S. T. Hooton
Team Leader
Environmental Remediation Management

BP Exploration & Oil Inc.
295 SW 41st Street, Bldg., 13, STE N
Renton, WA 98055-4931
Phone: 425-251-0689
Fax: 425-251-0736

STID 1108
DH

BP OIL

February 29, 2000

Alameda County Health Care Services Agency
Attention Ms. Juliet Shin - Hazardous Materials Specialist
1131 Harbor Bay Parkway, STE 250
Alameda, CA 94502-6577

RE: Former BP Oil Site No. 11102
100 McArthur Boulevard (at Oakland)
Oakland, CA

Dear Ms. Shin:

This transmits the *Historical Review, Utility Survey and Recovery Testing Report* prepared by Cambria Environmental Technology, Inc. on behalf of BP.

Please give me a call at (425) 251-0689 if you have any questions or comments.

Sincerely,

Scott Hooton

attachment

cc: site file
David Camille - Tosco (w/attachment)

CAMBRIA

HISTORICAL REVIEW, UTILITY SURVEY AND RECOVERY TESTING REPORT

BP Oil Site No. 11102
100 MacArthur Boulevard
Oakland, California
Cambria Project No. 852-1511-3

February 24, 2000

Prepared for:

BP Oil Company
Environmental Resources Management
295 S.W. 41st Street
Building 13, Suite N
Renton, Washington 98055

Prepared by:

Cambria Environmental Technology, Inc.
1144 65th Street, Suite B
Oakland, California 94608

REGISTERED GEOLOGIST
KHALED B. RAHMAN
No. 0261
CERTIFIED
HYDROGEOLOGIST
Exp. 7/31/00
STATE OF CALIFORNIA

Jacquelyn L. Jones
Staff Geologist

Khaled B. Rahman, R.G., C.H.G
Senior Geologist

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CAMBRIA

HISTORICAL REVIEW, UTILITY SURVEY AND RECOVERY TESTING REPORT

BP Oil Site No. 11102
100 MacArthur Boulevard
Oakland, California
Cambria Project No. 852-1511-3

February 24, 2000

INTRODUCTION

Cambria Environmental Technology, Inc. (Cambria) has prepared this *Historical Review, Utility Survey, and Recovery Testing Report* for the above-referenced BP Oil Company (BP) site. The following presents summaries of the site background, historical review, utility survey and recovery testing.

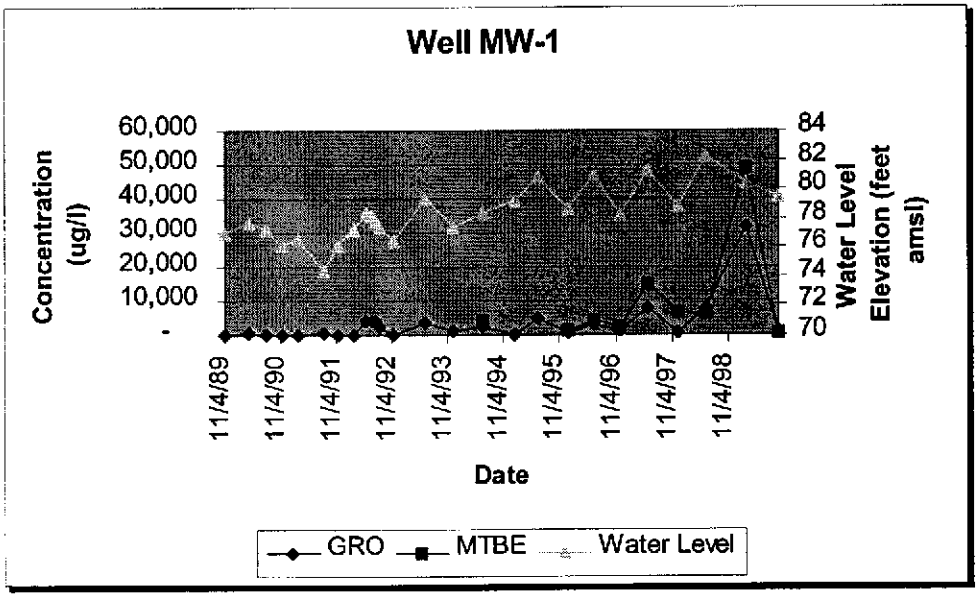
SITE BACKGROUND

Site Description: The site is an active 76-branded gasoline retail outlet located at the intersection of MacArthur Boulevard and Oakland Avenue in Oakland, California (see Figure 1). The site is located in a mixed commercial and residential area. Another 76-branded station is located northwest of the site at the intersection of Harrison Street and MacArthur Boulevard. The MacArthur Freeway (Interstate 580), an elevated freeway, is located immediately south of the site.

BP acquired the property from Mobil Oil Corporation (Mobil) in 1989. In 1994, BP transferred the property to TOSCO Marketing Company (TOSCO) and has not operated the facility since that time.

Site Conditions: There are currently three monitoring wells at the site, MW-1, MW-2 and MW-3 (see Figure 2). Groundwater is typically encountered between 10 to 15 feet below ground surface (bgs) and the wells are screened from 11 to 32 feet bgs. The screened soils are clayey sands, clayey gravels and clays in well MW-1, silty clays, silts and clays in well MW-2, and clays in well MW-3. Groundwater has been monitored since 1989. On June 18, 1998, groundwater flowed toward the west with an estimated gradient of 0.05 foot/foot.

Hydrocarbon and MTBE Distribution: The primary compound of concern at this site is methyl tert-butyl ether (MTBE), which has been reported at concentrations of more than 10,000 micrograms per liter (µg/l) in well MW-1, located adjacent to the eastern corner of the station building near the vent lines and former used oil tank, and in MW-2, located immediately adjacent to the underground storage tanks (see Figure 3). During the 1999 monitoring events, benzene, toluene, ethylbenzene, and xylenes (BTEX) constituents were detected in wells MW-1, and well MW-2, but at concentrations that are much lower than the MTBE. Well MW-1 is located adjacent to the vent lines and northeast of the tanks and dispensers at the site.



HISTORICAL REVIEW

Historical Map Review: Sanborn fire insurance maps covering the subject site and the surrounding area were obtained from Environmental Data Resources, Inc. These maps were obtained to identify land-use in the area of the subject site. Nine maps were obtained that covered the years 1903, 1911, 1950, 1952, 1954, 1959, 1962, 1967 and 1970, and included limited coverage of the subject site and surrounding area. The maps are included in Appendix A.

1903 - The Sanborn map shows the site vicinity prior to construction of MacArthur Boulevard or the MacArthur Freeway. The site is located at the intersection of Santa Clara Avenue and Oakland Avenue. The site appears to be residential. A "windmill" is located on the western corner of East Moss Avenue and Walsworth Avenue (currently Harrison Street), approximately 200 feet north of the site. There is also a "pumphouse" located on the northern corner of Pearl and Oakland Avenue, approximately 675 feet west-southwest of the site. The remainder of the area appears to be either undeveloped or residential.

1911 – The Sanborn map includes only the immediate surrounding area of the subject site; however, nothing northwest of Walsworth (currently Harrison Street), nor southwest of Perry is included, therefore neither of the sites where the "windmill" nor the "pumphouse" are included on the map. The site appears to be residential, as does the surrounding area. The Oakland Fire Department is located on the southwest side of Santa Clara Avenue, approximately 200 feet southwest of the intersection of Santa Clara Avenue and Oakland Avenue. No other municipal facilities or wells or other potential receptors were identified.

1950 – The Sanborn map shows approximately the same area and configuration as the 1911 map of the subject area. MacArthur Boulevard is shown on this map. The site remains residential. The Oakland Fire Department has moved to the northeastern side of Santa Clara Avenue. There are facilities utilizing gas and oil and grease southeast of the site on the western corner of Oakland and MacArthur Boulevard, northeast of the site on the southern corner of Harrison Street (formerly Walsworth) and MacArthur Boulevard, and on the northern half of the site. The other surrounding areas appear to be residential. No other municipal facilities or wells or other potential receptors were identified.

1952 – No significant changes between this Sanborn map and the map for 1950 were noted.

1954 – No significant changes between this Sanborn map and the map for 1950 were noted.

1959 – The site appears to be in its current configuration, with a building in the central portion of the site and an open area on the northern portion of the site. The area north of the Oakland Fire Department, along the northeastern side of Santa Clara Avenue, has been converted from residential to office use and parking. Residences along MacArthur Boulevard are not shown and may have been razed. No other significant changes between this Sanborn map and the map for 1950 were noted.

1962 – The Sanborn map shows the MacArthur Freeway. No changes in site configuration were noted. The gas and oil and grease facilities formerly located on the western corner of Oakland Avenue and MacArthur Boulevard and on the southern corner of Harrison Street and MacArthur Boulevard no longer in exist. The other areas of the map show no significant changes from the map for 1959. No other municipal facilities or wells or other potential receptors were identified.

1967 – There is no significant change between this Sanborn map and the map for 1962.

1970 – There is no significant change between this Sanborn map and the map for 1962.

Aerial Photograph Review: Representative aerial photographs for the site vicinity were reviewed at Pacific Aerial Survey in Oakland, California. Photographs for the years of 1930, 1947, 1953, 1957, 1959, 1968, 1971, 1979, 1985 and 1996 were reviewed. The scale of the photograph from 1930 was too small to distinguish area land-use. General land-use in the site vicinity is generally consistent with the findings of the Sanborn Map review and is noted in the following sections.

3/24/47 - A house appears to be located at the subject site on the northern corner of MacArthur Boulevard and Oakland Avenue. There appears to be a service station west of the site on the southern corner of Harrison Street and MacArthur Boulevard. Residential property exists in the remainder of the area. Due to the poor resolution of the photograph, a more detailed description of the property cannot be provided.

8/14/53 – There are no significant changes to the site and surrounding area, except that a possible service station is located to the west of the subject site on the western corner of Oakland Avenue and MacArthur Boulevard.

5/4/57 – A service station appears to be located at the site. There is also a commercial establishment, possibly a service station, on the northern corner of Harrison Street and MacArthur Boulevard. No other significant changes to surrounding area were noted.

7/7/59 – The area west of MacArthur Boulevard and behind the apparent service stations at the western corner of Oakland Avenue and MacArthur Boulevard and at the southern corner of Harrison Street and MacArthur Boulevard, is now cleared of buildings. The area surrounding the service station at the site is still apparently residential. No further changes to the site and surrounding area were noted.

7/2/68 – The two apparent service stations at the western corner of Oakland Avenue and MacArthur Boulevard and at the southern corner of Harrison Street and MacArthur Boulevard are no longer observed. The MacArthur Freeway (I-580) has been built. No further changes to the site and surrounding area were noted.

5/19/71 – No significant changes to the site and surrounding area were noted.

9/14/79 – No significant changes to the site and surrounding area were noted.

5/15/85 - No significant changes to the site and surrounding area were noted.

8/16/96 - No significant changes to the site and surrounding area were noted.

Parcel Map Review: Parcel maps and property owner information were acquired from the Alameda County Assessor's office. Included in Appendix B is a table summarizing the assessor's parcel number, parcel use code, parcel address information, parcel owner name and parcel owner's mailing address for the parcels near the site. Also included is a summary of use codes and the assessor's parcel maps.

UTILITY SURVEY

A subsurface utility survey was conducted to determine the location of potential preferential pathways and subsurface obstructions beneath the site vicinity. The utility survey consisted of reviewing maps and plans acquired from TOSCO, requesting Underground Service Alert to mark utilities, and contracting CU Surveys of San Ramon, California to conduct a geophysical survey. The identified and inferred locations of sanitary sewer, storm drain, electrical, water, natural gas, and telephone utility lines, and tank vent lines are shown on Figure 3.

The information reviewed indicates that MacArthur Boulevard is underlain by a sanitary sewer and a storm drain (see Figure 3 and Appendix C). A water main is located beneath the east side of MacArthur and connects to a water main under the south side of Harrison Street. Onsite electrical lines were identified between the station building, the underground storage tanks, the dispenser islands, several light poles and the station sign. There is an electrical line beneath the eastern sidewalk of MacArthur Boulevard. The tank vent lines are located between the tanks and the eastern corner of the station building, adjacent to well MW-1. Specific depths for utilities were not determined based on the available information. The storm drain located beneath MacArthur Boulevard is believed to encounter groundwater at least seasonally.

RECOVERY TESTING

Personnel Present: Jacquelyn Jones, Cambria Geologist, working under the supervision of Khaled Rahman, California Registered Geologist.

Testing Date: May 6, 1999.

Wells Tested: Wells MW-1, MW-2 and MW-3.

Recovery Testing Method: Recovery tests were performed to estimate the hydraulic conductivity of the water-bearing zone beneath the site. The test on well MW-3 consisted of extracting groundwater from the well to an equilibrium water level using a submersible pump, measuring the depth to water as the pump was turned off, and measuring the depth to water as the well recovered. The tests on wells MW-1 and MW-2 consisted of extracting groundwater from the well to an equilibrium water level with the submersible pump, measuring the depth to water as the pump was turned off, removing the pump equipment from the well, and measuring the depth to water as the well recovered. In all three cases, measurements continued until water level recovered to approximately 80% of the initial water level.

Data Analysis: The recovery test data was analyzed by the Bouwer and Rice Method and Horslev Method for slug tests, and the Theis-Jacob Method for recovery tests using Aquifer Test for Windows, Version 2.56. The calculations assume that the wells are fully penetrating and consist of a 4-inch diameter casing installed in a 10-inch diameter borehole. Well boring logs, measurements and data plots are presented in Appendix D.

Recovery Testing Results: The static water levels were above the sandpack and screened interval in wells MW-1 and MW-2 and within the screened interval in well MW-3. During the recovery tests, approximately 3 to 4 minutes of pumping at a flow rate of approximately 5 gallons per minute resulted in 10.5 to 11 feet of drawdown in the wells.

Based on the baildown test measurements, the hydraulic conductivity values calculated for well MW-1 ranged from 9.9×10^{-5} cm/sec to 1.5×10^{-4} cm/sec, and in wells MW-2 and MW-3 ranged from 6.5×10^{-6} cm/sec to 1.7×10^{-5} cm/sec (see Table 1). The geometric mean of these values is 2.5×10^{-5} cm/sec. The calculated hydraulic conductivity values are consistent with published values for the soil types described on the boring logs for the screened depths. The calculated values are an order of magnitude higher in well MW-1, which screens across clayey sands and clayey gravels than in wells MW-2 and MW-3, which screen across silts and clays. Measurements and data plots are presented in Appendix D.

Based on this range of hydraulic conductivity values, a typical hydraulic gradient of 0.05, an effective porosity of 0.3, and using the appropriate unit conversions, groundwater flow velocities of 1.1 to 25 feet per year are calculated using the relationship shown below.

$$v = ki/n$$

where: v = groundwater flow velocity
k = hydraulic conductivity
i = hydraulic gradient
n = effective porosity

ATTACHMENTS

Figure 1 – Vicinity Map
Figure 2 – Site Plan
Figure 3 – Conduit Study Map

Table 1 – Recovery Test Summary

Appendix A – Historical Maps
Appendix B – Assessor's Parcel Data
Appendix C – Utility Maps
Appendix D – Recovery Test Data and Plots

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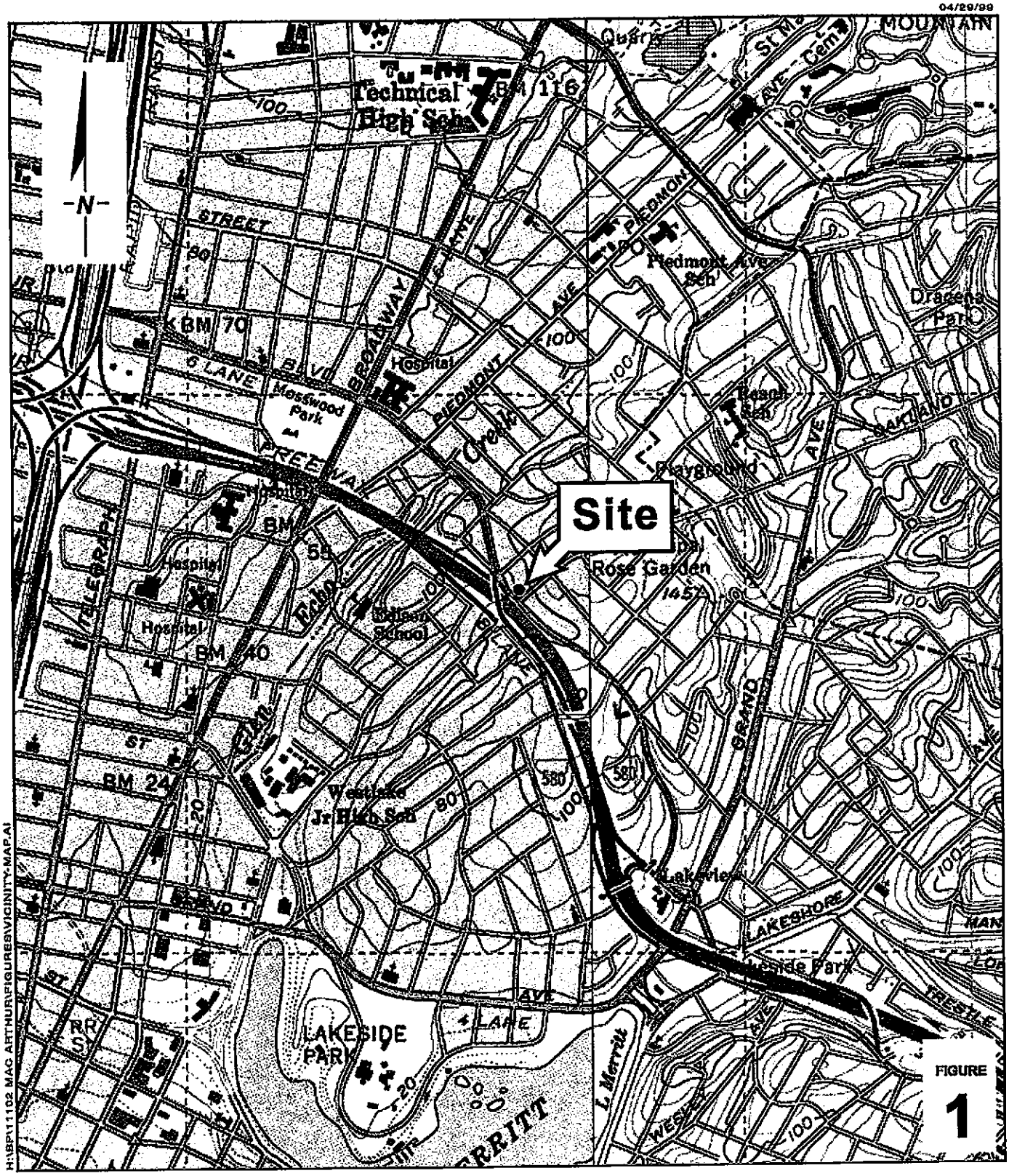
Figures

04/29/99



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BP Oil Service Station No. 11102

100 MacArthur Boulevard

Oakland, California

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Vicinity Map

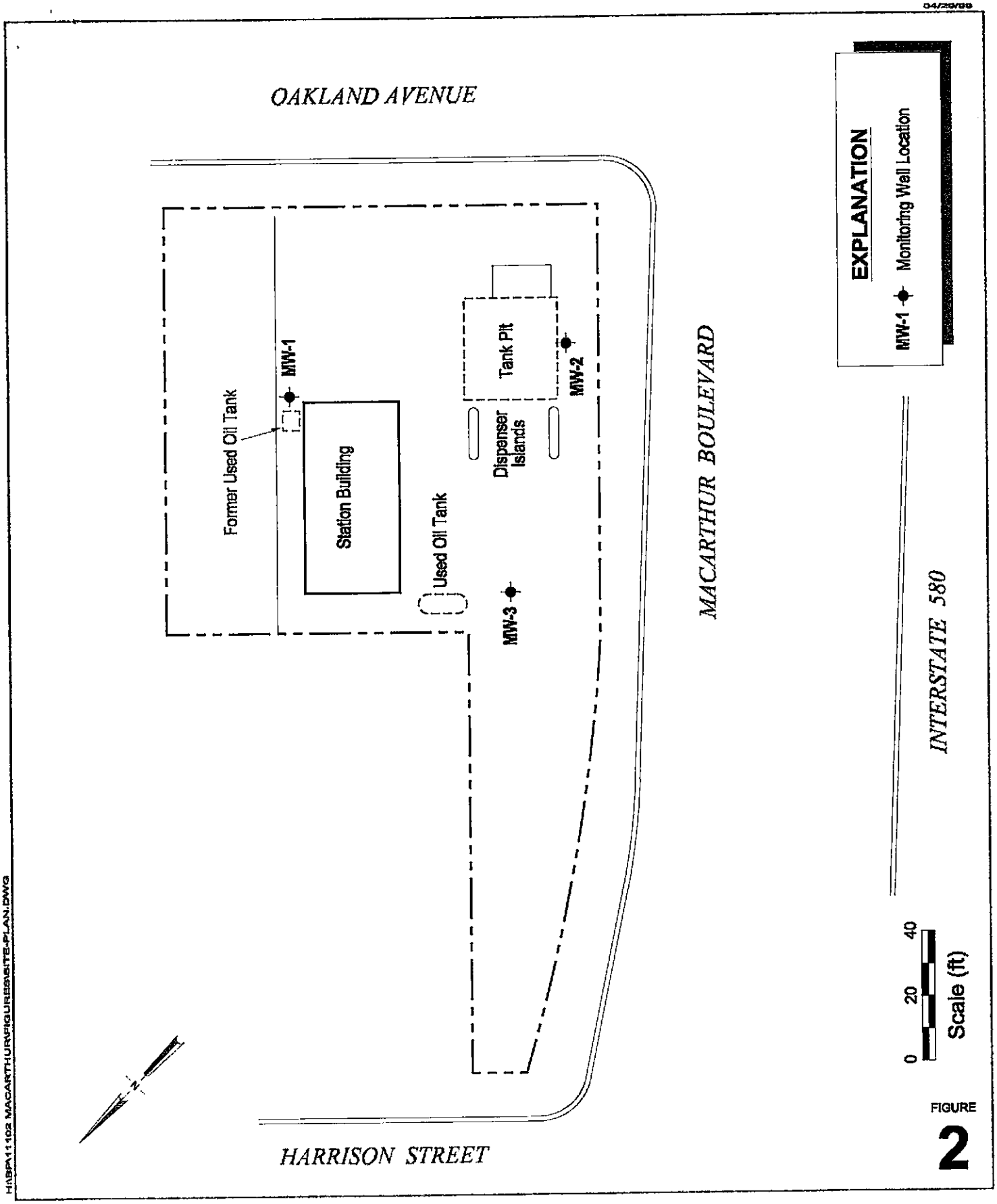

FIGURE
2

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BP Oil Service Station No. 11102
100 MacArthur Boulevard
Oakland, California

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Site Plan

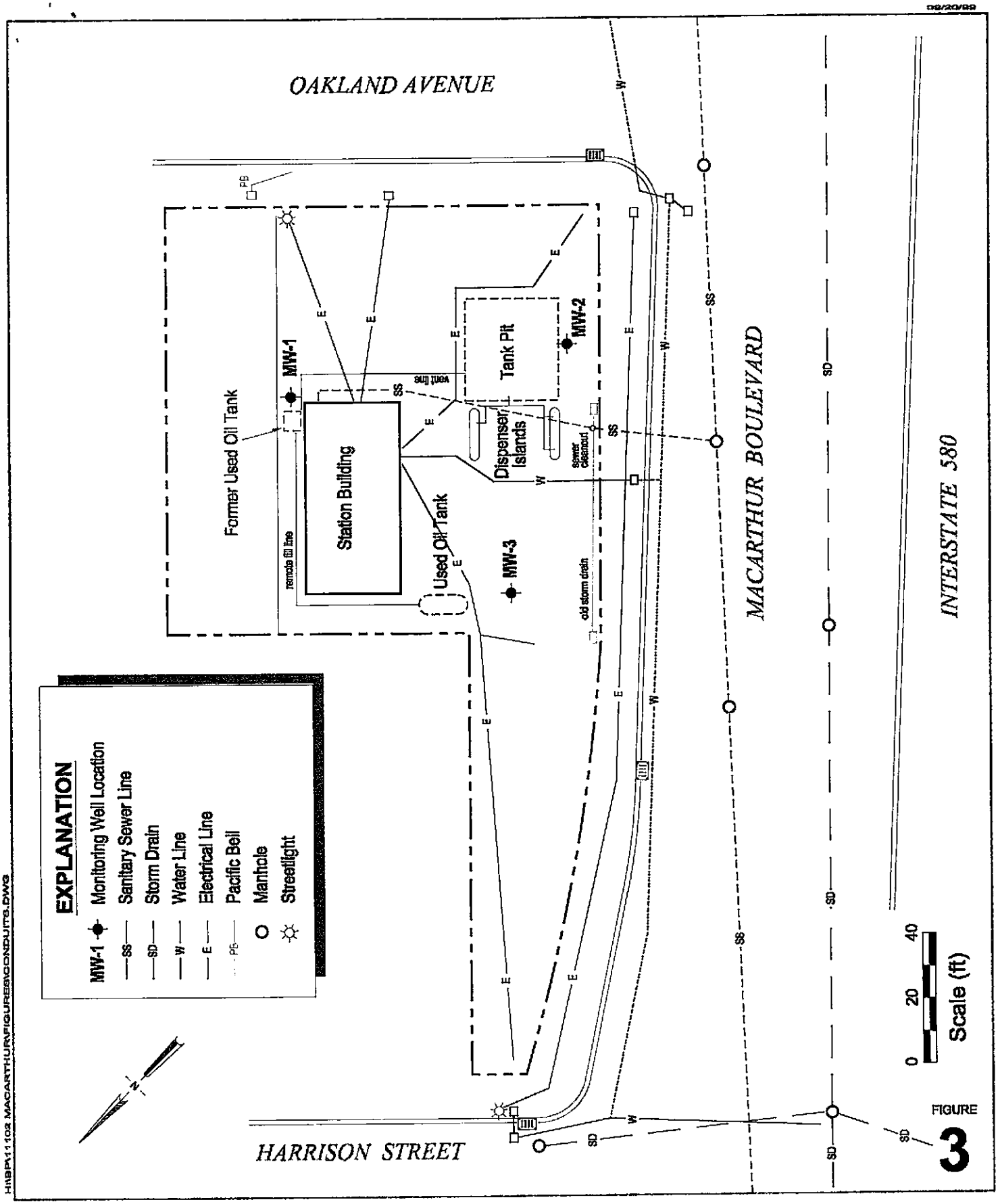

FIGURE **3**

BP Oil Service Station No. 11102

100 MacArthur Boulevard

Oakland, California

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Conduit Study Map

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Tables

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Table 1. Recovery Test Summary - BP Oil Site No. 11102
100 MacArthur Boulevard, Oakland, California

Well ID	Screened Interval (feet BGS)	Screened Soil Types	Drawdown (feet)	Calculated Water Volume (gallons)	Pumping Duration (minutes)	Approximate Flowrate (gpm)	Approximate Purge Volume (gallons)	Analytical Method	Hydraulic Conductivity (cm/sec)	Hydraulic Conductivity (ft/min)	Effective Porosity	Hydraulic Gradient	Flow Velocity (ft/year)
MW-1	12-32	Clayey Sand (9-19') Clayey Gravel (19-29') Clay (29-32')	10.50	17.6	4.0	5.0	20	Bouwer-Rice Horslev Theis-Jacob	9.86E-05 1.16E-04 1.45E-04	1.94E-04 2.28E-04 2.85E-04	0.3 0.3 0.3	0.05 0.05 0.05	17 20 25
MW-2	12-32	Silty Clay (10-15') Clayey Silt (15-25') Clay (25-32')	11.00	18.5	3.0	5.0	15	Bouwer-Rice Horslev Theis-Jacob	6.45E-06 8.53E-06 1.60E-05	1.27E-05 1.68E-05 3.15E-05	0.3 0.3 0.3	0.05 0.05 0.05	1.1 1.5 2.8
MW-3	12-32	Silty Clay (12-18') Sandy Clay (18-23') Clay (23-32')	10.79	18.1	4.0	5.0	20	Bouwer-Rice Horslev Theis-Jacob	1.73E-05 8.69E-06 1.72E-05	3.40E-05 1.71E-05 3.38E-05	0.3 0.3 0.3	0.05 0.05 0.05	3.0 1.5 2.2
								GEOMETRIC MEAN	**2.5E-05**	**4.9E-05**			**4.2**

Abbreviations and Notes:

BGS = below ground surface
cm/sec = centimeters per second
ft/min = feet per minute
ft/year = feet per year

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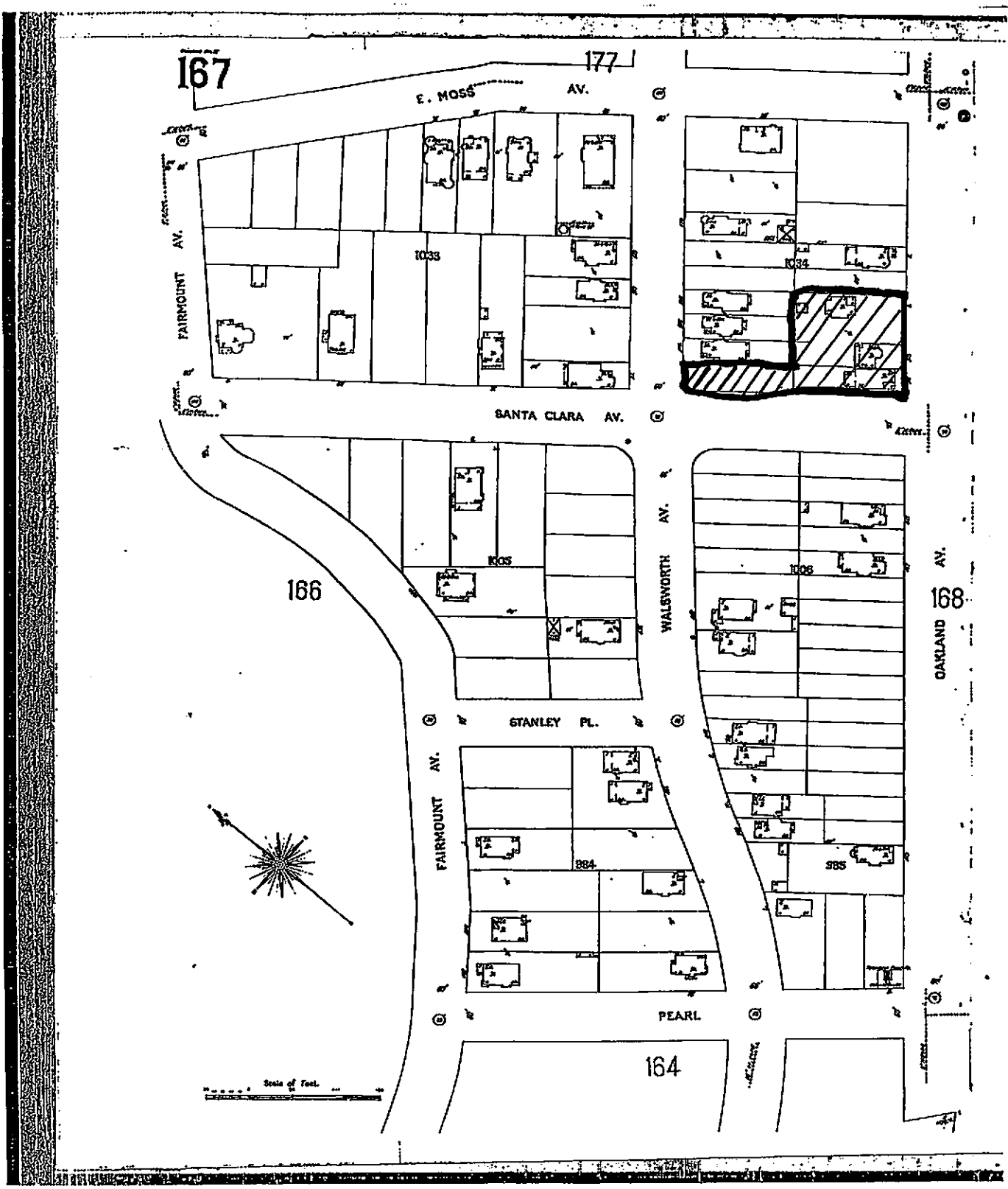
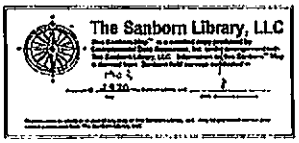
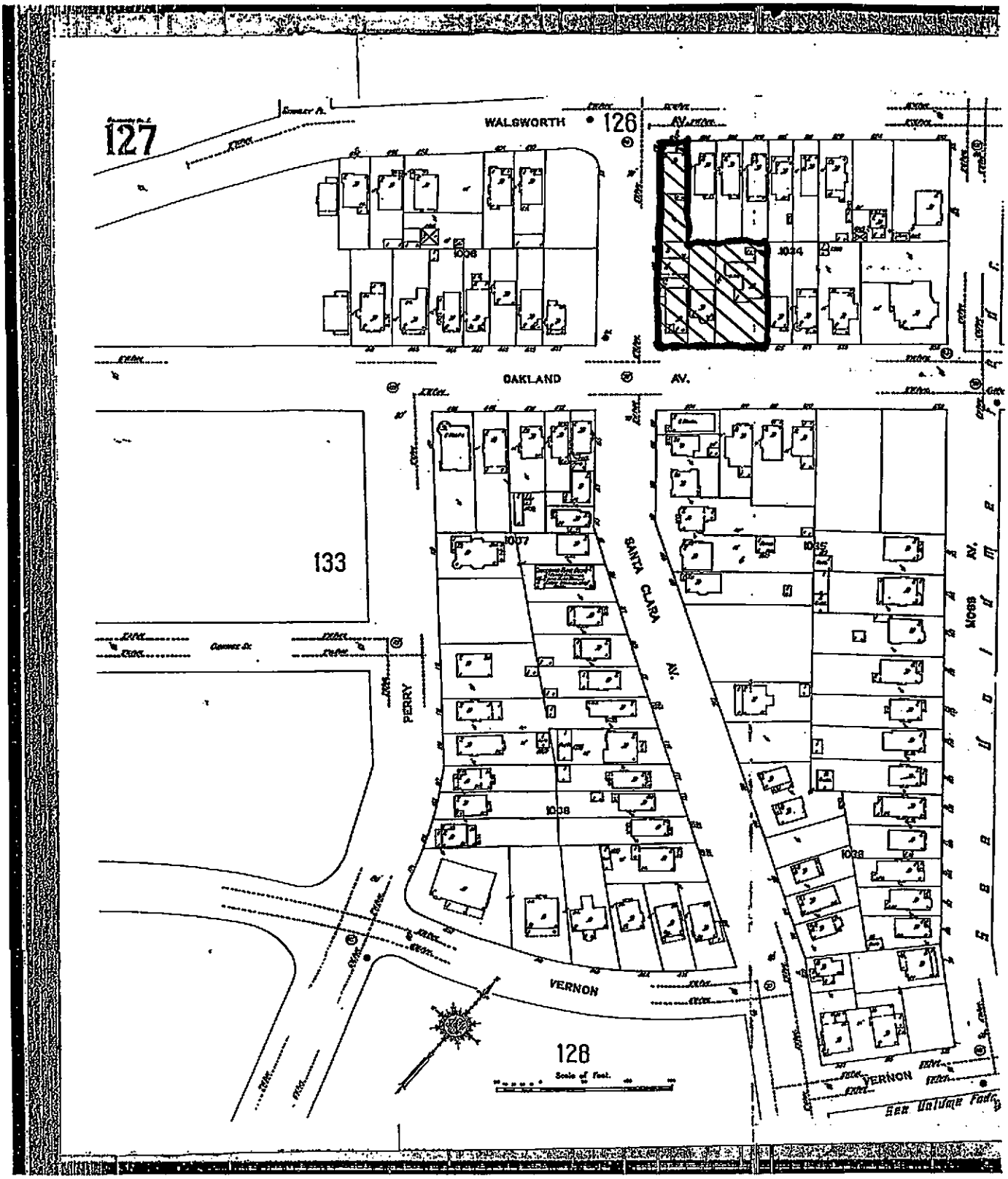
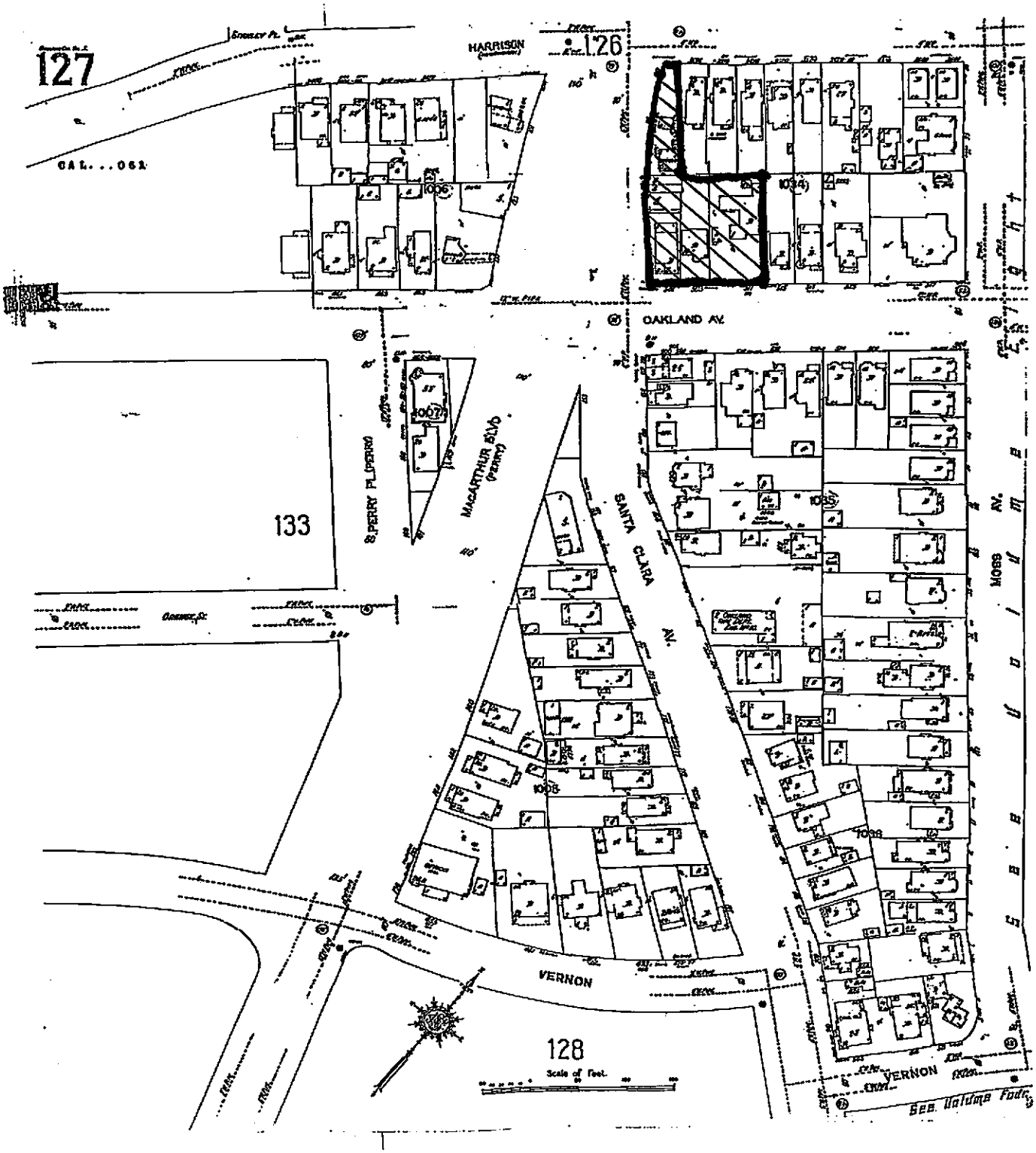
Appendix A

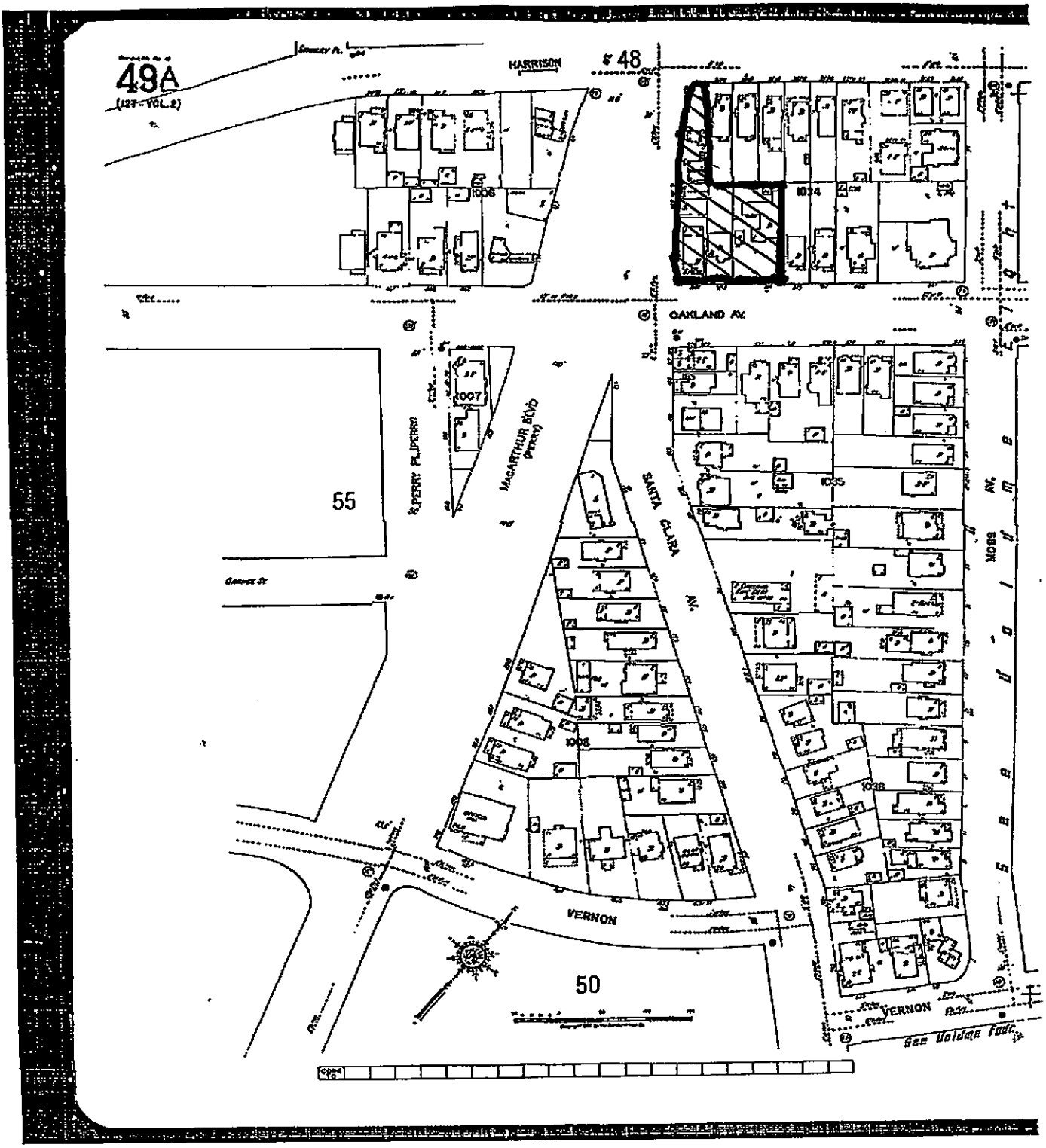
Historical Maps

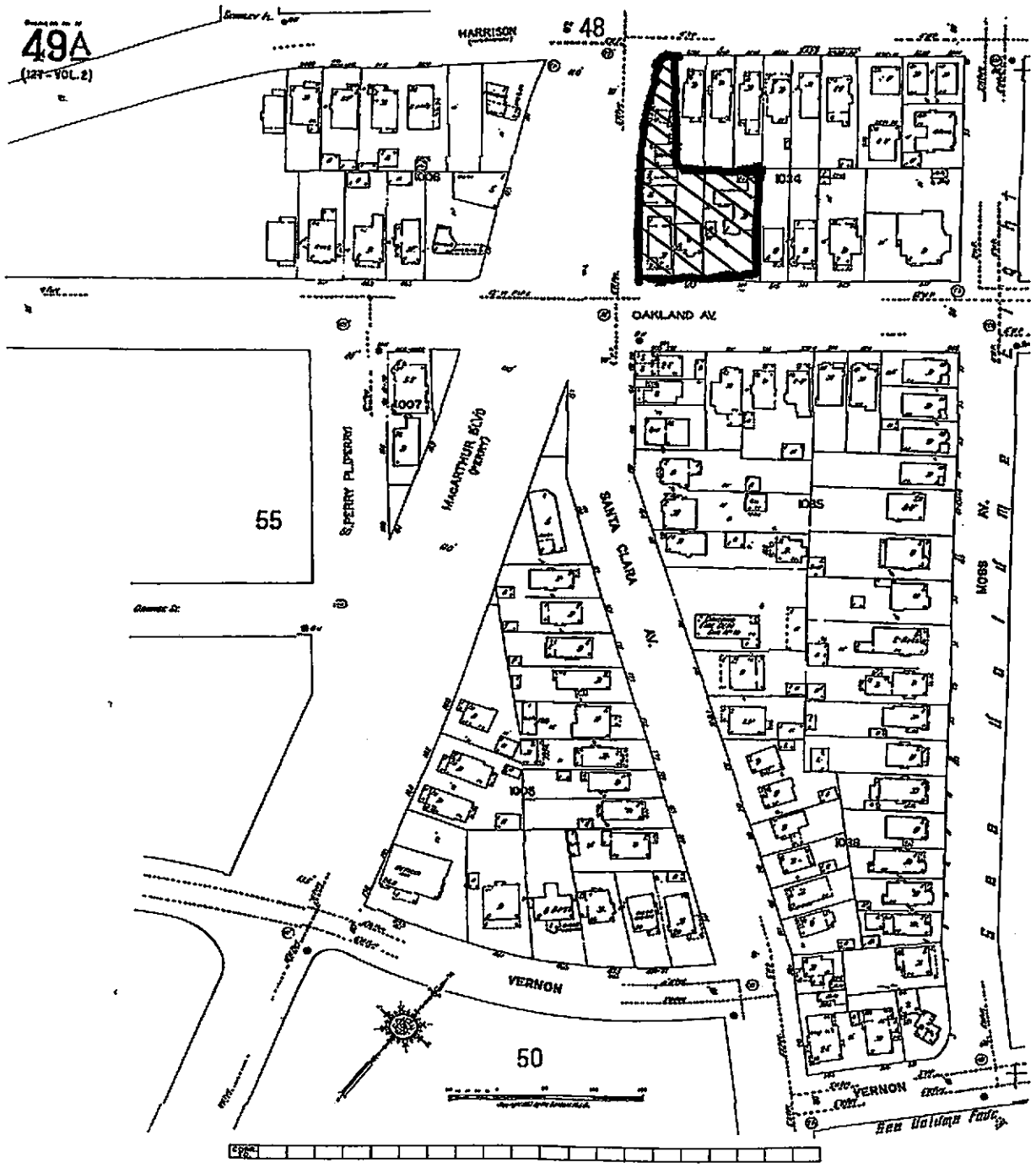

167
177
E. MOSS AV.
FAIRMOUNT AV.
1033
1034
SANTA CLARA AV.
166
1035
WALSWORTH AV.
1036
168
OAKLAND AV.
STANLEY PL.
FAIRMOUNT AV.
984
985
PEARL
164
Scale of Feet.

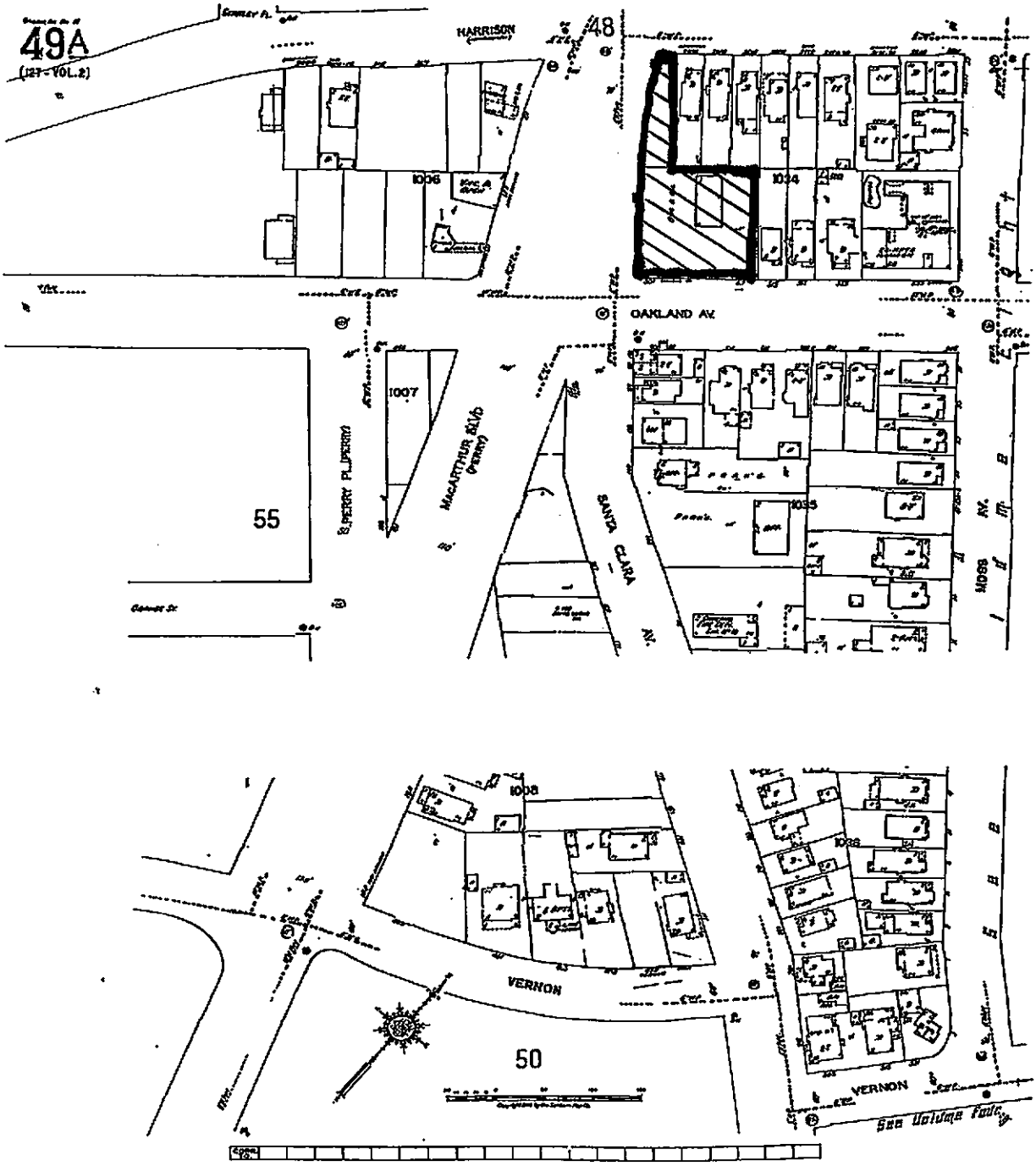

The Sanborn Library, LLC

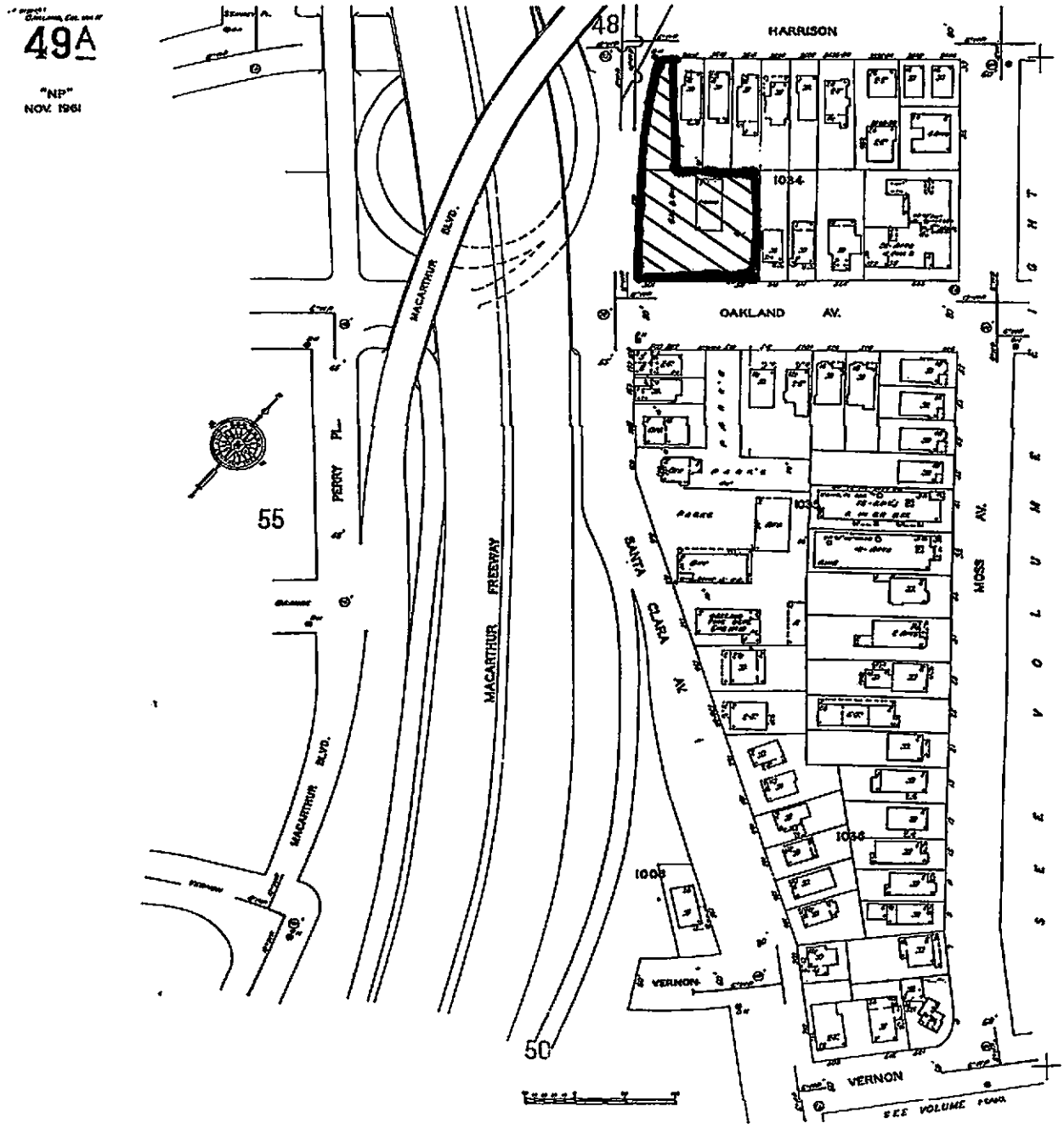


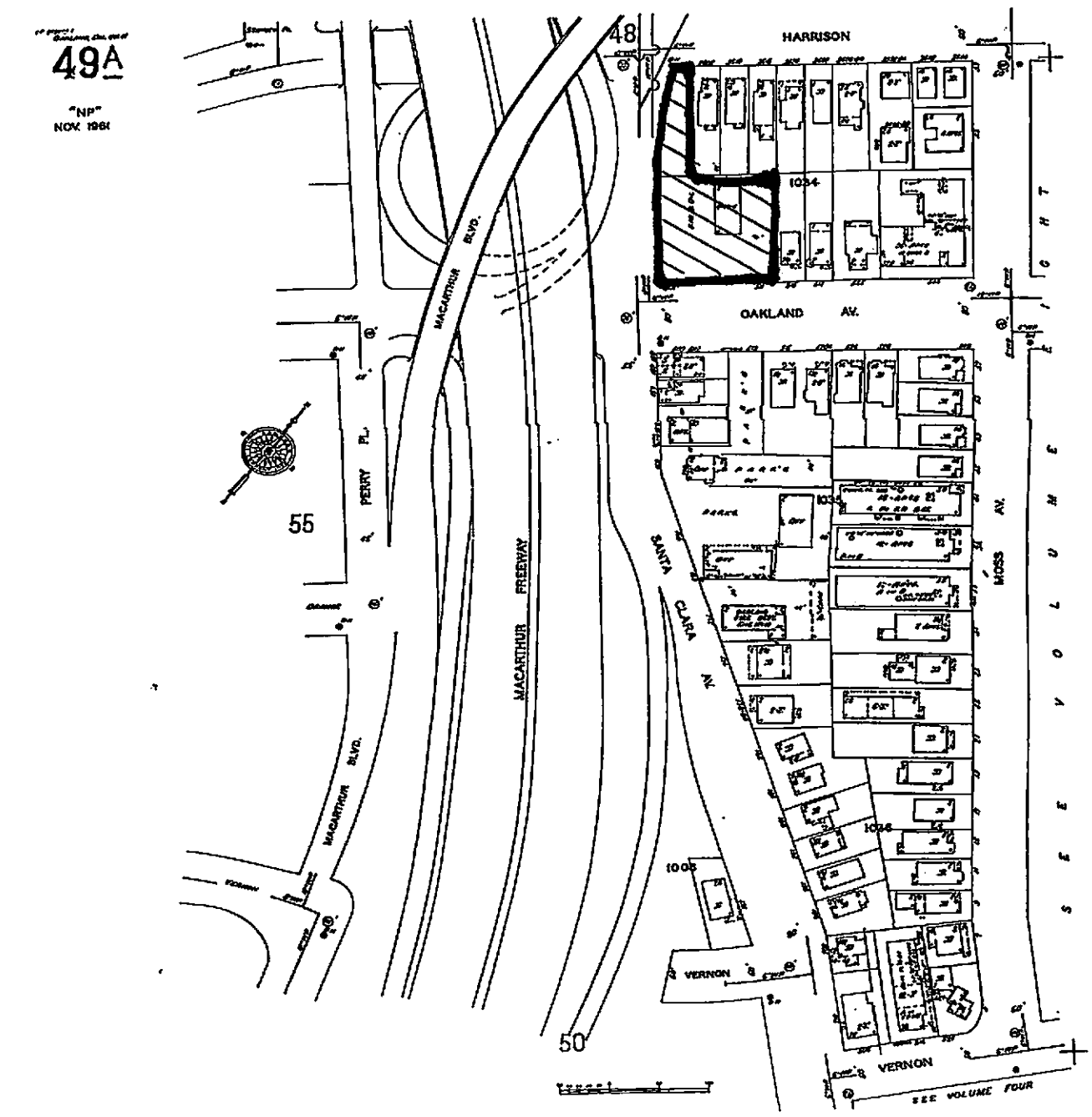


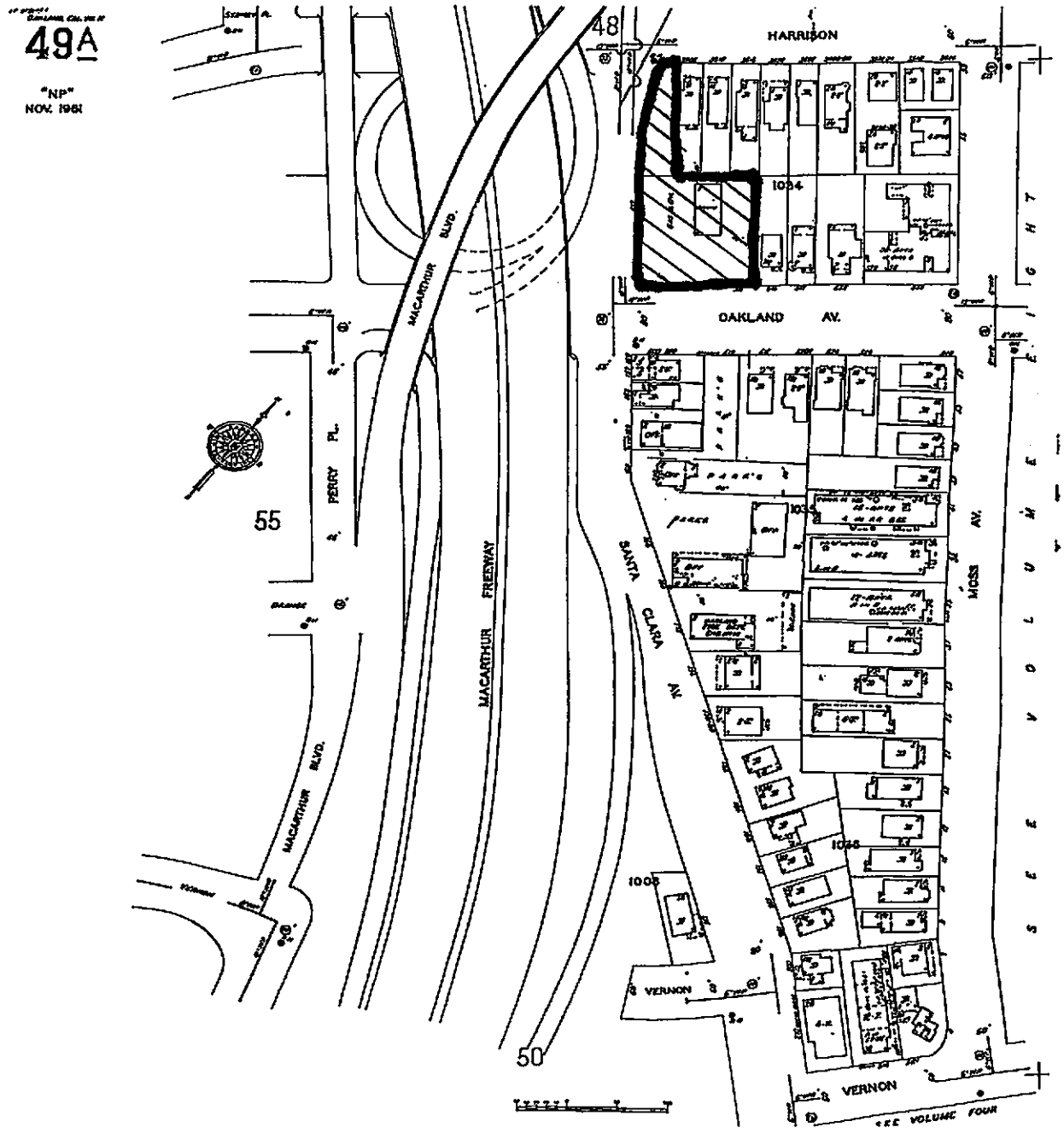












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Appendix B

Assessor's Parcel Data

	APN	Use Code	Situs Address	Situs City	Situs Zip	Owner Name	Mailing Address
1	010 -0792-001-00	11	460 OAKLAND AV	OAKLAND	94611	MA SANFORD K & GLORIA F	441 MERRITT AVE, OAKLAND CA 94610
2	010 -0792-002-00	22	163 PERRY PL	OAKLAND	94610	SMITH GWENDOLINE M TR	100 BAY PL #604, OAKLAND CA 94610-4406
3	010 -0792-003-00	77	447 ORANGE ST	OAKLAND	94610	ORANGE BLOSSOM LLC	1727 M L KING JR WY #225, OAKLAND CA 94612-1358C/O TERRENCE MCC
4	010 -0792-021-00	24	448 OAKLAND AV	OAKLAND	94611	STRATOS GEORGE H	7 ABBOTT CT, ORINDA CA 94563-3501
5	010 -0792-022-00	24	452 OAKLAND AV	OAKLAND	94611	FIELDS NOBLE L	124 PEORIA ST, DALY CITY CA 94014-1240
6	010 -0809-001-00	28	420 FAIRMOUNT AV	OAKLAND	94611	VOHLAND LEWIS L	55 SANTA CLARA AVE #280, OAKLAND CA 94610-1375
7	010 -0809-002-00	25	3341 HARRISON ST	OAKLAND	94611	LEAR CAROL J	3341 HARRISON ST, OAKLAND CA 94611-5420
8	010 -0809-003-00	22	3335 HARRISON ST	OAKLAND	94611	PACALDO GILBERT A & MARCELA J	3335 HARRISON ST, OAKLAND CA 94611-5420
9	010 -0809-005-01	77	3323 HARRISON ST	OAKLAND	94611	DORNTGE MILLARD H & MICHELE	1321 ACTON ST, BERKELEY CA 94706-2501
10	010 -0809-014-00	11	412 FAIRMOUNT AV	OAKLAND	94611	HIPPOLYTE CHARLES J & HAZEL	412 FAIRMOUNT AVE, OAKLAND CA 94611-5535
11	010 -0809-015-00	77	414 FAIRMOUNT AV	OAKLAND	94611	SILK PURSE PROPERTIES	42 TAM O SHANTER, ALAMO CA 94507-1723
12	010 -0810-009-00	27	439 OAKLAND AV	OAKLAND	94611	BITZER JAMES M & MARION C	352 BIRCHWOOD DR, MORAGA CA 94556-2305
13	010 -0810-010-00	27	435 OAKLAND AV	OAKLAND	94611	LEMAN A	PO BOX 21052, PIEDMONT CA 94620-1052
14	010 -0810-023-00	11	3334 HARRISON ST	OAKLAND	94611	BROWN ROBERT A & MICHELLE	3334 HARRISON ST, OAKLAND CA 94611-5421
15	010 -0810-024-00	11	3340 HARRISON ST	OAKLAND	94611	RYLEE LOIS A HEIRS OF EST	3777 ARLINGTON CR, PITTSBURG CA 94565-7009C/O MICHAEL GREGORY
16	010 -0810-025-00	11	3344 HARRISON ST	OAKLAND	94611	HASSAN AUBREY K & LYNDA B	3344 HARRISON ST, OAKLAND CA 94611-5421
17	010 -0810-026-03	70	449 OAKLAND AV	OAKLAND	94611	KRAMER GEORGE W & CARMEN O TRS	31 JEROME AVE, PIEDMONT CA 94611-4135
18	010 -0810-026-04	72	445 OAKLAND AV	OAKLAND	94611	KRAMER GEORGE W & CARMEN O TRS	31 JEROME AVE, PIEDMONT CA 94611-4135
19	010 -0812-008-01	85	100 MACARTHUR BL	OAKLAND	94610	FIRST INTERSTATE BANK OF CALIFORNIA TR	PO BOS 52085, PHOENIX AZ 85072C/O PROP TAX DEPT DC-17
20	010 -0812-009-00	85	96 MACARTHUR BL	OAKLAND	94610	FIRST INTERSTATE BANK OF CALIFORNIA TR	PO BOS 52085, PHOENIX AZ 85072C/O PROP TAX DEPT DC-17
21	010 -0812-010-00	11	3506 HARRISON ST	OAKLAND	94611	TROELSTRUP ALBERT L & VIRGINIA L	925 FREEDOM BL, WATSONVILLE CA 95076-3804
22	010 -0812-011-00	22	3510 HARRISON ST	OAKLAND	94611	DUARTE LISA	3510 HARRISON ST, OAKLAND CA 94611-5423
23	010 -0812-012-00	25	3516 HARRISON ST	OAKLAND	94611	SCOTT LEONARD C JR & MAXINE E	PO BOX 6473, OAKLAND CA 94603-0473
24	010 -0813-001-00	77	3545 HARRISON ST	OAKLAND	94611	OGBU JOHN U & MARCELLINA A	6531 EXETER DR, OAKLAND CA 94611-1641
25	010 -0813-002-00	27	3527 HARRISON ST	OAKLAND	94611	MALCOLM GERRIT W JR & MARION P TRS	1245 MOUNTAIN BL, OAKLAND CA 94611-1921
26	010 -0813-003-00	85	96 MACARTHUR BL	OAKLAND	94611	JELINEK BARBARA B TR	17 SOTELO AVE, PIEDMONT CA 94611-3534
27	010 -0813-004-01	31	66 MACARTHUR BL	OAKLAND	94610	JELINEK BARBARA B TR	4567 ENTERPRISE ST, FREMONT CA 94538-7605C/O LARRY KRONICK
28	010 -0813-013-00	77	115 MOSS AV	OAKLAND	94611	YEN CHIANG C & MAY H TRS	1486 RANCHO VW DR, LAFAYETTE CA 94549-2230
29	010 -0818-017-00	94	158 SANTA CLARA AV	OAKLAND	94610	FIRST BARBARA CX	499 EMBARCADERO, OAKLAND CA 94606-5131
30	010 -0818-019-01	33	154 SANTA CLARA AV	OAKLAND	94610	WARREN RICHARD P ETAL	166 SANTA CLAR AVE, OAKLAND CA 94610-1323
31	010 -0818-020-00	83	512 OAKLAND AV	OAKLAND	94611	WARREN RICHARD P ETAL	166 SANTA CLAR AVE, OAKLAND CA 94610-1323
32	010 -0818-021-00	32	516 OAKLAND AV	OAKLAND	94611	WARREN RICHARD P ETAL	166 SANTA CLAR AVE, OAKLAND CA 94610-1323
33	010 -0818-022-00	94	520 OAKLAND AV	OAKLAND	94611	WARREN RICHARD P ETAL	166 SANTA CLAR AVE, OAKLAND CA 94610-1323

ALAMEDA COUNTY ASSESSOR'S OFFICE USE CODES

FOR PUBLIC USE

FIRST and SECOND DIGIT CODES

oxxx - Series - Exempt, Not Assessed by County, Mobile Homes and Tracts

00,01,02 Use code not assigned at this time
03 Exempt public agencies
04 Property leased by a public utility
05 Property owned by a public utility
06 Use code not assigned at this time
07 Mobile home in mobile home park
08 Vacant residential tract lot
09 Partially complete residential tract home

1xxx Series - Single Family Residential

10 Vacant residential land zoned for four units or less
11 Single family residential homes used as such
12 Single family res home with a non-economic 2nd living unit
13 Single family residential home with a slight com'l use
14 Single family residential home with a slight indus. use
15 Planned development (townhouse type)
159 Planned development (townhouse type) Common area
16 Single family residential land with or subject to communal improvements
17 Single family residential home converted to boarding or rooming house use with shared kitchens and/or baths
18 Planned development (tract type) with commonly owned area
189 Planned development (tract type) Common area
19 Mobile home on single family residential land

2xxx Series - Multiple Residential, 2-4 Units and Mobile Homes

20 Use code not assigned at this time
21 Two, three or four single family homes
22 Double or duplex
23 Triplex; double or duplex together with a single family home
24 Four living units, eg. fourplex or triplex together with a single family residential home; two doubles or duplexes.
25 Residential property of two living units either or both of which are lesser quality than code 22
26 Residential property of three living units either or both of which are lesser quality than code 23
27 Residential property of four living units either or both of which are lesser quality than code 24
28 Residential property with two, three or four identifiable living units together with rooming or boarding use
29 More than one mobile home, or one mobile home in addition to other residential living units, on res. land

3xxx Series - Commercial (See also 8X & 9X Series)

30 Vacant commercial land (may include misc. imps)
31 One-story store
32 Store on 1st floor with offices or apts/lofts on 2nd or 3rd
33 Miscellaneous commercial (improved)
34 Department store
35 Discount store
36 Restaurant
37 Shopping Center
38 Supermarket
39 Commercial or industrial condominium prior to sale of one unit. Regular use code used on all but common area after sale of one unit

4xxx Series - Industrial

40 Vacant industrial land (may include misc. imps)
41 Warehouse
42 Light industrial
43 Heavy industrial
44 Misc. industrial (improved), not qualifying for any other industrial code
45 Nurseries
46 Quarries, sand & gravel
47 Salt ponds
48 Terminals, trucking and distribution
49 Wrecking yards

5xxx Series - Rural

50 Vacant rural-residential homesites (may include misc. imps)
51 Rural-residential homesites (improved)
52 One or more mobile homes on rural home sites
53 Rural property with significant com'l use
54 Rural property with significant indust. use
55 Rural property used for agriculture (more than 10 acres)
56 Rural property in transition to a higher use
57 Vac. rural land not usable for even agricultural
585 Improved rural land under non-renewal of Williamson Act contract
595 Vacant rural land under non-renewal of Williamson Act contract

xxx Series - Institutional

:0 That vacant land which is a necessary part of an institutional property
:1 Improved government-owned property
:2 Use code not assigned at this time
:3 Golf courses
:4 Schools
:5 Cemeteries
:6 Churches
:7 Other institutional properties
:8 Lodgehalls and clubhouses
:9 Use code not assigned at this time

'xxx Series - Multiple Residential, 5 or more units

70 Vacant apt land capable of supporting 5 or more units
71 Five or more single family residential homes
72 Residential property converted to 5 or more units
73 Condominiums
74 Cooperatives
75 Restricted income properties
76 Fraternities and sororities
77 Multiple residential (5 or more units)
78 Residential high-rise (7 or more stories)
79 Church homes

8xxx Series - Improved Commercial

80 Car washes
81 Commercial garages (repair)
82 Automobile dealerships
83 Parking lots
84 Parking garages
85 Service stations
86 Funeral homes
87 Nursing or boarding homes
88 Hospital (convalescent or general)
89 Hotels

9xxx Series - Improved Commercial

90 Motel
91 Mobile home parks
92 Banks
93 Medical-dental
94 1 to 5 story office buildings
95 Over 5 story office buildings
96 Bowling alleys
97 Theaters (walk-in)
98 Theaters (drive-in)
99 Other recreational activity, ie, rinks, stadiums, race tracks

---

THIRD DIGIT CODES Third digit codes with the exception of xx2 and xx9 are assigned for administrative use, to denote types of property under special appraisal restrictions and should not be removed, added or changed by field personnel unless specifically instructed.

xx1 Parcels which cannot be independently appraised, but must be separately assessed. When this code is used, all parcels which comprise a single property are coded with the same basic (first two digits) use code, This code is used for:

1. Parcels created by tax rate area lines dividing property into two or more parcels

2. Adjoining parcels which comprise a single property (single economic unit) which for some reason cannot be combined

NOTE: This code is not to be used for condominiums, or planned developments (formerly code xx8)

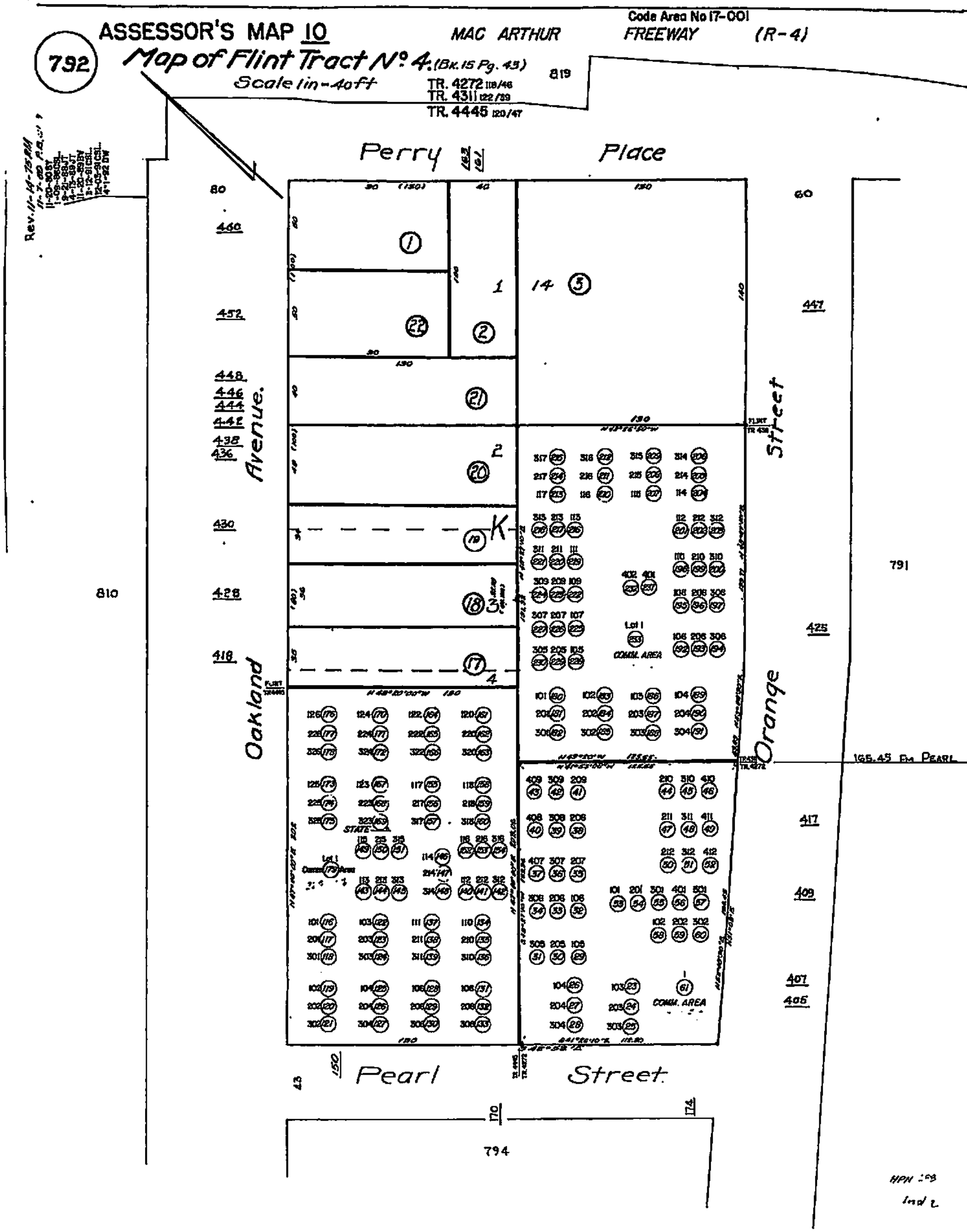
xx3 For use with cooperative housing projects which have not been separated into individual units, i.e., one parcel number covers multiple units and the surrendered roll value of this parcel Revised represents the total value of these units.

xx5 Property enrolled under a land conservation contract

xx6 Property owned by a unit of government outside the boundaries of that unit of government

xx9 Common area of condominium or planned development

4/17/97



ASSESSOR'S MAP 10
Code Area No 17-001
MAC ARTHUR FREEWAY (R-4)
792
Map of Flint Tract Nº 4 (Bk. 15 Pg. 43)
Scale 1in-40ft
TR. 4272 118/46
TR. 4311 122/39
TR. 4445 120/47
819
Perry Place
Oakland Avenue
Orange Street
Pearl Street
810
791
794
COMM. AREA
Lot 1
165.45 Fm Pearl
460
452
448
446
444
442
438
436
430
428
418
447
425
417
409
407
405

ASSESSOR'S MAP 10

Code Area No.17-001

809

Map of resubdivision of Blocks "C" and "D" of the Flint Tract: (Bk. 15 Pg. 90)

Scale 1" = 40'

MAC ARTHUR FREEWAY (R-4)

811

Stanley Place

(BOULEVARD) STREET HARRISON

Fairmount Avenue

Pearl St

808

810

805

420

414

412

410

406

402

400

3341

3325

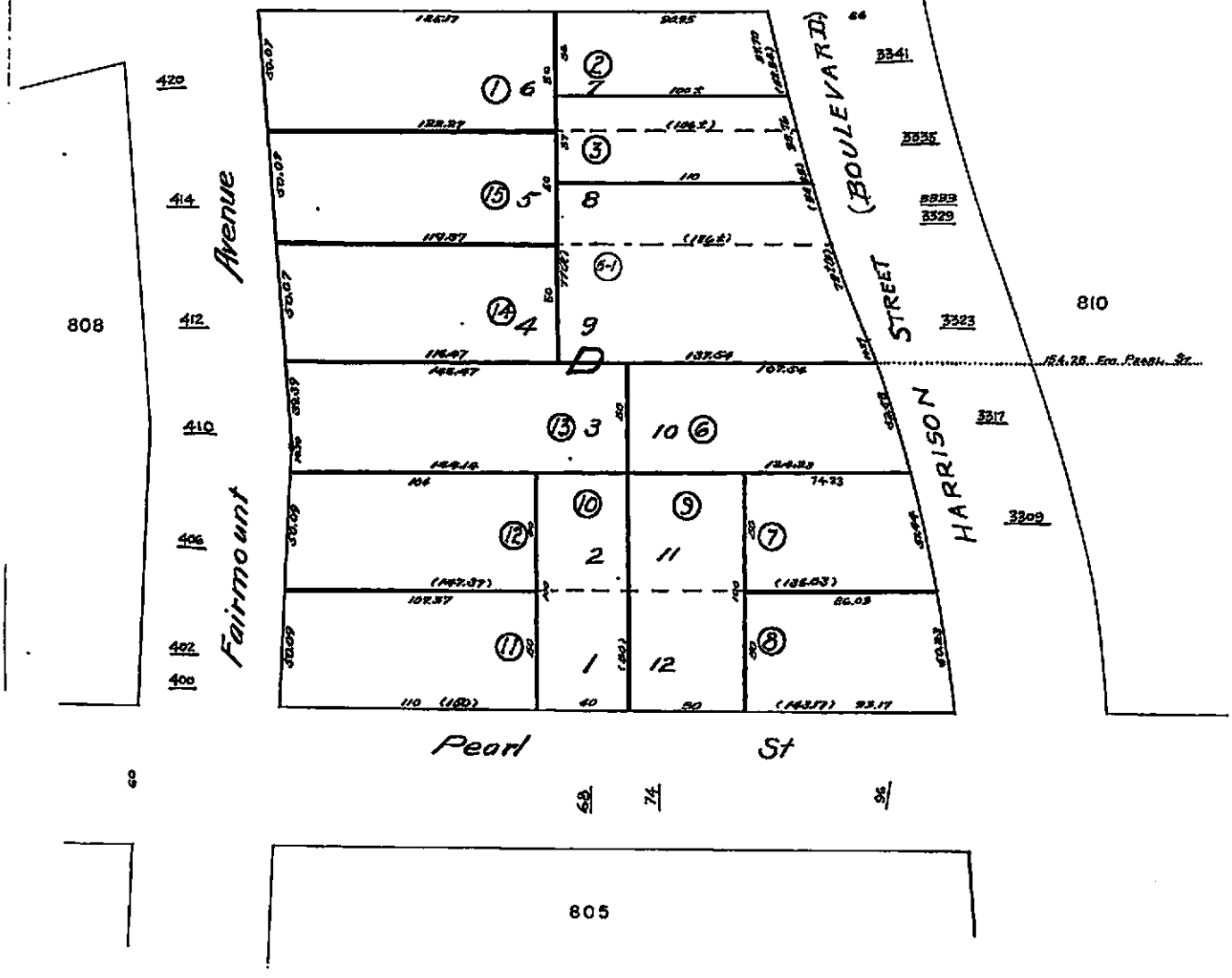
3323

3329

3323

3317

3309



Ind 2.

ASSESSOR'S MAP 10

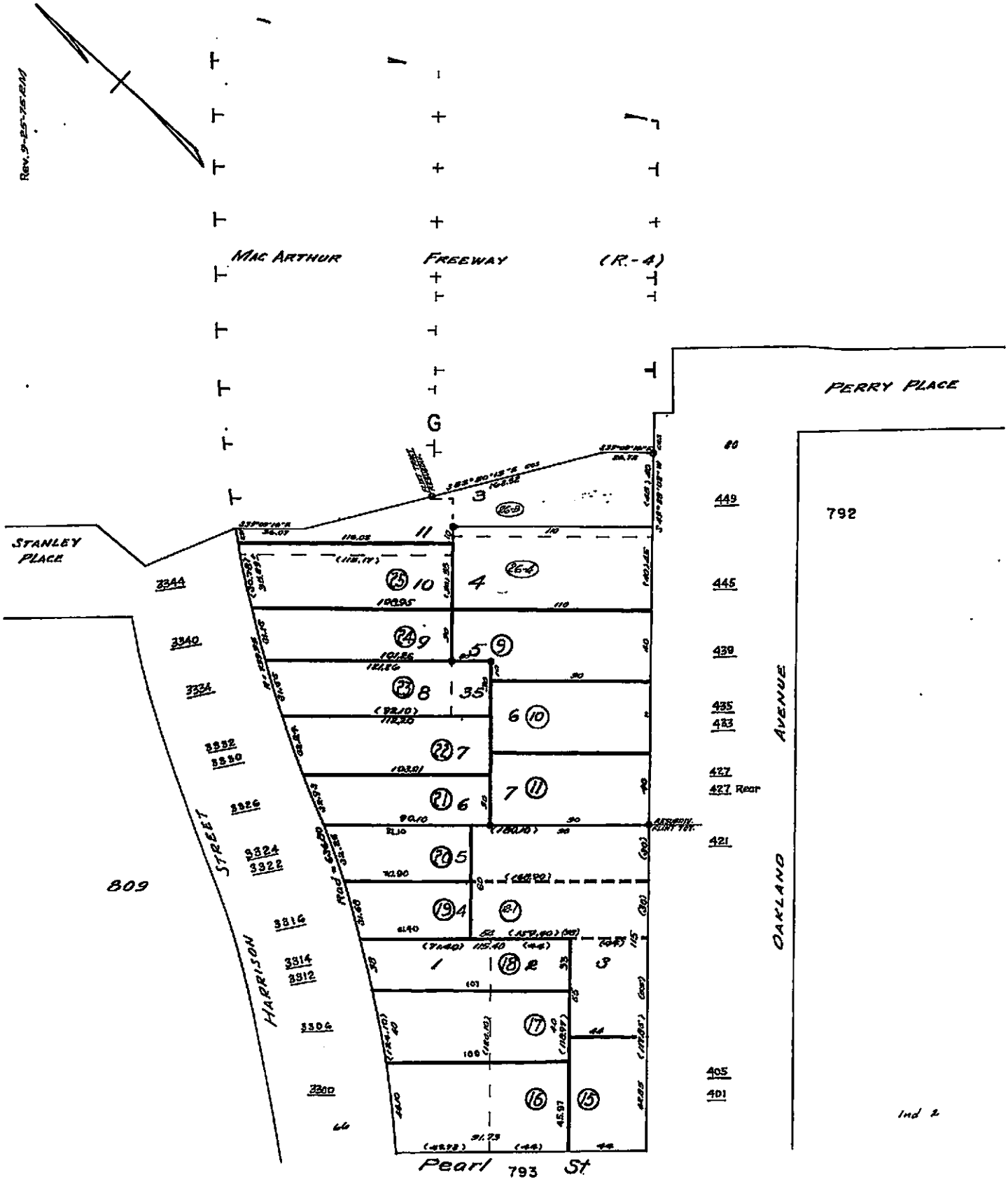
Code Area No 17-001

810

Map of Flint Tract No. 4 (Bk. 15 Pg. 43)
Map of Resubd. of South Twenty Feet of Lot NO. 28 & Lots 29 to 37 Block G Flint Tract. (Bk. 21 Pg. 53)

Scale: 1" = 40'

Rev. 9-25-75 EMS



Code Area No. 17-001

ASSESSOR'S MAP 10

812

Scale: 1" = 40'

Map No. 2 Of Linda Vista Terrace (Bk. 15 Pg. 44)
Map Of Flint Tract No. 4 (Bk. 15 Pg. 43)
(Resub. Blocks G & H Of Flint Tract) (Bk. 12 Pg. 47)

Rev. 7-22-76 M.M.

815

Moss Avenue

HARRISON STREET (BOULEVARD)

Oakland Avenue

813

818

3544
3540
3538
3536
3530
3528
3524
3522
3520
3516
3510
3506

537
535
525
517
515
511
503
501

Mac Arthur Boulevard

810

MAC ARTHUR FREEWAY (R-4)

Ind 2

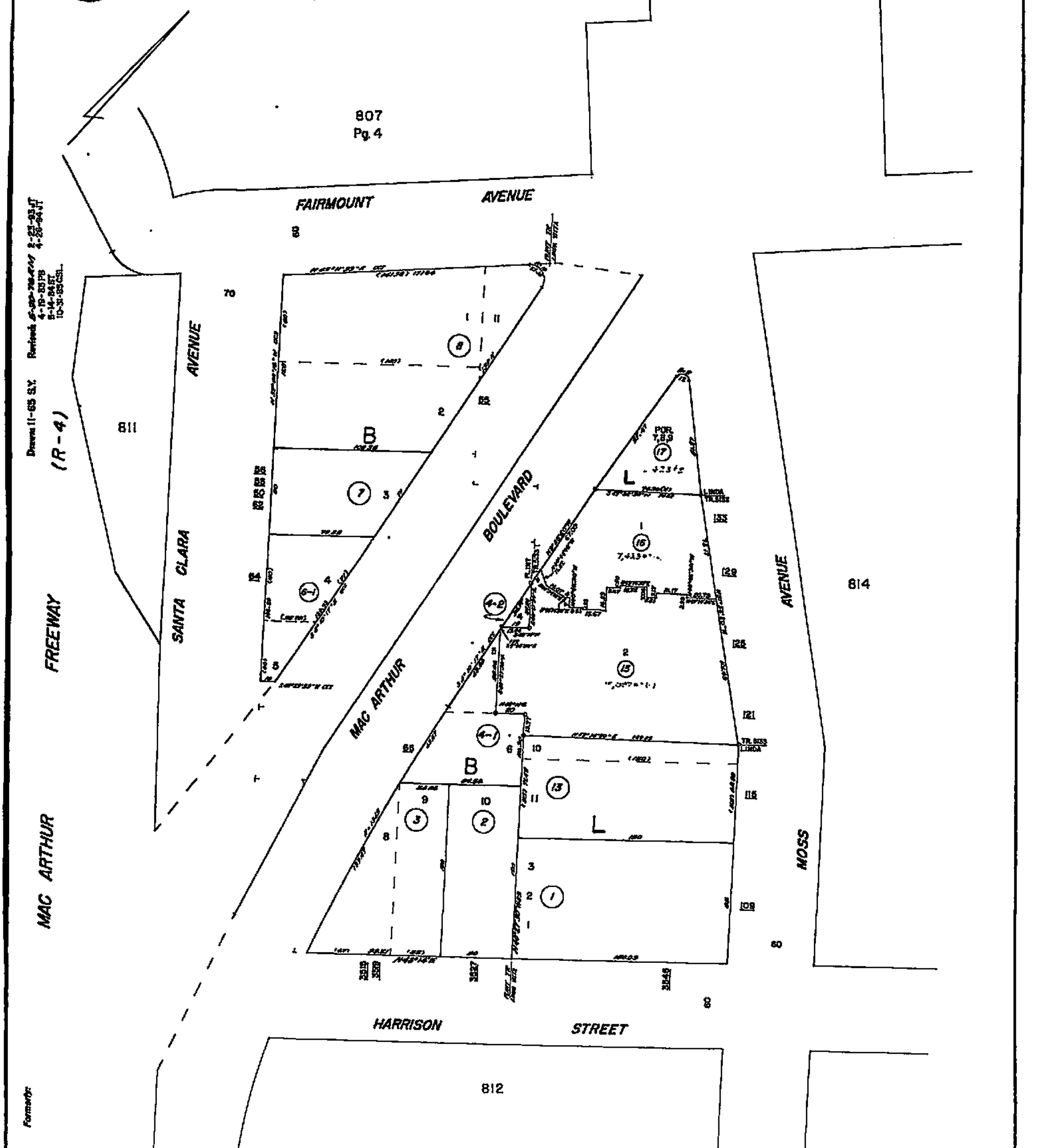
ASSESSOR'S MAP 10

Code Area Nos. 17-001

813

Scale: 1" = 50'

MAP OF FLINT TRACT. NO. 4 (Bk.15 Pg.43)
MAP NO. 2 OF LINDA VISTA TERRACE (Bk.15 Pg.44)
TR. 5133 (39/66)



Formerly:

A.C.M.   Reference: R-4.18A (CHC); TR. 4745 (136/57)   HPN   IND. PG. 2

ASSESSOR'S MAP 10

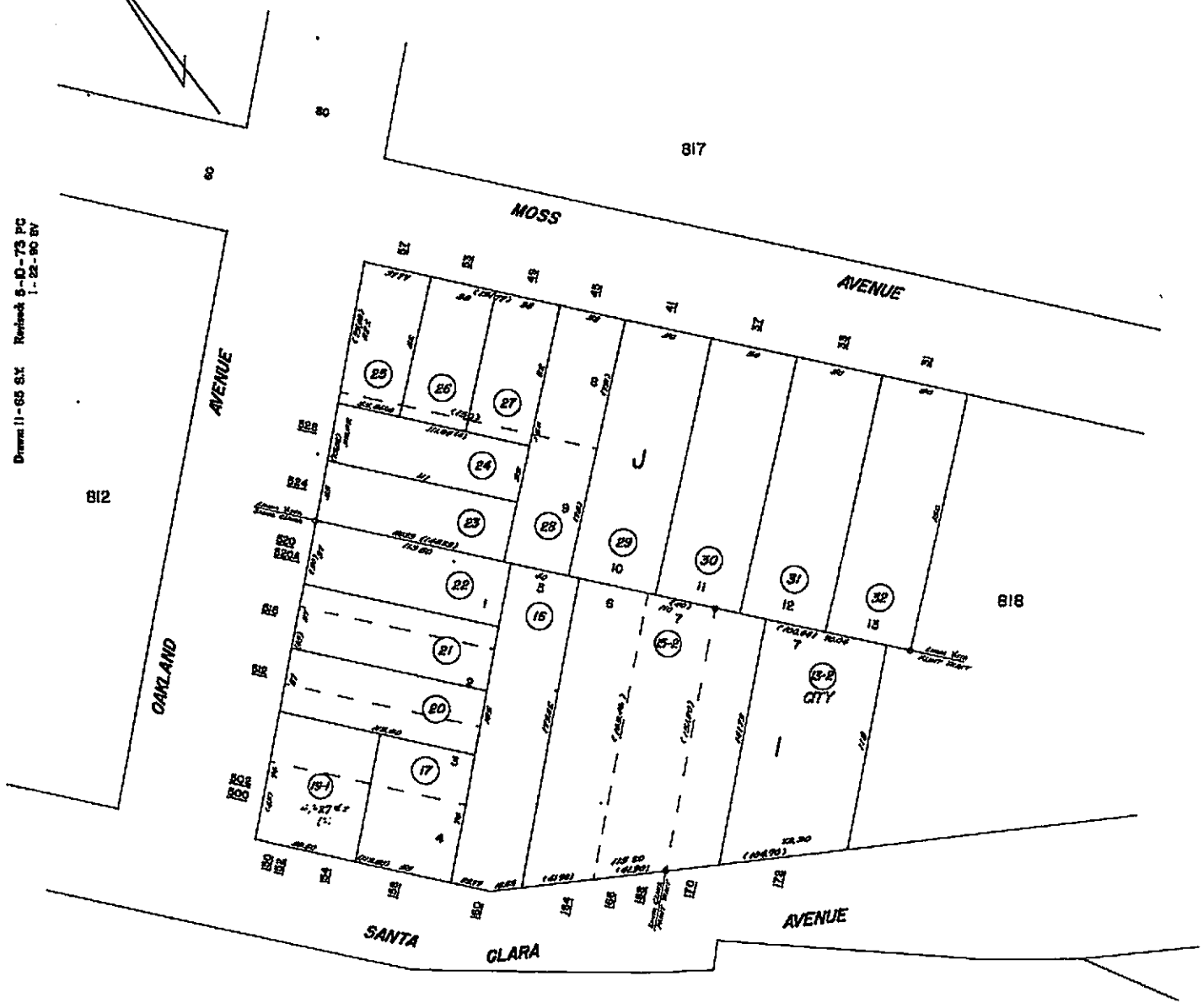
Code Area No. 17-001

818

Scale: 1" = 50'

Pg. 2

MAP NO. 2 OF LINDA VISTA TERRACE (Bk. 15 Pg. 44)
SANTA CLARA AVENUE PROPERTY (Bk. 19 Pg. 12)
FLINT TRACT NO. 4 (Bk. 15 Pg. 43)



MAC ARTHUR FREEWAY (R-4)

Drawn: 11-65 S.K. Redrawn: 5-10-73 PC 1-22-90 BV

Formerly:

A.C.M.

References:

Ind 2

CAMBRIA

Appendix C

Utility Maps

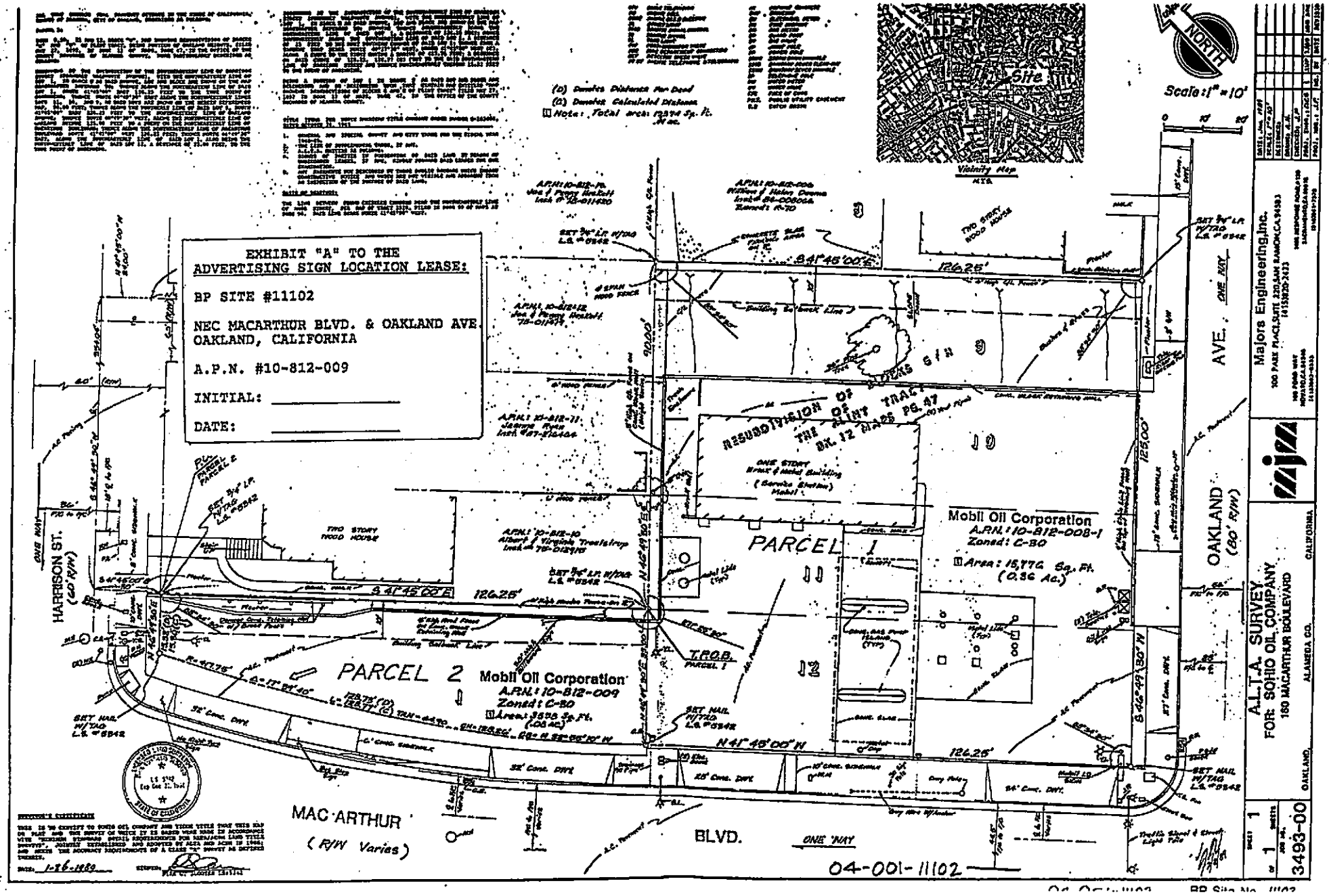
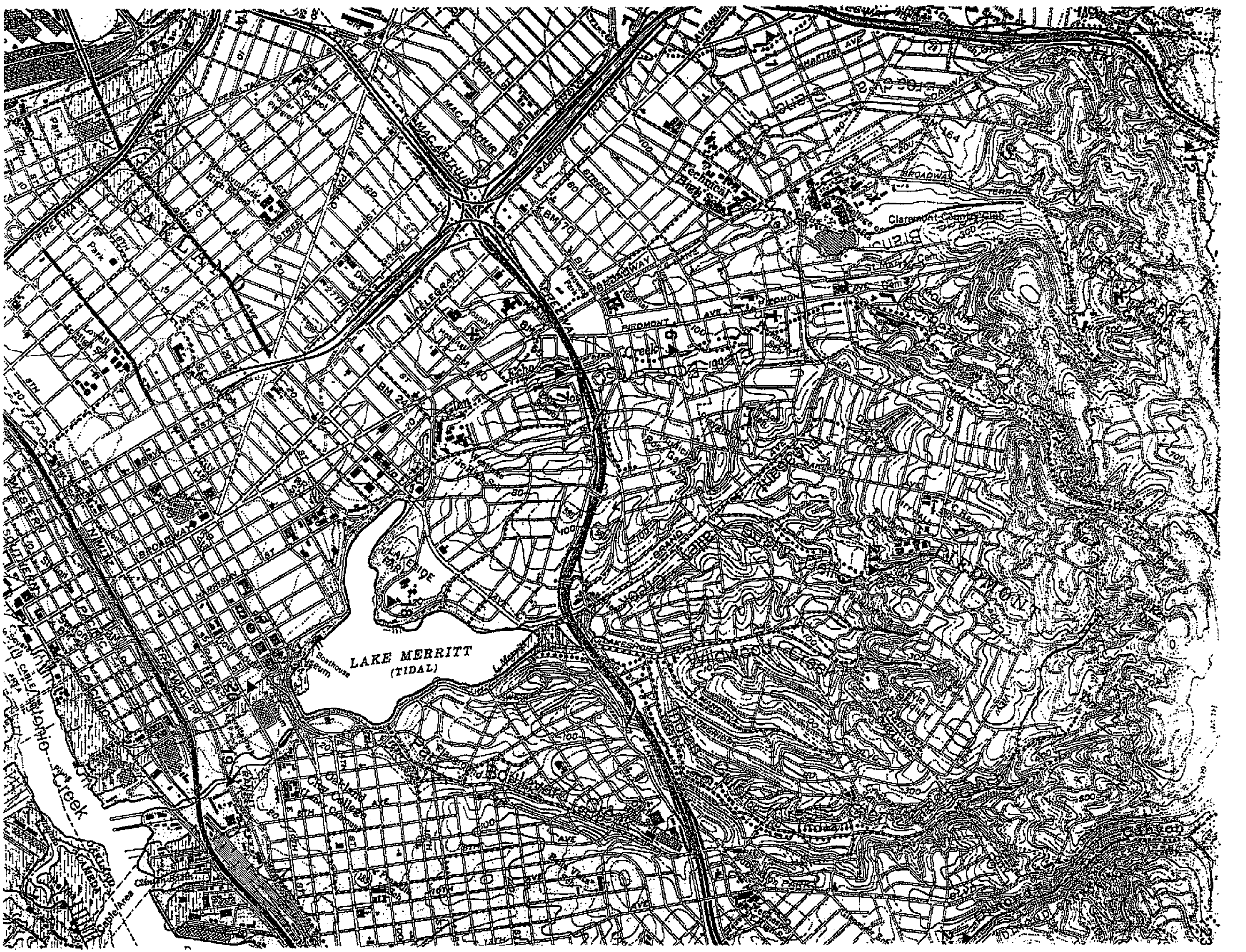
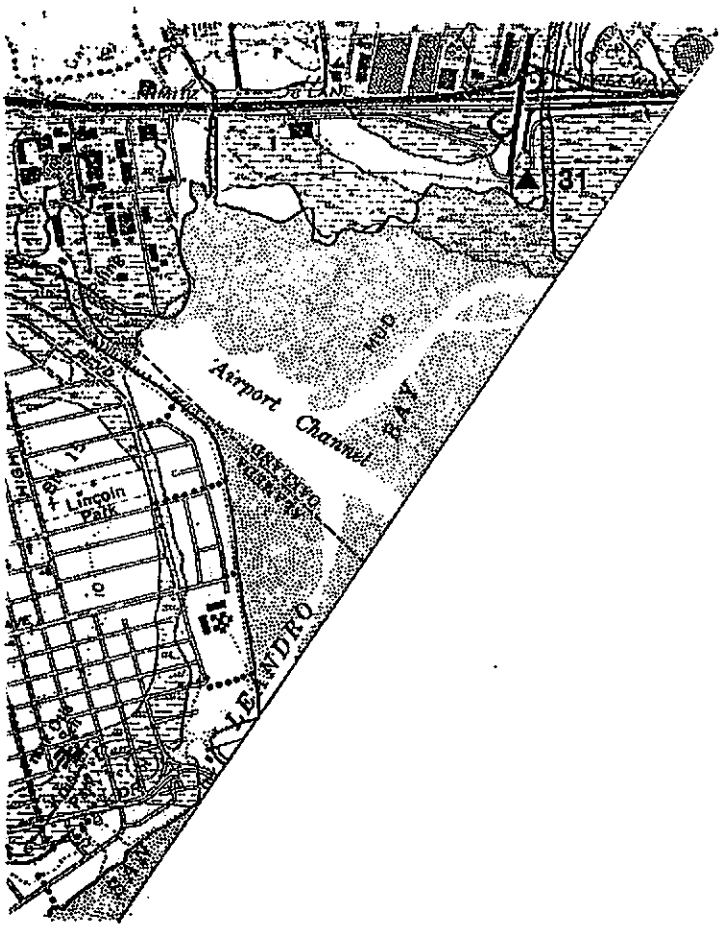


EXHIBIT "A" TO THE
ADVERTISING SIGN LOCATION LEASE:
BP SITE #11102
NEC MACARTHUR BLVD. & OAKLAND AVE.
OAKLAND, CALIFORNIA
A.P.N. #10-812-009
INITIAL: _____
DATE: _____
Vicinity Map
Site
NORTH
Scale: 1" = 10'
PARCEL 1
PARCEL 2
Mobil Oil Corporation
A.P.N.: 10-812-009
Zoned: C-80
Area: 3835 Sq. Ft.
(.08 Ac.)
Mobil Oil Corporation
A.P.N.: 10-812-008-1
Zoned: C-80
Area: 15,776 Sq. Ft.
(0.36 Ac.)
RESUBDIVISION OF THE PLANT TRACT
BK. 12 M. 25 PG. 47
HARRISON ST.
(60' R/W)
OAKLAND AVE.
(80' R/W)
ONE WAY
MAC ARTHUR
(R/W Varies)
BLVD.
ONE WAY
N41°45'00"W
126.25'
S41°45'00"E
126.25'
T.P.O.B.
TWO STORY WOOD HOUSE
ONE STORY BRICK & METAL BUILDING
(Service Station)
Mobil
Majors Engineering, Inc.
A.L.T.A. SURVEY
FOR: SOHIO OIL COMPANY
180 MACARTHUR BOULEVARD
OAKLAND ALAMEDA CO. CALIFORNIA
3493-00
04-001-11102



LAKE MERRITT
(TIDAL)
LAKESIDE PARK
Claremont Country Club
Boathouse
MAC ARTHUR
BROADWAY
PIEDMONT AVE
TELEGRAPH
FREEWAY
SHAFTER AVE
Technical High Sch
Hospital
Playground



EXPLANATION

- Creeks
- Former creeks, buried or drained, a bay shoreline, circa late 1800's
- Marshlands, circa late 1800's
- Bodies of water, circa late 1800's; darker areas are now fill land.
- Underground culverts & storm drai
- Engineered channels
- Artificial bodies of water
- Present watersheds

WATERSHED MAP of the OAKLAND-BERKELEY AREA

by Janet M. Sowers

NOTES

Creeks shown are those having a minimum of 0.2 square kilometers of watershed. Storm drains shown are those 24 inches or greater in diameter. Where an underground culvert was laid in a creek bed, only the culvert, not a former creek, is shown.

This map was prepared using city and county maps of the storm water runoff system and flood control facilities, historic maps (1850-1900) showing original routes of creeks and extent of marshes, and field notes and maps prepared by the author and other individuals. Complete documentation and a list of sources can be

CAMBRIA

Appendix D

Recovery Test Data and Plots

BORING LOG

PROJECT: 30-063 BORING DATE: 10-26-89

LOCATION: 100 MacArthur Boulevard, Oakland GEOLOGIST: M. Hopwood

TYPE: 10" HSA BORING NO.: MW-1

DRILLING COMPANY: Bay Area Exploration

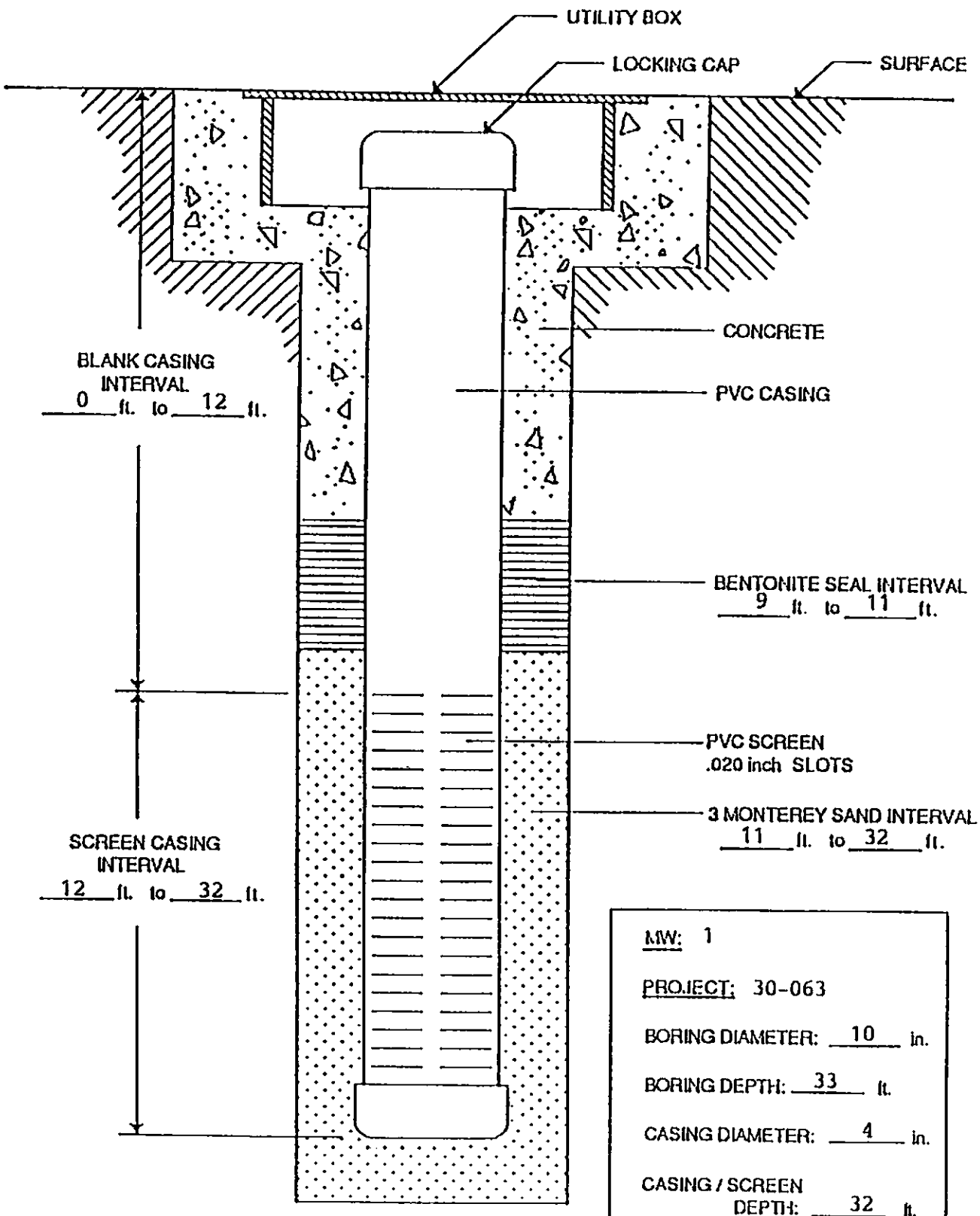
DEPTH (FEET)	I	BLOW CTS	MATERIAL ENCOUNTERED	USCS
			Asphalt Over Road Base Loose, dry, tan to orange, gravelly SAND.	GP
5		5,14,16	Loose, damp, tan to orange, gravelly SAND; wood fragments. CGI = ND.	GP
10		6,10,13	Loose, damp, tan to light brown, clayey SAND; poorly sorted. CGI = ND.	SC
15		8,8,25	Loose, very moist, tan to light brown, clayey SAND; some iron staining.	SC
▼ 20		9,9,12	Loose, saturated, tan to brown, gravelly SAND, with clay. CGI = ND.	GC
25				
30			Medium stiff, moist, tan CLAY.	CL
			Total Depth = 32 Feet	
35				
40				

TPH = Total Petroleum Hydrocarbons
TRPH = Total Recoverable Petroleum Hydrocarbons
▽ = Ground Water Piezometric Surface
ND = Not Detected
CGI = Combustible Gas Indicator

++ = Sample Analyzed for Hydrocarbon Concentration
I = Sampling Interval
ppm = Parts per Million
LEL = Lower Explosive Limit

B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylene
Total Depth = 32 Feet

MONI ORING WELL CONSTRUCTI N DETAIL



MW: 1

PROJECT: 30-063

BORING DIAMETER: 10 in.

BORING DEPTH: 33 ft.

CASING DIAMETER: 4 in.

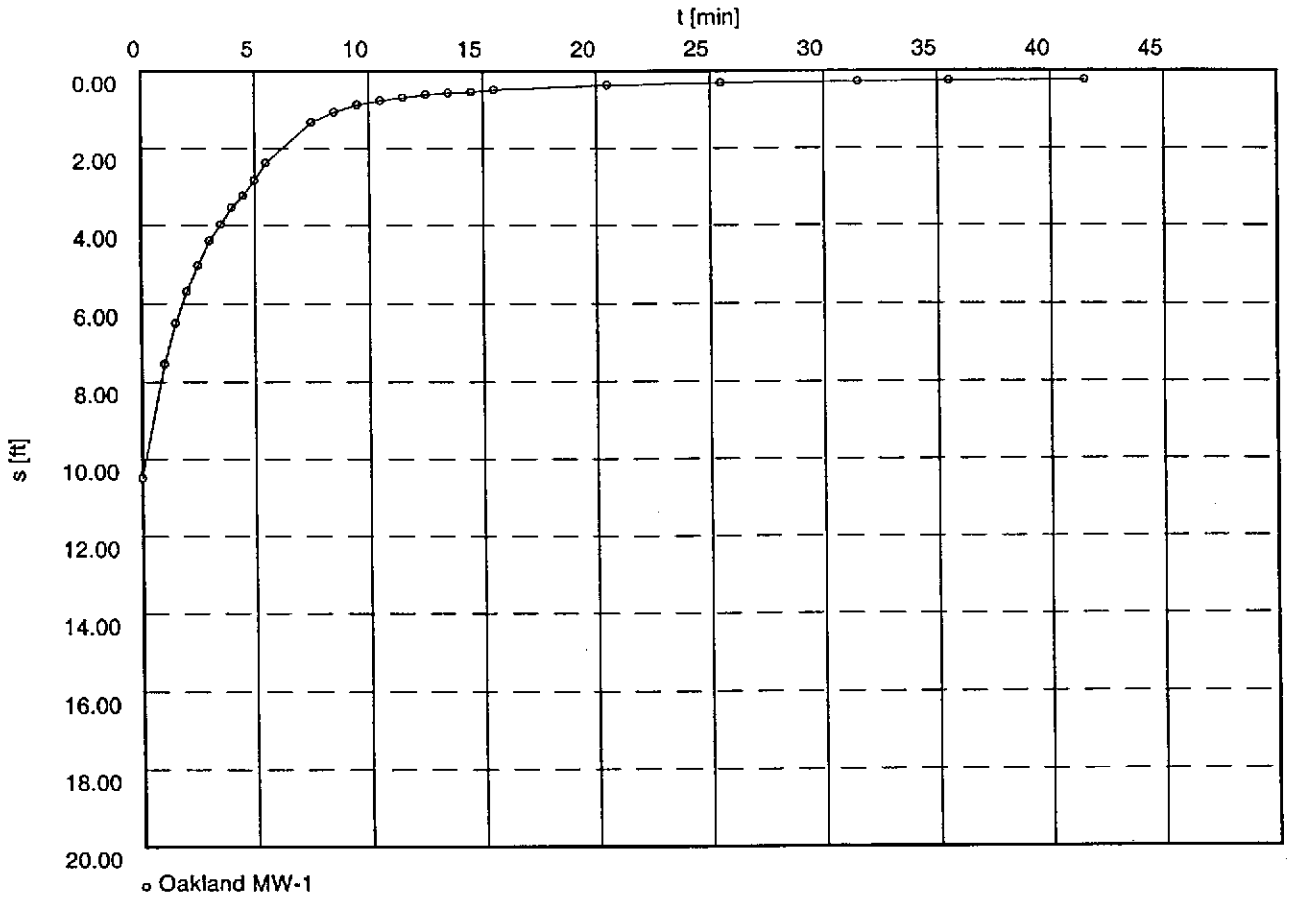
CASING / SCREEN DEPTH: 32 ft.

NOTE: DRAWING IS NOT TO SCALE

ALTON GEOSCIENCE
1170 BURNETT AVE., STE S
CONCORD, CA 94520

Cambria Environmental 1144 65th Street, Suite B Oakland, California 94608 ph.(510) 420-0700	Pumping test analysis Time-Drawdown plot	Date: 06.05.1999	Page 1
		Project: BP - 11102 - Oakland	
		Evaluated by: KBR	

Pumping Test No.	Test conducted on: 05/06/99
MW-1	



Cambria Environmental 1144 65th Street, Suite B Oakland, California 94608 ph.(510) 420-0700	Pumping test analysis Time-Drawdown plot	Date: 06.05.1999	Page 2
		Project: BP - 11102 - Oakland	
		Evaluated by: KBR	

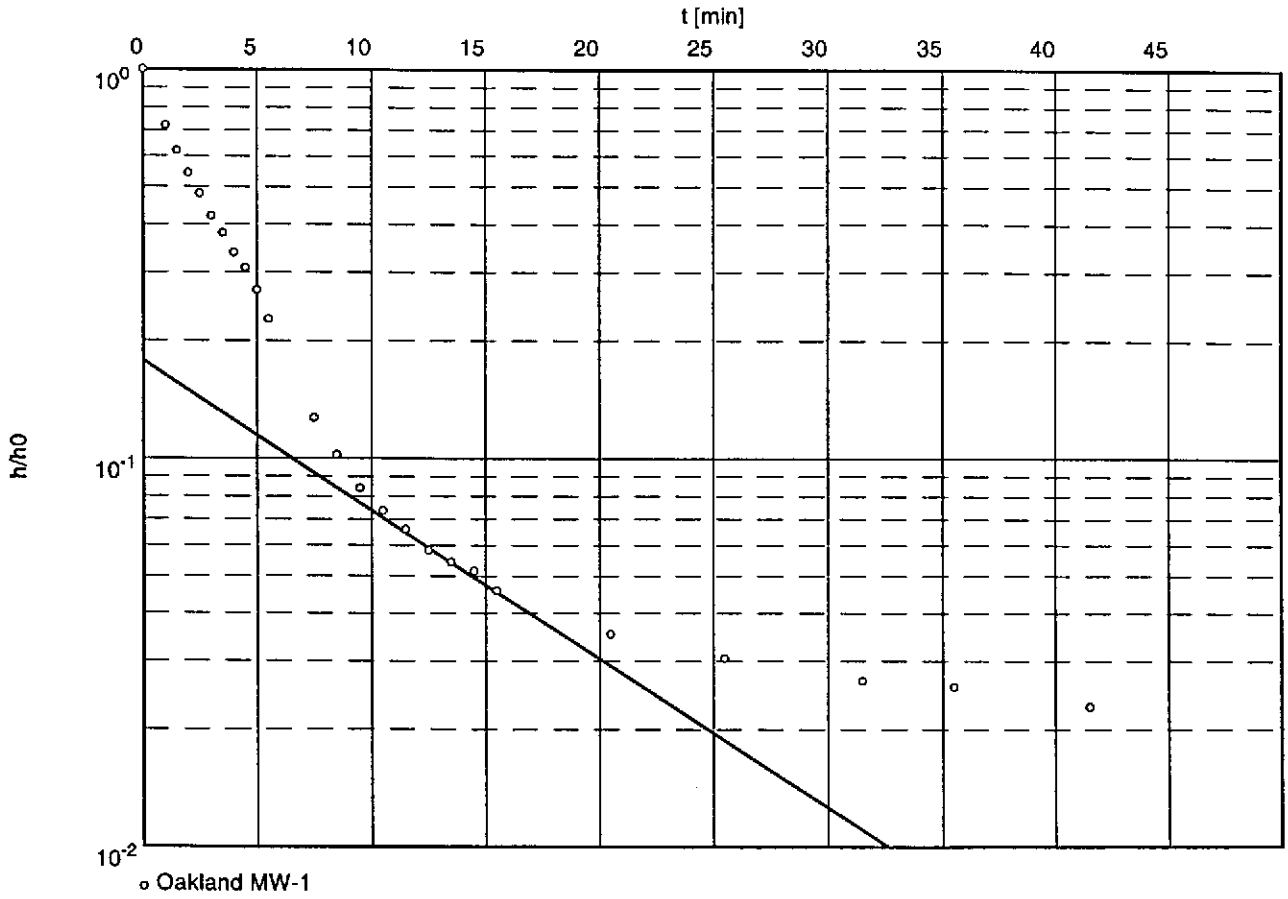
Pumping Test No.	Test conducted on: 05/06/99
MW-1	Oakland MW-1

Static water level: 9.21 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]
1	0.00	19.71	10.50
2	1.00	16.75	7.54
3	1.50	15.71	6.50
4	2.00	14.90	5.69
5	2.50	14.24	5.03
6	3.00	13.61	4.40
7	3.50	13.19	3.98
8	4.00	12.75	3.54
9	4.50	12.44	3.23
10	5.00	12.04	2.83
11	5.50	11.59	2.38
12	7.50	10.54	1.33
13	8.50	10.28	1.07
14	9.50	10.09	0.88
15	10.50	9.98	0.77
16	11.50	9.90	0.69
17	12.50	9.82	0.61
18	13.50	9.78	0.57
19	14.50	9.75	0.54
20	15.50	9.69	0.48
21	20.50	9.58	0.37
22	25.50	9.53	0.32
23	31.50	9.49	0.28
24	35.50	9.48	0.27
25	41.50	9.45	0.24

Cambria Environmental 1144 65th Street, Suite B Oakland, California 94608 ph.(510) 420-0700	slug/bail test analysis BOUWER-RICE's method	Date: 06.05.1999	Page 1
		Project: BP - 11102 - Oakland	
		Evaluated by: KBR	

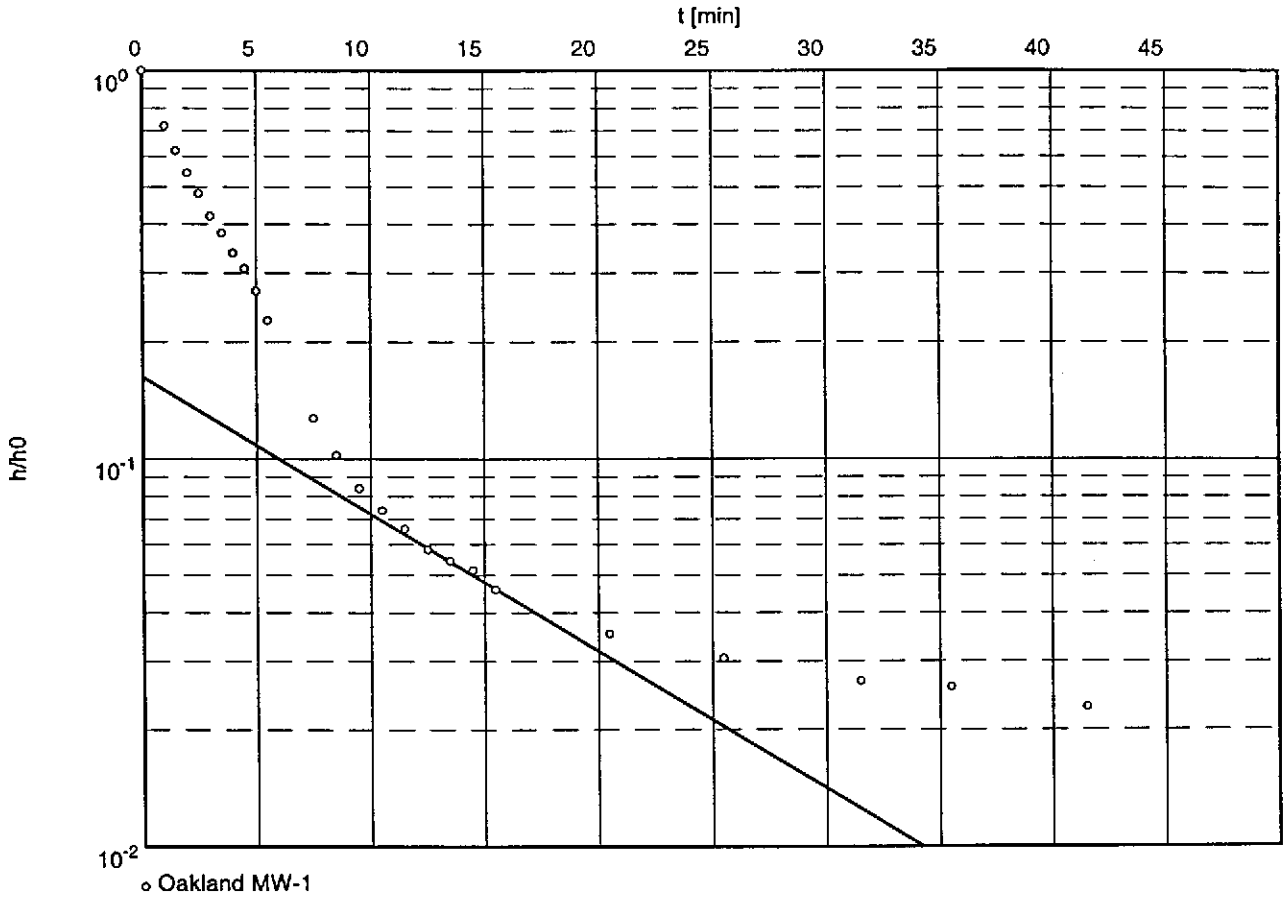
Slug Test No.	Test conducted on: 05/06/99
MW-1	



Hydraulic conductivity [ft/min]: 1.94×10^{-4}

Cambria Environmental 1144 65th Street, Suite B Oakland, California 94608 ph.(510) 420-0700	slug/bail test analysis HVORSLEV's method	Date: 06.05.1999	Page 1
		Project: BP - 11102 - Oakland	
		Evaluated by: KBR	

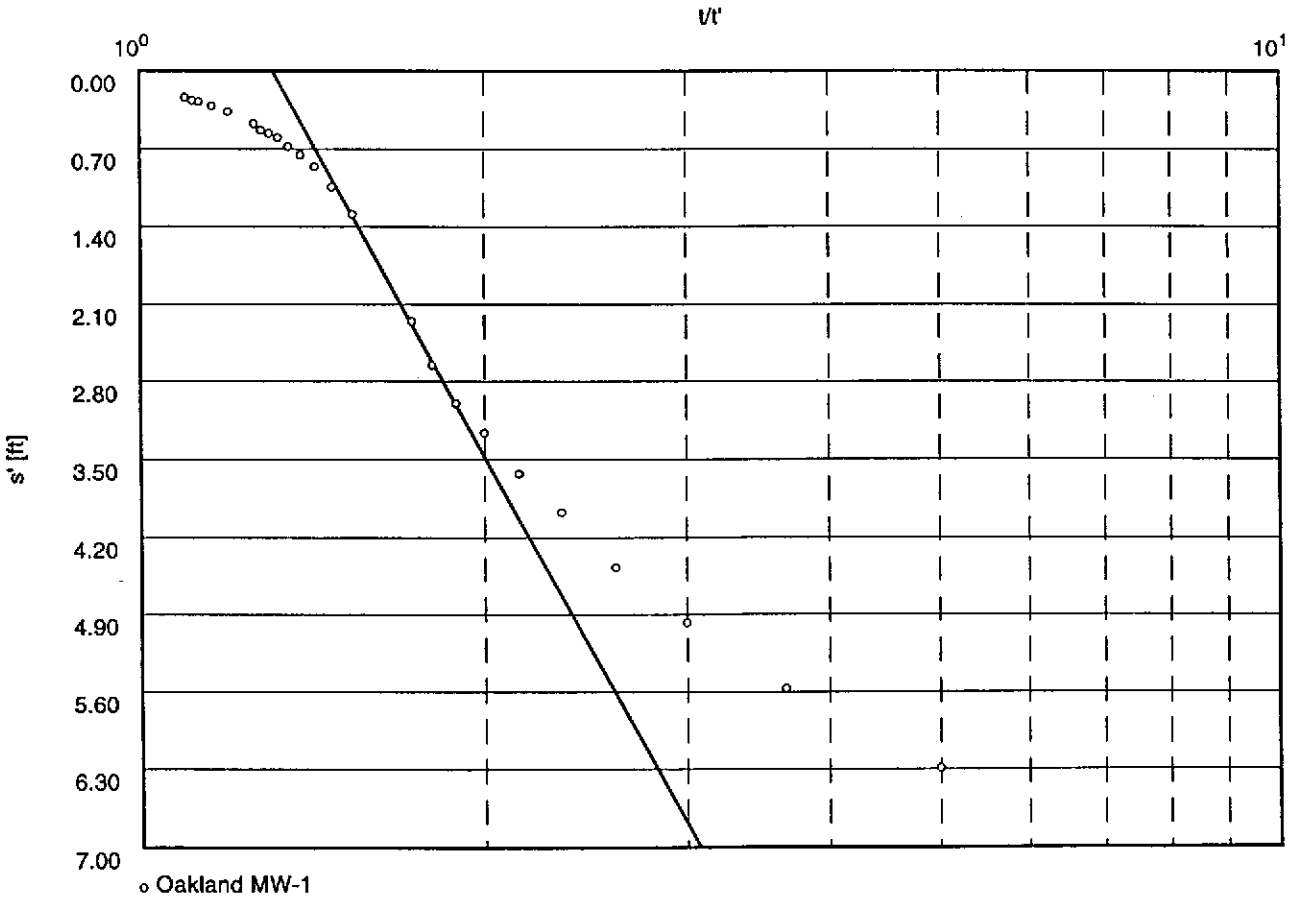
Slug Test No.	Test conducted on: 05/06/99
MW-1	



Hydraulic conductivity [ft/min]: 2.28×10^{-4}

Cambria Environmental 1144 65th Street, Suite B Oakland, California 94608 ph.(510) 420-0700	Pumping test analysis Recovery method after THEIS & JACOB Unconfined aquifer	Date: 06.05.1999	Page 1
		Project: BP - 11102 - Oakland	
		Evaluated by: KBR	

Pumping Test No.	Test conducted on: 05/06/99
MW-1	
Discharge 5.00 U.S.gal/min	
	Pumping test duration: 4.00 min



Transmissivity [ft²/min]: 6.50×10^{-3}

Hydraulic conductivity [ft/min]: 2.85×10^{-4}

Aquifer thickness [ft]: 22.79

Cambria Environmental 1144 65th Street, Suite B Oakland, California 94608 ph.(510) 420-0700	Pumping test analysis Recovery method after THEIS & JACOB Unconfined aquifer	Date: 06.05.1999	Page 2
		Project: BP - 11102 - Oakland	
		Evaluated by: KBR	

Pumping Test No.	Test conducted on: 05/06/99
MW-1	Oakland MW-1
Discharge 5.00 U.S.gal/min	

Static water level: 9.21 ft below datum

Pumping test duration: 4.00 min

	Time from end of pumping [min]	Water level [ft]	Residual drawdown [ft]	Corrected drawdown [ft]
2	1.00	16.75	7.54	6.29
3	1.50	15.71	6.50	5.57
4	2.00	14.90	5.69	4.98
5	2.50	14.24	5.03	4.47
6	3.00	13.61	4.40	3.98
7	3.50	13.19	3.98	3.63
8	4.00	12.75	3.54	3.27
9	4.50	12.44	3.23	3.00
10	5.00	12.04	2.83	2.65
11	5.50	11.59	2.38	2.26
12	7.50	10.54	1.33	1.29
13	8.50	10.28	1.07	1.04
14	9.50	10.09	0.88	0.86
15	10.50	9.98	0.77	0.76
16	11.50	9.90	0.69	0.68
17	12.50	9.82	0.61	0.60
18	13.50	9.78	0.57	0.56
19	14.50	9.75	0.54	0.53
20	15.50	9.69	0.48	0.47
21	20.50	9.58	0.37	0.37
22	25.50	9.53	0.32	0.32
23	31.50	9.49	0.28	0.28
24	35.50	9.48	0.27	0.27
25	41.50	9.45	0.24	0.24

BORING LOG

PROJECT: 30-063 BORING DATE: 10-25-89

LOCATION: 100 MacArthur Boulevard, Oakland GEOLOGIST: M. Hopwood

TYPE: 10" HSA BORING NO.: MW-2

DRILLING COMPANY: Bay Area Exploration

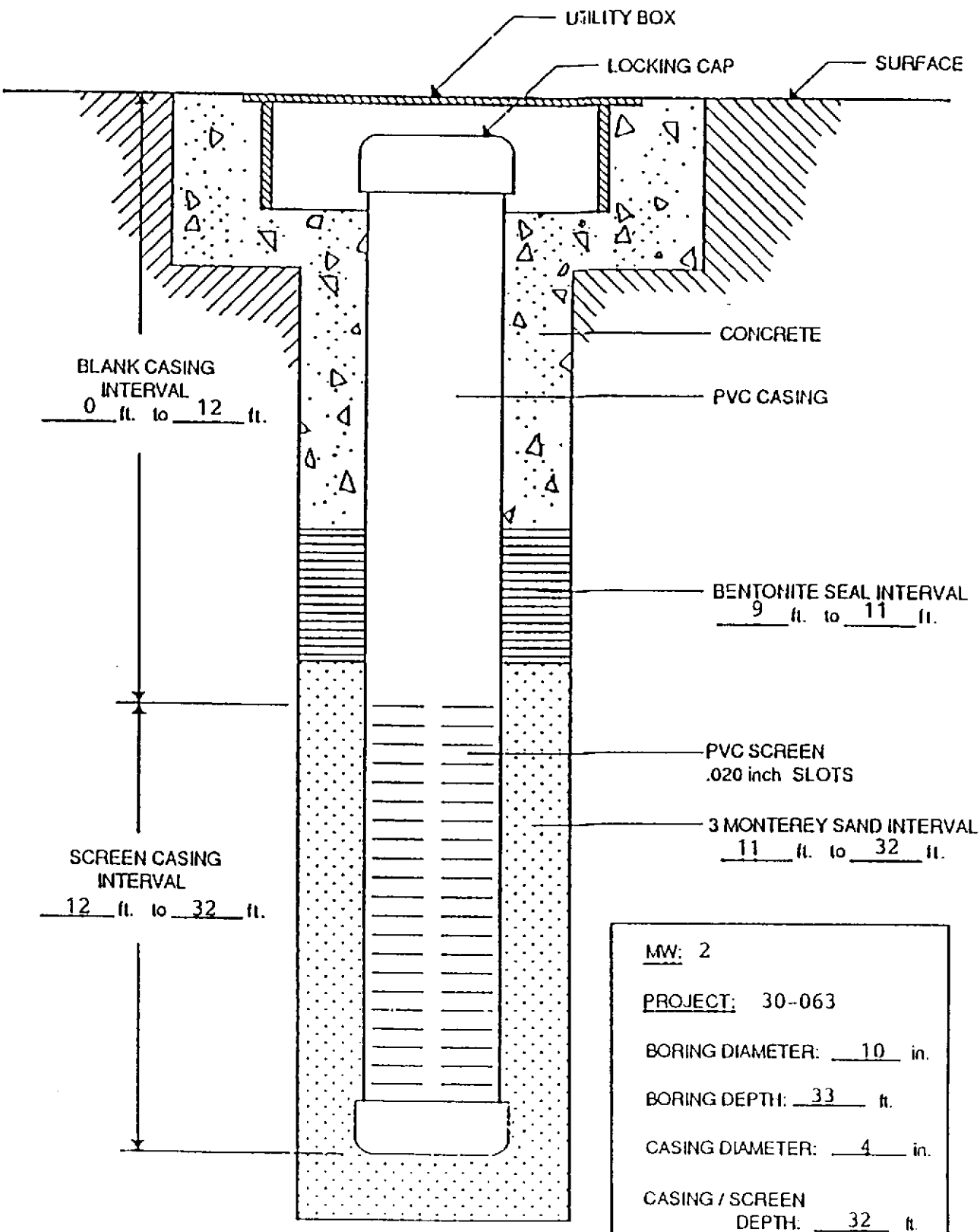
DEPTH (FEET)	I	BLOW CTS	MATERIAL ENCOUNTERED	USCS
0			Asphalt Over Road Base Very loose, damp, dark brown, silty CLAY.	CL
5		3,4,7	Loose, damp, greenish gray, silty CLAY with some coarse sand; very slight odor. CGI = 75 ppm.	
10		2,4,6	Medium stiff, damp, tan, sandy SILTY/CLAY. CGI = ND.	CL
15 ▽		5,7,12	Moderately stiff, damp, tan, clayey SILT.	ML
20				
25			Stiff, damp, gray, silty CLAY; iron stains; calcite stringers.	CL
30				
35			Total Depth - 32 Feet	
40				

TPH = Total Petroleum Hydrocarbons
TRPH = Total Recoverable Petroleum Hydrocarbons
▽ = Ground Water Piezometric Surface
ND = Not Detected
CGI = Combustible Gas Indicator

++ = Sample Analyzed for Hydrocarbon Concentration
I = Sampling Interval
ppm = Parts per Million
LEL = Lower Explosive Limit

B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylene
Total Depth = 32 Feet

MON ORING WELL CONSTRUCTI I DETAIL



MW: 2

PROJECT: 30-063

BORING DIAMETER: 10 in.

BORING DEPTH: 33 ft.

CASING DIAMETER: 4 in.

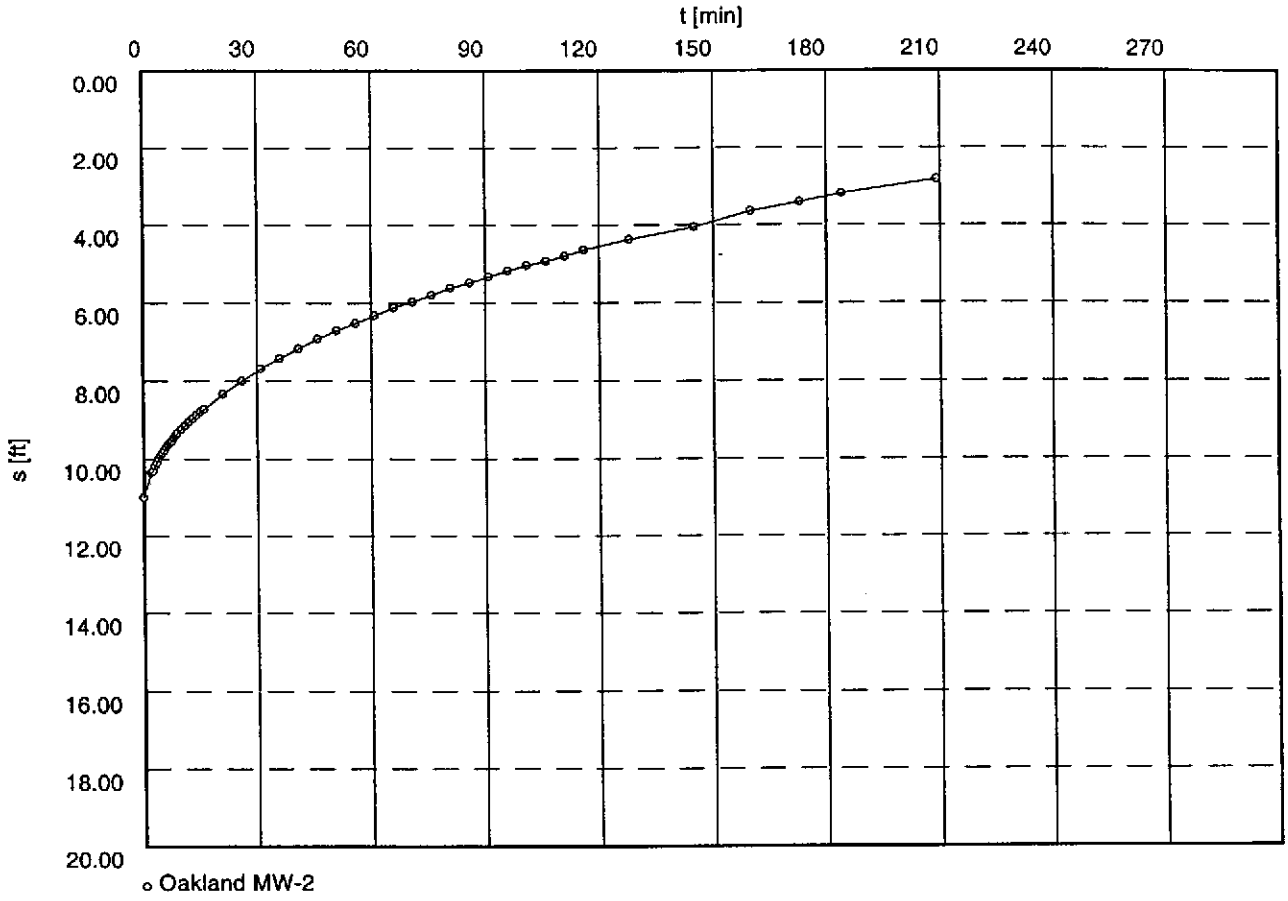
CASING / SCREEN DEPTH: 32 ft.

NOTE: DRAWING IS NOT TO SCALE

ALTON GEOSCIENCE
16510 ASTON ST.
IRVINE, CA 92714

Cambria Environmental 1144 65th Street, Suite B Oakland, California 94608 ph.(510) 420-0700	Pumping test analysis Time-Drawdown plot	Date: 05/06/99	Page 1
		Project: BP 11102 - Oakland	
		Evaluated by:	

Pumping Test No.	Test conducted on: 05/06/99
Oakland MW-2	



Cambria Environmental 1144 65th Street, Suite B Oakland, California 94608 ph.(510) 420-0700	Pumping test analysis Time-Drawdown plot	Date: 05/06/99	Page 2
		Project: BP 11102 - Oakland	
		Evaluated by:	

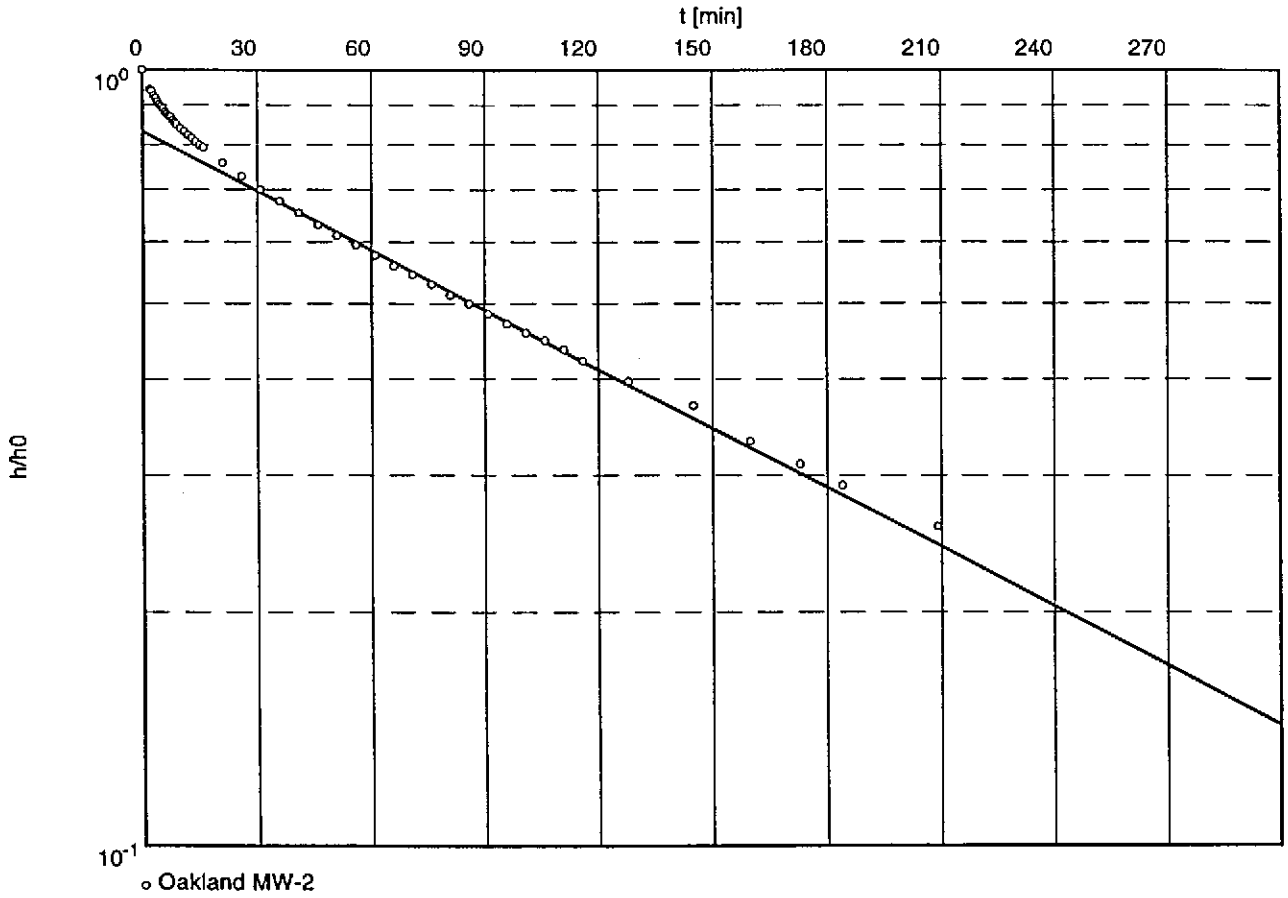
Pumping Test No.	Test conducted on: 05/06/99
Oakland MW-2	Oakland MW-2

Static water level: 10.92 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.00	21.92	11.00	
2	2.00	21.28	10.36	
3	2.50	21.24	10.32	
4	3.00	21.10	10.18	
5	3.50	21.02	10.10	
6	4.00	20.91	9.99	
7	4.50	20.83	9.91	
8	5.00	20.77	9.85	
9	5.50	20.70	9.78	
10	6.00	20.61	9.69	
11	6.50	20.55	9.63	
12	7.00	20.50	9.58	
13	7.50	20.46	9.54	
14	8.00	20.37	9.45	
15	8.50	20.31	9.39	
16	9.00	20.25	9.33	
17	10.00	20.15	9.23	
18	11.00	20.06	9.14	
19	12.00	19.96	9.04	
20	13.00	19.88	8.96	
21	14.00	19.79	8.87	
22	15.00	19.70	8.78	
23	16.00	19.64	8.72	
24	21.00	19.25	8.33	
25	26.00	18.92	8.00	
26	31.00	18.61	7.69	
27	36.00	18.35	7.43	
28	41.00	18.10	7.18	
29	46.00	17.85	6.93	
30	51.00	17.63	6.71	
31	56.00	17.45	6.53	
32	61.00	17.25	6.33	
33	66.00	17.05	6.13	
34	71.00	16.90	5.98	
35	76.00	16.73	5.81	
36	81.00	16.55	5.63	
37	86.00	16.41	5.49	
38	91.00	16.25	5.33	
39	96.00	16.10	5.18	
40	101.00	15.96	5.04	
41	106.00	15.85	4.93	
42	111.00	15.72	4.80	
43	116.00	15.56	4.64	
44	128.00	15.29	4.37	
45	145.00	14.98	4.06	
46	160.00	14.57	3.65	
47	173.00	14.33	3.41	
48	184.00	14.12	3.20	
49	209.00	13.75	2.83	

Cambria Environmental 1144 65th Street, Suite B Oakland, California 94608 ph.(510) 420-0700	slug/bail test analysis BOUWER-RICE's method	Date: 05/06/99	Page 1
		Project: BP 11102 - Oakland	
		Evaluated by:	

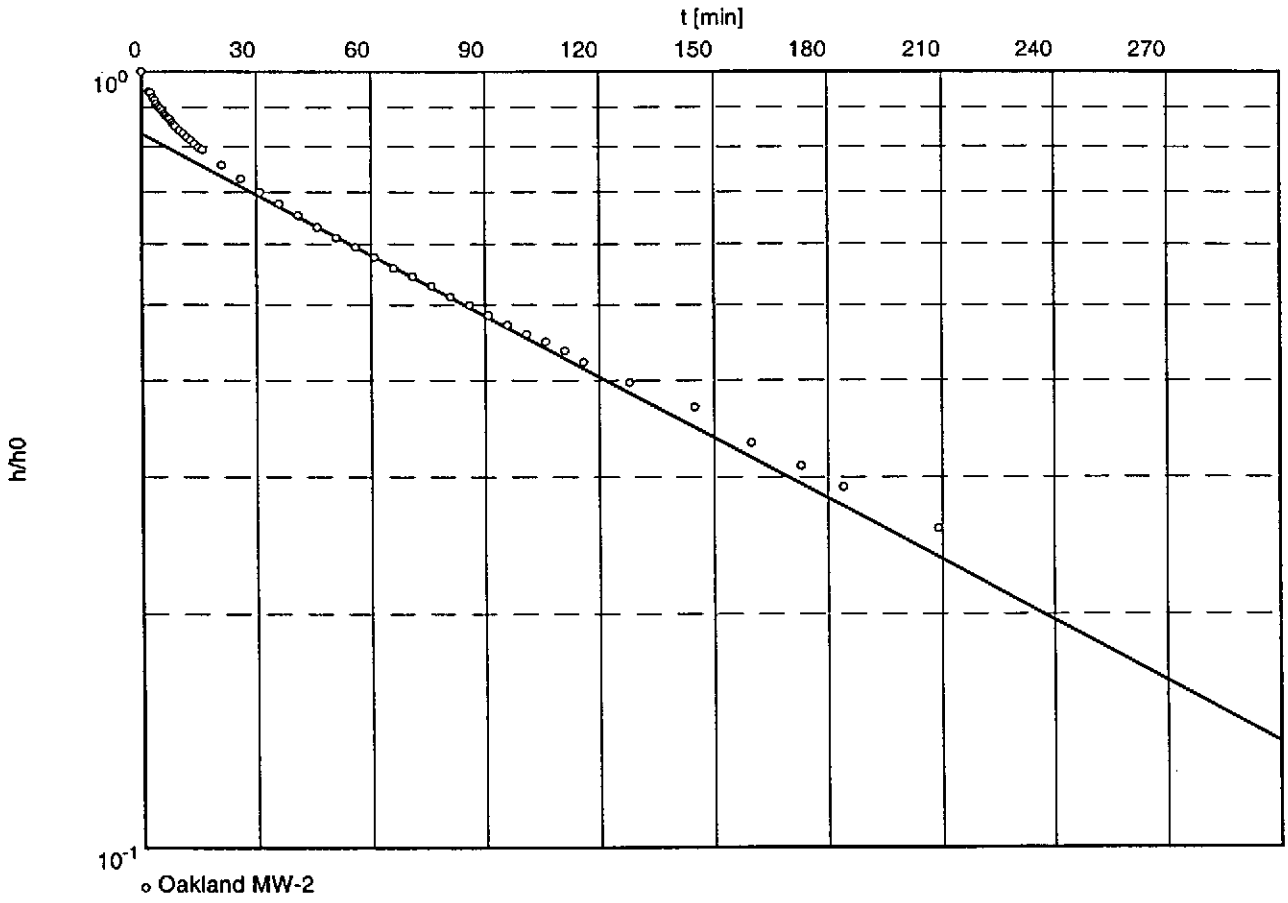
Slug Test No.	Test conducted on: 05/06/99
Oakland MW-2	



Hydraulic conductivity [ft/min]: 1.27×10^{-5}

Cambria Environmental 1144 65th Street, Suite B Oakland, California 94608 ph.(510) 420-0700	slug/bail test analysis HVORSLEV's method	Date: 05/06/99	Page 1
		Project: BP 11102 - Oakland	
		Evaluated by:	

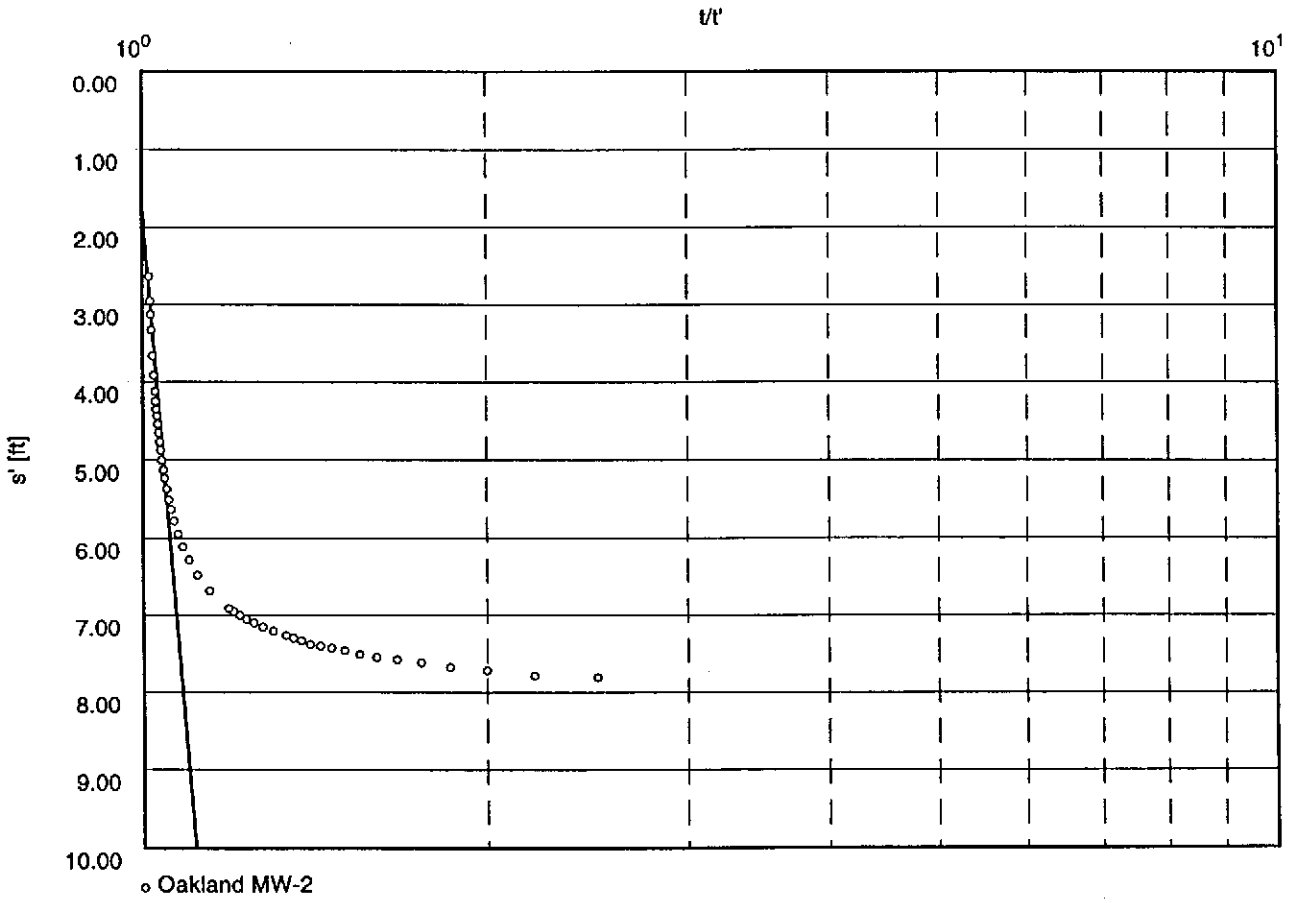
Slug Test No.	Test conducted on: 05/06/99
Oakland MW-2	



Hydraulic conductivity [ft/min]: 1.68×10^{-5}

Cambria Environmental 1144 65th Street, Suite B Oakland, California 94608 ph.(510) 420-0700	Pumping test analysis Recovery method after THEIS & JACOB Unconfined aquifer	Date: 05/06/99	Page 1
		Project: BP 11102 - Oakland	
		Evaluated by:	

Pumping Test No.	Test conducted on: 05/06/99
Oakland MW-2	
Discharge 5.00 U.S.gal/min	
	Pumping test duration: 3.00 min



Transmissivity [ft²/min]: 6.64×10^{-4}

Hydraulic conductivity [ft/min]: 3.15×10^{-5}

Aquifer thickness [ft]: 21.08

Cambria Environmental 1144 65th Street, Suite B Oakland, California 94608 ph.(510) 420-0700	Pumping test analysis Recovery method after THEIS & JACOB Unconfined aquifer	Date: 05/06/99	Page 2
		Project: BP 11102 - Oakland	
		Evaluated by:	

Pumping Test No.	Test conducted on: 05/06/99
Oakland MW-2	Oakland MW-2
Discharge 5.00 U.S.gal/min	
Static water level: 10.92 ft below datum	Pumping test duration: 3.00 min

	Time from end of pumping [min]	Water level [ft]	Residual drawdown [ft]	Corrected drawdown [ft]
2	2.00	21.28	10.36	7.81
3	2.50	21.24	10.32	7.79
4	3.00	21.10	10.18	7.72
5	3.50	21.02	10.10	7.68
6	4.00	20.91	9.99	7.62
7	4.50	20.83	9.91	7.58
8	5.00	20.77	9.85	7.55
9	5.50	20.70	9.78	7.51
10	6.00	20.61	9.69	7.46
11	6.50	20.55	9.63	7.43
12	7.00	20.50	9.58	7.40
13	7.50	20.46	9.54	7.38
14	8.00	20.37	9.45	7.33
15	8.50	20.31	9.39	7.30
16	9.00	20.25	9.33	7.27
17	10.00	20.15	9.23	7.21
18	11.00	20.06	9.14	7.16
19	12.00	19.96	9.04	7.10
20	13.00	19.88	8.96	7.06
21	14.00	19.79	8.87	7.00
22	15.00	19.70	8.78	6.95
23	16.00	19.64	8.72	6.92
24	21.00	19.25	8.33	6.68
25	26.00	18.92	8.00	6.48
26	31.00	18.61	7.69	6.29
27	36.00	18.35	7.43	6.12
28	41.00	18.10	7.18	5.96
29	46.00	17.85	6.93	5.79
30	51.00	17.63	6.71	5.64
31	56.00	17.45	6.53	5.52
32	61.00	17.25	6.33	5.38
33	66.00	17.05	6.13	5.24
34	71.00	16.90	5.98	5.13
35	76.00	16.73	5.81	5.01
36	81.00	16.55	5.63	4.88
37	86.00	16.41	5.49	4.78
38	91.00	16.25	5.33	4.66
39	96.00	16.10	5.18	4.54
40	101.00	15.96	5.04	4.44
41	106.00	15.85	4.93	4.35
42	111.00	15.72	4.80	4.25
43	116.00	15.56	4.64	4.13
44	128.00	15.29	4.37	3.92
45	145.00	14.98	4.06	3.67
46	160.00	14.57	3.65	3.33
47	173.00	14.33	3.41	3.13
48	184.00	14.12	3.20	2.96
49	209.00	13.75	2.83	2.64

BORING LOG

PROJECT: 30-063 BORING DATE: 10-26-89

LOCATION: 100 MacArthur Boulevard, Oakland GEOLOGIST: M. Hopwood

TYPE: 10" HSA BORING NO.: MW-3

DRILLING COMPANY: Bay Area Explored

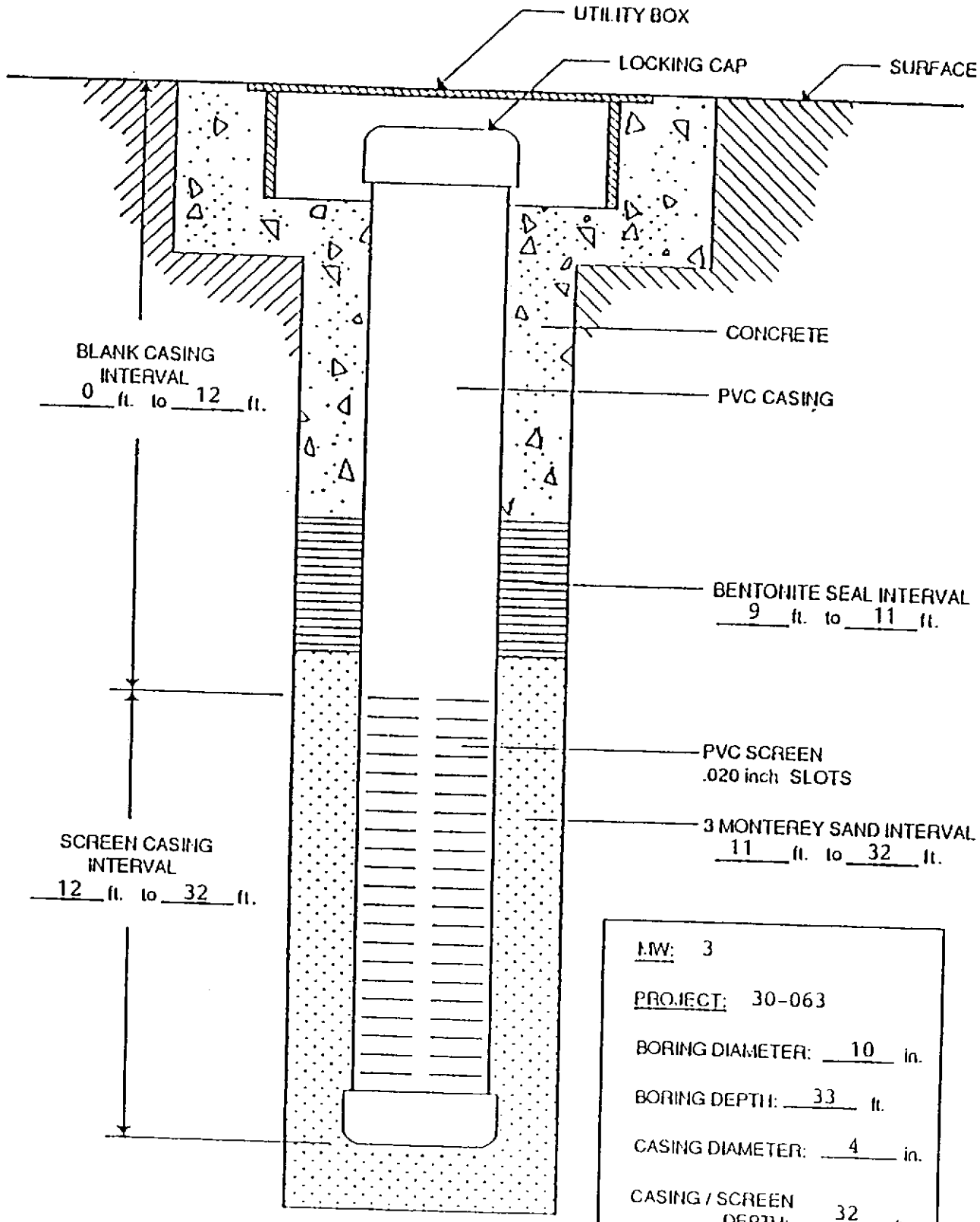
DEPTH (FEET)	I	BLOW CTS	MATERIAL ENCOUNTERED	USCS
0			Asphalt Over Road Base Loose, dry, tan to orange, gravelly SAND.	GP
5		7,11,14	Moderately stiff, damp, tan to gray/green, silty CLAY, with gravel; some iron staining.	CL
10		3,5,6		
			Moderately soft, damp, brown, silty CLAY.	CL
15 ▼		6,8,13		
			Moderately loose, damp, tan to brown, sandy CLAY.	CL
20				
			Soft, moist, tan CLAY.	CL
25			Becomes silty.	
30				
			Total Depth - 32 Feet	
35				
40				

TPH = Total Petroleum Hydrocarbons
TRPH = Total Recoverable Petroleum Hydrocarbons
▽ = Ground Water Piezometric Surface
ND = Not Detected
CGI = Combustible Gas Indicator

++ = Sample Analyzed for Hydrocarbon Concentration
I = Sampling Interval
ppm = Parts per Million
LEL = Lower Explosive Limit

B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylene
Total Depth = 32 Feet

MONITORING WELL CONSTRUCTION DETAIL



MW: 3

PROJECT: 30-063

BORING DIAMETER: 10 in.

BORING DEPTH: 33 ft.

CASING DIAMETER: 4 in.

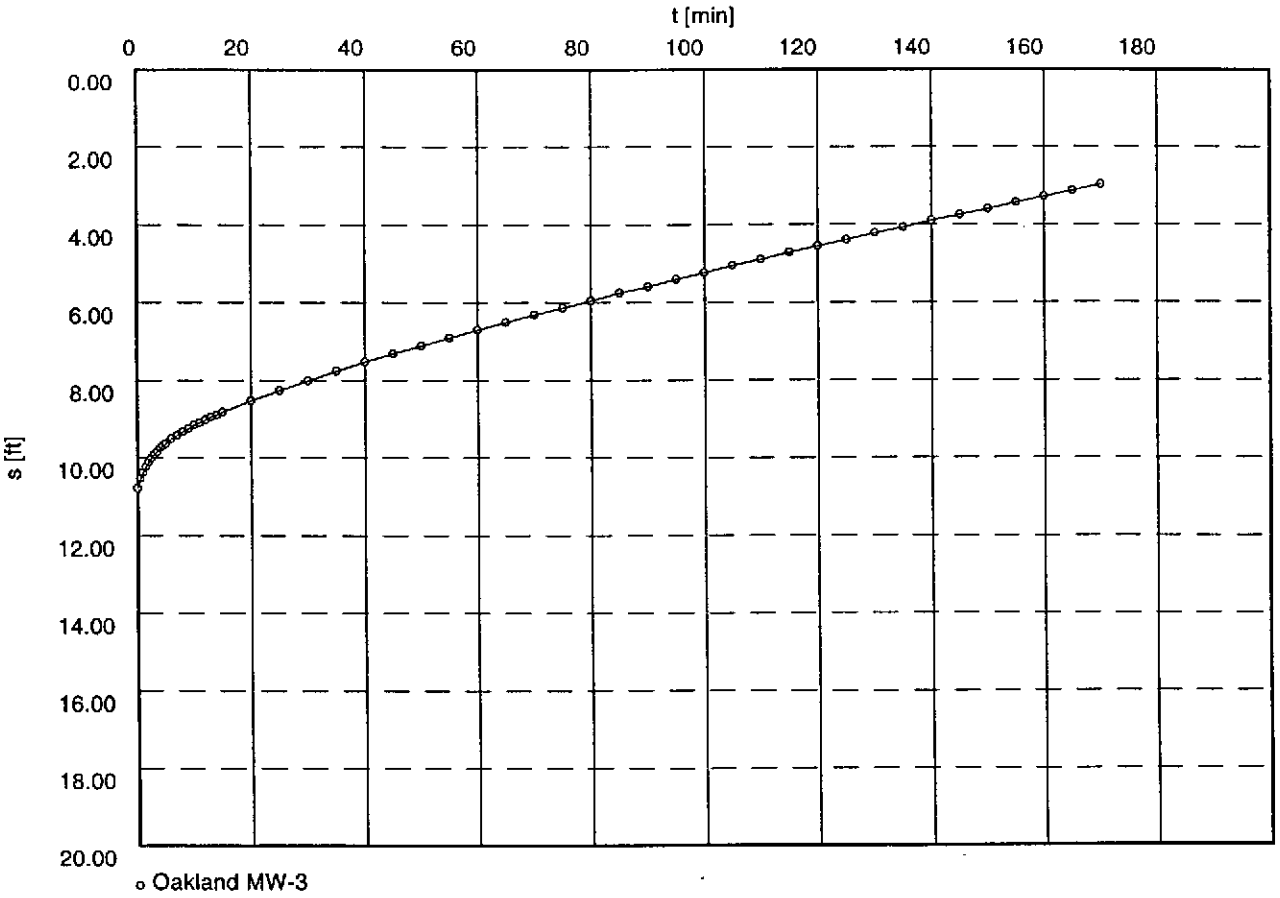
CASING / SCREEN DEPTH: 32 ft.

NOTE: DRAWING IS NOT TO SCALE

ALTON GEOSCIENCE
1170 BURNETT AVE., STE S
CONCORD, CA 94520

Cambria Environmental 1144 65th Street, Suite B Oakland, California 94608 ph.(510) 420-0700	Pumping test analysis Time-Drawdown plot	Date: 05/06/99	Page 1
		Project: BP 11102 - Oakland	
		Evaluated by: KBR	

Pumping Test No.	Test conducted on: 05/06/99
MW-3	



Cambria Environmental 1144 65th Street, Suite B Oakland, California 94608 ph.(510) 420-0700	Pumping test analysis Time-Drawdown plot	Date: 05/06/99	Page 2
		Project: BP 11102 - Oakland	
		Evaluated by: KBR	

Pumping Test No.	Test conducted on: 05/06/99
MW-3	Oakland MW-3

Static water level: 14.89 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]
1	0.00	25.68	10.79
2	0.50	25.43	10.54
3	1.00	25.28	10.39
4	1.50	25.12	10.23
5	2.00	25.00	10.11
6	2.50	24.90	10.01
7	3.00	24.81	9.92
8	3.50	24.74	9.85
9	4.00	24.65	9.76
10	4.50	24.59	9.70
11	5.00	24.53	9.64
12	6.00	24.41	9.52
13	7.00	24.31	9.42
14	8.00	24.22	9.33
15	9.00	24.14	9.25
16	10.00	24.05	9.16
17	11.00	23.99	9.10
18	12.00	23.91	9.02
19	13.00	23.84	8.95
20	14.00	23.79	8.90
21	15.00	23.71	8.82
22	20.00	23.41	8.52
23	25.00	23.15	8.26
24	30.00	22.90	8.01
25	35.00	22.65	7.76
26	40.00	22.42	7.53
27	45.00	22.20	7.31
28	50.00	22.00	7.11
29	55.00	21.80	6.91
30	60.00	21.59	6.70
31	65.00	21.40	6.51
32	70.00	21.21	6.32
33	75.00	21.03	6.14
34	80.00	20.85	5.96
35	85.00	20.65	5.76
36	90.00	20.49	5.60
37	95.00	20.30	5.41
38	100.00	20.13	5.24
39	105.00	19.95	5.06
40	110.00	19.79	4.90
41	115.00	19.61	4.72
42	120.00	19.45	4.56
43	125.00	19.29	4.40
44	130.00	19.11	4.22
45	135.00	18.97	4.08
46	140.00	18.80	3.91
47	145.00	18.65	3.76
48	150.00	18.50	3.61
49	155.00	18.33	3.44
50	160.00		

Cambria Environmental 1144 65th Street, Suite B Oakland, California 94608 ph.(510) 420-0700	Pumping test analysis Time-Drawdown plot	Date: 05/06/99	Page 3
		Project: BP 11102 - Oakland	
		Evaluated by: KBR	

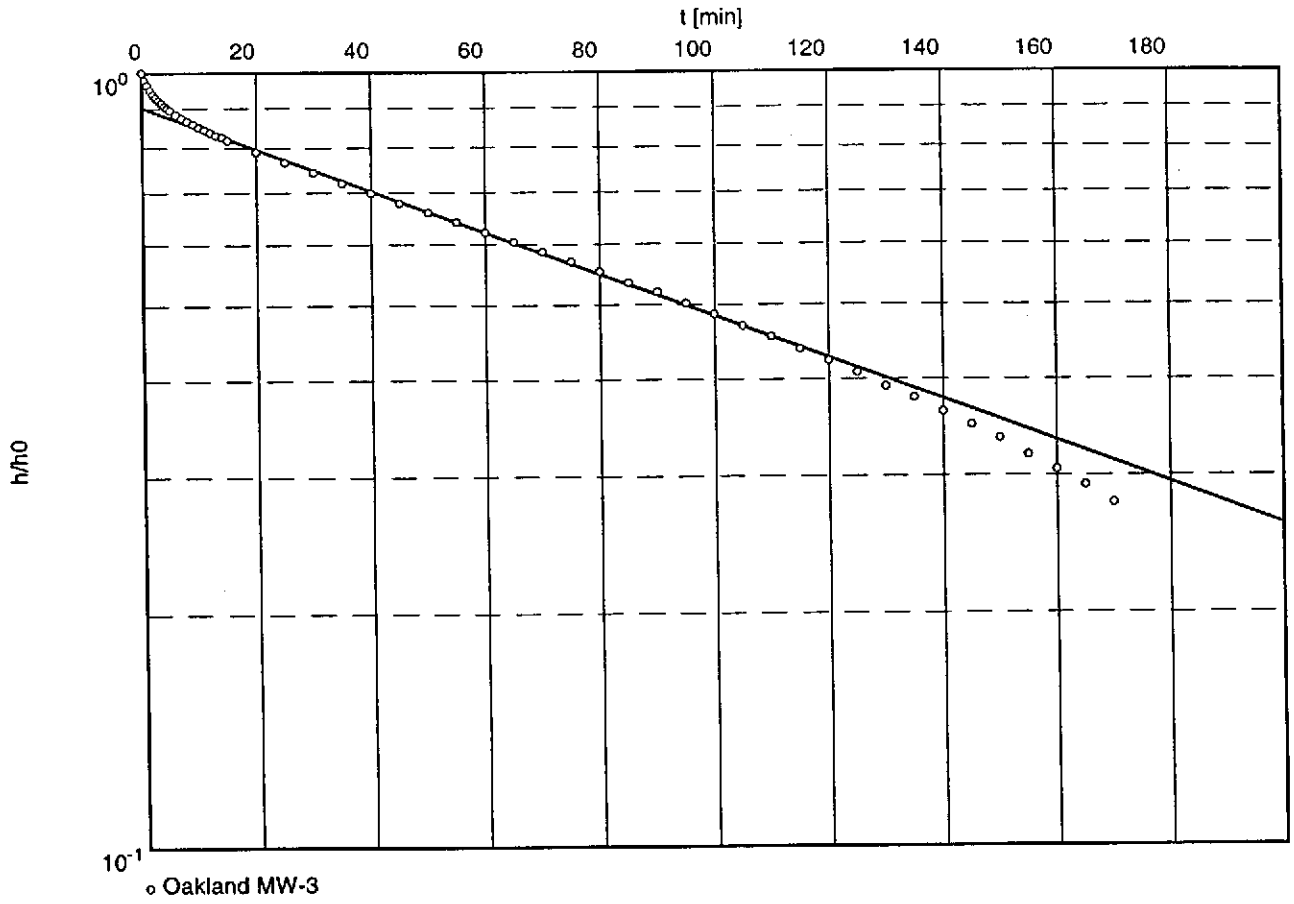
Pumping Test No.	Test conducted on: 05/06/99
MW-3	Oakland MW-3

Static water level: 14.89 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
51	165.00	18.03	3.14	
52	170.00	17.87	2.98	

Cambria Environmental 1144 65th Street, Suite B Oakland, California 94608 ph.(510) 420-0700	slug/bail test analysis BOUWER-RICE's method	Date: 05/06/99	Page 1
		Project: BP 11102 - Oakland	
		Evaluated by: KBR	

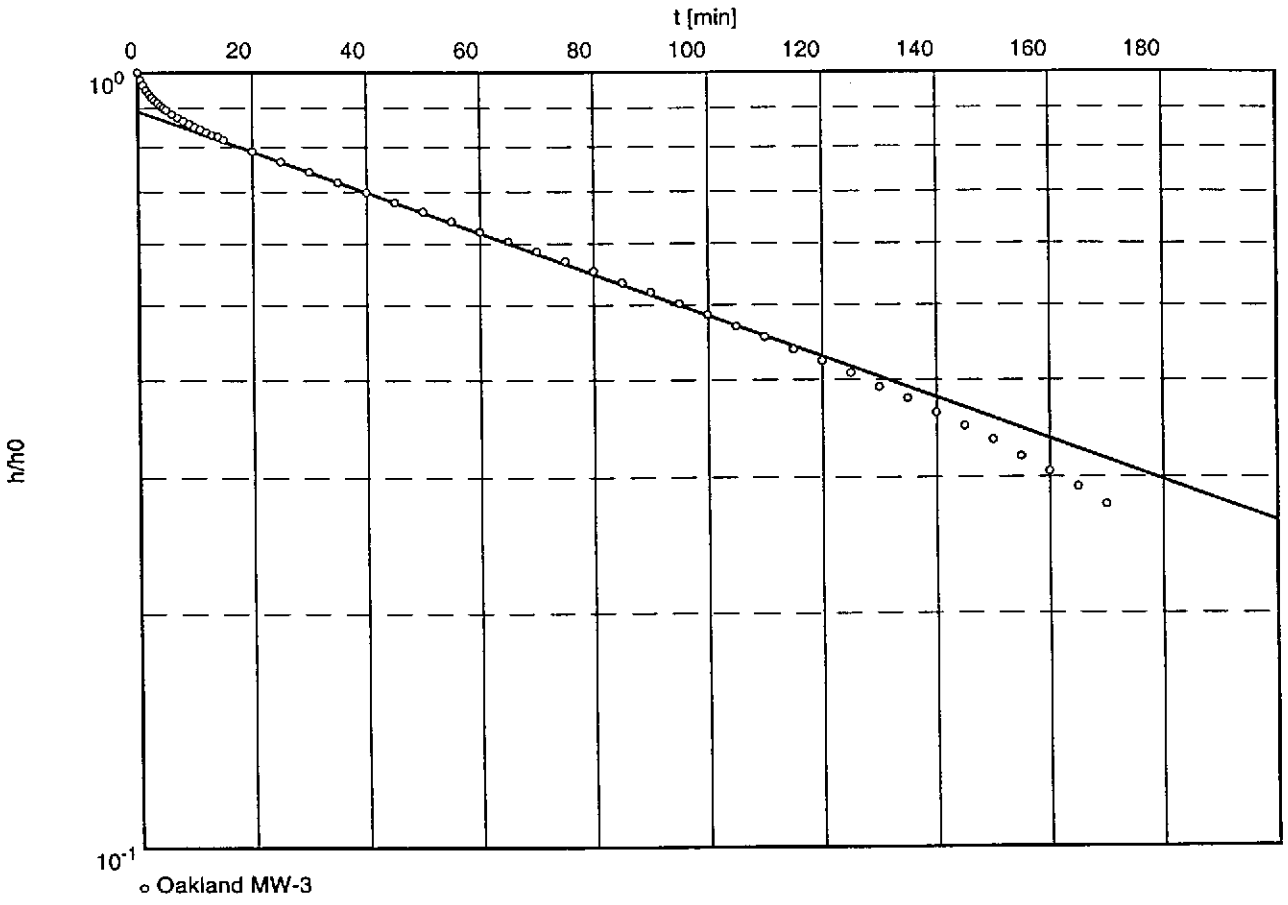
Slug Test No.	Test conducted on: 05/06/99
MW-3	



Hydraulic conductivity [ft/min]: 3.40×10^{-5}

Cambria Environmental 1144 65th Street, Suite B Oakland, California 94608 ph.(510) 420-0700	slug/bail test analysis HVORSLEV's method	Date: 05/06/99	Page 1
		Project: BP 11102 - Oakland	
		Evaluated by: KBR	

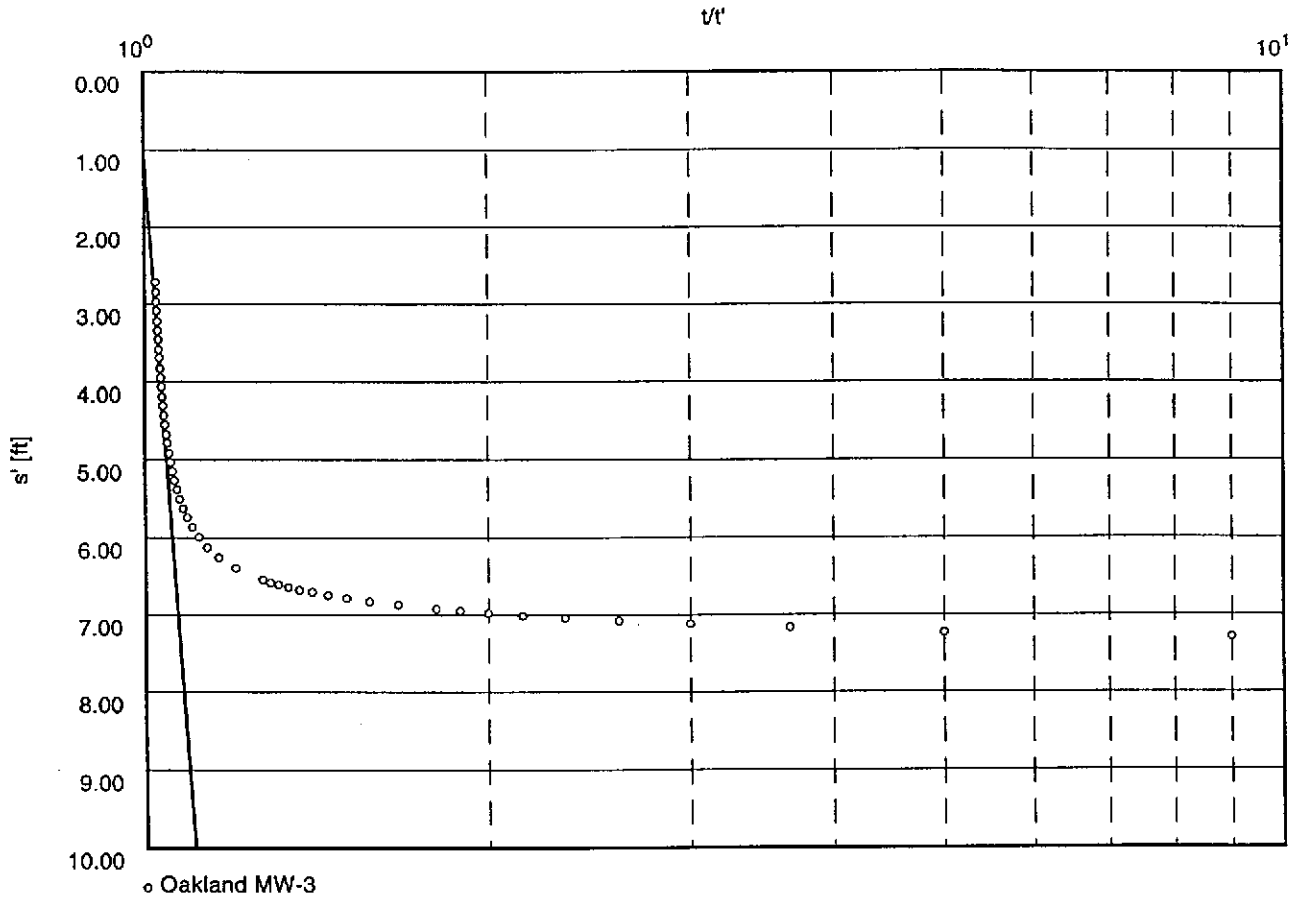
Slug Test No.	Test conducted on: 05/06/99
MW-3	



Hydraulic conductivity [ft/min]: 1.71×10^{-5}

Cambria Environmental 1144 65th Street, Suite B Oakland, California 94608 ph.(510) 420-0700	Pumping test analysis Recovery method after THEIS & JACOB Unconfined aquifer	Date: 05/06/99	Page 1
		Project: BP 11102 - Oakland	
		Evaluated by: KBR	

Pumping Test No.	Test conducted on: 05/06/99
MW-3	
Discharge 5.00 U.S.gal/min	
	Pumping test duration: 4.00 min



Transmissivity [ft²/min]: 5.79×10^{-4}

Hydraulic conductivity [ft/min]: 3.38×10^{-5}

Aquifer thickness [ft]: 17.11

Cambria Environmental 1144 65th Street, Suite B Oakland, California 94608 ph.(510) 420-0700	Pumping test analysis Recovery method after THEIS & JACOB Unconfined aquifer	Date: 05/06/99	Page 2
		Project: BP 11102 - Oakland	
		Evaluated by: KBR	

Pumping Test No.	Test conducted on: 05/06/99
MW-3	Oakland MW-3
Discharge 5.00 U.S.gal/min	

Static water level: 14.89 ft below datum

Pumping test duration: 4.00 min

	Time from end of pumping [min]	Water level [ft]	Residual drawdown [ft]	Corrected drawdown [ft]
2	0.50	25.43	10.54	7.29
3	1.00	25.28	10.39	7.24
4	1.50	25.12	10.23	7.17
5	2.00	25.00	10.11	7.12
6	2.50	24.90	10.01	7.08
7	3.00	24.81	9.92	7.04
8	3.50	24.74	9.85	7.01
9	4.00	24.65	9.76	6.98
10	4.50	24.59	9.70	6.95
11	5.00	24.53	9.64	6.92
12	6.00	24.41	9.52	6.87
13	7.00	24.31	9.42	6.83
14	8.00	24.22	9.33	6.79
15	9.00	24.14	9.25	6.75
16	10.00	24.05	9.16	6.71
17	11.00	23.99	9.10	6.68
18	12.00	23.91	9.02	6.64
19	13.00	23.84	8.95	6.61
20	14.00	23.79	8.90	6.59
21	15.00	23.71	8.82	6.55
22	20.00	23.41	8.52	6.40
23	25.00	23.15	8.26	6.27
24	30.00	22.90	8.01	6.14
25	35.00	22.65	7.76	6.00
26	40.00	22.42	7.53	5.87
27	45.00	22.20	7.31	5.75
28	50.00	22.00	7.11	5.63
29	55.00	21.80	6.91	5.51
30	60.00	21.59	6.70	5.39
31	65.00	21.40	6.51	5.27
32	70.00	21.21	6.32	5.15
33	75.00	21.03	6.14	5.04
34	80.00	20.85	5.96	4.92
35	85.00	20.65	5.76	4.79
36	90.00	20.49	5.60	4.68
37	95.00	20.30	5.41	4.55
38	100.00	20.13	5.24	4.44
39	105.00	19.95	5.06	4.31
40	110.00	19.79	4.90	4.20
41	115.00	19.61	4.72	4.07
42	120.00	19.45	4.56	3.95
43	125.00	19.29	4.40	3.83
44	130.00	19.11	4.22	3.70
45	135.00	18.97	4.08	3.59
46	140.00	18.80	3.91	3.46
47	145.00	18.65	3.76	3.35
48	150.00	18.50	3.61	3.23
49	155.00	18.33	3.44	3.09
50	160.00	18.18	3.29	2.97

Cambria Environmental 1144 65th Street, Suite B Oakland, California 94608 ph.(510) 420-0700	Pumping test analysis Recovery method after THEIS & JACOB Unconfined aquifer	Date: 05/06/99	Page 3
		Project: BP 11102 - Oakland	
		Evaluated by: KBR	

Pumping Test No.	Test conducted on: 05/06/99
MW-3	Oakland MW-3
Discharge 5.00 U.S.gal/min	
Static water level: 14.89 ft below datum	Pumping test duration: 4.00 min

	Time from end of pumping [min]	Water level [ft]	Residual drawdown [ft]	Corrected drawdown [ft]
51	165.00	18.03	3.14	2.85
52	170.00	17.87	2.98	2.72