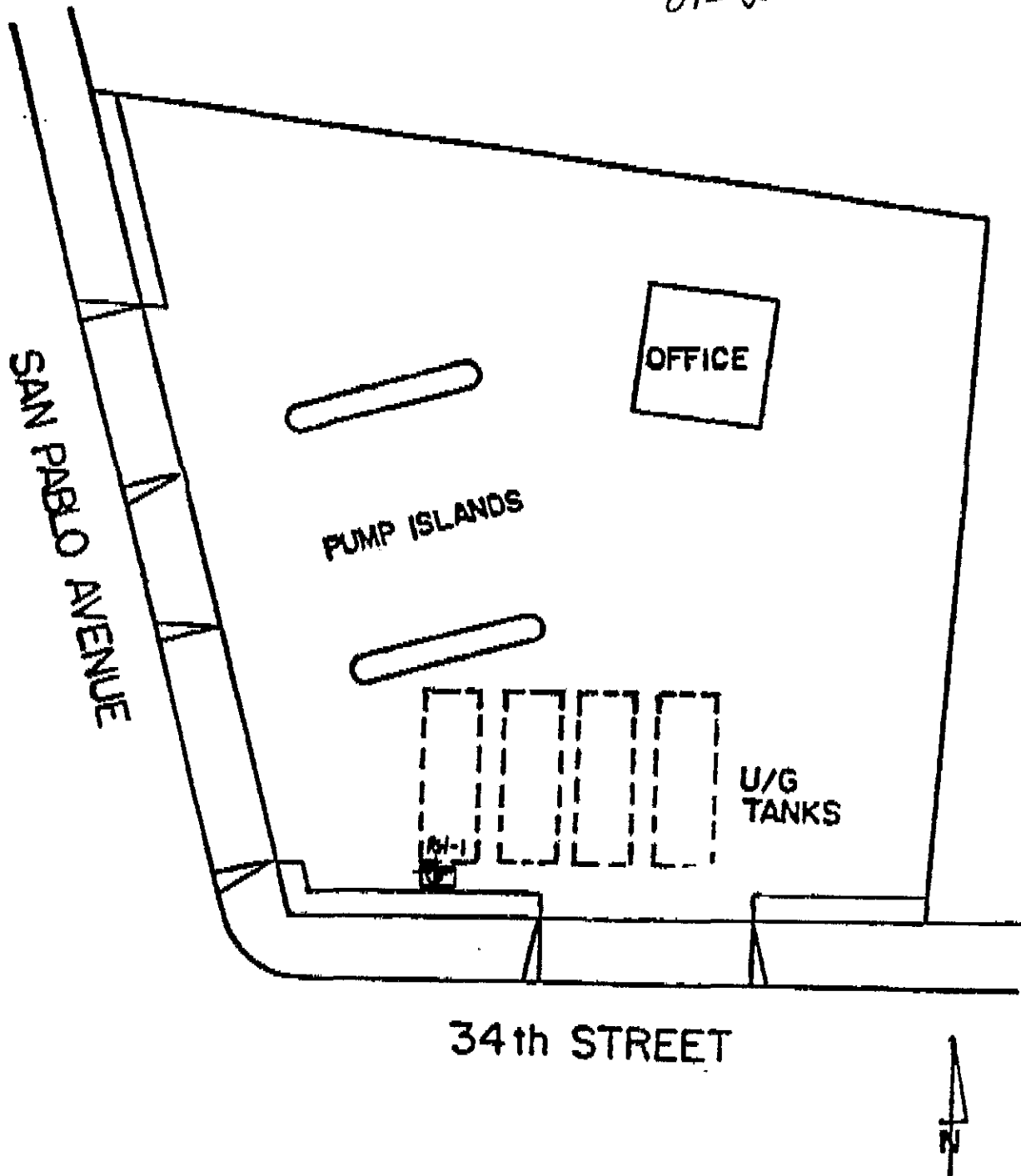
CONFIDENTIAL

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	11:50 am	
			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
5							11		dark brown, contains piece
6							14		of brick and clay pipe
7									at 5.5 ft grayish brown clay with sand and
8				0	7.5		3		gravel (CL) 5YR 3/2
9							6		stiff, fine sand and fine
10				36	9.0		7		angular gravel, 1/4 to
11				226			11		1/2" sandstone clasts - rust
12				570			22		colored
							24	moderate brown sandy	
								clay (CL) 5YR 3/4	
								stiff, stringers of brown	
								clay, mottled with olive,	
								rust staining.	
								at 9.5 feet clayey sand	
								with gravel, medium dense	

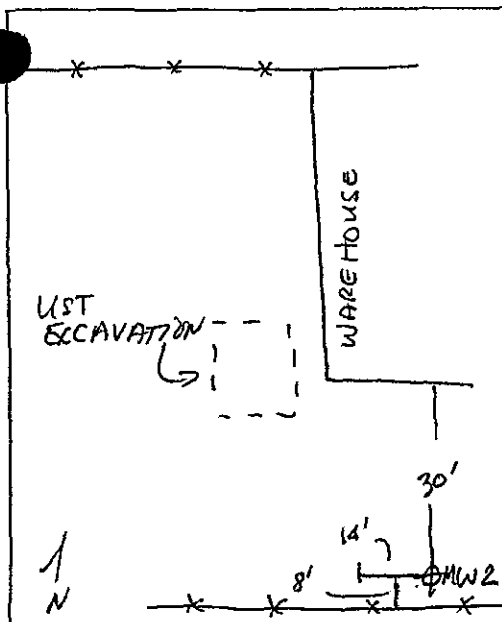
PERMIT 93085

01-532N

NORTHWEST ENVIROCON INC.

Field Log of Test Pit or Auger Hole

01504W23M22



Site Location <i>Douco Metal Finishing</i>		Boring # <i>MW-2</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>11:45 am</i>	Finish <i>2:15 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 0-5'						
2									
3					2.5		3	CL	Brownish black clay with sand (CL) 5YR2/1
4			Screen 4" sch 40 PVC 5-15'				7		
5					4.0		5	GC	stiff, fine sand, small brick inclusion
6							10		
7							10	CL	dark yellowish brown clayey gravel (GC) 10YR4/2, medium dense, rust staining
8					7.5		5		
9							12	CL	dark yellowish brown silty clay with sand and gravel (CL) 10YR4/2
10					9.0		2		
11							7	CL	very stiff, fine sand, angular gravel
12							7		

more sand, no gravel at 8.5 ft
less sand, rust staining at 9.0 ft
light olive gray at 10 ft

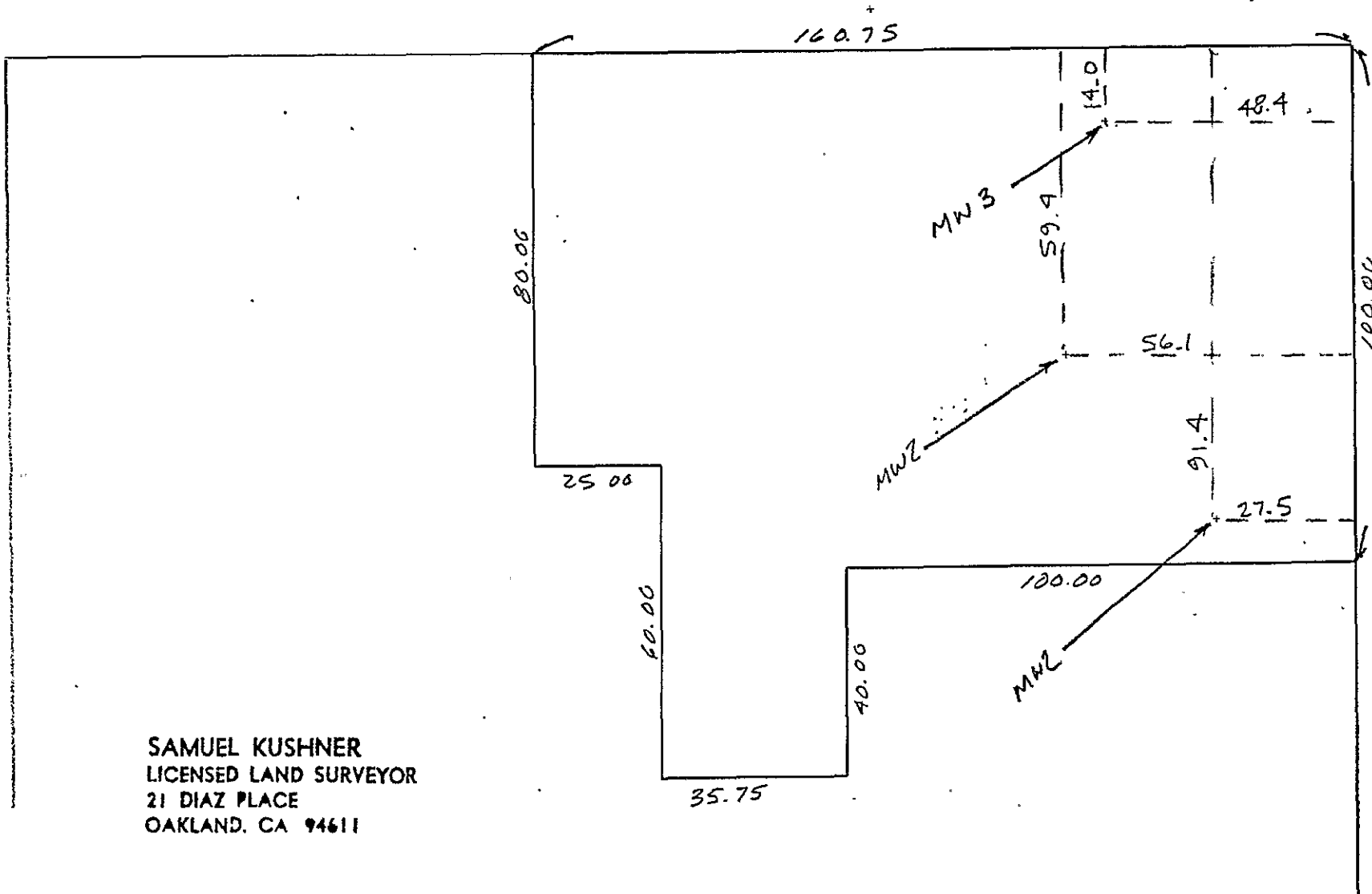
SCALE: 1"=30'



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.

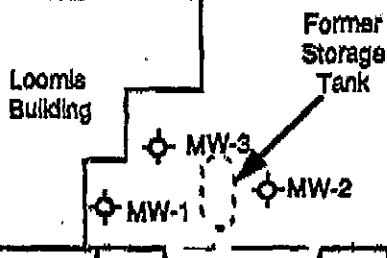
ELEVATION = 26.785 (City of Oakland Datum)

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.

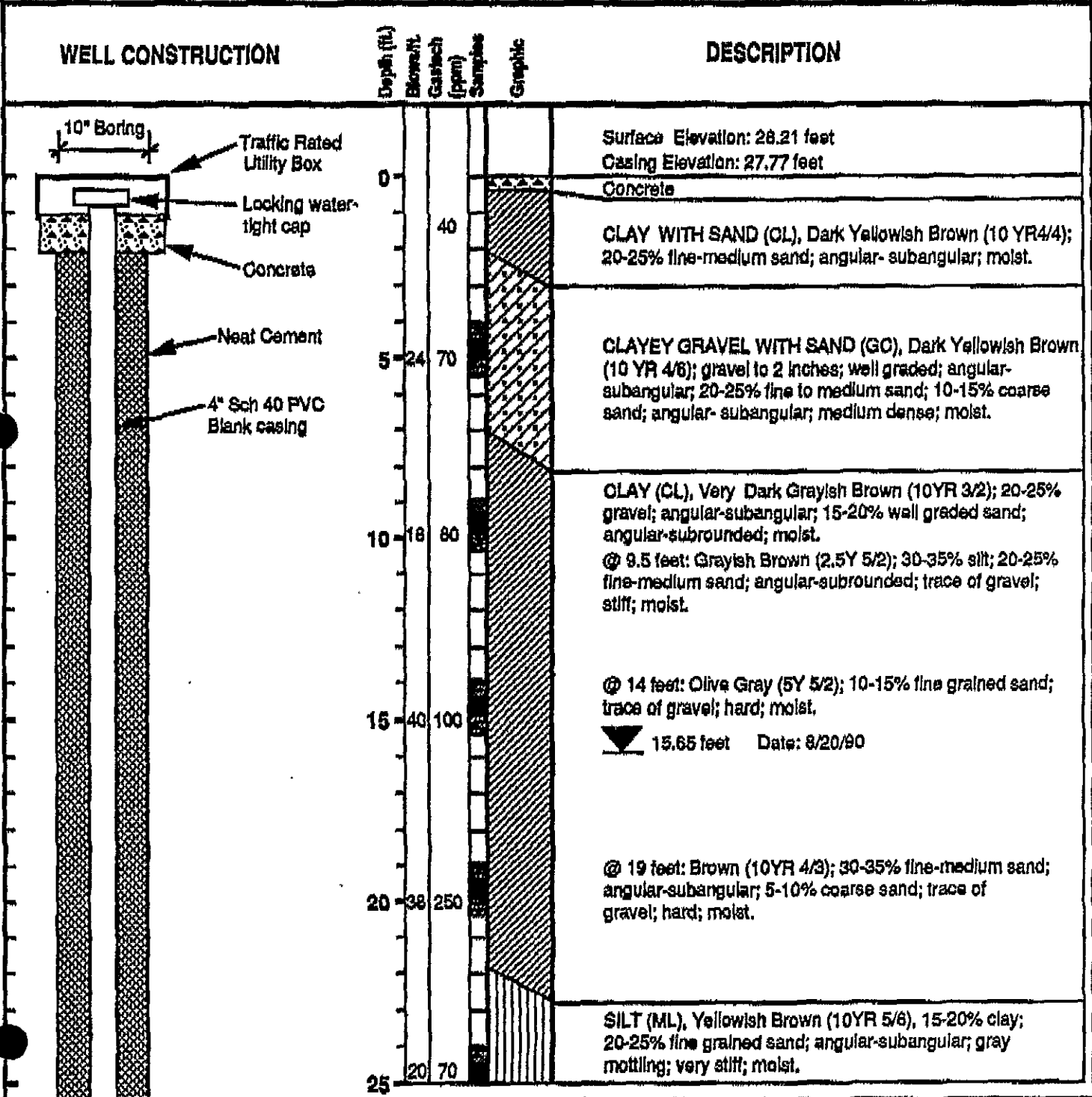
01-484 V

15/4W 23N12

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



Project No.: CC134.01 Date Drilled: August 18, 1990
 Logged By: Daniel Becraft Drilling Method: 10" Hollow Stem Auger
 Drilling Co.: Baylands Sampling Method: 2" Split spoon
 Driller: Tom Schmitt Inclination: Vertical

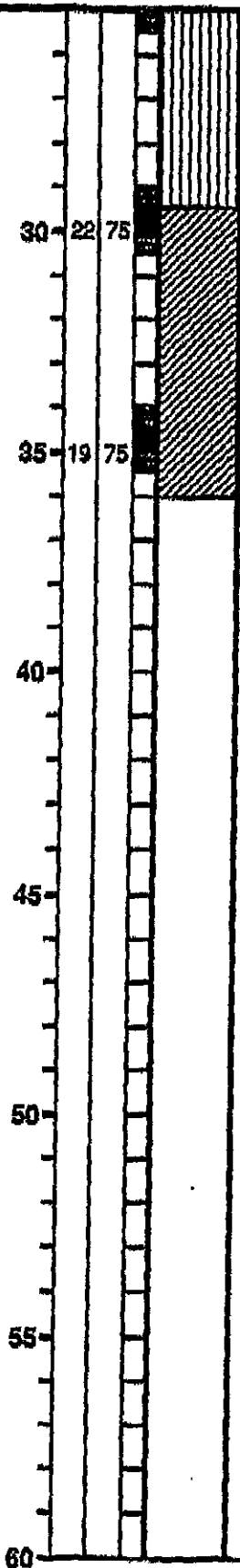
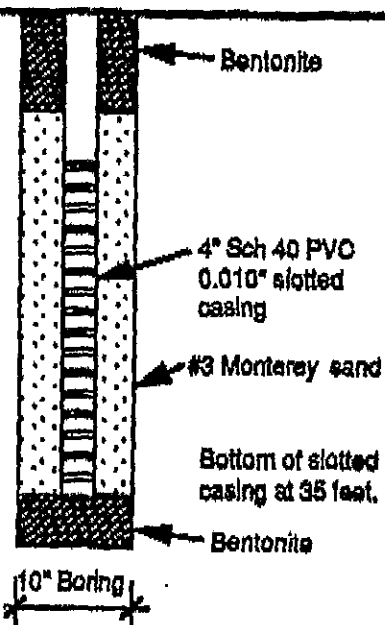


**LOG OF BORING MW-1
(continued)**

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

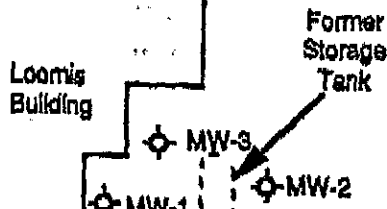
01-484W

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

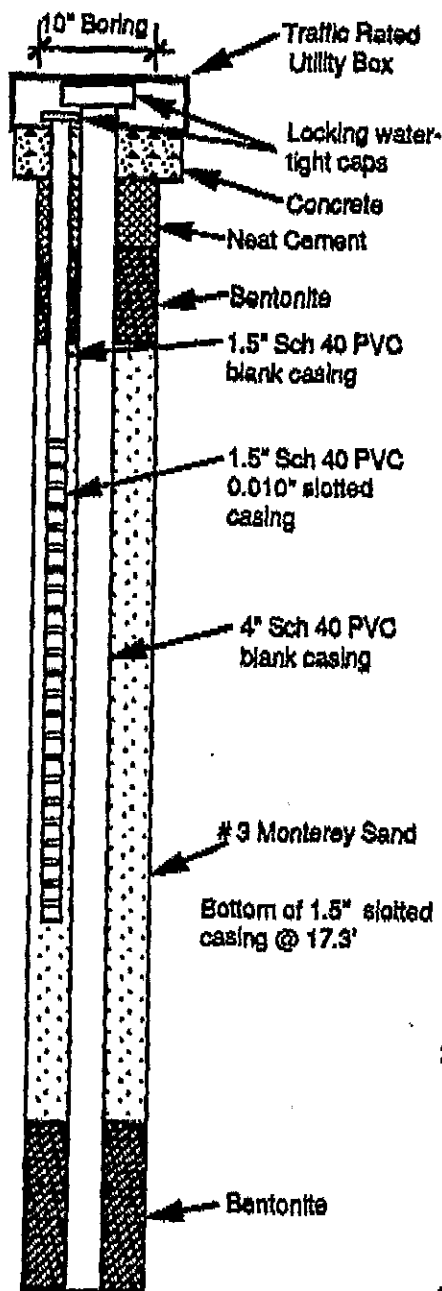


Brockhurst Street

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 (2.5YN 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.
		@24 feet: Black (10YR 2/1), 10-15% well graded sand; moist.
20	33	
25	32	

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

WELL CONSTRUCTION

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

DESCRIPTION

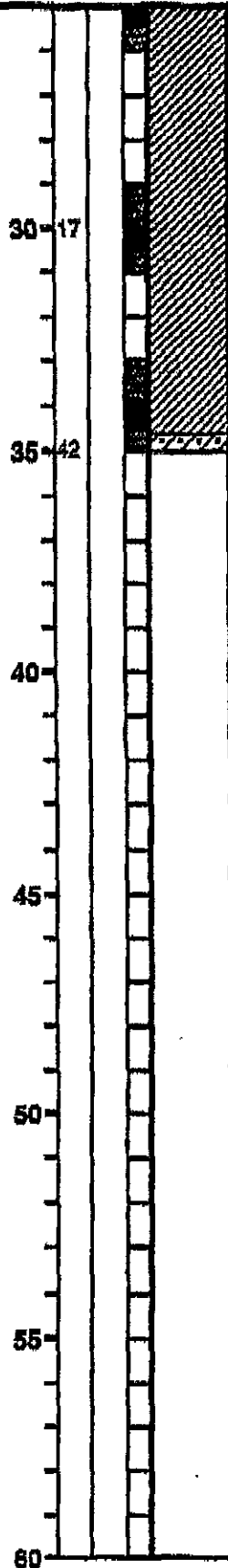


Bentonite

4" Sch 40 PVC
 0.010" slotted
 casing

Bottom of 4" slotted
 casing @ 35 feet.

10" Boring



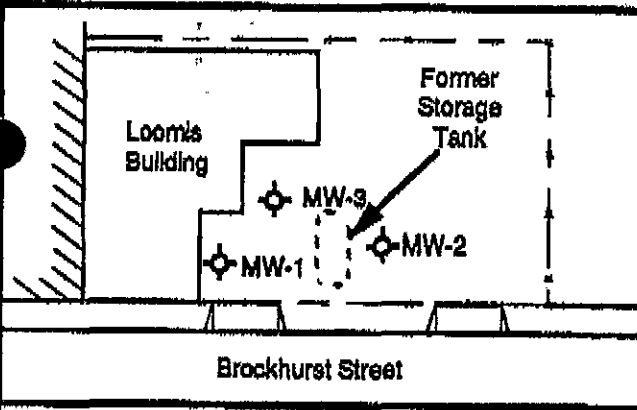
CLAY (CL) continued, Dark Yellow Brown (10YR 4/6); trace fine-medium sand; trace gravel; hard; moist.

@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

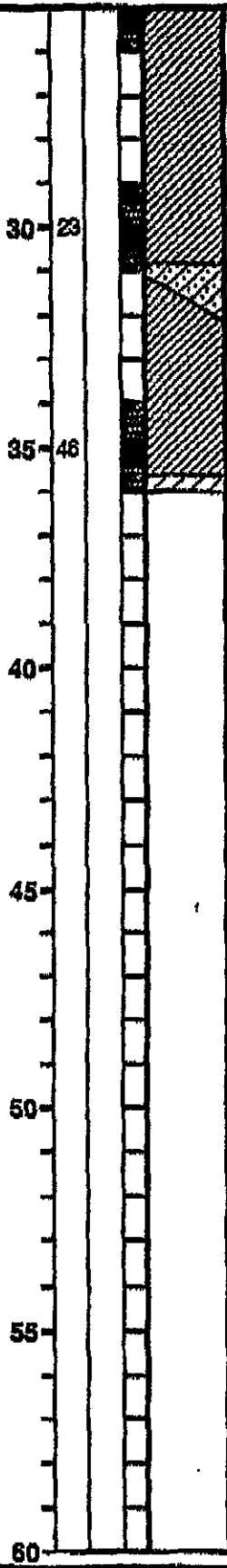
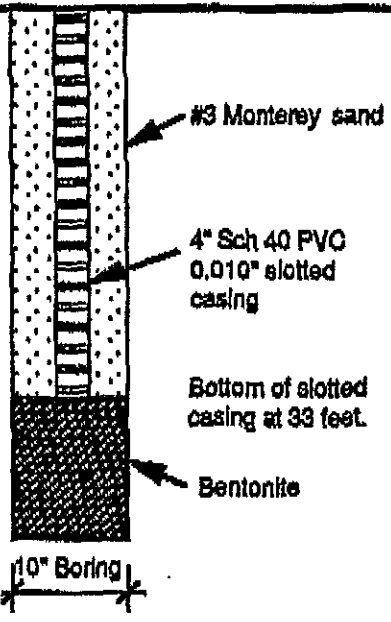
WELL CONSTRUCTION	Depth (ft.)	Blowft.	Casiback (ft)	Graphic	DESCRIPTION
10" Boring	0				Surface Elevation: 28.83 feet Casing Elevation: 28.07 feet
Traffic Rated Utility Box					Asphaltic Concrete
Locking water-tight cap					CLAY (CL), Yellowish Brown (10YR 5/6); 5-10% well graded sand; moist.
Concrete					
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					SANDY CLAY (CL), Black (10YR 2/1); 15-20% fine-medium sand w/trace coarse; stiff; moist.
4" Sch 40 PVC Blank casing	10	18			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.
					@ 14 feet: Very Dark Grayish Brown (2.5Y 3/2); 25-30% well graded sand; moist.
					▼ 14.54 feet Date: 8/20/90
					@ 18 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					CLAY (CL), Dark Yellowish Brown (10YR 4/6); 30-35% well graded sand; trace gravel; hard; dry-moist.
	25	18			@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

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

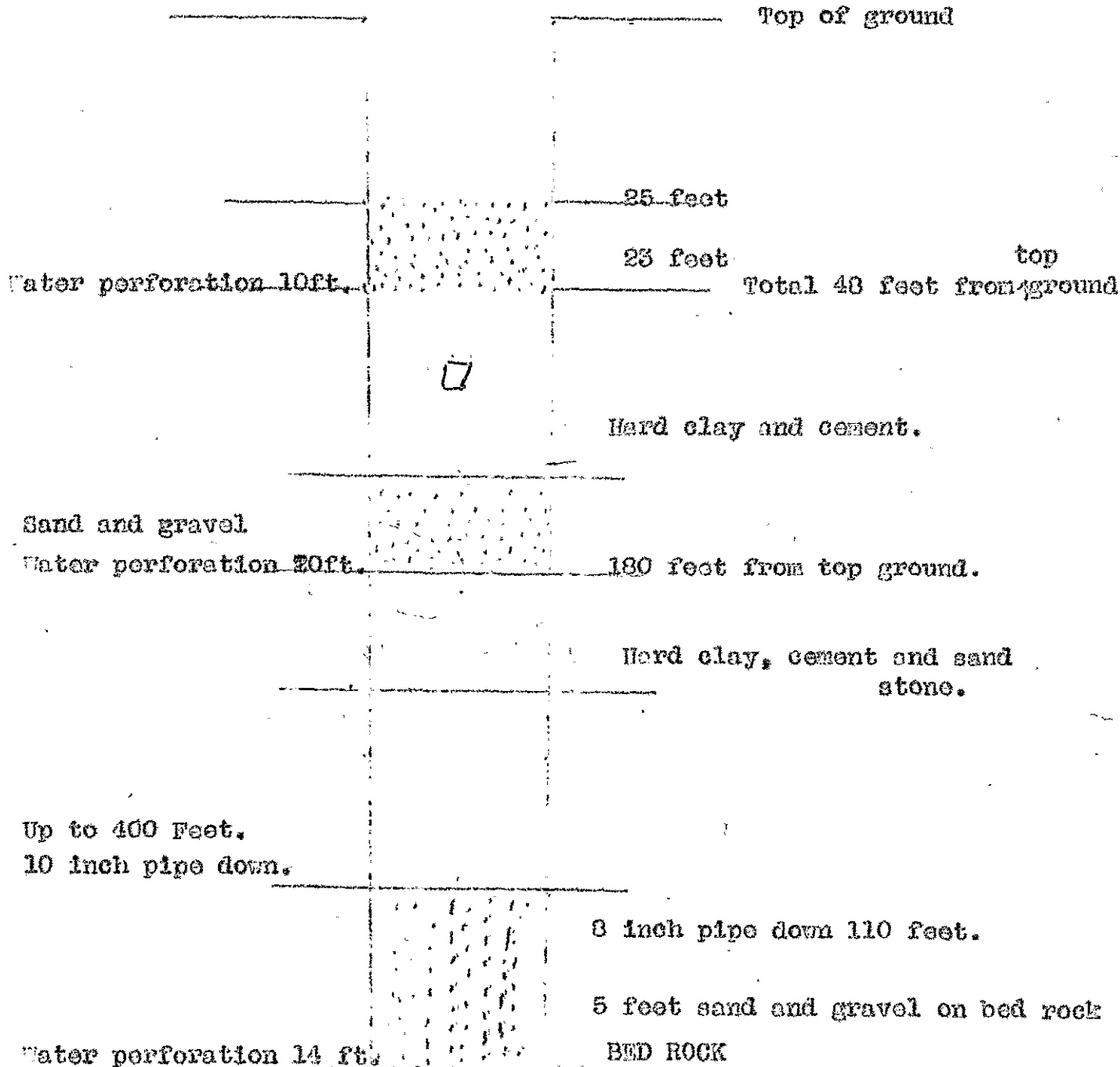
SAN FRANCISCO

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.

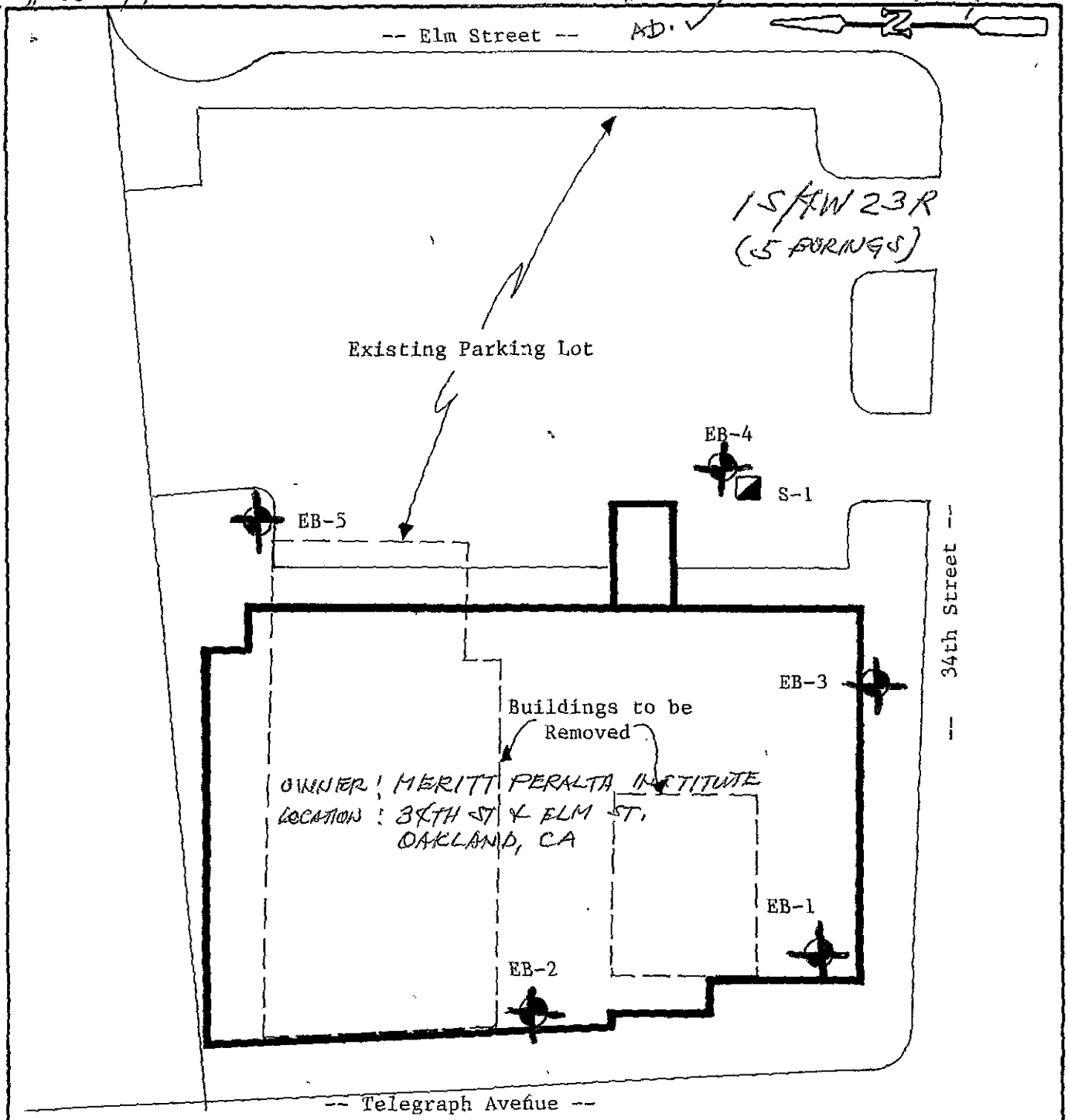
Finished July 30-August 1, 1926, by

U. S. NORMAN.

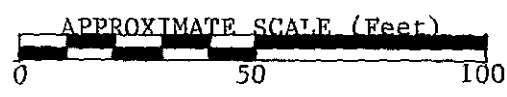
80247 01-401 A-E

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		12*				
				3						
				4						
CLAY, silty, sandy (fine-coarse grained) (lense of sand fine-coarse grained, silty clayey) (FILL) ↑	medium brown	firm	CL	5		5	15			
SAND, (fine-coarse grained), some silt, with gravel (fine grained) with lenses and balls of clay, silty, sandy (fine-coarse grained)	tan and red	medium dense	SM-SC	6						
				7						
				8						
				9						
Passing #200 Sieve = 36%			SC	10		18				
				11						
				12						
				13						
CLAY, silty, some sand (fine-medium grained)	beige mottled with black	very stiff	CL ML	14		33*	29	92	3.4	
				15						
				16						
				17						
				18						
Grading sandy (fine-medium grained)				19						
				20		34*	23	101	2.6	



Kaldveer Associates
Geoscience Consultants
A California Corporation

EXPLORATORY BORING LOG

MPI OFFICE AND PROGRAM BUILDING
Oakland, California

PROJECT NO.

K1047-1

DATE

June 1988

BORING NO.

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					
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					
				30					
Bottom of Boring = 30 Feet				31					
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.				32					
				33					
				34					
				35					
				36					
				37					
				38					
				39					
				40					



Kaldveer Associates
 Geoscience Consultants
 A California Corporation

EXPLORATORY BORING LOG

MPI OFFICE AND PROGRAM BUILDING
 Oakland, California

PROJECT NO.

DATE

BORING NO.

K1047-1

June 1988

1

788247

01-401B

1S/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:				32					
1. The stratification lines represent the approximate boundaries between soil types and the transitions may be gradual.				33					
2. For an explanation of penetration resistance values marked with an asterisk (*) see first page, Appendix A.				34					
3. Groundwater level was measured at 19 feet at time of drilling.				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/AW23R

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					
				9		28			
				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		24*			
		firm		2					
				3					
			4						
CLAY, silty, some sand (fine-to medium-grained)	medium brown mottled black	stiff	CL	5		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		20	12		
				8					
				9					
				10					
				11					
SILT, clayey, trace of sand (fine-grained)	beige mottled with black	stiff-very stiff	ML	12		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		45*	19	108	16.9
				17					
				18					
				19					



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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					



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EXPLORATORY BORING LOG

MPI OFFICE & PROGRAM BUILDING
 Oakland, California

PROJECT NO.

K1047-1

DATE

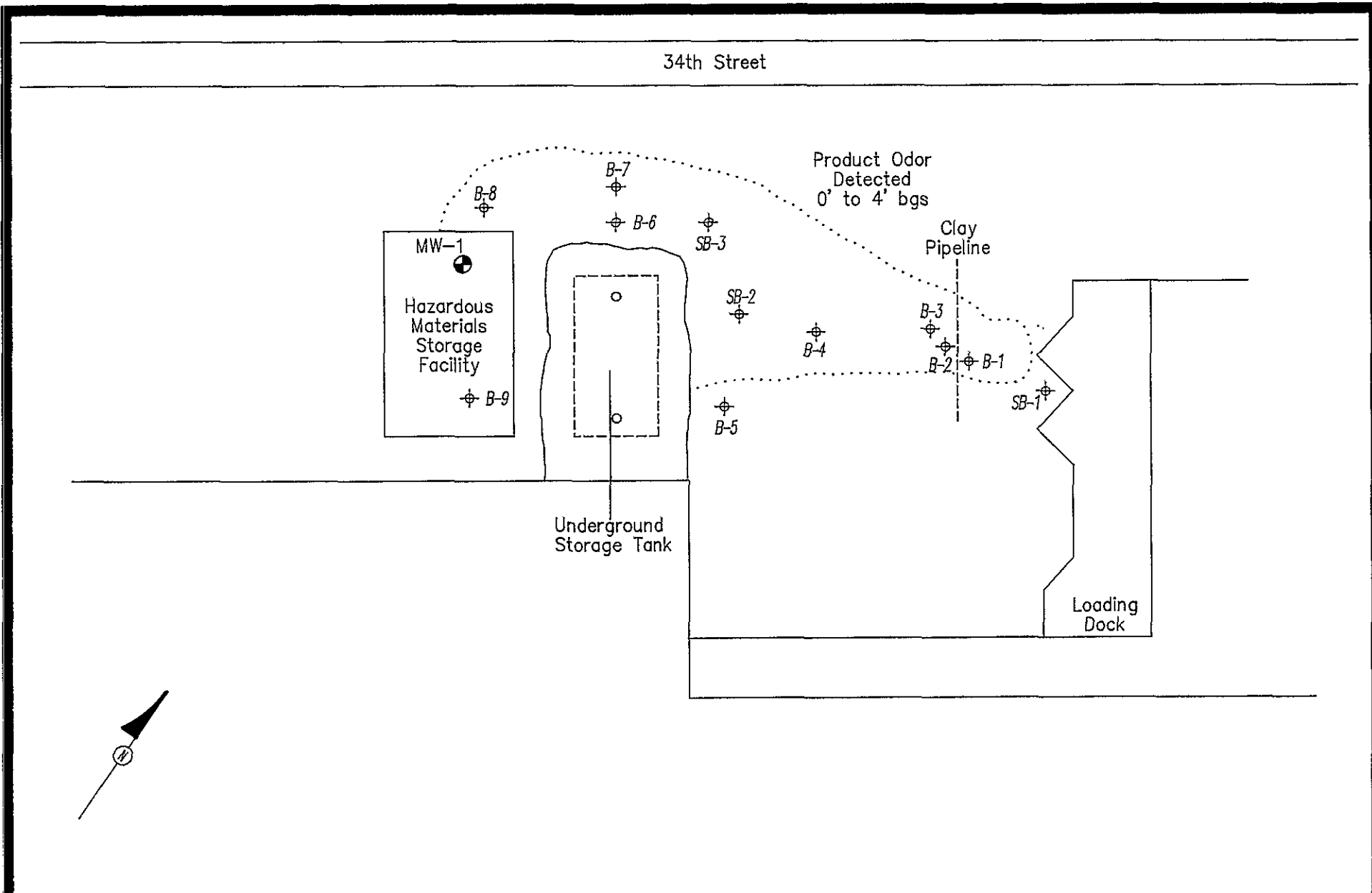
June 1988

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 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 2 of 3	
Field Location of Boring: ~ 10' southwest of excavation pit						Drilling Method: Continuous flight hollow stem auger					
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	Water Level	21.97'	22.66'			
						Time	1400	1551			
						Date	4-13-92	4-17-92			
DESCRIPTION											
		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 Date: April 11, 1992
Client: Summit Medical Center
Location: 350 Hawthorne Avenue, Oakland
Logged By: R. Silva Driller: West Hazmat

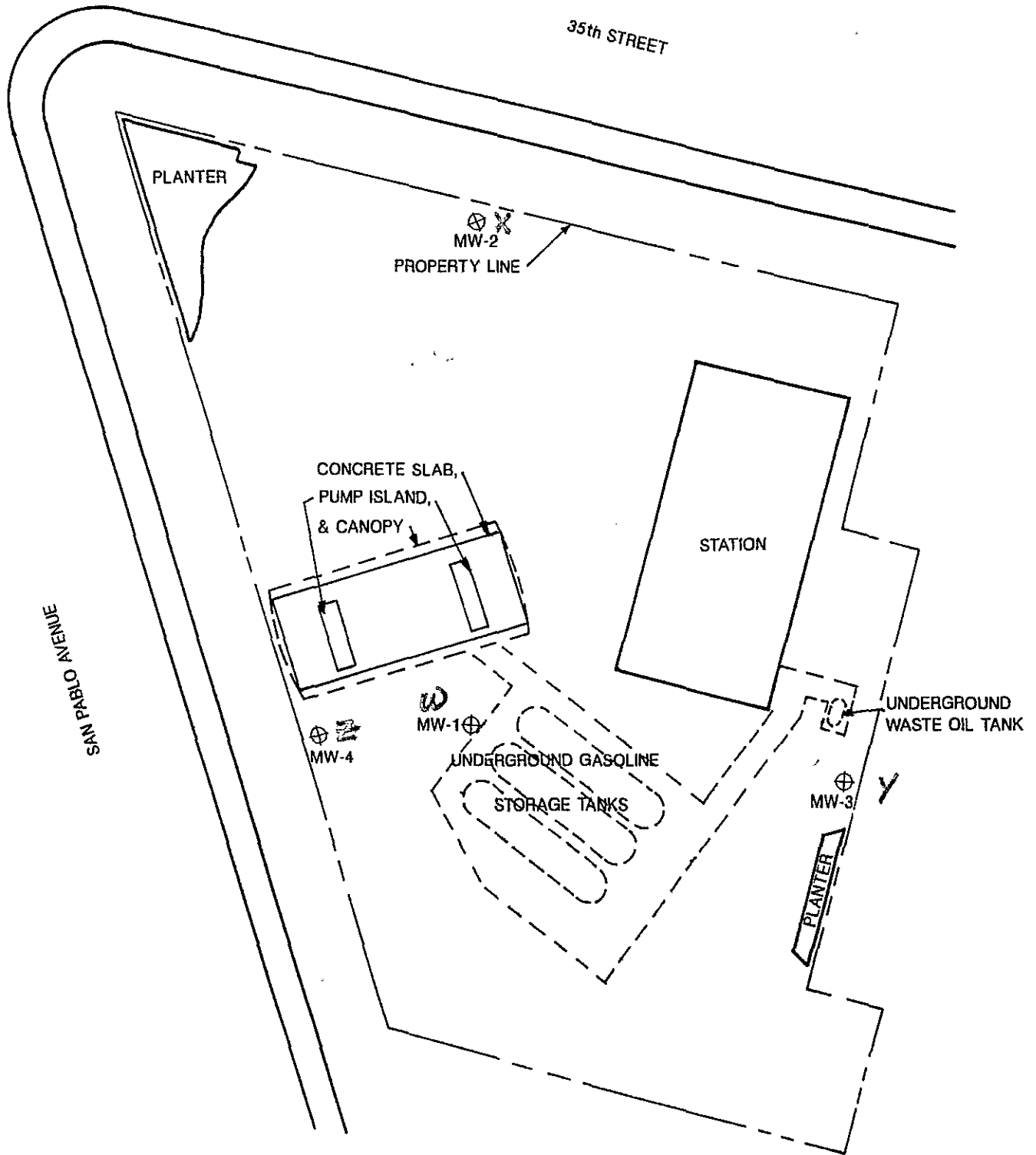
BORING NO. MW-1 Sheet 3 of 3

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

Table with columns: Blow Count, PID, QVA (ppm), Depth (ft), SAMP, Soil Group Symbol (USCS), Lithographic Symbol, and DESCRIPTION. Includes data for depths 37-54 and a note 'Terminated borehole at 40'; set well at 40'.



LEGEND:

⊕ MW-1 MONITORING WELL LOCATIONS



SCALE



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: *Mal...*

89/02

Lic# C57-519428

01-17W

Inu Add 15/44 23M9

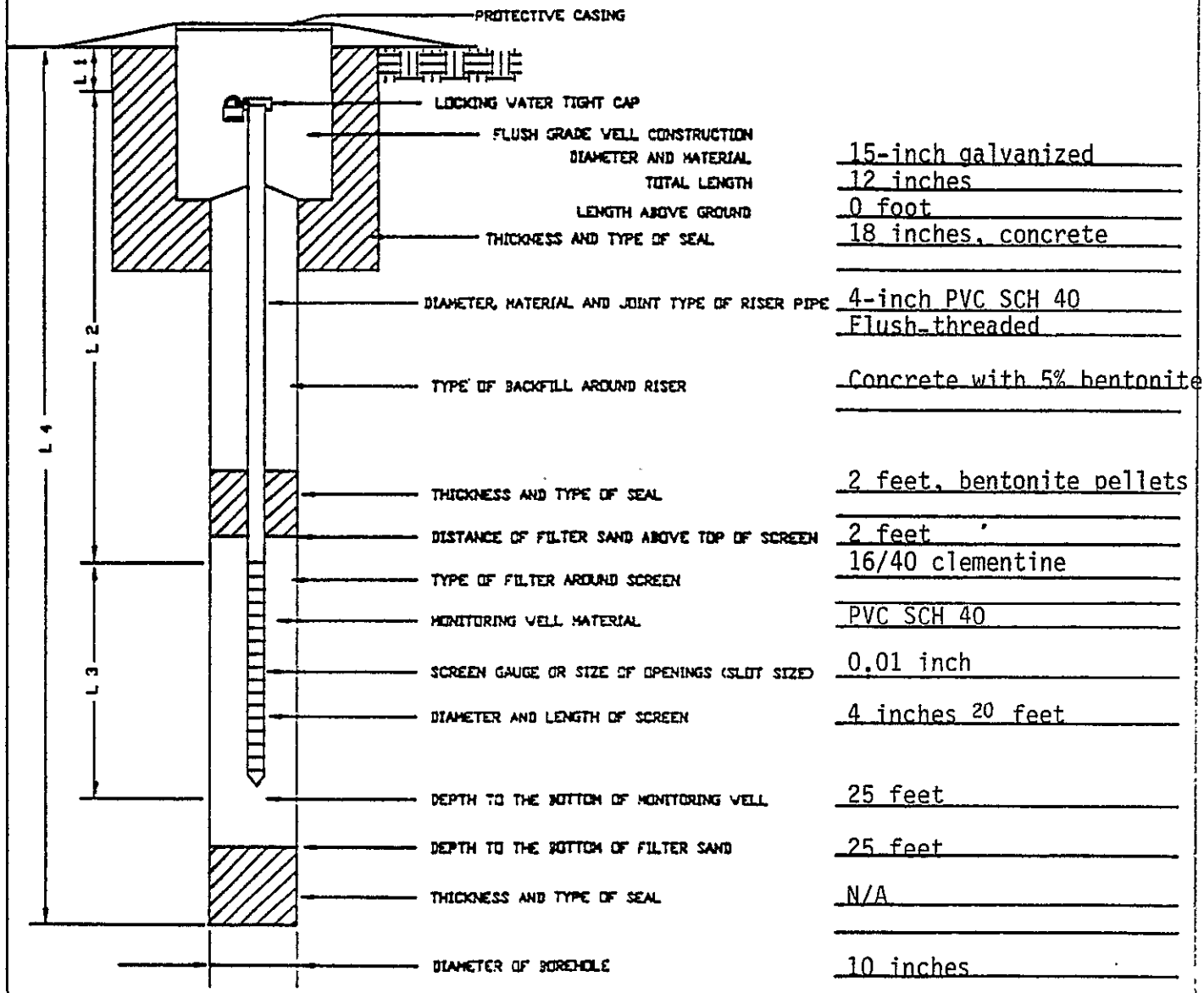
INSTALLATION OF FLUSH GRADE MONITORING WELL

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 3420 San Pablo Avenue Oakland, CA	PROJECT NUMBER: 40-88-666	BORING NUMBER: MW-1	SHEET 1 OF 2
	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 M P L E	T A M P L E	S N A U M P L E	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
CA	MW1 1	9/ 12/ 15	5.0- 6.5	18	1	ASPHALT AND ROAD BASE			
					2	CLAY; very dark gray, highly plastic, slightly moist, no sand (CH)			
					3				
					4				
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	
					6				
					7				
					8				
					9				
CA	MW1 3	6/6/ 9	15.0- 16.5	17	10		375	Slight odor	
					11				
					12				
					13				
					14				
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	
					16				
					17				
					18				
					19				
					20		3	Very slight odor	
					21				
					22				
					23				

WATER LEVEL DATA				PROFESSIONAL GEOLOGIST	
DATE				SIGNATURE	TYPED NAME
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 PE L E	SN AU P L E R	BC LO U W N 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				SIGNATURE	
TIME					
GWL					
CASING DEPTH					

Invol Addl S/HW 23 M10

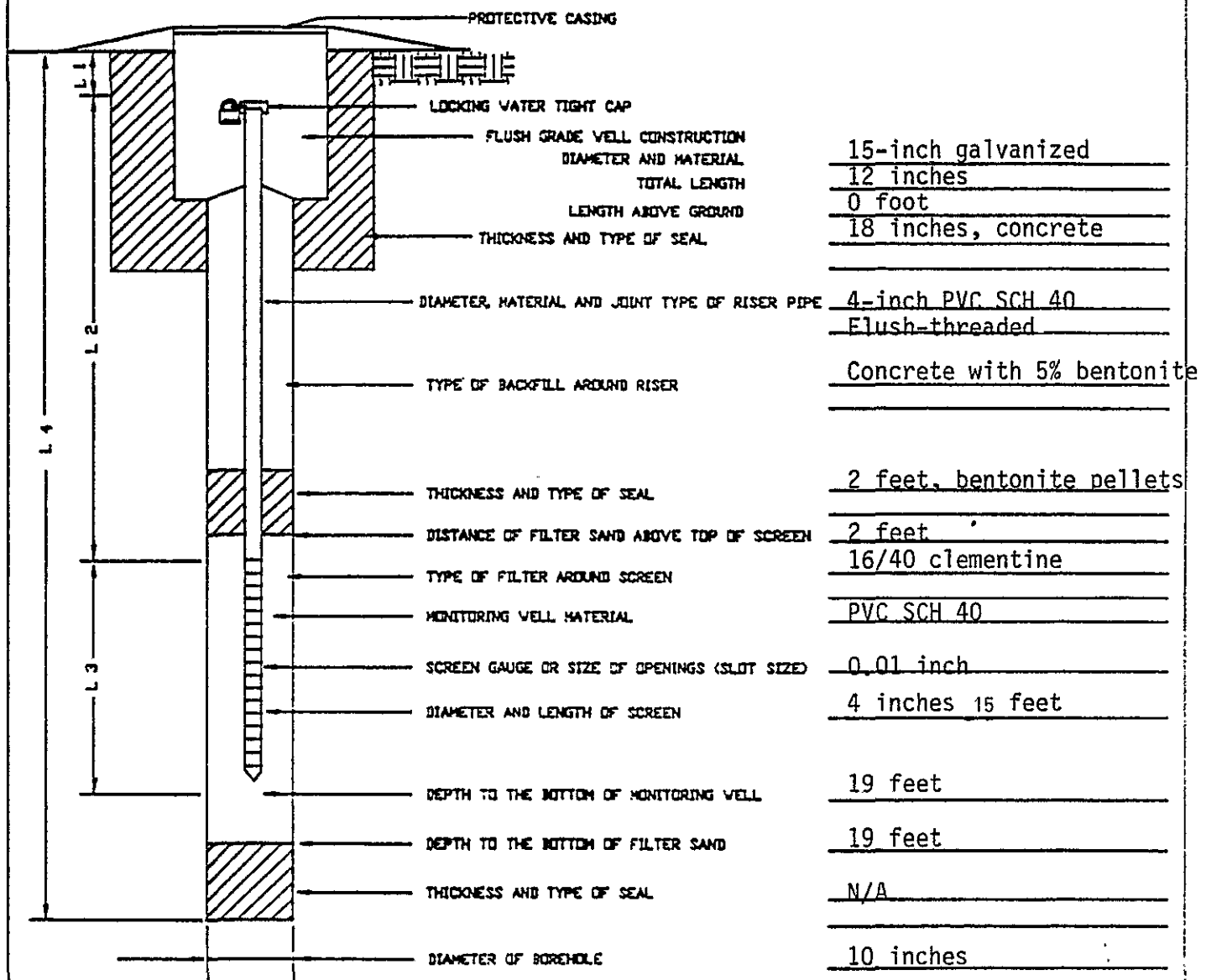
INSTALLATION OF FLUSH GRADE MONITORING WELL

PROJECT Oakland Shell

MONITORING WELL NO. MW-2

DELTA NO. 40-88-666

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 - ASPHALT AND ROAD BASE 2 - CLAY; very dark gray, highly plastic, slightly moist, no sand (CH) 3 - 4 - 5 - SANDY CLAY; dark greenish gray, moderately low plasticity, slightly moist, sand grades to gravel at bottom of the unit (CL) 6 - 7 - 8 - 9 -	25	Moderate odor	
CA	MW2 2	9/ 10/ 14	10.0- 11.5	17	10 - 11 - 12 - 13 - 14 -	75	Moderate odor	
CA	MW2 3	4/5/ 7	15.0- 16.5	16	15 - SILTY CLAY; dark yellowish brown, moderately low plasticity, moist stiff gravel toward bottom of the unit (CL) 16 - 17 - 18 - 19 -	0	No odor	
CA	MW2 4	12/ 26/ 35	20.0- 21.5	17	20 - Total Depth 20.0 feet 21 - 22 - 23 -	0	No odor	

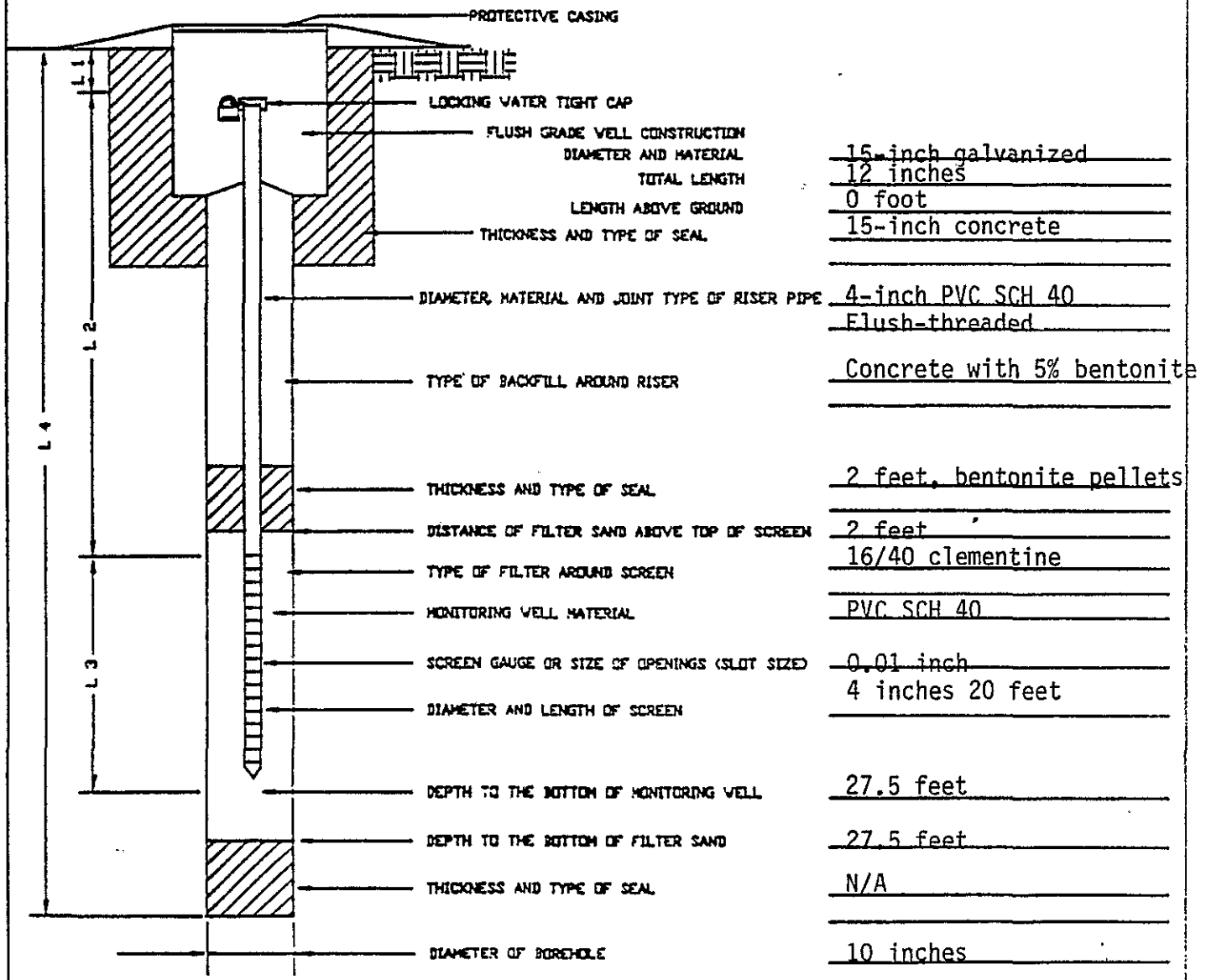
WATER LEVEL DATA				PROFESSIONAL GEOLOGIST	
DATE				SIGNATURE	TYPED NAME
TIME					
GWL					
CASING DEPTH					

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



Delta
 Environmental
 Consultants, Inc.

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 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: 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	
TIME					
GWL					
CASING DEPTH				TYPED NAME	

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 I D E N T I F I C A T I O N	S I A N T P L E (ft)	S R A E M C P O L V E (in)	D E P T H S C A L E 1"= 4'	D E S C R I P T I O N S O F M A T E R I A L S A N D C O N D I T I O N S	CONTAMINANT OBSERVATION	G E N E R A L O B S E R V A T I O N N O T E S O d o r
								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	29-30	Total Depth 30.0 feet	0	No odor
						31-45			

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

Add Invo 15/4W23 M 12 01-2172

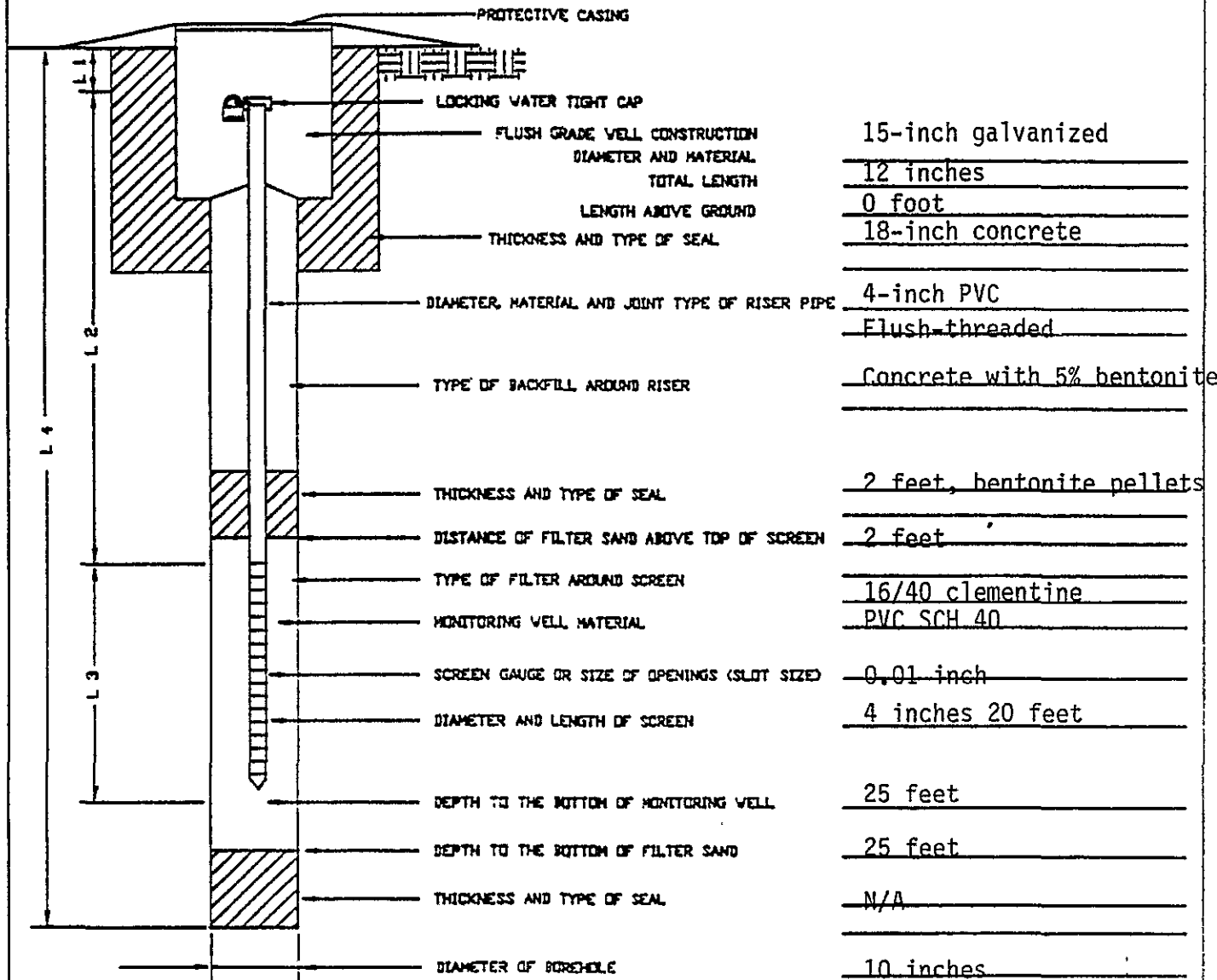
INSTALLATION OF FLUSH GRADE MONITORING WELL

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 LLE	SNAU MPE LER	BLOU WNT S	SIAN MPT L E(ft)	SRAE MCP OLV 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	20		0	No odor
					21			
					22			
					23			

WATER LEVEL DATA				PROFESSIONAL GEOLOGIST	
DATE				SIGNATURE	TYPED NAME
TIME					
GWL					
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 A M P L E	S N U M B E R	B C L O U M B E R	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	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					

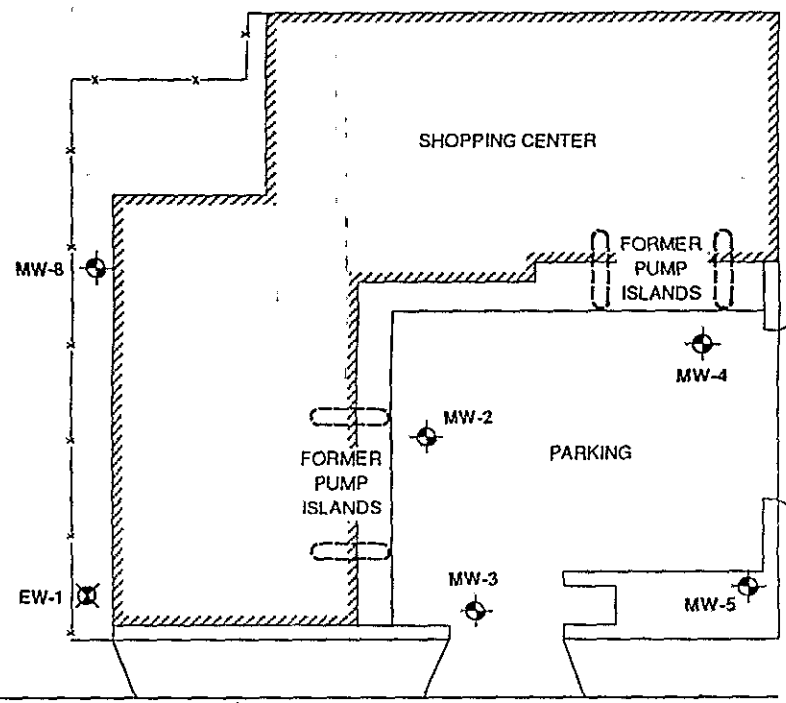
PERMIT 91633 CS7 437836

ph: 415-5434200

1369



RESIDENCES



OMW-12

OMW-6

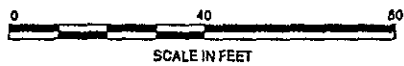
40th STREET

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		

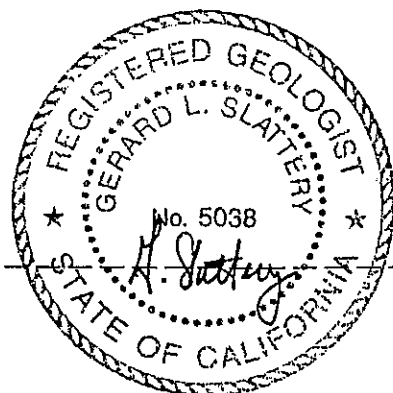
01-530F-G-H
TELEGRAPH AVENUE
MHW - OFS OIL 23NOV 12
HOS
NOV 13

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					moist	medium dense	gray with rust	5	
10	2				Clayey Sand, little fine Gravel				13	
	S								10	
	S								14	
	S								16	
									18	
	S					moist to very moist			9	
	S								11	
									14	
									18	
	3				Slightly Clayey, coarse Sand, trace to little fine Gravel	wet	loose		5	
15	S								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				Silty fine Sand			brown	6	
									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		
	S				Fine Gravelly fine to medium Sand SP			gray	16		
	SPT 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

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	stiff	rust with gray	5 8 6 7	
	S				Becoming Sandy				4 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

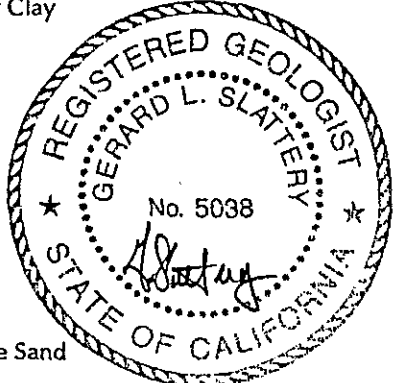
LOG OF BORING NO. OMW-13

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"


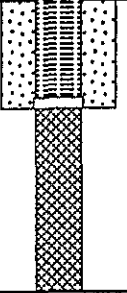
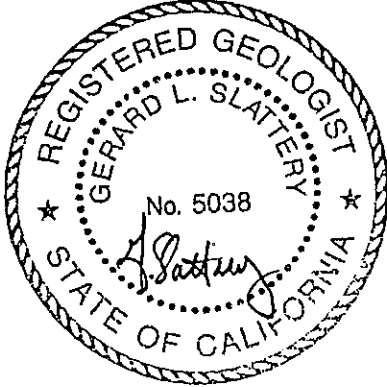
DEPTH (FT)	SAMPLE	WATER LEVEL	SYMBOL	WELL CONSTRUCT.	DESCRIPTION	MOISTURE	SOIL CONSISTENCY OR ROCK HARDNESS	COLOR	BLOWS / 6"	PERCENT RECOVERY
					8" Concrete, 8" Base					
					Silty Clay	moist	stiff	dark gray black		
	S							mottled gray brown	4	
5	1								8	
	S				trace Sand			gray	5	
	S				Grading into fine Sandy Clay				9	
	S								12	
	S								14	
	S				Fine Sandy Clay/Clayey Sand				5	
10	2								7	
	S				Silty Clay		stiff	light gray with rust	6	
	S				Clayey Sand and Gravel		dense		11	
	S								24	
	S								25	
	S								9	
	S								15	
	S					wet			16	
	S						medium dense		20	
15	3								8	
	S				Sandy Silt		stiff	rust	9	
	S				Clayey Sand and Gravel			brown	10	
	S								7	
	S								12	
	S								16	
	S								12	
	S								19	
	S								23	
	S								34	
20	S					wet	medium dense		10	
	S								15	



SHELL OIL COMPANY
500 40th Street
Oakland, California

Project No.
88-44-361-20

1369

DEPTH (FT)	SAMPLE	WATER LEVEL	SYMBOL	WELL CONSTRUCT.	DESCRIPTION	MOISTURE	SOIL CONSISTENCY OR ROCK HARDNESS	COLOR	BLOWS / 6"	PERCENT RECOVERY
	S				Silty Clay	CL	very moist	stiff	gray brown	5
	S	moist			6					
	SPT 3				7					
	SPT 3				Sandy Clay with occasional Clayey Sand lens		very moist		gray with rust	4
										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

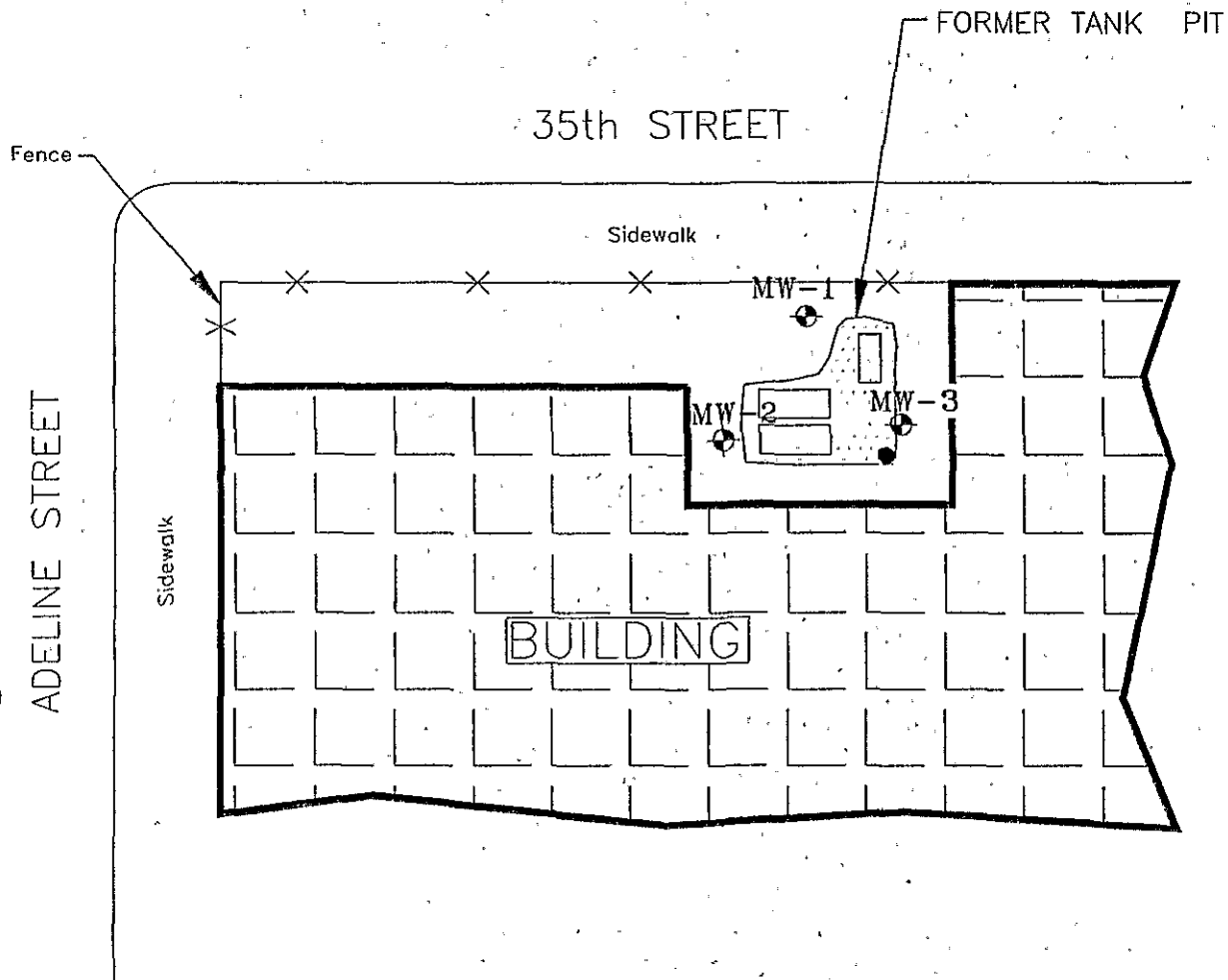


Converse Environmental West

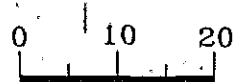
Drawing No.

A-7

FIGURE 2



SCALE:



1" = 20'

MONITORING WELL

CITY OF PARIS CLEANERS
 3516 ADELINE STREET
 OAKLAND, CALIFORNIA

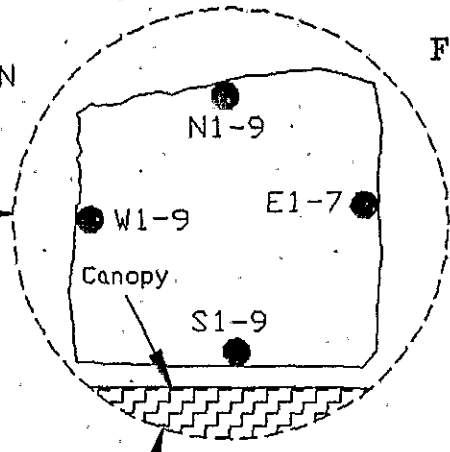
URIAH, INC.
 AN ENVIRONMENTAL SERVICES COMPANY

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

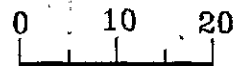
A2

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

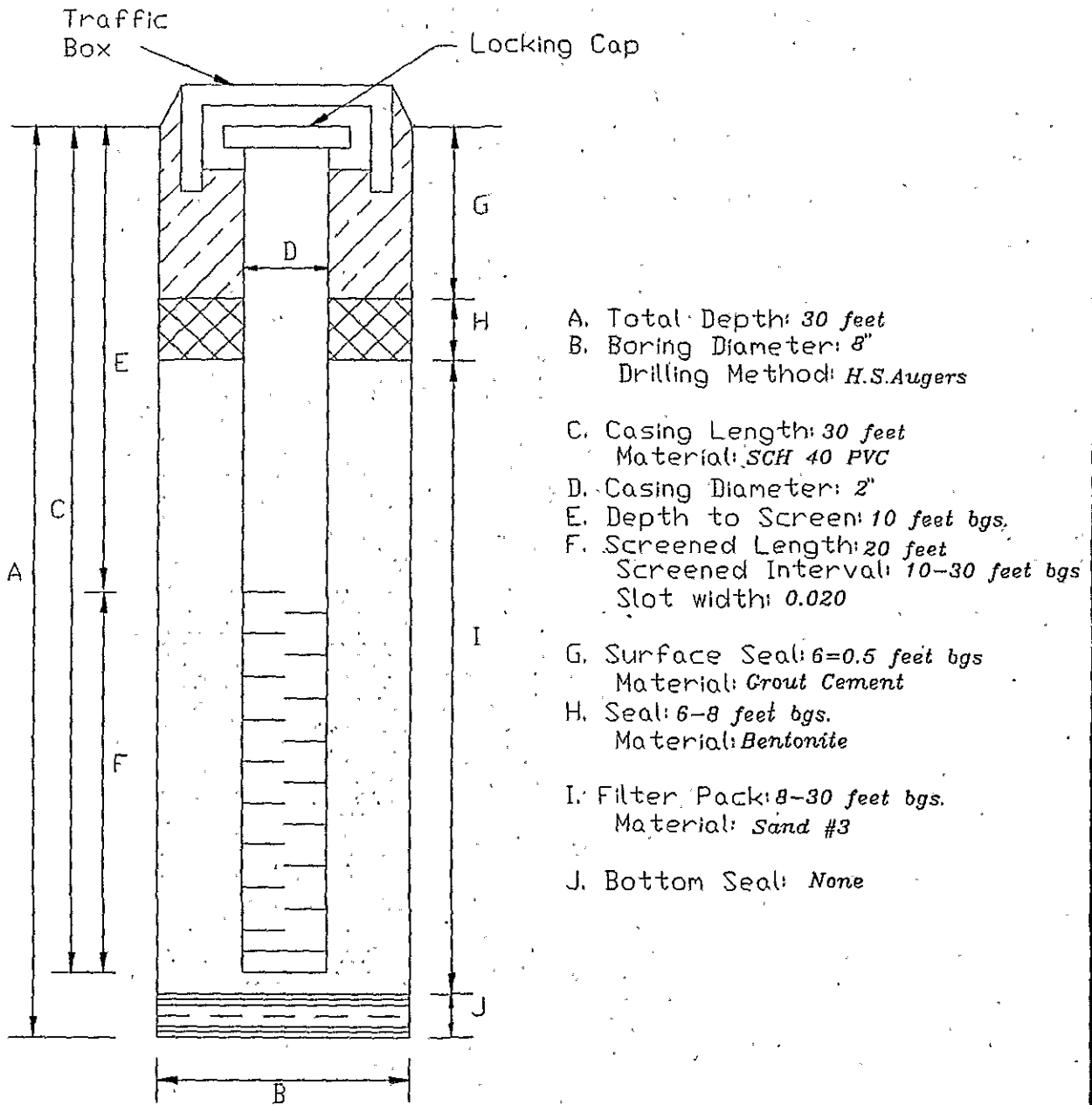
URIAH, INC.
AN ENVIRONMENTAL SERVICES COMPANY

WELL DETAILS

Client: Champion Estate

Location: 3561 Adeline St., Oakland, CA

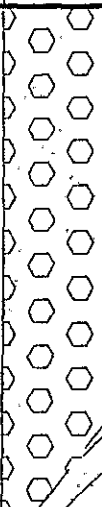
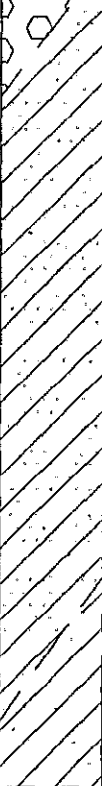
Monitoring Well Number: MW-1 through MW-3



- A. Total Depth: 30 feet
- B. Boring Diameter: 8"
Drilling Method: H.S. Augers
- C. Casing Length: 30 feet
Material: SCH 40 PVC
- D. Casing Diameter: 2'
- E. Depth to Screen: 10 feet bgs.
- F. Screened Length: 20 feet
Screened Interval: 10-30 feet bgs
Slot width: 0.020
- G. Surface Seal: 6-0.5 feet bgs
Material: Grout Cement
- H. Seal: 6-8 feet bgs.
Material: Bentonite
- I. Filter Pack: 8-30 feet bgs.
Material: Sand #3
- J. Bottom Seal: None

SOIL BORING LOG

CLIENT: CHAMPION ESTATE WELL #: MW-1
 LOCATION: 3516 ADELINe 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.				
15		MW1-15	CLAYEY SAND; GREENISH GRAY; MEDIUM; MEDIUM DENSE; MOIST; VAGUE HYDROCARBON ODOR.				
20		MW1-20	CLAYEY SAND; OLIVE GRAY; POORLY GRADED; MEDIUM; MEDIUM DENSE; WET; NO HYDROCARBON ODOR.				
25			CLAYEY SAND; OLIVE GRAY; POORLY GRADED; MEDIUM; MEDIUM DENSE; WATER SATURATED; NO HYDROCARBON ODOR.				
30			SANDY CLAY; WITH SOME GRAVEL; LIGHT BROWN; WITH LOW PLASTICITY; STIFF; WATER SATURATED; NO HYDROCARBON ODOR.	SC		3, 5, 10	
				CL			

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: V. 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.	GW	Hexagonal pattern	3, 6, 14	
15		MW2-15	CLAYEY SAND; GREENISH GRAY; MEDIUM; MEDIUM DENSE; MOIST; HYDROCARBON ODOR;	GW	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.	SC	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 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 30.20'

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 ADDRESS: 3516 ADELINE 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 30.05' 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)

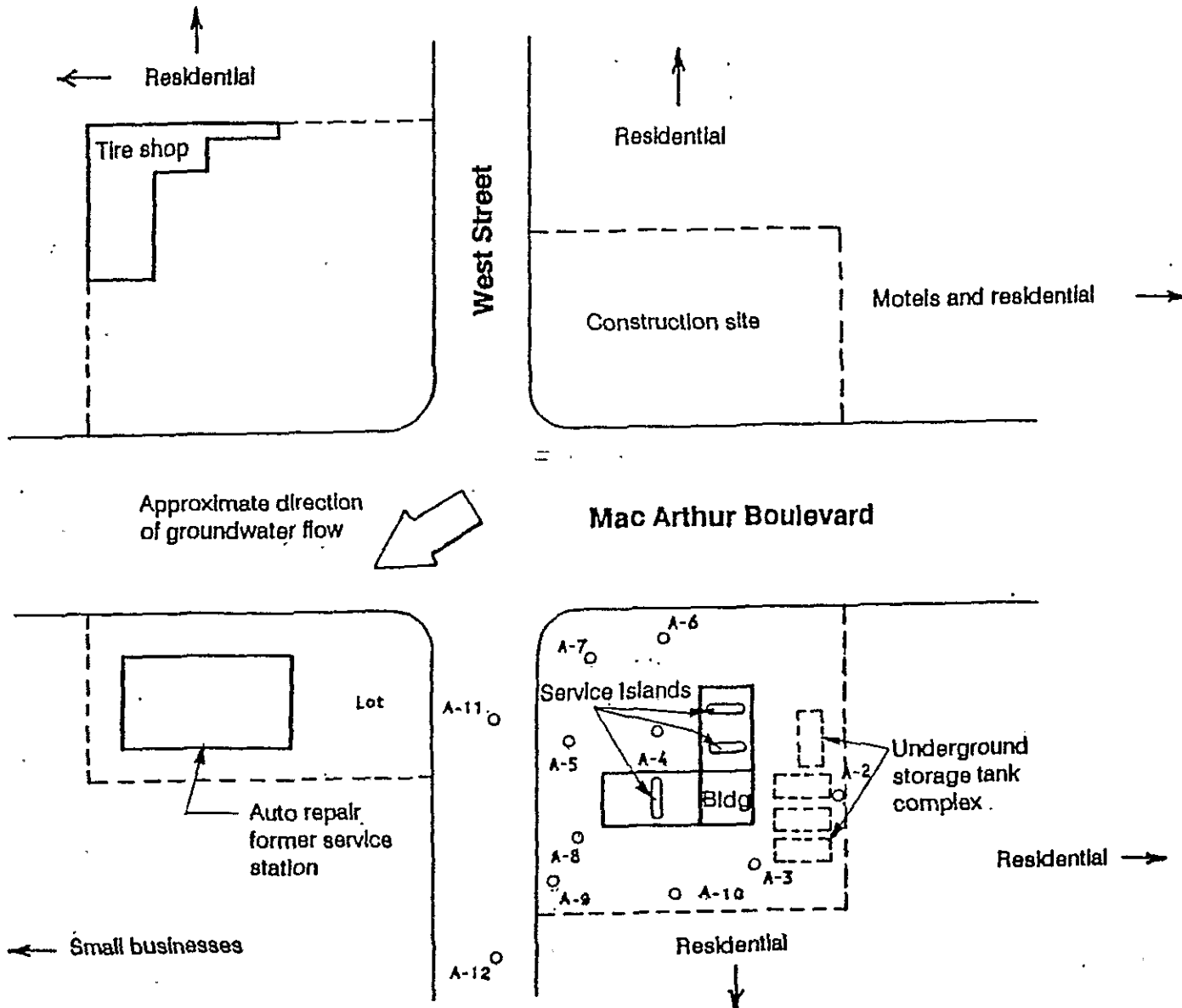
Multiply 1 well volume by 3 to obtain the minimum number of gallons of water to be purged from monitoring well prior to taking samples.

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

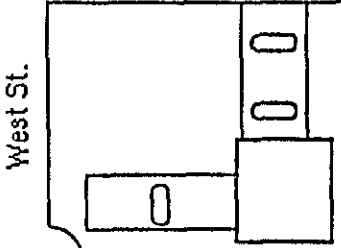
INTENDED SITE MAP

FIGURE:
2
PROJECT:
12.03

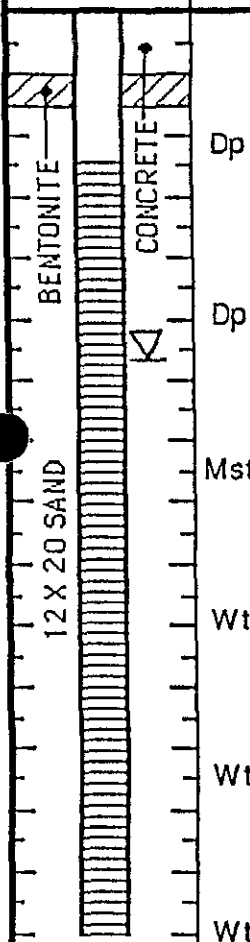
<p>LOCATION MAP MacArthur</p> <p>West St. A-9 ELEVATION</p>	<p>PACIFIC ENVIRONMENTAL GROUP, INC.</p> <p>PROJECT NO. 130-12.03 LOGGED BY: MD DRILLING METHOD: HSA SAMPLING METHOD: CAL MOD CASING TYPE: Sch 40 PVC SLOT SIZE: 0.020 GRAVEL PACK: 12 X 20 SAND</p>	<p>WELL / A-9 BORING NO. PAGE 1 OF 1</p> <p>CLIENT: 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	10			@9'; as above; no sand or gravel; gray mottle around rootholes; rootholes moist; stiff; faint product odor.
				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			
		Wt	24	20			@19'; as above; medium dense; no product odor.
				22			
		Wt	35	24			@24'; as above; dense; no product odor.
				26			
		Wt	14	30		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.
				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			

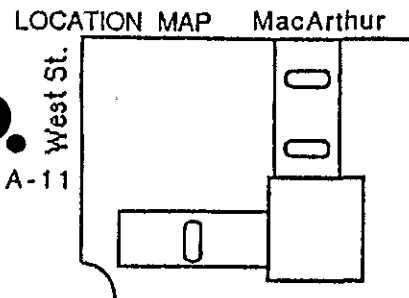
BOTTOM OF BORING AT ~45'

<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'



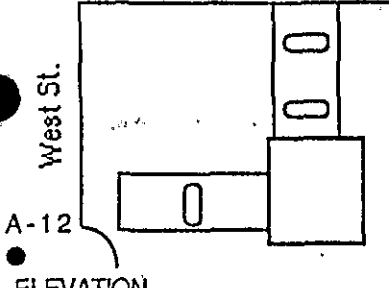
15/4W23K3
DL-261 C









<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				
			51	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>
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WELL COMPLETION	MOISTURE CONTENT	TIP	PENETRATION RESISTANCE (BLOWS/FT)	DEPTH (FEET)	SAMPLE GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS	
 <p>BENTONITE CONCRETE 12 X 20 SAND</p>				2		CL	ASPHALT. CLAY; tan; silty; 10-15% fine sand; trace organics; roots; rootholes; rootholes dry. @3 1/2'; no product odor.	
			P	4				
				6				
				8				
				14	10			@9'; as above; trace sand; no organics; rootholes mottled gray; rootholes wet; stiff; no product odor.
				15	12			
				15	14		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.
				28	16			
				28	18			
				28	20			@19'; as above; thin interbedds of medium grained sand; medium dense; no product odor.
				16	22			
				16	24			
				16	26		CL	CLAY; tan; iron oxide stains; trace fine sand; silty; very stiff; no product odor.
				24	28			
				24	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

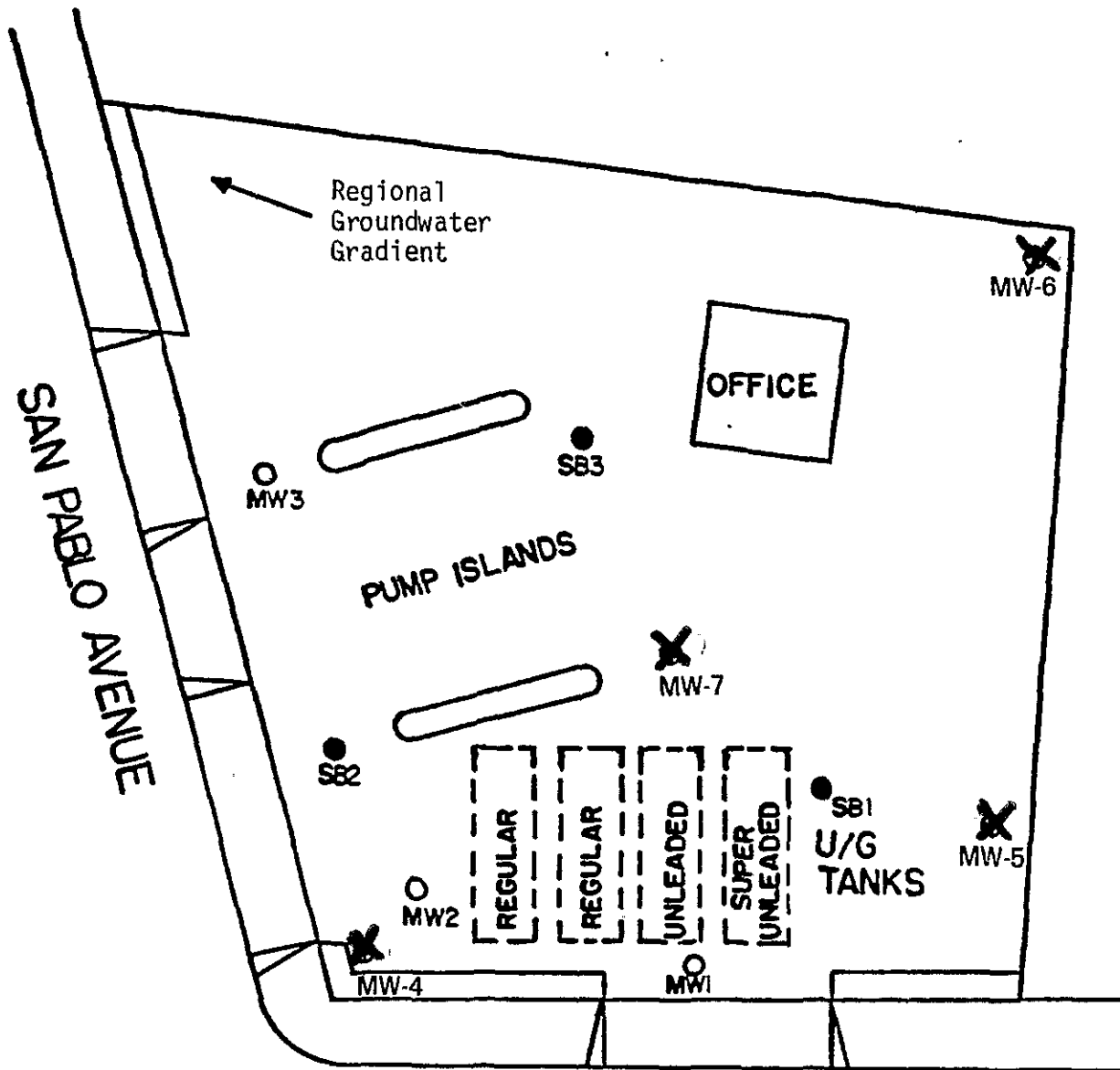
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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
3400 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.

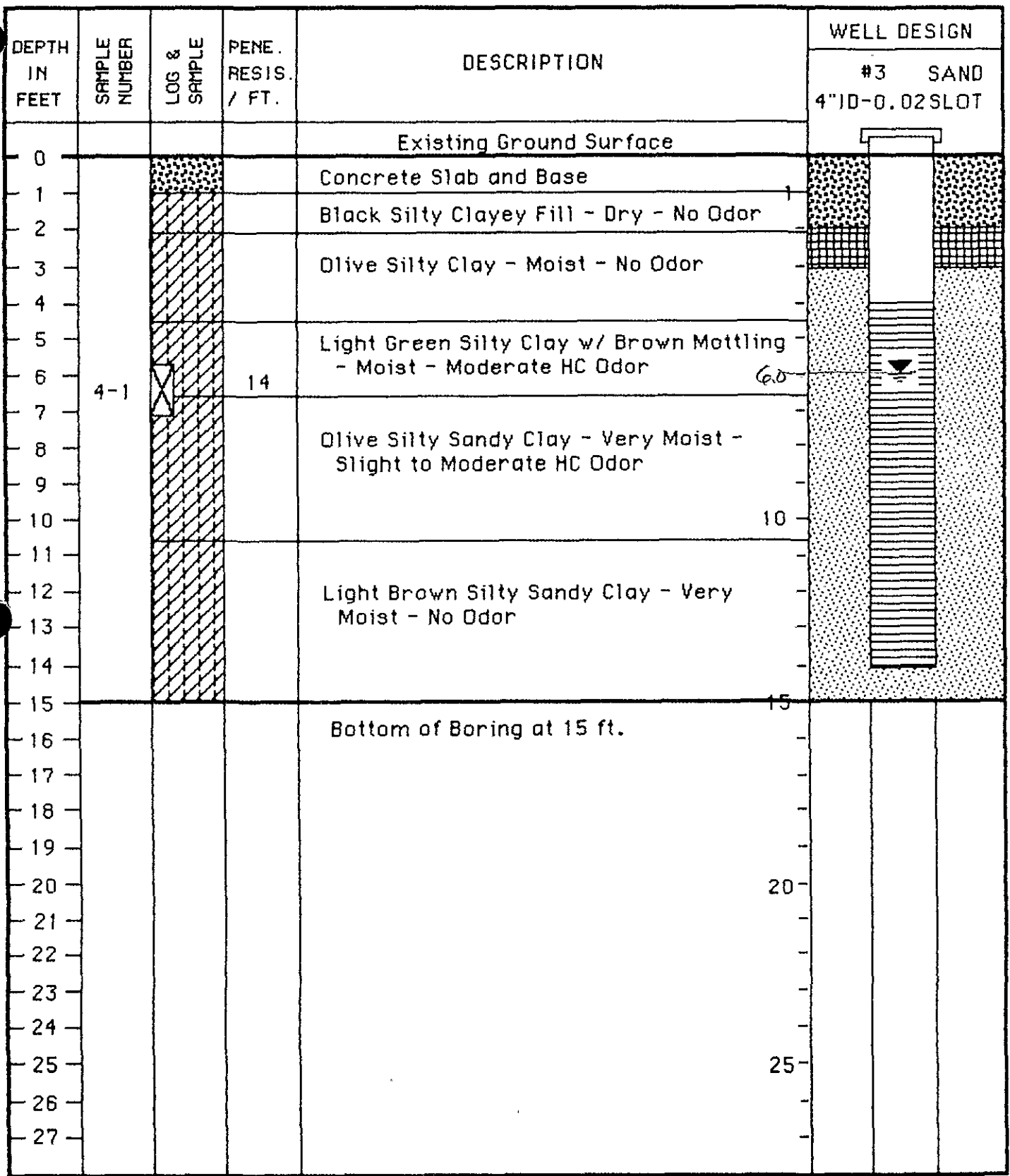


Figure 2 - Test Boring Log No. B-1
- Monitoring Well No. MW-4

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.

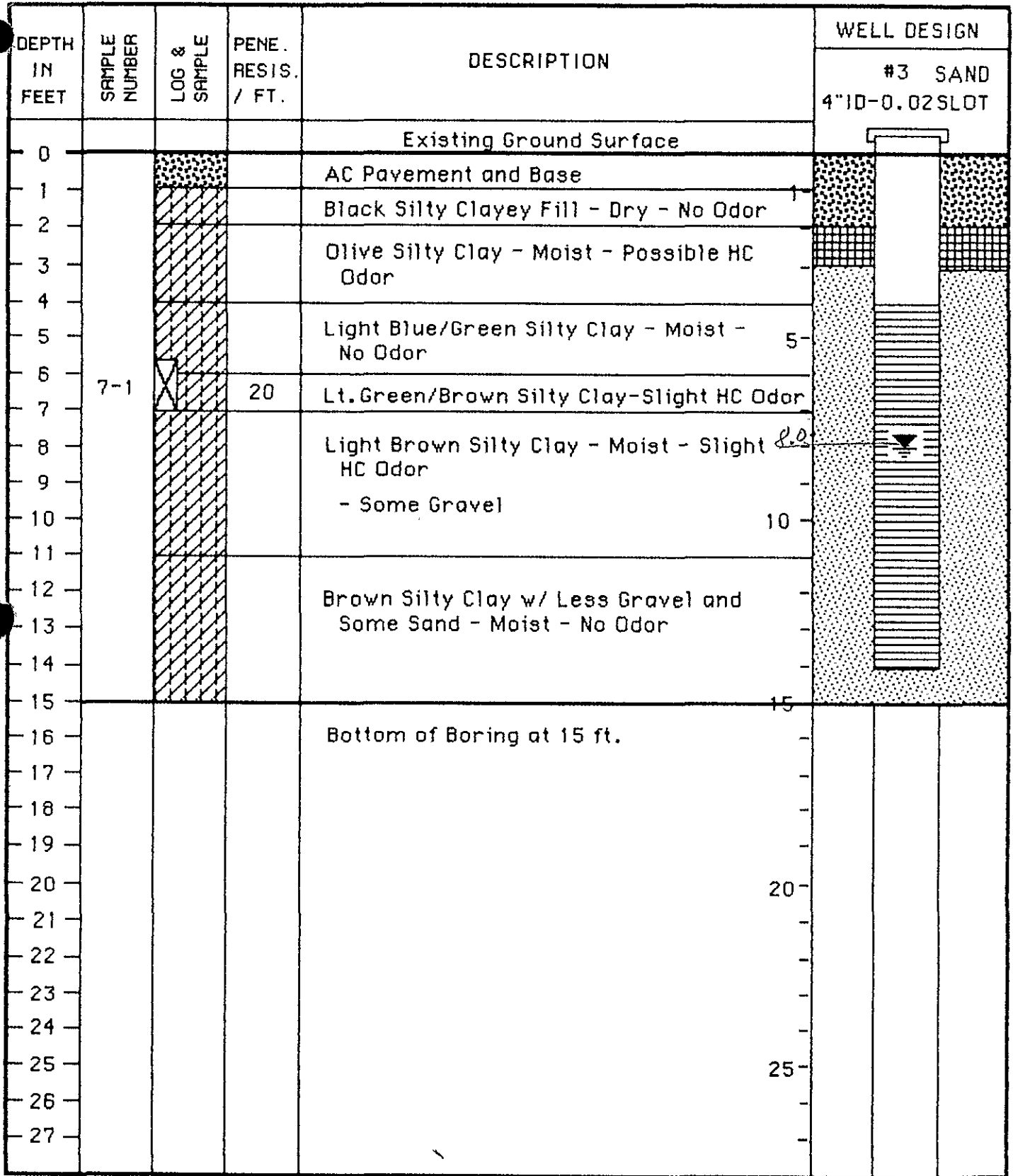


Figure 5 - Test Boring Log No. B-7
- Monitoring Well No. MW-7

Woodward-Clyde Consultants