ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

August 12, 2009

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

Mark Arniola
City of Oakland
Office of Public Works
250 Frank H. Ogawa Plaza, Suite 3330
Oakland, CA 94612

Subject: Fuel Leak Case No. RO0000037 and Geotracker Global ID T0600101036, City of Oakland/Pacific Renaissance Plaza, 1000 Franklin Street, Oakland, CA 94607

Dear Mr. Arniola:

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

SITE INVESTIGATION AND CLEANUP SUMMARY

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

- Residual pollution remaining in soil beneath the site includes TPH-gasoline and benzene at a concentrations of 420 mg/kg and 0.330 mg/kg, respectively.

If you have any questions, please call Paresh Khatri at (510) 777-2478. Thank you.

Sincerely,

Donna L. Drogos, P.E.
LOP and Toxics Program Manager

Enclosures:
1. Remedial Action Completion Certificate
2. Case Closure Summary

cc:
Ms. Cherie McCaulou (w/enc)
SF- Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Closure Unit (w/enc)
State Water Resources Control Board
UST Cleanup Fund
P.O. Box 944212
Sacramento, CA 94244-2120

Paresh Khatri (w/orig enc), D. Drogos (w/enc)

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REMEDIAL ACTION COMPLETION CERTIFICATE

Subject: Fuel Leak Case No. RO0000037 and Geotracker Global ID T0600101036, City of Oakland/Pacific Renaissance Plaza, 1000 Franklin Street, Oakland, CA 94607

Dear Mr. Arniola:

This letter confirms the completion of a site investigation and remedial action for the underground storage tanks formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tank(s) are greatly appreciated.

Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, this agency finds that the site investigation and corrective action carried out at your underground storage tank(s) site is in compliance with the requirements of subdivisions (a) and (b) of Section 25296.10 of the Health and Safety Code and with corrective action regulations adopted pursuant to Section 25299.3 of the Health and Safety Code and that no further action related to the petroleum release(s) at the site is required.

This notice is issued pursuant to subdivision (h) of Section 25299.37 of the Health and Safety Code.

Please contact our office if you have any questions regarding this matter.

Sincerely,

Ariu Levi
Director
Alameda County Environmental Health

CASE CLOSURE SUMMARY
LEAKING UNDERGROUND FUEL STORAGE TANK - LOCAL OVERSIGHT PROGRAM

I. AGENCY INFORMATION

Date: 7/16/07

Agency Name: Alameda County Environmental Health	Address: 1131 Harbor Bay Parkway
City/State/Zip: Alameda, CA 94502-6577	Phone: (510) 567-6765
Responsible Staff Person: Barney Chan	Title: Hazardous Materials Specialist

II. CASE INFORMATION

Site Facility Name: City of Oakland Pacific Renaissance Plaza		
Site Facility Address: 1000 Franklin St., Oakland, CA 94607		
RB Case No.: 01-1126	Local Case No.: STID 4036	LOP Case No.: RO0000037
URF Filing Date: 12/24/91	SWEEPS No.: ---	APN: 2-59-9

Responsible Parties	Addresses	Phone Numbers
Mr. William Wilkins Oakland Redevelopment Agency	250 Frank H. Ogawa Plaza, Suite 3330 Oakland, CA 94612	510-238-6358
Mr. Mark Gomez Office of Public Works	250 Frank H. Ogawa Plaza, Suite 3330 Oakland, CA 94612	510-238-7314

Tank I.D. No	Size in Gallons	Contents	Closed In Place/Removed?	Date
unknown	unknown	Gasoline	Removed	1980
1	1000	unknown	Removed	12/16/91
2	1000	unknown	Removed	12/16/91
Piping			Removed	12/16/91

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and Type of Release: unknown	
Site characterization complete? Yes	Date Approved By Oversight Agency: -----

Monitoring wells installed? yes	Number: 9	Proper screened interval? yes
Highest GW Depth Below Ground Surface: 23.62'bgs	Lowest Depth: 32.35' bgs	Flow Direction: generally to the west, but flow is around the PRP building, which acts as a barrier
Most Sensitive Current Use: Potential drinking water source.		

Summary of Production Wells in Vicinity: no water supply wells identified within ¼ mile radius of the site.	
Are drinking water wells affected? No	Aquifer Name: Oakland sub-basin, East Bay Plain
Is surface water affected? No	Nearest SW Name: Lake Merritt is approximately ½ mile to the east
Off-Site Beneficial Use Impacts (Addresses/Locations): none	
Reports on file? Yes	Where are reports filed? Alameda County Environmental Health and City of Oakland Fire Dept.

TREATMENT AND DISPOSAL OF AFFECTED MATERIAL

Material	Amount (Include Units)	Action (Treatment or Disposal w/Destination)	Date
Tanks	Unknown 2-1000 gallon	Disposed by City of Oakland- unknown destination Disposed at H&H Ship Yard, San Francisco, CA	1980 12/23/91
Piping	Unknown	Disposed by City of Oakland- unknown destination No piping associated w/ tanks removed in 1991	1980
Free Product	Not reported	---	---
Soil	Approx. 130,000 cy 320 cy	Disposed at City of Berkeley landfill Disposed at McKittrick Landfill, McKittrick, CA	1990-91 12/23/91
Groundwater	>20,266,917 gallons >3,000,000 gallons	Disposed to storm drain under NPDES permit Groundwater disposed from bio-treatment/injection and extraction	3/14/88-7/1/91

MAXIMUM DOCUMENTED CONTAMINANT CONCENTRATIONS BEFORE AND AFTER CLEANUP
(Please see Attachments for additional information on contaminant locations and concentrations)

Contaminant	Soil (ppm)		Water (ppb)	
	Before	After	Before	After
TPH (Gas) -1980 Tank removal	4800	***	340,000	<50
TPH (Diesel)	<10	<10	NA	NA
Oil & Grease	NA	NA	NA	NA
Benzene	85	***	10,000	<0.2
Toluene	630	***	14,000	<0.2
Ethyl benzene	140	***	1700	<0.2
Xylenes	820	***	8800	<0.2
Heavy Metals- o	2.55	***	600	NA
MTBE *	*NA	***	NA	<5
Other (8240/8270)	0.16 **	***	200#	180!

* MTBE, TAME, ETBE, DIPE, TBA, EtOH, EDB all not analyzed, MTBE result from down-gradient well, 0.14 ppm EDC in soil before, <5 ppb EDC in groundwater after,
o only lead run on soil and groundwater, groundwater result is unfiltered
** 0.0015 ppm 1, 1 DCE; 0.55 ppm methylene chloride; 0.0014ppm t-1,2 DCE; 0.0079 ppm chloroform; 0.16 ppm 1,1,1 TCA; 0.0069 ppm TCE; 0.0077 ppm DCP; 0.16 ppm 1,2-DCA
*** Post-excavation samples not taken, however, site was excavated to a depth of ~ 38' bgs.
# 200 ppb dichlorodifluoromethane (Freon); 63 ppb 1,1 DCE; 5.8 ppb methylene chloride; 25 ppb 1, 1-DCA; 16 ppb TCE
! 20 ppb 1,1-DCE; 1.5 ppb methylene chloride; 5.1 ppb 1,1-DCA; 28 ppb 1,2-DCA; 120 ppb TCE
NA- Not Analyzed

TPH (Gas) -1991 Tank removal	19,000	420	320	<50
TPH (Diesel)	4100	52	NA	NA
Oil & Grease	310	NA	NA	NA
Benzene	53	0.33	0.2	<0.2
Toluene	340	7.1	ND	<0.2
Ethylbenzene	150	3.7	2.9	<0.2
Xylenes	580	19	7.8	<0.2
Heavy Metals-Cd, Cr, Pb, Ni, Zn	2.8,45,4.7,36,60	2.8,45,4.7,36,60	NA	NA
MTBE *	NA	NA	<5	<5
Other (8240/8270)**	2.3**	0.91***	NA	ND

* <5 ppb MTBE, TAME, ETBE, DIPE, TBA, EtOH, EDB, and EDC all NA
** 2.1 ppm 2-methyl naphthalene; 2.3 ppm naphthalene
*** 0.9 ppm naphthalene; 0.91 ppm 2-nitro-aniline
NA- Not Analyzed

Site History and Description of Corrective Actions:

During the early 1990s, the Pacific Renaissance Plaza (PRP) site was developed out of the block with the boundaries of Franklin, Webster, 9th and 11th Streets. Tenth St. formerly existed between 9th and 11th Streets, however, it was incorporated into the site when the block was developed into the EBMUD building and PRP. The northern property boundary of PRP is located approximately 45' north of the former location of Tenth Street and is designated as site B-2. The western site, designated B-3, was known as the 9th and Broadway site, ACEH LOP site RO2673 and was closed on 4/13/200 by ACEH. The northern site, designated B-1, is the site of the EBMUD building. The former UST release on the EBMUD property is a separate site, which is not addressed in this closure. Twelve monitoring wells were installed in the Chinatown Redevelopment Project Area, which includes these two known release sites and perhaps others unknown to ACEH. In addition, monitoring wells were installed on the PRP site to monitor contamination prior to and after remediation. See Attachments 1 & 2.

The detection of elevated levels of contamination consisting of chlorinated solvents and petroleum hydrocarbons, in up-gradient wells is evidence of additional releases, which require additional investigation. ACEH,OFD and RWQCB will follow-up on these sites. In MW-2, up to 10,900 ppb tri-chloroethylene has been detected and in MW-19 up to 10,000 ppb TPHg and 1,100 ppb benzene has been detected. Please refer to Attachment 2 for the locations of these wells.

The initial case was jointly overseen by the SFRWQCB and ACEH. Apparently the Water Board was involved because of the need to obtain a NPDES permit for the bio-treatment system installed. This system consisted of injection, in-situ biotreatment and extraction of groundwater. The presence of HVOCs in soil and groundwater made it unclear whether the site was a UST or non-UST case. It is believed that a gasoline station located at 925 Webster St., occupying the block between 9th and 10th Streets on the eastern half of the property is the most likely source of the TPH contamination beneath the site. Aerial photos indicate the station was built between 1963-1966. The City of Oakland bought the property in 1978 and the removed the tanks in 1980, though no tank removal report was found.

The initial site assessment in 1988 consisted of 22 borings of which two were constructed as monitoring wells MW10 and MW11 and the collection of soil and grab groundwater samples. Soil samples from the borings were collected and analyzed from depths of approximately 15, 20, 25 and 30' bgs as needed to define the vertical extent of contamination. TPHg up to 4800 ppm and benzene up to 85 ppm was detected in soils at a depth of 25.5' bgs. Grab groundwater samples detected up to 340,000 ug/l TPHg and 10,000, 14,000, 1700, 8800 ug/l BTEX, respectively. MTBE was not run on the samples. The contamination appeared to be from the former USTs and the release migrated vertically and down-gradient (westerly). Halogenated volatile hydrocarbons were also detected in soil (0.0015 ppm 1,1 DCE, 0.55 ppm methylene chloride, 0.0014ppm t-1,2 DCE, 0.0079 ppm chloroform, 0.16 ppm 1,1,1 TCA, 0.0069 ppm TCE and 0.0077 ppm DCP) and groundwater samples (200 ppb dichloro-difluoromethane (Freon), 63 ppb 1,1-dichloroethene, 5.8 ppb methylene chloride, 25 ppb 1,1-dichloroethane, 3.3 ppb chloroform, 62 ppb 1,2-dichloroethane, 16 ppb TCE, 1.7ppb TCA and 1 ppb chlorobenzene). Some of the reported HVOCs in groundwater (Freon and methylene chloride) were suspected to be laboratory contaminants due to their rarity in normal use. The source of the HVOCs appeared to be from an unidentified up-gradient source and is indicated by elevated HVOC concentrations in up-gradient wells MW-2 and MW-6. This appears to be the reason why HVOCs were later omitted from groundwater analysis, although there was no formal written opinion to be found. Boring logs indicate permeable sand, clayey sand, silty sand and gravelly sand within the first 35', where a locally continuous clay was encountered. See Attachment 4 for figures showing the extent contaminants at different depths and cross-sections. See Attachment 3 for boring locations and Attachment 5 for soil and groundwater results.

Starting in March1988, in-situ soil remediation was done to reduce TPH concentrations and disposal costs when excavation was later performed. It consisted of injection of bio-treatment materials into injection wells followed by extraction of treated groundwater from extraction wells. The soil beneath the site was then excavated to a depth of approximately 38' bgs, thus appearing to remove the high concentration areas of TPH and HVOC contamination, although no post-excavation confirmation samples were taken pre-excavation boring soil sample results delineating vertical contamination support this assumption. Groundwater remediation included the bio-remediation treatment system plus groundwater extraction associated with dewatering the site when excavation occurred. Approximately 3 million gallons of injected/extracted and treated groundwater and greater than 20 million gallons of extracted groundwater from dewatering were disposed through the sanitary sewer under a NPDES permit. Eight on-site monitoring wells, MW-9 through MW-11 and MW13-17 and eight other wells were installed to monitor this site and the adjacent sites. The wells down-gradient of the UST release were MW-11, MW-12 and MW-20, which were located onsite, on the edge of the property and on the 9th and Broadway site, respectively. Groundwater extraction occurred from 3/88 through 3/30/90. The system was restarted on November 26, 1990 for dewatering only and continued operation until July 1, 1991. See Attachment 6 for a figure showing the various wells and Attachment 7 for boring logs. The eight on-site wells and MW-5 were decommissioned during the excavation of the site, MW-7, 20 and 21 were decommissioned after the 9th & Broadway site received closure in 4/2000.

Two 1,000-gallon USTs were removed in 12/91 from below the sidewalk at Franklin Street at the former location of 10th Street. See Plate 1. They were discovered during construction of a ventilator duct for the Pacific Renaissance Plaza (PRP) bldg.

It appears that the ACEH believed that these tanks were the only concern for the site, since their oversight concentrated only on these tanks and their release. A closure summary (enclosed) was written and approved by the County and the Water Board pending well closure. Prior to case closure, MTBE analysis was also required. MW-7, was determined to be down-gradient of the USTs and MTBE analysis from this well used to meet this requirement. See Attachment 8 for the closure summary and analytical results for MW-7.

It was determined that site closure should include both tank removals, those of 1980 and of 1991. Please note the references that follow are found within the included closure as original reports are missing.

The contents of these (1991) tanks were unknown but thought to be fuel oil. The northern UST was filled w/grout. Approximately 50 cy of green-stained soil surrounding the USTs was excavated and stockpiled and the soil had a strong petroleum odor. Two soil samples, 91121602 and 91121603, were collected form below the USTs at 7'bgs. See Plate 2. Results indicated up to 19,000 ppm TPHg, 4,100 ppm TPH-d, 53 ppm benzene, elevated TEX, <1ppm naphthalene and 2 ppm nitroaniline, 400 ppm TOG, and 310 ppm non-polar O&G. See Tables 1 and 2.

Approximately 700 cy of soil was excavated between 12/16/91 and 12/27/91. Of this amount, approximately 320 cy were disposed at McKittrick Waste Disposal Site. The remaining 380 cy did not appear contaminated, and was "handled by the general contractor in accordance w/standard construction practice." See pg 3, 11/16/92 "Tank Closure Report" by HLA. Soil was apparently removed to 20' bgs.

On 12/30/91, 16 confirmatory soil samples collected at 20bgs in the ventilator duct excavation. See Plate 2. The sixteen soil samples were made into four 4-point composite samples by the lab composite A, B, C, and D. Composite samples A and B were taken closest to the former USTs. The maximum concentrations detected from these samples were (from composite sample A). 420 ppm TPH-g, 52ppm TPH-d, 0.330 ppm benzene, some TEX, and some semi-VOCs. See Table 1. These can be considered the contaminant concentrations left in place.

Nine groundwater monitoring wells were installed prior to the removal of the subject USTs between 1988-1990 in the vicinity of this site, but not near the USTs, to evaluate groundwater quality in the Chinatown Redevelopment Project Area. However, the only well of concern is MW7, which is situated approximately 80' W-SW of the former USTs. The other wells span a very large area of more than 2 square blocks. The initial groundwater flow direction was westerly, prior to the construction of the EBMUD admin bldg and the PRP bldg. These buildings have three levels of underground parking. These structures apparently divert groundwater flow from the North and Northeast to either flow West along 11th Street or go around the EBMUD bldg and down Franklin Street. Groundwater has been sampled quarterly from MW7 from 4/4/89 until 6/24/93. Concentrations of BTEX and TPH-g were very low to ND. Benzene was ND for the last 3 quarters, while TPH-g was ND for the last quarter sampled. See Table 3.

Although the County requested another well, located closer to and down gradient of the former USTs, the installation of such a well would have interfered w/PRP construction activities, disrupted traffic along busy Franklin St, and create risks of damaging major underground utilities in the area, such as an international telephone line and the BART tube. Analytical results of monitoring wells MW-12 and MW-20 located ~150 feet south and southwest, respectively, of the former UST pit have exhibited ND to low levels of TPHg and BTEX during periodic sampling in 1990 for MW-12 and 1990-1998 for MW-20. It is noted that a sufficient number of monitoring wells in the immediate vicinity of the USTs were not installed and down-gradient wells detected contamination. It appears that residual pollution remains in place on the PRP site and within Franklin St.

It was agreed that further characterization and remediation of soil in this area would not be necessary, pursuant to discussions between the County, RWQCB (Rich Hiett), the Oakland Redevelopment Agency, and Harding Lawson Assoc. This is documented in the City's letter to Jennifer Eberle, dated 1/19/1993. There was concern that workers digging in this area may come into contact with contaminated soil. The City proposed to implement a warning system within their permit tracking system, which would allow a database search for "flagged" conditions. This database flag will allow City staff to notify an individual, applying for a City permit to excavate, of the types of materials suspected to be present in the subsurface below Franklin Street, between 9th and 11th Streets. This approach was accepted in a letter from the County to the City, dated 2/9/93. It is the City's responsibility to implement this system.

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? Yes		
Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? Yes		
Does corrective action protect public health for current land use? Alameda County Environmental Health staff does not make specific determinations concerning public health risk. However, based upon the information available in our files to date, it does not appear that the release would present a risk to human health based upon current land use and current development conditions.		
Site Management Requirements: Site is to be put into the City of Oakland Permit Tracking System.		
Should corrective action be reviewed if land use changes? Yes, site closure is approved for this current commercial development use only. Should site use change, Alameda County Environmental Health is to be contacted and the site re-evaluated.		
Was a deed restriction or deed notification filed? No		Date Recorded: NA
Monitoring Wells Decommissioned: Yes	Number Decommissioned: 12	Number Retained: 9
List Enforcement Actions Taken: none		
List Enforcement Actions Rescinded: none		

V. ADDITIONAL COMMENTS, DATA, ETC.

Considerations and/or Variances:
The files for this site are incomplete since the prior consultant lost or misplaced their original reports. Some of the files are missing from the regulatory agencies and none of the original case workers or consultants can reconstruct all the details of the project. Therefore, some boring logs, analytical results, summary tables, etc are missing. However, upon review of the data available and making reasonable assumptions, it appears that most of the soil contamination has been removed and that groundwater has been removed and/or remediated to acceptable concentrations.

1980 Tank Removals

1. Grab groundwater samples detected up to 600 ppb lead in samples on-site, yet this analyte was not run on subsequent monitoring well samples. No source of lead is known to exist onsite and if there were, the excavation of the site to ~38' would have likely removed the source.
2. No soil samples were taken after the excavation of the site, however, based upon pre-excavation boring results, high levels of contaminants have likely been removed through the excavation. Residual pollution likely remains since contamination was detected in the borings at a depth of 35.5' bgs and up to 85 ppm benzene was detected at 25' bgs.
3. HVOCs at low levels were found in soil and groundwater. These residual concentrations were greatly reduced or removed through excavation and dewatering during site construction. Based upon monitoring data, the source of HVOC contamination is believed to be from an up-gradient off-site source.
4. The up-gradient well, MW-19, detected up to 10,000 ppb TPHg, 1100, 380, 530 and 1600 ppb BTEX, respectively in the 6/92 sampling event, indicating a possible up-gradient petroleum source. This contamination plume was likely either drawn towards the development and the extraction wells or re-routed around the building. Dissolved petroleum contamination likely remains in the area of MW-19 and its source is uncertain. ACEH, OFD and RWQCB will follow-up investigation of the neighboring sites.

1991 Tank Removals

5. During the 1991 tank removal, confirmation soil samples were collected and analyzed as a four- point composite, therefore, the results potentially underestimate the residual concentrations.
6. The location of the USTs was uncertain, therefore, the location of MW-7 was questioned as to whether it was down-gradient of the tanks. Some of the figures indicated an incorrect location of the tanks. The tanks were located under the sidewalk, in the middle of former 10th St. MW-7 is located west of the former tanks approximately 80' down-gradient. Although not in close proximity of the former USTs, MW-7 is appropriately down-gradient of the former USTs.
7. Soil vapor exposure was evaluated at this site by sampling absorbed vapors within the excavation pit at the assumed breathing zone of a commercial worker. The sample was ND, <0.4 mg/m3 benzene. However

assumed breathing zone of a commercial worker. The sample was ND, <0.4 mg/m3 benzene. However the commercial ESL for benzene is 0.28 mg/m3. The current location of the former USTs is either adjacent or beneath the PRP structure, a commercial building. Down-gradient of the USTs is Franklin St. The risk to soil vapor, even should it exist, appears insignificant due to incomplete exposure pathway.

Conclusion: The site formerly had underground tanks on the southeast and on northwest property boundary. Impacted soil was removed during the excavation for the underground garage as well as ~ 20 million gallons of groundwater during site dewatering. Groundwater monitoring indicates that impacts to groundwater have been remediated. ACEH recommends case closure for the current commercial development use of the property.

VI. LOCAL AGENCY REPRESENTATIVE DATA

Prepared by: Barney M. Chan	Title: Hazardous Materials Specialist
Signature: Barney M Chan	Date: 7/19/07
Approved by: Donna L. Drogos, P.E.	Title: Supervising Hazardous Materials Specialist
Signature: Donna Drogos	Date: 07/19/07

This closure approval is based upon the available information and with the provision that the information provided to this agency was accurate and representative of site conditions.

VII. REGIONAL BOARD NOTIFICATION

Regional Board Staff Name: Cherie McCaulou	Title: Engineering Geologist
RB Response: Concur, based solely upon information contained in this case closure summary.	Date Submitted to RB:
Signature: Cherie McCaulou	Date: 7/20/07

VIII. MONITORING WELL DECOMMISSIONING

Date Requested by ACEH:	Date of Well Decommissioning Report:	
All Monitoring Wells Decommissioned: No	Number Decommissioned:	Number Retained: 9
Reason Wells Retained:		
Additional requirements for submittal of groundwater data from retained wells:		
ACEH Concurrence - Signature:		Date:

Attachments:
1. Site Vicinity Maps- 2 pp
2. Site Plan
3. Soil Boring Locations Figure
4. Cross-sections & Figures with Contaminants at various depths
5. Soil and Groundwater Analytical Results
6. Well Location Figure
7. Boring Logs (MW3, MW5-MW-11; B1-B7, B10, B12-13, B16-17, B19-20, B22-24)
8. Previous Closure Summary & Analytical Data for MW-7

This document and the related CASE CLOSURE LETTER & REMEDIAL ACTION COMPLETION CERTIFICATE shall be retained by the lead agency as part of the official site file.

assumed breathing zone of a commercial worker. The sample was ND, <0.4 mg/m3 benzene. However the commercial ESL for benzene is 0.28 mg/m3. The current location of the former USTs is either adjacent or beneath the PRP structure, a commercial building. Down-gradient of the USTs is Franklin St. The risk to soil vapor, even should it exist, appears insignificant due to incomplete exposure pathway.

Conclusion: The site formerly had underground tanks on the southeast and on northwest property boundary. Impacted soil was removed during the excavation for the underground garage as well as ~ 20 million gallons of groundwater during site dewatering. Groundwater monitoring indicates that impacts to groundwater have been remediated. ACEH recommends case closure for the current commercial development use of the property.

VI. LOCAL AGENCY REPRESENTATIVE DATA

Prepared by: Barney M. Chan	Title: Hazardous Materials Specialist
Signature: Barney M Chan	Date: 7/19/07
Approved by: Donna L. Drogos, P.E.	Title: Supervising Hazardous Materials Specialist
Signature:	Date: 07/19/07

This closure approval is based upon the available information and with the provision that the information provided to this agency was accurate and representative of site conditions.

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Regional Board Staff Name: Cherie McCaulou	Title: Engineering Geologist
RB Response: Concur, based solely upon information contained in this case closure summary.	Date Submitted to RB:
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This document and the related CASE CLOSURE LETTER & REMEDIAL ACTION COMPLETION CERTIFICATE shall be retained by the lead agency as part of the official site file.


11TH St
9TH St
1000 Franklin St, Oakland, Alameda, California 94
© 2007 TeleAtlas
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Image © 2007 TerraMetrics
Google
Pointer 37°48'03.35" N 122°16'17.49" W
Streaming 100%
Eye alt 1134 ft

[redacted]

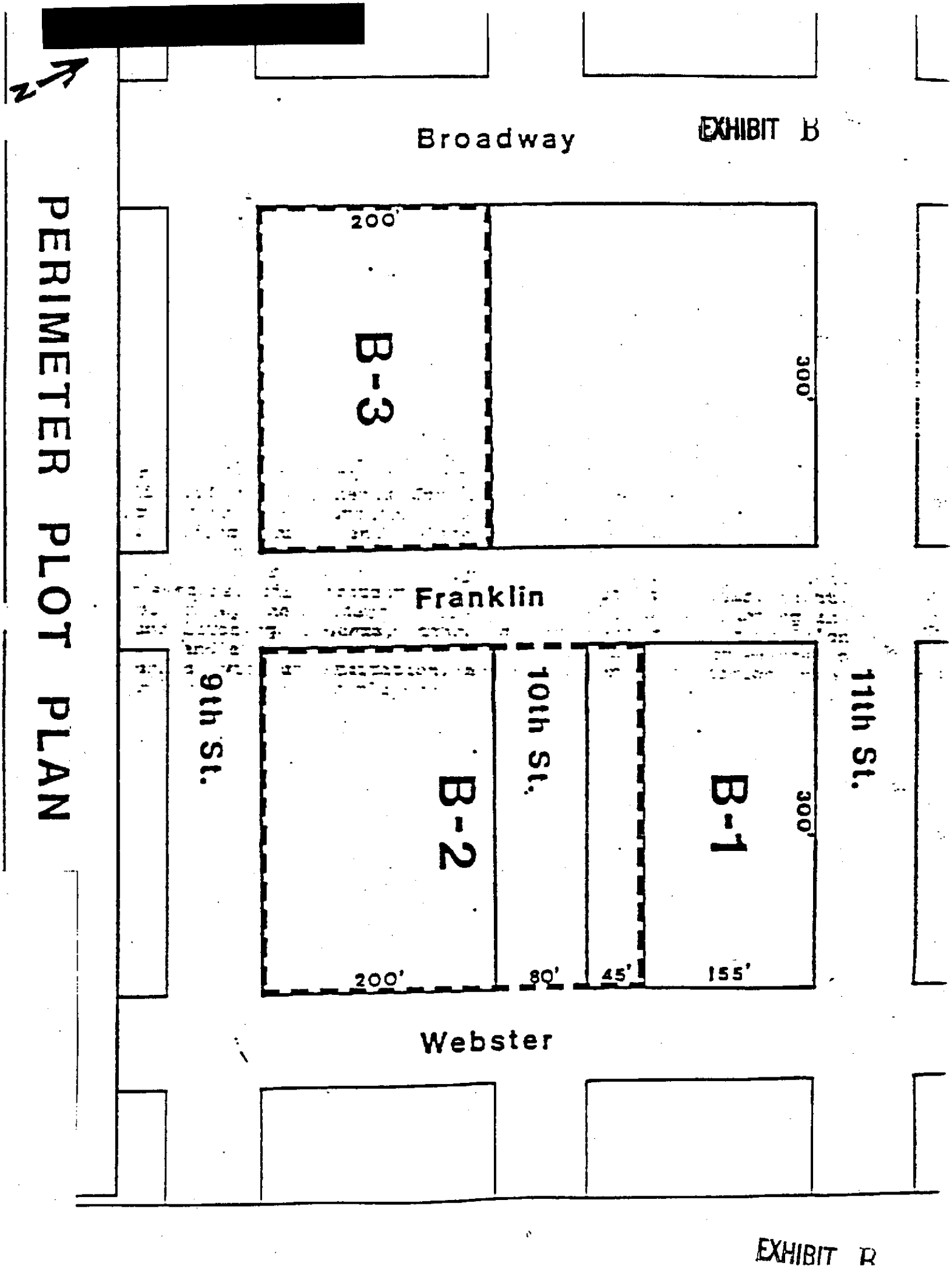
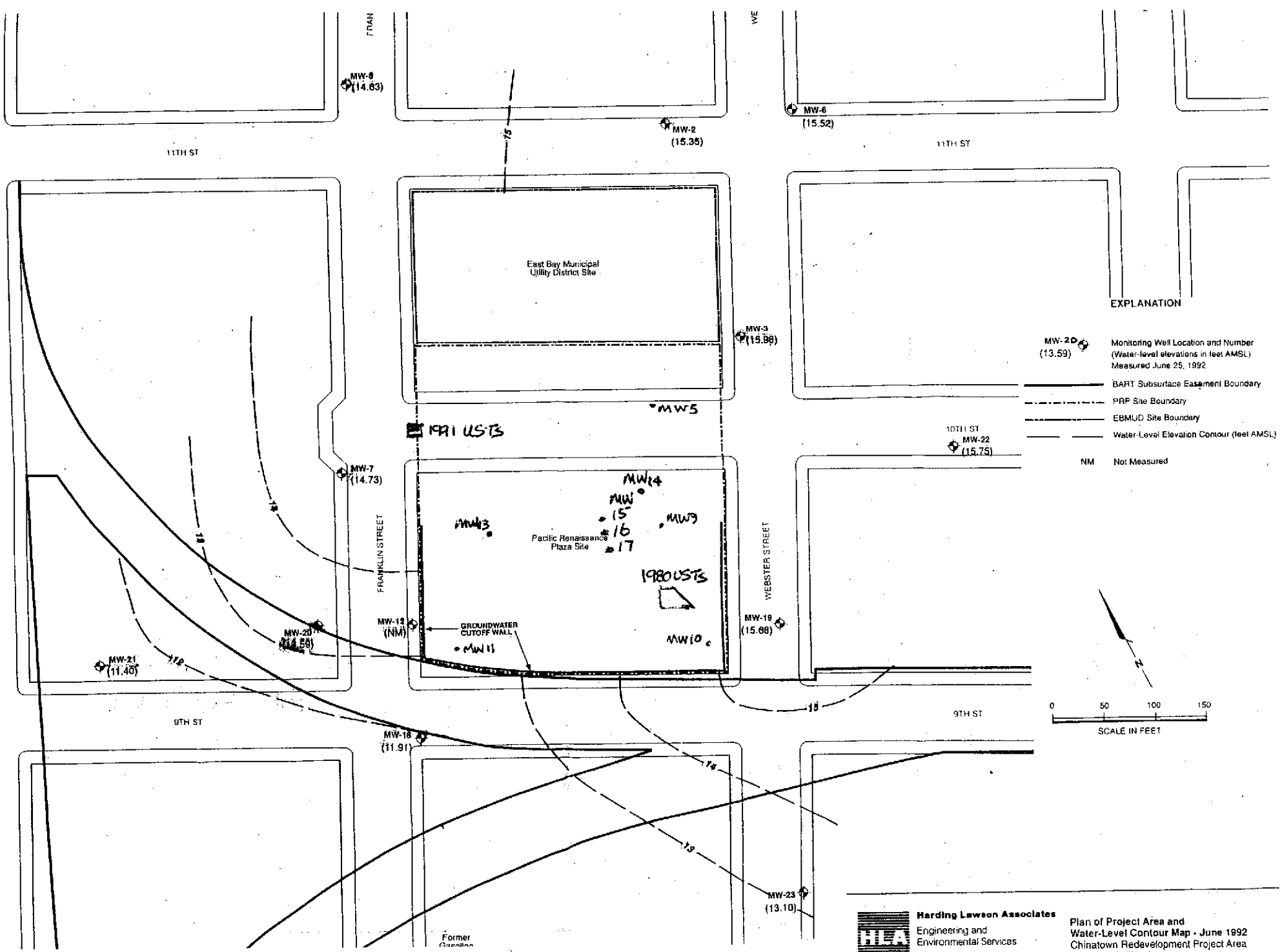


EXHIBIT B
Broadway
PERIMETER PLOT PLAN
200'
B-3
300'
Franklin
9th St.
10th St.
11th St.
B-2
B-1
300'
200'
80'
45'
155'
Webster
EXHIBIT B

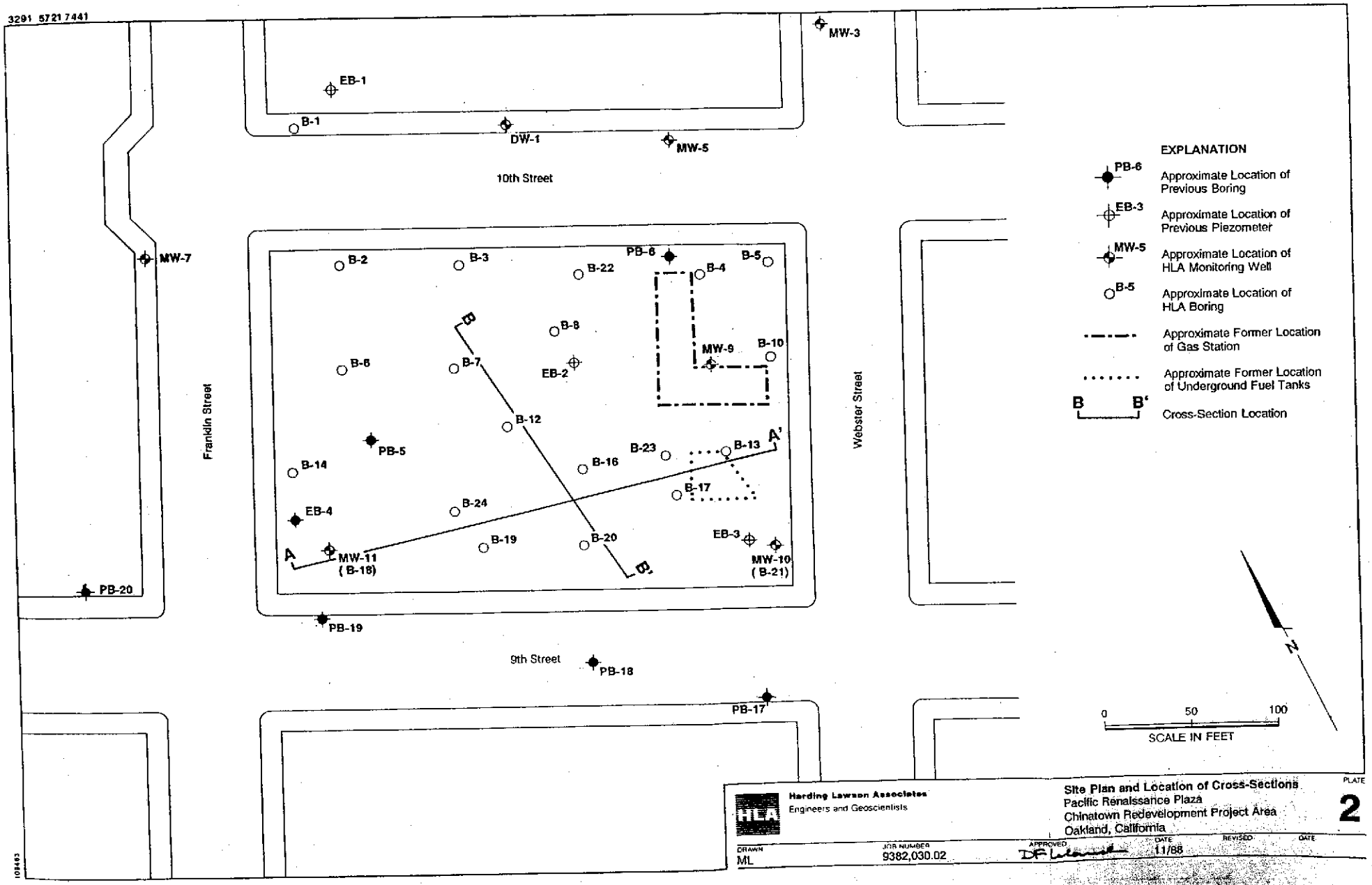


Harding Lawson Associates
Engineering and
Environmental Services

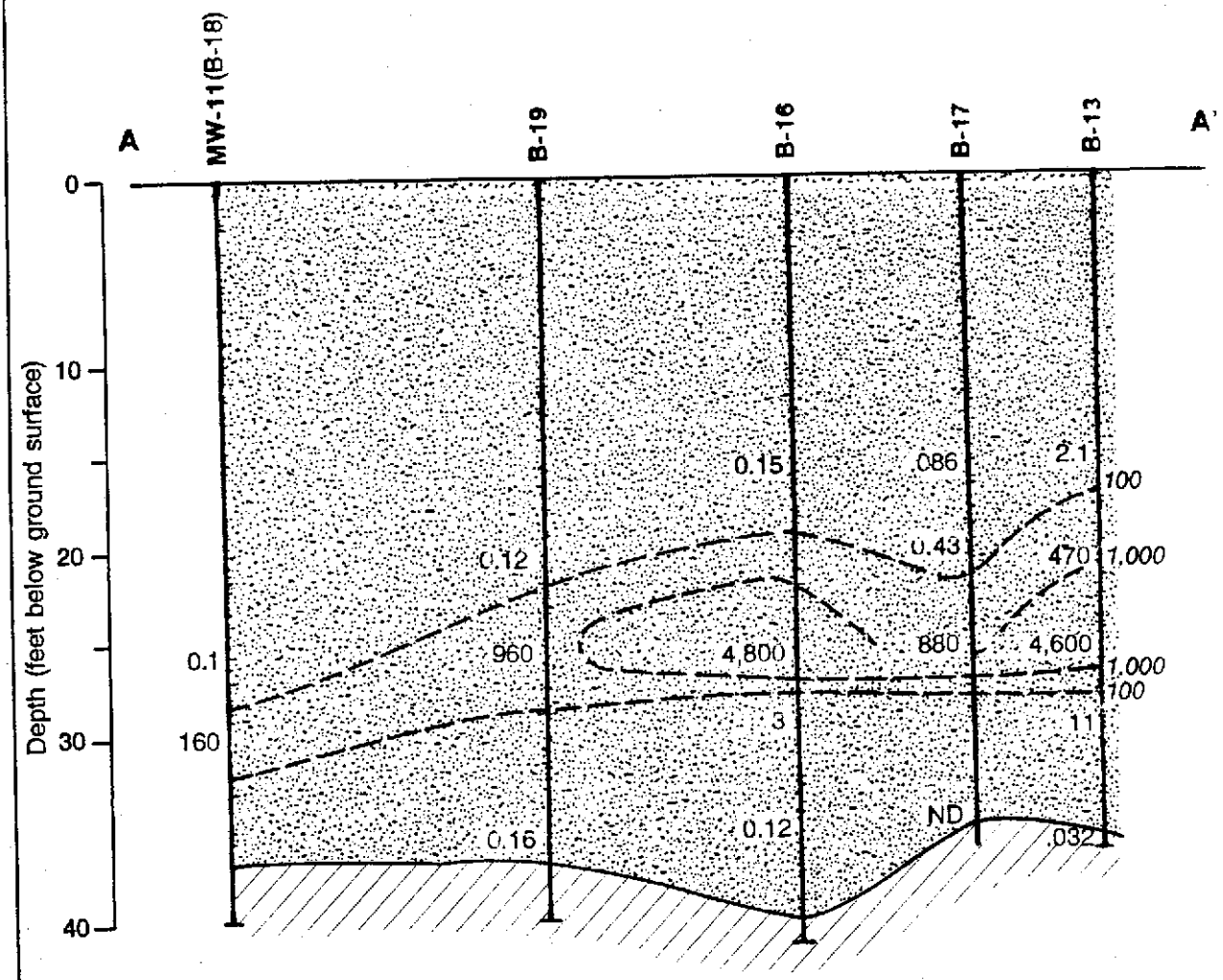
Plan of Project Area and
Water-Level Contour Map - June 1992
Chinatown Redevelopment Project Area
Oakland, California

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED
NJB	10874.040	MTE	7/91	7/92

[redacted]


3291 5721 7441
MW-3
EB-1
B-1
DW-1
MW-5
10th Street
MW-7
Franklin Street
Webster Street
B-2
B-3
B-22
PB-6
B-4
B-5
B-8
MW-9
B-10
B-6
B-7
EB-2
B-12
PB-5
B-23
B-13
A'
B-14
B-16
B-17
EB-4
B-24
EB-3
A
MW-11
(B-18)
B-19
B-20
B
MW-10
(B-21)
PB-20
PB-19
9th Street
PB-18
PB-17
EXPLANATION
PB-6
Approximate Location of Previous Boring
EB-3
Approximate Location of Previous Piezometer
MW-5
Approximate Location of HLA Monitoring Well
B-5
Approximate Location of HLA Boring
Approximate Former Location of Gas Station
Approximate Former Location of Underground Fuel Tanks
B B'
Cross-Section Location
N
0 50 100
SCALE IN FEET
HLA
Harding Lawson Associates
Engineers and Geoscientists
Site Plan and Location of Cross-Sections
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California
PLATE
2
DRAWN
ML
JOB NUMBER
9382,030.02
APPROVED
DATE
11/88
REVISED
DATE
100463

7225



CLAYEY SOILS { Silty Clay, Sandy Clay, Gravelly Clay

SANDY SOILS { Sand, Clayey Sand, Silty Sand, Gravelly Sand

3,000 — TPH as Gasoline in Soil in mg/kg

--1,000---- — Estimated Contour Values of TPH as Gasoline in Soil in mg/kg

ND = Not Detected

10
Vertical Exaggeration 5 x
50
0
SCALE IN FEET

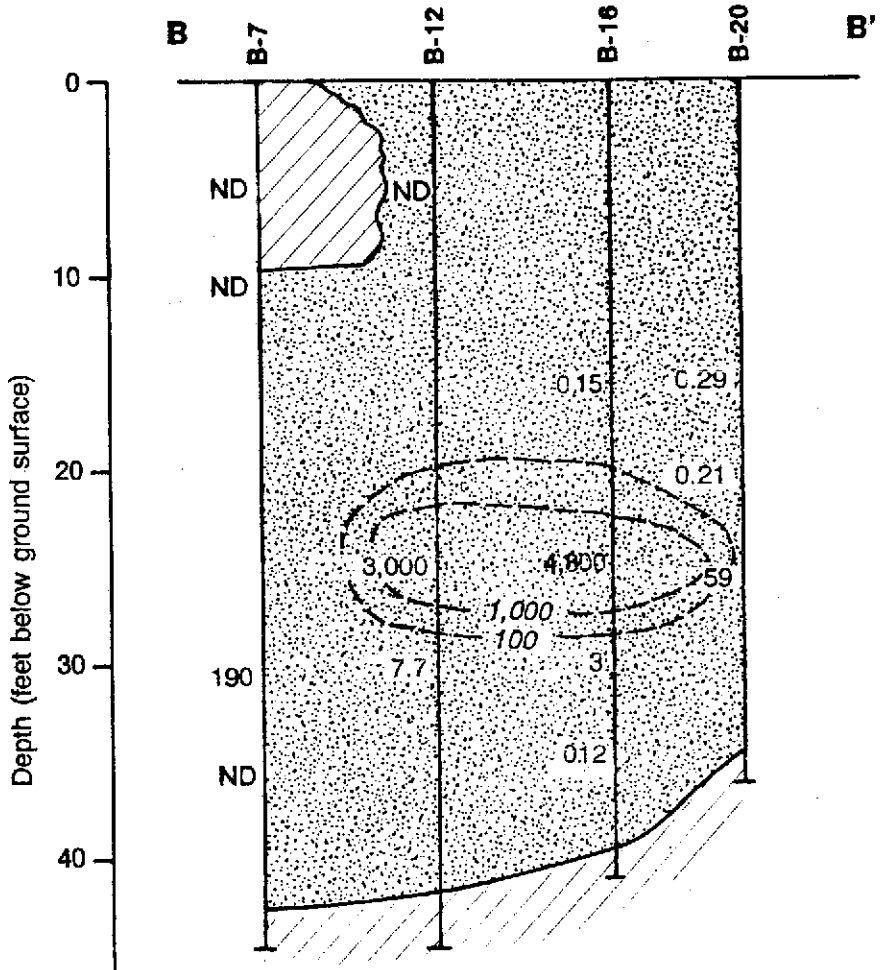
Harding Lawson Associates
Engineers and Geoscientists

Cross Section A-A'
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

PLATE **11**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
AM	9382,030.02	DF Wenzel	10/88		

7226



CLAYEY SOILS { Silty Clay, Sandy Clay, Gravelly Clay

SANDY SOILS { Sand, Clayey Sand, Silty Sand, Gravelly Sand

3,000 — TPH as Gasoline in Soil in ug/kg

—1,000— Contour Values of TPH as Gasoline in Soil in ug/kg

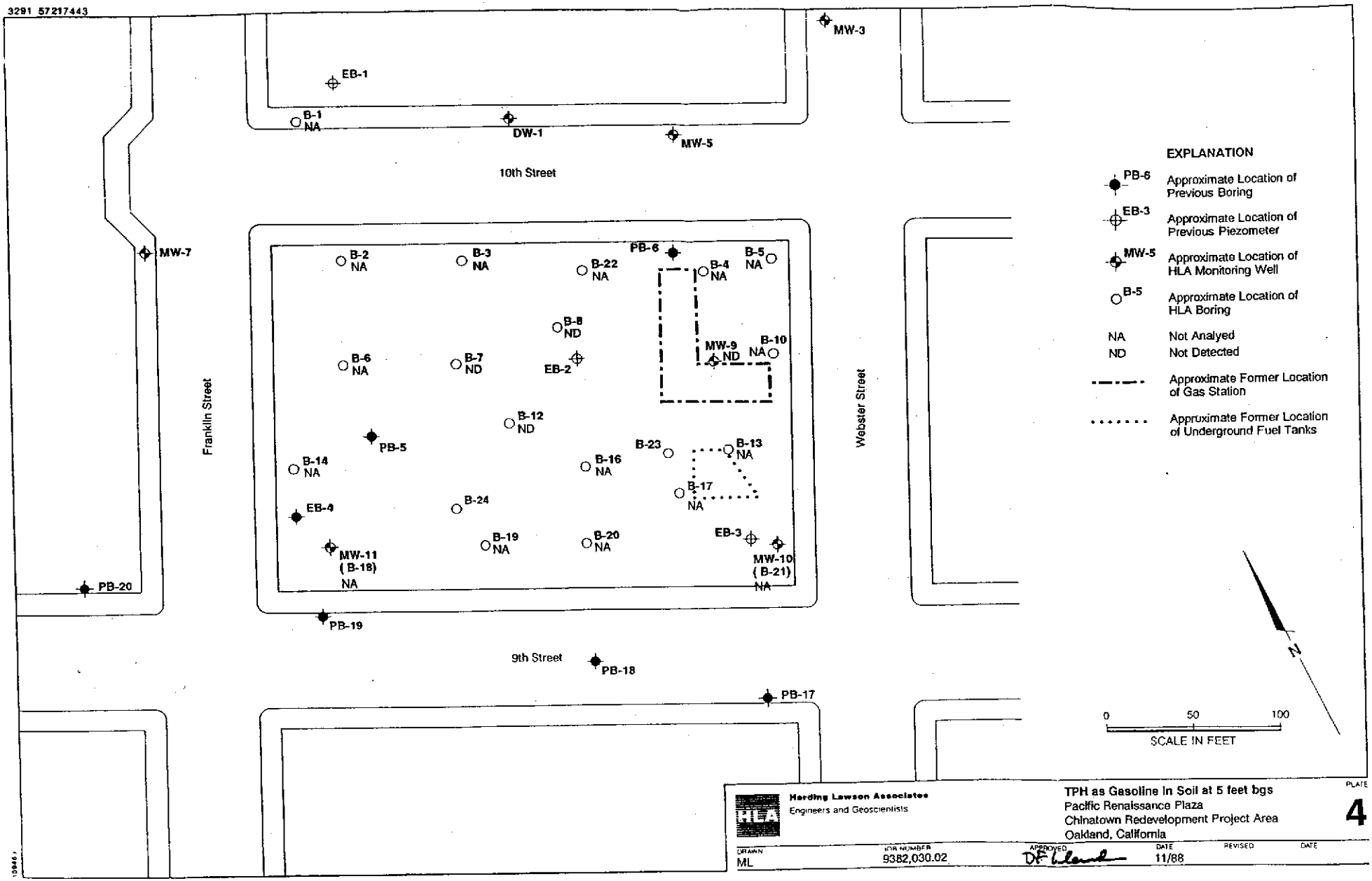
10
Vertical Exaggeration 5 x
50
0
SCALE IN FEET

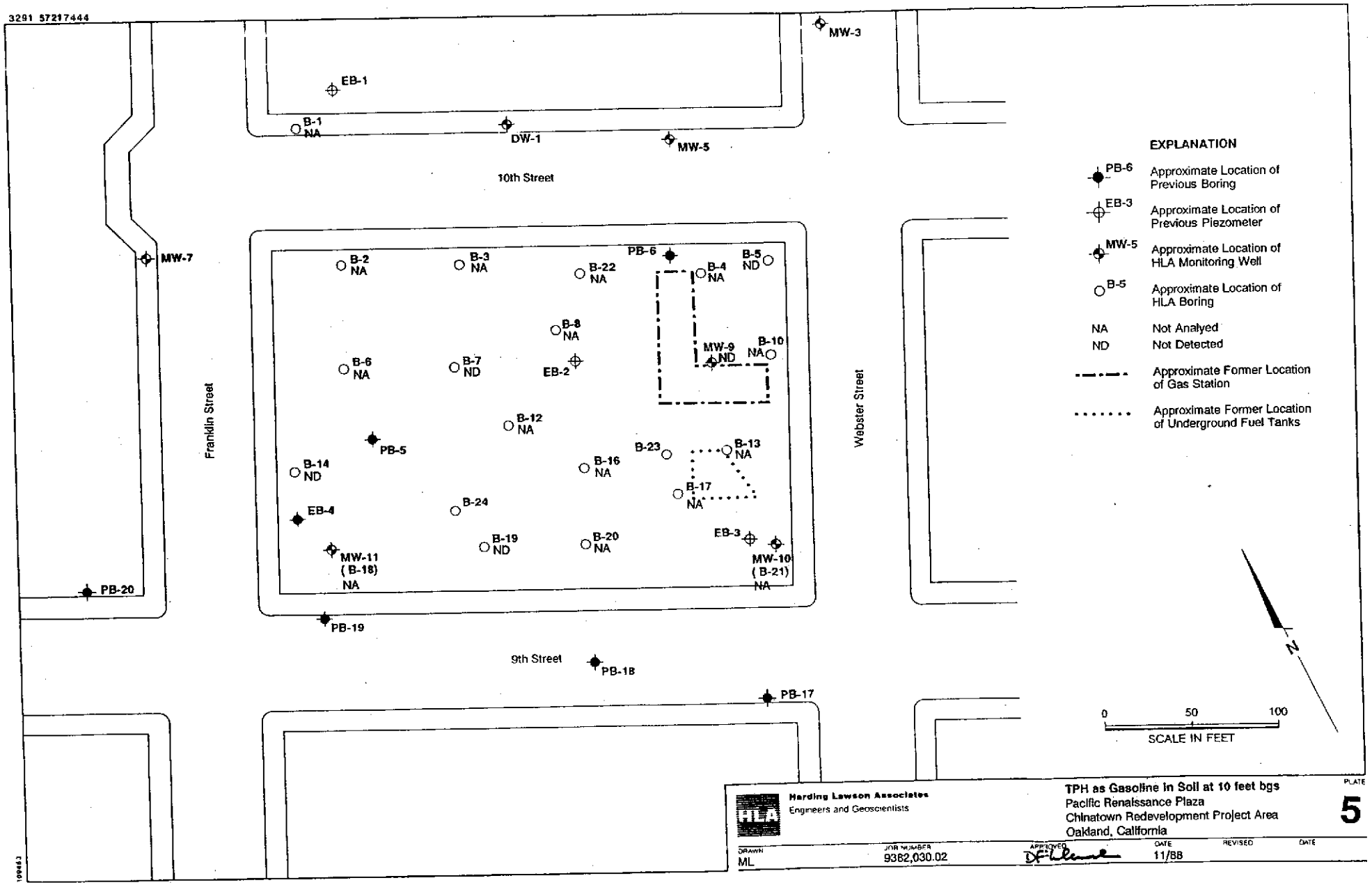
Harding Lawson Associates
Engineers and Geoscientists

Cross Section B-B'
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

PLATE **12**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
AM	9382,030.02	DF Wilson	10/88		


3291 57217443
MW-3
EB-1
B-1 NA
DW-1
MW-5
10th Street
MW-7
B-2 NA
B-3 NA
B-22 NA
PB-6
B-4 NA
B-5 NA
B-8 ND
MW-9 ND
B-10 NA
B-6 NA
B-7 ND
EB-2
Franklin Street
Webster Street
B-12 ND
PB-5
B-23
B-13 NA
B-14 NA
B-16 NA
B-17 NA
EB-4
B-24
EB-3
B-19 NA
B-20 NA
MW-11 (B-18) NA
MW-10 (B-21) NA
PB-20
PB-19
9th Street
PB-18
PB-17
EXPLANATION
PB-6 Approximate Location of Previous Boring
EB-3 Approximate Location of Previous Piezometer
MW-5 Approximate Location of HLA Monitoring Well
B-5 Approximate Location of HLA Boring
NA Not Analyed
ND Not Detected
Approximate Former Location of Gas Station
Appruximate Former Location of Underground Fuel Tanks
N
0 50 100
SCALE IN FEET
Harding Lawson Associates
Engineers and Geoscientists
TPH as Gasoline in Soil at 5 feet bgs
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California
PLATE
4
DRAWN ML
JOB NUMBER 9382,030.02
APPROVED
DATE 11/88
REVISED
DATE

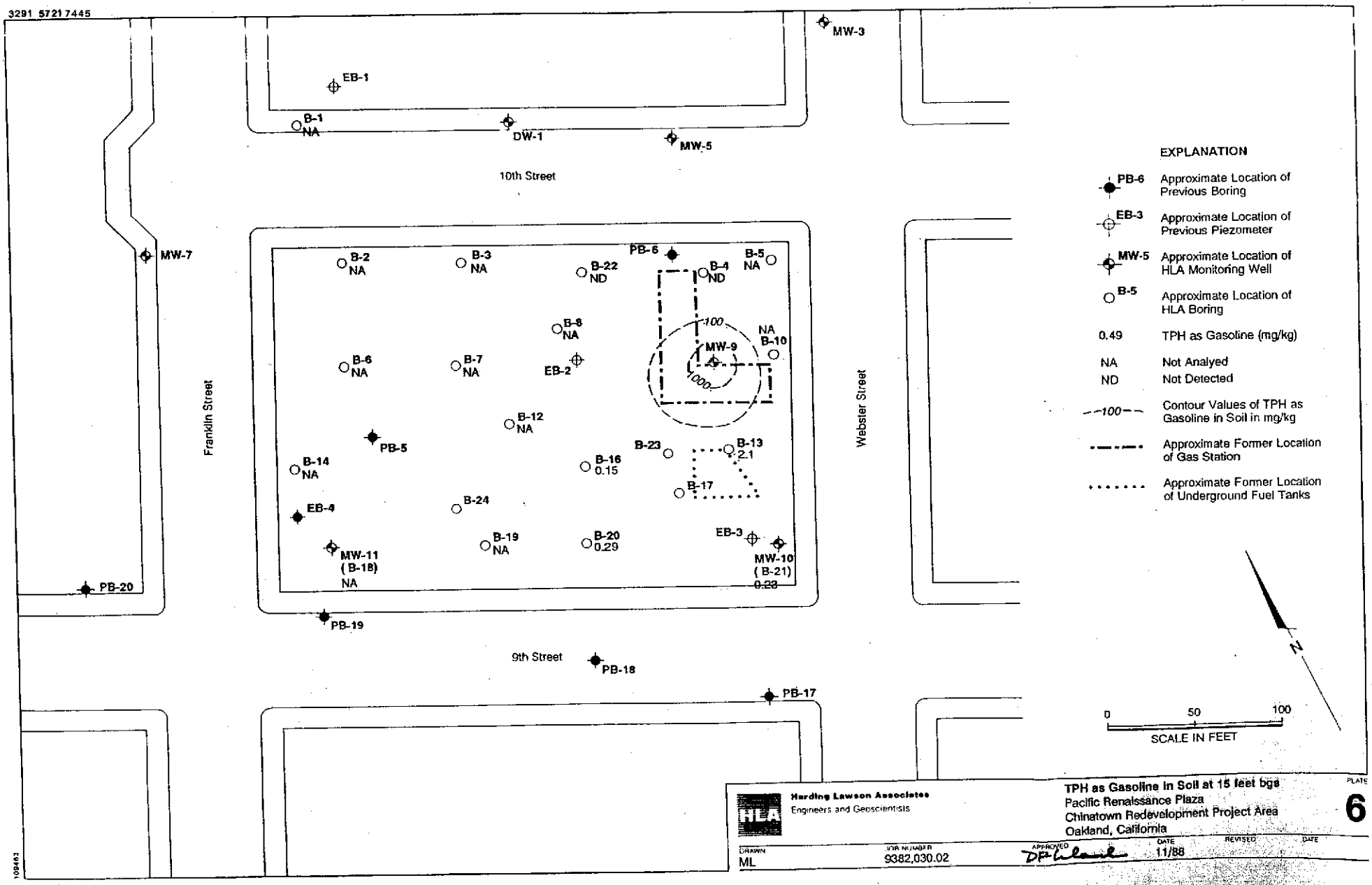


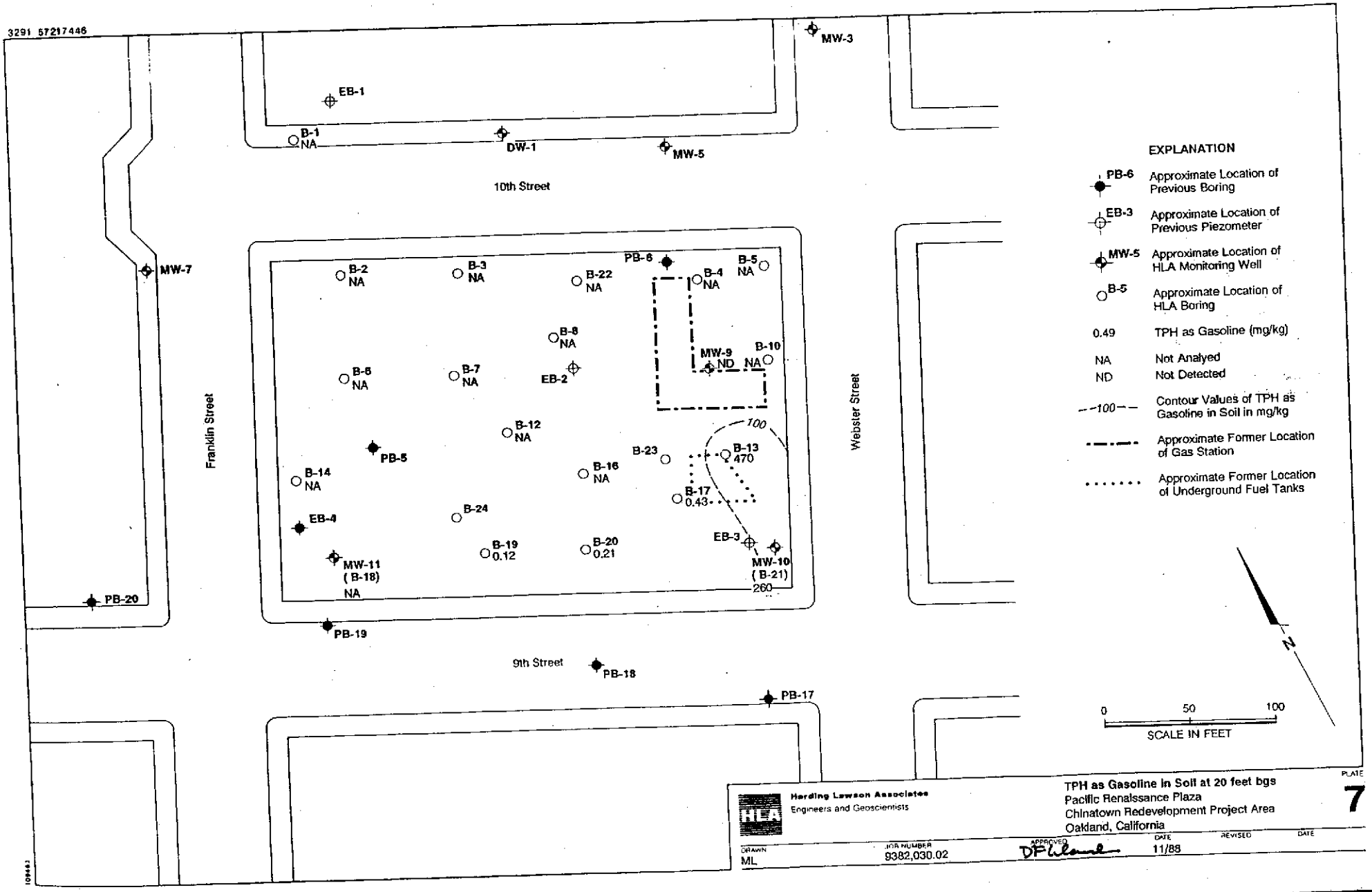
Harding Lawson Associates
Engineers and Geoscientists

TPH as Gasoline in Soil at 10 feet bgs
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

PLATE **5**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
ML	9382,030.02		11/88		


3291 5721 7445
MW-3
EB-1
B-1
NA
DW-1
MW-5
10th Street
MW-7
B-2
NA
B-3
NA
PB-6
B-22
ND
B-4
ND
B-5
NA
100
NA
B-10
B-8
NA
MW-9
1000
B-6
NA
B-7
NA
EB-2
B-12
NA
PB-5
B-23
B-13
2.1
B-14
NA
B-16
0.15
B-17
Franklin Street
Webster Street
EB-4
B-24
EB-3
B-19
NA
B-20
0.29
MW-11
(B-18)
NA
MW-10
(B-21)
0.23
PB-20
PB-19
9th Street
PB-18
PB-17
EXPLANATION
PB-6 Approximate Location of Previous Boring
EB-3 Approximate Location of Previous Piezometer
MW-5 Approximate Location of HLA Monitoring Well
B-5 Approximate Location of HLA Boring
0.49 TPH as Gasoline (mg/kg)
NA Not Analyed
ND Not Detected
100 Contour Values of TPH as Gasoline in Soil in mg/kg
Approximate Former Location of Gas Station
Approximate Former Location of Underground Fuel Tanks
N
0
50
100
SCALE IN FEET
HLA
Harding Lawson Associates
Engineers and Geoscientists
TPH as Gasoline in Soil at 15 feet bgs
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California
PLATE
6
DRAWN
ML
JOB NUMBER
9382,030.02
APPROVED
DP Wilcox
DATE
11/88
REVISED
DATE
100463



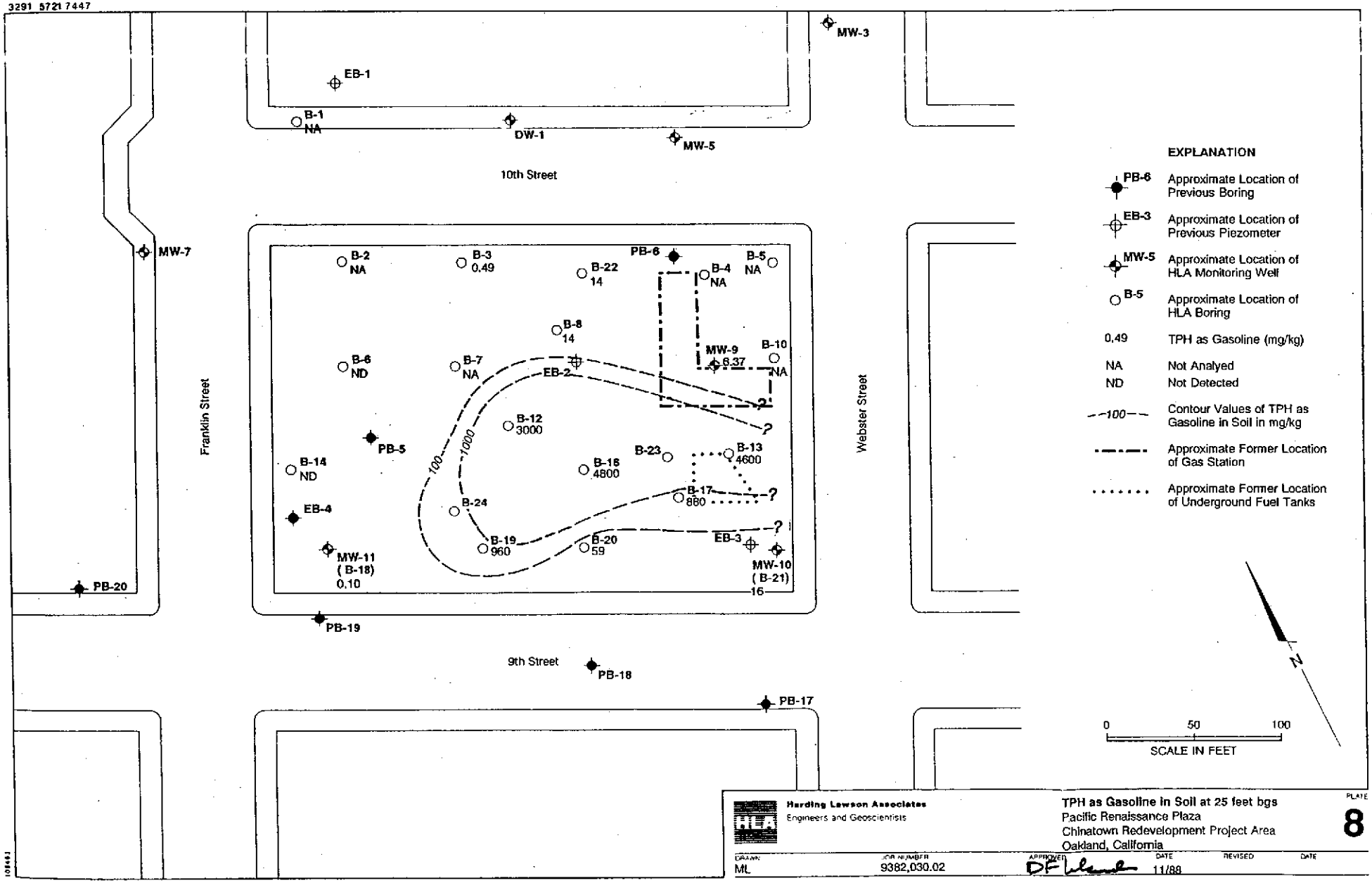
Harding Lawson Associates
Engineers and Geoscientists

TPH as Gasoline in Soil at 20 feet bgs
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

PLATE 7

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
ML	9382,030.02	DPWard	11/88		

3291 5721 7447

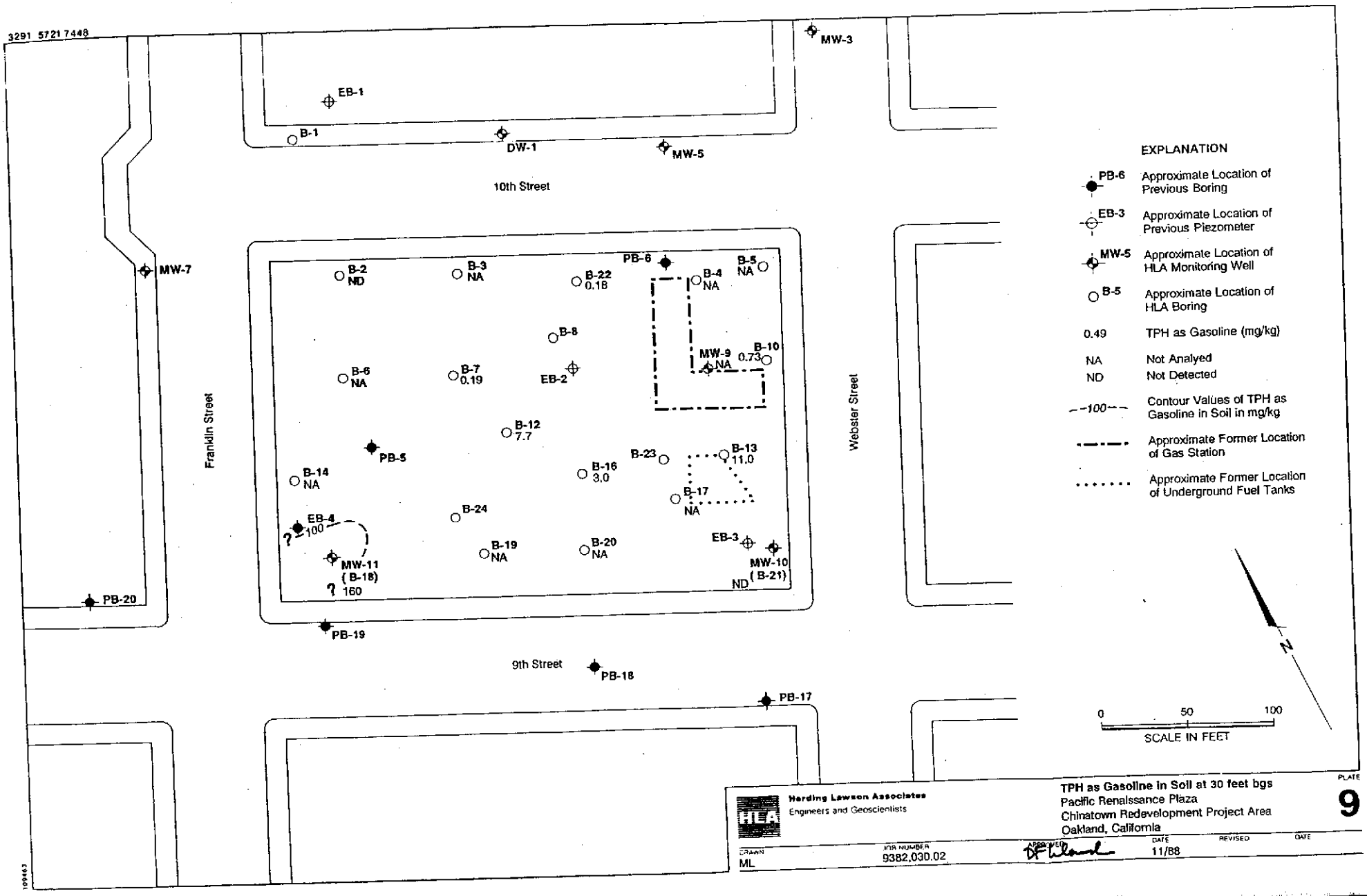


Harding Lawson Associates
Engineers and Geoscientists

TPH as Gasoline in Soil at 25 feet bgs
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

PLATE **8**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
ML	9382,030.02	DF	11/88		

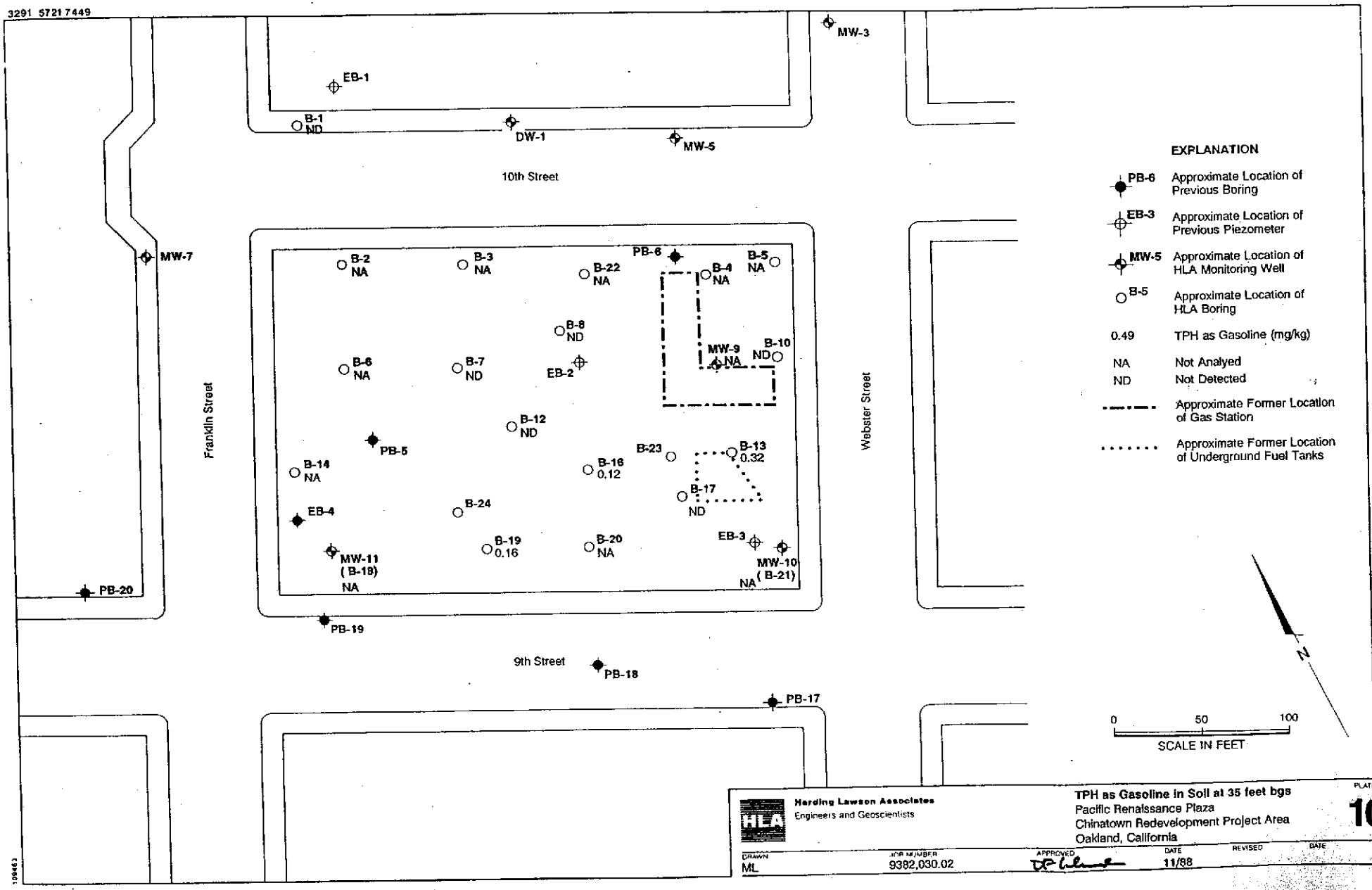


Harding Lawson Associates
Engineers and Geoscientists

TPH as Gasoline in Soil at 30 feet bgs
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

PLATE 9

DRAWN ML | JOB NUMBER 9382,030.02 | APPROVED | DATE 11/88 | REVISED | DATE



Harding Lawson Associates
Engineers and Geoscientists

TPH as Gasoline in Soil at 35 feet bgs
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

PLATE **10**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
ML	9382,030.02		11/88		

Table 2. Results of Chemical Analyses of Soil Samples
Petroleum Hydrocarbons (EPA Method 8015)
Purgeable Aromatics (EPA Method 8020)
Lead

Harding Lawson Associates

BORING No.	SAMPLE DEPTH (feet)	DATE	BENZENE		TOLUENE		ETHYL-BENZENE		TOTAL XYLENES		TOTAL PETRO-LEUM HYDRO-CARBONS (gasoline)		TOTAL PETRO-LEUM HYDRO-CARBONS (diesel)		LEAD	
			ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	mg/Kg	ST	mg/Kg	ST	mg/Kg
B-1	30.0	8/02/88		3300.0		35000.0		32000.0		170000.0		2500.00	ND	10	NT	
	36.5	8/02/88		0.7		6.3		0.6		2.3	ND	0.05	ND	10	NT	
B-2	30.0	8/01/88	ND	0.2		1.5	ND	0.2	ND	0.2	ND	0.05	ND	10	NT	
B-3	25.5	7/29/88		7.0	ND	0.2		2.5		4.4		0.49	ND	10	NT	
B-4	15.5	7/25/88	ND	0.2		0.6	ND	0.2	ND	0.2	ND	0.05	ND	10	NT	
B-5	10.0	7/25/88	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.05	ND	10	NT	
B-6	25.5	8/01/88	ND	0.2		28.0	ND	0.2	ND	0.2	ND	0.05	ND	10	NT	
B-7	5.5	8/01/88	ND	0.2		21.0	ND	0.2	ND	0.2	ND	0.05		185	NT	
	10.0	8/01/88	ND	0.2		1.3	ND	0.2	ND	0.2	ND	0.05	ND	10	NT	
	30.0	8/02/88		33.0		16.0		1.0		5.4		0.19	ND	10		1.87
	35.5	8/02/88	ND	0.2		1.6	ND	0.2		0.9	ND	0.05	ND	10	NT	
B-8	5.5	8/05/88	ND	0.2		1.4	ND	0.2	ND	0.2	ND	0.05	ND	10	NT	
	25.5	8/05/88		480.0		1000.0		1100.0		6300.0		14.00	ND	10	ND	2.00
dup	25.5	8/05/88		540.0		910.0		1100.0		5800.0		17.00	NT		ND	2.00
	30.0	8/05/88		29.0		19.0		1.3		12.0		0.089	ND	10	NT	
	35.5	8/05/88	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.05	ND	10	NT	
B-10	32.0	7/25/88		4.2		24.0		13.0		76.0		0.73	ND	10	NT	
	35.5	7/25/88	ND	0.2		0.6	ND	0.2	ND	0.2	ND	0.05	ND	10	NT	
B-12	5.5	8/05/88	ND	0.2		6.1	ND	0.2	ND	0.2	ND	0.05	ND	10	NT	
	25.5	8/05/88		10000.0		130000.0		38000.0		210000.0		3000.00	ND	10	ND	2.00
	30.0	8/05/88	NT		NT		NT		NT			7.70	ND	10	NT	
	35.5	8/05/88		0.9		4.6	ND	0.2		2.8	ND	0.05	ND	10	NT	
B-13	15.5	7/27/88		250.0		120.0		4.8		36.0		2.10	ND	10		1.98
	20.5	7/27/88		50000.0		110000.0		1000.0		460000.0		470.00	ND	10	NT	
	25.5	7/27/88		85000.0		630000.0		140000.0		820000.0		4600.00	ND	10	NT	
	29.5	7/27/88	NT		NT		NT		NT			11.00	ND	10	NT	
	35.5	7/27/88	NT		NT		NT		NT			0.32	NT		NT	
B-14	10.0	8/02/88	ND	0.2		0.7	ND	0.2	ND	0.2	ND	0.05	ND	10	NT	
	25.5	8/02/88		1.8		1.6	ND	0.2	ND	0.2	ND	0.05	ND	10	NT	

Table 2. Results of Chemical Analyses of Soil Samples
Petroleum Hydrocarbons (EPA Method 8015)
Purgeable Aromatics (EPA Method 8020)
Lead

Harding Lawson Associates

BORING No.	SAMPLE DEPTH (feet)	DATE	BENZENE ST	BENZENE ug/Kg	TOLUENE ST	TOLUENE ug/Kg	ETHYL-BENZENE ST	ETHYL-BENZENE ug/Kg	TOTAL XYLENES ST	TOTAL XYLENES ug/Kg	TOTAL PETROLEUM HYDROCARBONS (gasoline) ST	TOTAL PETROLEUM HYDROCARBONS (gasoline) mg/Kg	TOTAL PETROLEUM HYDROCARBONS (diesel) ST	TOTAL PETROLEUM HYDROCARBONS (diesel) mg/Kg	LEAD ST	LEAD mg/Kg
B-16	15.5	8/03/88		93.0		19.0		8.6		63.0		0.15		185	NT	
	25.5	8/03/88		15000.0		280000.0		88000.0		500000.0		4000.00	ND	10	NT	
dup	25.5	8/03/88		10000.0		220000.0		81000.0		470000.0		4800.00	NT		NT	
	30.0	8/03/88		1200.0		180.0		120.0		230.0		3.00	ND	10	NT	
	35.5	8/03/88		3.1		13.0		3.0		18.0		0.12	ND	10	NT	
B-17	15.5	7/28/88		79.0		37.0		4.7		27.0		0.086	ND	10	NT	
	20.0	7/28/88		140.0		34.0		0.8		4.6		0.43	ND	10	NT	
	25.5	7/28/88		5800.0		57000.0		21000.0		130000.0		880.00	ND	10		1.08
	35.5	7/28/88	NT		NT		NT		NT		ND	0.05	NT		NT	
B-18	25.5	8/04/88		38.0		86.0		12.0		78.0		0.10	ND	10		2.55
	30.5	8/04/88		400.0		6800.0		4300.0		27000.0		160.00	ND	10	NT	
B-19	10.5	7/29/88	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.05	ND	10	NT	
	20.5	7/29/88		13.0		13.0		0.6		4.5		0.12	ND	10	NT	
	25.0	7/29/88		11000.0		88000.0		23000.0		130000.0		960.00	ND	10		1.26
	35.5	7/29/88	NT		NT		NT		NT			0.16	ND	10	NT	
B-20	15.5	7/28/88		130.0		100.0		13.0		98.0		0.29	ND	10	NT	
	20.0	7/28/88		3.2		2.4	ND	0.2		0.7		0.21	ND	10	NT	
	25.0	7/28/88		990.0		2000.0		430.0		2800.0		59.00	ND	10		1.06
B-21	15.5	7/27/88		180.0		4.9		0.9		66.0		0.23	ND	10	NT	
	21.5	7/27/88		9800.0		52000.0		19000.0		120000.0		260.00	ND	10	NT	
	25.5	7/27/88		3900.0		3300.0		310.0		1000.0		16.00	ND	10	ND	1.00
	30.0	7/27/88		2.4		2.4	ND	0.2		1.8	ND	0.05	ND	10	NT	
B-22	15.5	8/03/88	ND	0.2		0.5	ND	0.2	ND	0.2	ND	0.05	ND	10	NT	
	25.0	8/03/88	ND	40.0		260.0		18000.0		12000.0		14.00	ND	10	ND	2.00
dup	25.0	8/03/88	ND	40.0		240.0		1700.0		12000.0		13.00	NT		NT	
	30.5	8/03/88		18.0		3.9	ND	0.2		50.0		0.18	ND	10	NT	

NOTES: ST: Status.
ND: Not detected at level shown.
NT: Not tested.

Table 3. Results of Chemical Analyses of Soil Samples
Purgeable Halocarbons (EPA Method 8010)

BORING No.	SAMPLE DEPTH (feet)	SAMPLE DATE	DICHLORO-DIFLUORO-METHANE		1,1 DI-CHLORO-ETHENE		METHYLENE CHLORIDE		TRANS 1,2 DICHLORO-ETHENE		1,1 DI-CHLORO-ETHANE		CHLORO-FORM		1,1,1 TRI-CHLORO-ETHANE		1,2 DI-CHLORO-ETHANE		TRI-CHLORO ETHENE		1,2 DI-CHLORO-PROPANE		1,1,2 TRI-CHLORO-ETHANE		DIBROMO-CHLORO-METHANE		CHLORO-BENZENE	
			ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg
B-1	30.0-30.5	08/02/88	ND	2.0	ND	0.5		1.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.9	ND	0.5		0.6	ND	0.5
	36.5	08/02/88	ND	2.0	ND	0.5		1.1	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.9	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
B-2	30.0	08/01/88	ND	2.0	ND	0.5		1.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
B-4	15.5	07/25/88	ND	2.0		0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
B-5	10.0	07/25/88	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		1.4		1.4	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
B-6	25.5	08/01/88	ND	2.0	ND	0.5		0.9	ND	0.5	ND	0.5		1.2	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
B-7	5.5-6.0	08/01/88	ND	2.0	ND	0.5		0.7	ND	0.5	ND	0.5		0.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	10.0-10.5	08/01/88	ND	2.0	ND	0.5		0.8	ND	0.5	ND	0.5		0.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	30.0-30.5	08/02/88	ND	2.0	ND	0.5		0.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	35.5	08/02/88	ND	2.0	ND	0.5		0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		2.3	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
B-8	25.5-26.0	08/05/88	ND	2.0	ND	0.5		1.7	ND	0.5	ND	0.5		1.7	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	35.5	08/05/88	ND	2.0	ND	0.5		1.2	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
B-10	32.5	07/25/88	ND	2.0	ND	0.5		0.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	35.5	07/25/88	ND	2.0	ND	0.5		0.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
B-12	25.5-26.0	08/05/88	ND	10.0	ND	10.0	ND	10.0	ND	10.0	ND	10.0	ND	10.0	ND	10.0		0.8	ND	10.0	ND	10.0	ND	10.0	ND	10.0	ND	10.0
	35.5	08/05/88	ND	2.0	ND	0.5		1.2	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5

SOILS2TB.WK1 REVISION DATE 30-Nov-88

Harding Lawson Associates

Table 3. Results of Chemical Analyses of Soil Samples
Purgeable Halocarbons (EPA Method 8010)

BORING No.	SAMPLE DEPTH (feet)	SAMPLE DATE	DICHLORO-DIFLUORO-METHANE		1,1 DI-CHLORO-ETHENE		METHYLENE CHLORIDE		TRANS 1,2 DICHLORO-ETHENE		1,1 DI-CHLORO-ETHANE		CHLORO-FORM		1,1,1 TRI-CHLORO-ETHANE		1,2 DI-CHLORO-ETHANE		TRI-CHLORO ETHENE		1,2 DI-CHLORO-PROPANE		1,1,2 TRI-CHLORO-ETHANE		DIBROMO-CHLORO-METHANE		CHLORO-BENZENE	
			ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg
B-13	15.5	07/27/88	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		7.7	ND	0.5	ND	0.5	ND	0.5
	20.5-21.0	07/27/88	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		7.9	ND	0.5		2.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	25.5-26.0	07/27/88	ND	20.0	ND	50.0	ND	50.0	ND	50.0	ND	50.0	ND	50.0		160.0		140.0	ND	50.0	ND	50.0	ND	50.0	ND	50.0	ND	50.0
	35.5	07/27/88	ND	2.0		0.8	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
B-14	10.0-10.5	08/02/88	ND	2.0	ND	0.5		1.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	25.5	08/02/88	ND	2.0	ND	0.5		3.1	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
B-16	15.5-16.0	08/03/88	ND	2.0	ND	0.5		1.3	ND	0.5	ND	0.5		0.9	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	25.5-26.0	08/03/88	ND	100.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0
dup	25.5-26.0	08/03/88	ND	100.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0
	30.0	08/03/88	ND	2.0	ND	0.5		2.2	ND	0.5	ND	0.5	ND	0.5	ND	0.5		18.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	35.5	08/03/88	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		1.7	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
B-17	15.5-16.0	07/28/88	ND	2.0	ND	0.5		3.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	20.0	07/28/88	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	25.5-26.0	07/28/88	ND	2.0	ND	0.5		1.4	ND	0.5	ND	0.5	ND	0.5	ND	0.5		2.4	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	35.5	07/28/88	ND	2.0		1.5	ND	0.5		1.4		0.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
B-18	25.5-26.0	08/04/88	ND	2.0	ND	0.5		0.9	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.7	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	30.5	08/04/88	ND	2.0	ND	0.5		2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		2.9	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
B-19	10.5	07/29/88	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5

Table 3. Results of Chemical Analyses of Soil Samples
Purgeable Halocarbons (EPA Method 8010)

BORING No.	SAMPLE DEPTH (feet)	SAMPLE DATE	DICHLORO-DIFLUORO-METHANE		1,1 DI-CHLORO-ETHENE		METHYLENE CHLORIDE		TRANS 1,2 DICHLORO-ETHENE		1,1 DI-CHLORO-ETHANE		CHLORO-FORM		1,1,1 TRI-CHLORO-ETHANE		1,2 DI-CHLORO-ETHANE		TRI-CHLORO ETHENE		1,2 DI-CHLORO-PROPANE		1,1,2 TRI-CHLORO-ETHANE		DIBROMO-CHLORO-METHANE		CHLORO-BENZENE	
			ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg	ST	ug/Kg
	20.5	07/29/88	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	25.0-25.5	07/29/88	ND	500.0	ND	500.0		550.0	ND	500.0	ND	500.0	ND	500.0	ND	500.0	ND	500.0	ND	500.0	ND	500.0	ND	500.0	ND	500.0	ND	500.0
	35.5	07/29/88	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		5.8	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
B-20	15.5-16.0	07/28/88	ND	2.0	ND	0.5		0.8	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	20.0-20.5	07/28/88	ND	2.0	ND	0.5		2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	25.0-25.5	07/28/88	ND	2.0	ND	0.5		2.1	ND	0.5	ND	0.5	ND	0.5	ND	0.5		5.3	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
B-21	15.5	07/27/88	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.7	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	21.5-22.0	07/27/88	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		7.4	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	25.5-26.0	07/27/88	ND	2.0	ND	0.5		0.8	ND	0.5	ND	0.5	ND	0.5	ND	0.5		18.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	30.0-30.5	07/27/88	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		2.1		6.9	ND	0.5	ND	0.5	ND	0.5	ND	0.5
B-22	15.5-16.0	08/03/88	ND	20.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	25.0-25.5	08/03/88	ND	20.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
dup	25.0-25.5	08/03/88	ND	20.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	30.5	08/03/88	ND	2.0	ND	0.5		0.7	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5

NOTES: ST: Status.
ND: Not detected at level shown.
NT: Not tested.

SOILS2TB.WK1 REVISION DATE 30-Nov-88

Table 4. Results of Chemical Analyses of Ground-Water Samples from Borings
Petroleum Hydrocarbons (EPA Method 8015)
Purgeable Aromatics (EPA Method 602)
Lead

BORING No.	DATE	BENZENE		TOLUENE		ETHYL-BENZENE		TOTAL XYLENES		TOTAL PETRO-LEUM HYDRO-CARBONS (gasoline)		LEAD	
		ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	mg/l	ST	mg/l
B-2	08/01/88	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.05	ND	0.10
B-7	08/01/88		5300.0		11000.0		1200.0		6600.0		340.0	NT	
B-8	08/05/88		370.0		780.0		150.0		880.0		3.8	ND	0.01
dup.	08/05/88		390.0		650.0		130.0		670.0		3.1	ND	0.01
B-10	07/25/88		160.0		410.0		200.0		920.0		3.5		0.32
B-12	08/05/88		1400.0		2900.0		360.0		1700.0		10.0	ND	0.01
dup.	08/05/88		1300.0		2600.0		310.0		1500.0		9.1	ND	0.01
B-13	07/27/88		8800.0		11000.0		990.0		4400.0		44.0		0.02
B-17	07/28/88		10000.0		6000.0		820.0		3500.0		26.0	ND	0.01
B-20	07/28/88		6200.0		14000.0		1700.0		8800.0		48.0		0.60
B-21	07/27/88		1600.0		2300.0		550.0		2900.0		17.0	ND	0.01
B-22	08/03/88		43.0		11.0		93.0		570.0		3.1	NT	

NOTES: ST: Status.
ND: Not detected at level shown.
NT: Not tested.

Table 5. Results of Chemical Analyses of Ground-Water Samples from Borings
Purgeable Halocarbons (EPA Method 8010)

BORING No.	SAMPLE DATE	DICHLORO-DIFLUORO-METHANE		1,1 DI-CHLORO-ETHENE		METHYLENE CHLORIDE		TRANS 1,2 DICHLORO-ETHENE		1,1 DI-CHLORO-ETHANE		CHLORO-FORM		1,1,1 TRI-CHLORO-ETHANE		1,2 DI-CHLORO-ETHANE		TRI-CHLORO ETHENE		1,2 DI-CHLORO-PROPANE		1,1,2 TRI-CHLORO-ETHANE		DIBROMO-CHLORO-METHANE		CHLORO-BENZENE	
		ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l
B-2	08/01/88	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		1.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
B-10	07/25/88		200.0		2.8	ND	0.5	ND	0.5		1.2		3.3	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
B-13	07/27/88		13.0		0.7		0.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5		44.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		1.0
B-17	07/28/88		3.5		0.9		2.1	ND	0.5	ND	0.5	ND	0.5	ND	0.5		62.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
B-20	07/28/88		13.0		11.0		5.8	ND	0.5		6.3	ND	0.5	ND	0.5		29.0		1.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
B-21	07/27/88	ND	2.0		63.0		1.3	ND	0.5		25.0		0.5		0.9		10.0		16.0	ND	0.5		1.7	ND	0.5	ND	0.5
B-22	08/03/88		10.0		14.0	ND	0.5	ND	0.5		4.3	ND	0.5		2.2		3.3		4.1	ND	0.5	ND	0.5	ND	0.5	ND	0.5

NOTES: ST: Status.
ND: Not detected at level shown.

Table 3. Results of Chemical Analyses of Ground-Water Samples
Purgeable Halocarbons (EPA Methods 601 and 8010)

WELL	DATE	DICHLORO-DIFLUORO-METHANE		CHLORO-METHANE		1,1 DI-CHLORO-ETHENE		METHYLENE CHLORIDE		TRANS 1,2 DICHLORO-ETHENE		1,1 DI-CHLORO-ETHANE		CHLORO-FORM		1,1,1 TRI-CHLORO-ETHANE		CARBON TETRA-CHLORIDE		1,2 DI-CHLORO-ETHANE		TRICHLORO-ETHENE		1,2 DI-CHLORO-PROPANE		BROMO-DICHLORO-METHANE		CIS-1,3-DI-CHLORO-PROPENE		1,1,2 TRI-CHLORO-ETHANE		TETRA-CHLORO-ETHENE		CHLORO-BENZENE		BROMO-FORM		ALL OTHER 601 COMPOUNDS	
		ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l
DHS Action Level (a)		--		--		6.0		40.0		16.0		20.0		--		200.0		5.0		1.0		5.0		10.0		---		16.0		100.0		4.0		30.0		--		--	
MW-2																																									
	09-Mar-88	ND	2.0	ND	2.0	ND	50.0	ND	50.0	ND	50.0	ND	50.0	ND	50.0	ND	50.0	ND	50.0	ND	50.0	ND	50.0	ND	50.0	ND	0.5	ND	0.5	ND	50.0	ND	50.0	ND	0.5	ND	
	21-Mar-88	ND	2.0	ND	2.0		1.5		1.3	ND	0.5	ND	0.5		1.4	ND	0.5	ND	0.5		166.0		276	ND	0.5	ND	0.5	ND	0.5		2.3	ND	0.5	ND	0.5	ND	
	25-Mar-88	ND	2.0	ND	2.0		18.6		11.7	ND	0.5		3.9		2.7	ND	0.5		62.0		19.0		5409		5.0	ND	0.5	ND	0.5	ND	0.5		0.9	ND	0.5	ND	
	01-Apr-88	ND	2.0	ND	2.0	ND	2.5	ND	2.5	ND	2.5	ND	2.5		10.0	ND	2.5	ND	2.5		7.5		2000	ND	2.5	ND	0.5	ND	0.5	ND	2.5		13.0	ND	2.5	ND	
	08-Apr-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5		0.8	ND	0.5		8.8	ND	0.5	ND	0.5		5.3		10900	ND	0.5	ND	0.5	ND	0.5	ND	0.5		12.0	ND	0.5	ND	
	15-Apr-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		4.5	ND	0.5	ND	0.5		3.0		4100	ND	0.5	ND	0.5	ND	0.5	ND	0.5		7.5	ND	0.5	ND	
	22-Apr-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		3.5	ND	0.5	ND	0.5		2.7		2400	ND	0.5	ND	0.5	ND	0.5	ND	0.5		6.5	ND	0.5	ND	
	28-Apr-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		3.8	ND	0.5	ND	0.5		2.4		2300	ND	0.5	ND	0.5	ND	0.5	ND	0.5		3.2	ND	0.5	ND	
	05-May-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		1.6	ND	0.5	ND	0.5		1.4		1100	ND	0.5	ND	0.5	ND	0.5	ND	0.5		10.6	ND	0.5	ND	
	11-May-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5		0.8	ND	0.5		7.5	ND	0.5	ND	0.5		3.8		5200	ND	0.5	ND	0.5	ND	0.5	ND	0.5		4.5	ND	0.5	ND	
	18-May-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		2.3	ND	0.5	ND	0.5		1.2		1900	ND	0.5	ND	0.5	ND	0.5	ND	0.5		5.6	ND	0.5	ND	
	27-May-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5		1.1	ND	0.5		7.0	ND	0.5	ND	0.5		2.3		3100	ND	0.5	ND	0.5	ND	0.5	ND	0.5		4.7	ND	0.5	ND	
	03-Jun-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5		2.2	ND	0.5		13.0		22.0	ND	0.5		1.5		1500	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	16-Jun-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		9.4	ND	0.5	ND	0.5		1.3		1150	ND	0.5	ND	0.5	ND	0.5	ND	0.5		12.0	ND	6.0	ND	4.7	ND	
*	30-Jun-88	ND	2.0	ND	2.0	ND	2.8	ND	2.8		70.0	ND	4.7		6.2	ND	3.8	ND	2.8	ND	2.8		7600	ND	6.0	ND	0.5	ND	0.5	ND	0.5		8.5	ND	0.5	ND	
	15-Jul-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5		1.0	ND	0.5		5.0	ND	0.5	ND	0.5	ND	0.5		4600	ND	0.5	ND	0.5	ND	0.5	ND	0.5		8.6	ND	0.5	ND	
	27-Jul-88	ND	2.0	ND	2.0	ND	0.5		0.9		1.4	ND	0.5		6.4	ND	0.5	ND	0.5		2.1		4800	ND	0.5	ND	0.5	ND	0.5	ND	0.5		8.0	ND	0.5	ND	
	12-Aug-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5		1.5	ND	0.5		5.3	ND	0.5	ND	0.5		2.1		5000	ND	0.5	ND	0.5	ND	0.5	ND	0.5		7.6	ND	0.5	ND	
	26-Aug-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		1.1	ND	0.5	ND	0.5		1.6		4700	ND	0.5	ND	0.5	ND	0.5	ND	0.5		5.9	ND	0.5	ND	
	09-Sep-88	ND	2.0	ND	2.0	ND	0.5		0.6		0.8	ND	0.5		5.5	ND	0.5	ND	0.5		1.0		3800	ND	0.5	ND	0.5	ND	0.5	ND	0.5		6.5	ND	0.5	ND	
	23-Sep-88	ND	2.0	ND	2.0	ND	0.5		0.6		1.3	ND	0.5		4.6	ND	0.5	ND	0.5		1.5		4100	ND	0.5	ND	0.5	ND	0.5	ND	0.5		5.6	ND	0.5	ND	
	30-Sep-88	ND	2.0	ND	2.0	ND	0.5	ND	0.6		0.9	ND	0.5		3.5	ND	0.5	ND	0.5		1.3		3600	ND	0.5	ND	0.5	ND	0.5	ND	0.5		11.0	ND	0.5	ND	
	02-Nov-88	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0		1.3	ND	1.0	ND	1.0	ND	1.0		46.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0		5.6	ND	1.0	ND	
	02-Dec-88	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0		286.6	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	
	04-Jan-89	ND	2.0	ND	2.0	ND	0.5	ND	0.5		1.0	ND	0.5		7.3	ND	0.5	ND	0.5		1.1		4700	ND	0.5	ND	0.5	ND	0.5	ND	0.5		11.0	ND	0.5	ND	
	03-Feb-89	ND	2.0	ND	2.0		1.0		1.7		1.4	ND	0.5		3.8		0.8	ND	0.5		1.3		400	ND	0.5	ND	0.5	ND	0.5	ND	0.5		5.6	ND	0.5	ND	
MW-3																																									
	10-Mar-88	ND	2.0	ND	2.0		21.0	ND	0.5	ND	0.5		28.0	ND	0.5	ND	0.5	ND	0.5		2.7	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	19-Mar-88	ND	2.0	ND	2.0		40.0	ND	0.5	ND	0.5		20.0	ND	0.5	ND	0.5	ND	0.5		2.3	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	25-Mar-88	ND	2.0	ND	2.0		40.0	ND	0.5	ND	0.5		24.0	ND	0.5	ND	0.5	ND	0.5		2.4	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	01-Apr-88	ND	2.0	ND	2.0		57.0	ND	0.5	ND	0.5		28.0	ND	0.5	ND	0.5	ND	0.5		2.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	15-Apr-88	ND	2.0	ND	2.0		30.6	ND	0.5	ND	0.5		14.3	ND	0.5	ND	0.5	ND	0.5		1.3	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	15-Apr-88	ND	2.0	ND	2.0		37.0	ND	0.5	ND	0.5		14.0	ND	0.5	ND	0.5	ND	0.5		1.1	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	28-Apr-88	ND	2.0	ND	2.0		50.0	ND	0.5	ND	0.5		18.0	ND	0.5		0.9	ND	0.5		1.8	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	28-Apr-88	ND	2.0	ND	2.0		37.0	ND	0.5	ND	0.5		16.0	ND	0.5	ND	0.5	ND	0.5		1.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	11-May-88	ND	2.0	ND	2.0		48.0	ND	0.5	ND	0.5		17.0	ND	0.5		1.0	ND	0.5		2.1	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	27-May-88	ND	2.0	ND	2.0		24.0	ND	0.5	ND	0.5		10.0		0.6		0.6	ND	0.5		0.9	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	16-Jun-88	ND	2.0	ND	2.0		22.5	ND	0.5	ND	0.5		7.2	ND	0.5		0.9	ND	0.5		1.0		0.7	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	27-Jul-88	ND	2.0	ND	2.0		22.0	ND	0.5	ND	0.5		8.7	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		1.2	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	26-Aug-88	ND	2.0	ND	2.0		14.0	ND	0.5	ND	0.5		6.6	ND	0.5		0.6	ND	0.5		0.8	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	30-Sep-88	ND	2.0	ND	2.0		9.2	ND	0.5	ND	0.5		4.7	ND	0.5	ND	0.5	ND	0.5		0.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	02-Nov-88	ND	1.0	ND	1.0		8.4	ND	1.0	ND	1.0		7.1	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	

Table 3. Results of Chemical Analyses of Ground-Water Samples
Purgeable Halocarbons (EPA Methods 601 and 8010)

WELL	DATE	DICHLORO-DIFLUORO-METHANE		CHLORO-METHANE		1,1 DI-CHLORO-ETHENE		METHYLENE CHLORIDE		TRANS 1,2 DICHLORO-ETHENE		1,1 DI-CHLORO-ETHANE		CHLORO-FORM		1,1,1 TRI-CHLORO-ETHANE		CARBON TETRA-CHLORIDE		1,2 DI-CHLORO-ETHANE		TRICHLORO-ETHENE		1,2 DI-CHLORO-PROPANE		BROMO-DICHLORO-METHANE		CIS-1,3-DI-CHLORO-PROPENE		1,1,2 TRI-CHLORO-ETHANE		TETRA-CHLORO-ETHENE		CHLORO-BENZENE		BROMO-FORM		ALL OTHER 601 COMPOUNDS	
		ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l
DHS Action Level (a)		--		--		6.0		40.0		16.0		20.0		--		200.0		5.0		1.0		5.0		10.0		---		16.0		100.0		4.0		30.0		--		--	
	02-Dec-88	ND	1.0	ND	1.0		12.0	ND	1.0	ND	1.0		5.1	ND	1.0	ND	1.0	ND	1.0	ND	1.0		1.1	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0
	04-Jan-89	ND	2.0	ND	2.0		23.0	ND	0.5	ND	0.5		8.9	ND	0.5		1.1	ND	0.5		1.1	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	03-Feb-89	ND	2.0	ND	2.0		22.0		1.6	ND	0.5		7.4	ND	0.5		3.2	ND	0.5		1.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
MW-5																																							
	10-Mar-88	ND	2.0	ND	2.0		8.0	ND	0.5	ND	0.5		6.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5		1.3	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		2.6	ND	0.5	ND	0.5	ND
	18-Mar-88	ND	2.0	ND	2.0		18.0	ND	0.5	ND	0.5		10.0		2.0		1.5	ND	0.5		1.2	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.5	ND	0.5	ND	0.5	ND
	25-Mar-88	ND	2.0	ND	2.0		17.0	ND	0.5	ND	0.5		11.0		2.0		2.6	ND	0.5		0.9		0.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.5	ND	0.5	ND	0.5	ND
	01-Apr-88	ND	2.0	ND	2.0		20.5	ND	0.5	ND	0.5		10.0		2.0		2.0	ND	0.5		1.0		0.7	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.5	ND	0.5	ND	0.5	ND
	08-Apr-88	ND	2.0	ND	2.0		24.0	ND	0.5	ND	0.5		12.0		3.0		2.5	ND	0.5		1.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		2.5	ND	0.5	ND	0.5	ND	0.5	ND
	15-Apr-88	ND	2.0	ND	2.0		18.5	ND	0.5	ND	0.5		9.3		3.6		1.6	ND	0.5		1.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.9	ND	0.5	ND	0.5	ND	0.5	ND
	22-Apr-88	ND	2.0	ND	2.0		20.0	ND	0.5	ND	0.5		11.6		4.8		2.3	ND	0.5		1.1		0.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.5	ND	0.5	ND	0.5	ND
	28-Apr-88	ND	2.0	ND	2.0		18.0	ND	0.5	ND	0.5		9.0		3.7		2.2	ND	0.5		0.9		0.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.5	ND	0.5	ND	0.5	ND
	05-May-88	ND	2.0	ND	2.0		22.8	ND	0.5	ND	0.5		9.9		4.3		1.5	ND	0.5		1.3		0.7	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.5	ND	0.5	ND	0.5	ND
	11-May-88	ND	2.0	ND	2.0		19.0	ND	0.5	ND	0.5		9.8		4.2		2.4	ND	0.5		1.3		0.7	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.5	ND	0.5	ND	0.5	ND
	11-May-88	ND	2.0	ND	2.0		18.0	ND	0.5	ND	0.5		7.5	ND	0.5		2.0	ND	0.5	ND	0.5	ND	0.5		2.0		1.2	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.5	ND	0.5	ND	0.5	ND
	18-May-88	ND	2.0	ND	2.0		41.0	ND	0.5	ND	0.5		11.0		4.5		2.4	ND	0.5		0.8	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.5	ND	0.5	ND	0.5	ND
	27-May-88	ND	2.0	ND	2.0		20.0	ND	0.5	ND	0.5		9.5		4.0		1.7	ND	0.5		1.0		0.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.5		0.8	ND	0.5	ND
	03-Jun-88	ND	2.0	ND	2.0		20.0	ND	0.5		1.3		11.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		1.6		0.8	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.5	ND	0.5	ND	0.5	ND
	16-Jun-88	ND	2.0	ND	2.0	ND	0.5		110.0	ND	0.5		13.0		3.6		2.7	ND	0.5	ND	0.5		1.6		0.8	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		4.1	ND	6.0	ND	4.7	ND
*	30-Jun-88	ND	2.0	ND	2.0	ND	2.8	ND	2.8	ND	1.6	ND	4.7	ND	1.6	ND	2.8	ND	2.8	ND	3.8	ND	1.9	ND	6.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	15-Jul-88	ND	2.0	ND	2.0		14.0	ND	0.5	ND	0.5		9.8		4.0		1.2	ND	0.5		1.2	ND	0.5		1.2	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	27-Jul-88	ND	2.0	ND	2.0		24.0	ND	0.5	ND	0.5		12.0		6.0		2.0	ND	0.5	ND	0.5	ND	0.5		1.8	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	12-Aug-88		1.5	ND	2.0		25.0	ND	0.5	ND	0.5		9.6		4.5		2.0	ND	0.5		1.5		0.7	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	26-Aug-88		2.6	ND	2.0		7.7		2.1	ND	0.5		10.0		5.8		2.1	ND	0.5		1.4	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	09-Sep-88	ND	2.0	ND	2.0		16.0		0.7	ND	0.5		8.8		6.4		1.3	ND	0.5		1.4	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	23-Sep-88		1.7	ND	2.0		16.0	ND	0.5	ND	0.5		10.0		6.1		1.8	ND	0.5		1.4	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	30-Sep-88	ND	2.0	ND	2.0		16.0	ND	0.5	ND	0.5		10.0		6.6		1.8	ND	0.5		1.3		7.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	02-Nov-88	ND	1.0	ND	1.0		7.4	ND	1.0	ND	1.0		6.5		4.6	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND
	01-Dec-88		4.5	ND	1.0		12.5	ND	0.5	ND	0.5		9.1		4.8		1.3	ND	0.5		1.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	04-Jan-89	ND	2.0	ND	2.0		27.0	ND	0.5	ND	0.5		12.0		5.7		2.4	ND	0.5		1.9	ND	1.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	03-Feb-89	ND	2.0	ND	2.0		27.0		1.8	ND	0.5		11.0		6.1		2.2	ND	0.5		1.8		0.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
MW-6																																							
	09-Mar-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		12.0	ND	0.5	ND	0.5		46.0		5600	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		9.0	ND	0.5	ND	0.5	ND
	09-Mar-88	ND	2.0	ND	2.0	ND	0.5		0.8		0.9	ND	0.5		13.0	ND	0.5	ND	0.5		48.0		5300	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		7.0	ND	0.5	ND	0.5	ND
	21-Mar-88	ND	2.0	ND	2.0	ND	0.5		1.4	ND	0.5	ND	0.5		8.7	ND	0.5	ND	0.5		90.0		276	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		10.0	ND	0.5	ND	0.5	ND
	21-Mar-88	ND	2.0	ND	2.0	ND	0.5		2.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		1.3	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		12.3	ND	0.5	ND	0.5	ND
	25-Mar-88	ND	2.0	ND	2.0	ND	0.5		24.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		22.0		5811	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	25-Mar-88	ND	2.0	ND	2.0	ND	0.5		22.0	ND	0.5	ND	0.5		4.0	ND	0.5	ND	0.5		22.0		5961	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	01-Apr-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		14.0	ND	0.5	ND	0.5		27.0		11100	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		11.0	ND	0.5	ND	0.5	ND
	01-Apr-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		16.0	ND	0.5	ND	0.5		39.0		11300	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		15.0	ND	0.5	ND	0.5	ND
	08-Apr-88	ND	2.0	ND	2.0	ND	50.0	ND	50.0	ND	50.0	ND	50.0	ND	50.0	ND	50.0	ND	50.0	ND	50.0		10200	ND	50.0	ND	0.5	ND	0.5	ND	50.0	ND	50.0		23.0		21.0	ND	0.5	ND
	08-Apr-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5		0.6	ND	0.5		17.0	ND	0.5	ND	0.5		26.3		11500	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		21.5		1.3	ND	0.5	ND
	15-Apr-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		16.0	ND	0.5	ND	0.5		20.8		9756	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5							

Table 3. Results of Chemical Analyses of Ground-Water Samples
Purgeable Halocarbons (EPA Methods 601 and 8010)

WELL	DATE	DICHLORO-DIFLUORO-METHANE		CHLORO-METHANE		1,1 DI-CHLORO-ETHENE		METHYLENE CHLORIDE		TRANS 1,2 DICHLORO-ETHENE		1,1 DI-CHLORO-ETHANE		CHLORO-FORM		1,1,1 TRI-CHLORO-ETHANE		CARBON TETRA-CHLORIDE		1,2 DI-CHLORO-ETHANE		TRICHLORO-ETHENE		1,2 DI-CHLORO-PROPANE		BROMO-DICHLORO-METHANE		CIS-1,3-DI-CHLORO-PROPENE		1,1,2 TRI-CHLORO-ETHANE		TETRA-CHLORO-ETHENE		CHLORO-BENZENE		BROMO-FORM		ALL OTHER 601 COMPOUNDS	
		ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l
DHS Action Level (a)		--		--		6.0		40.0		16.0		20.0		--		200.0		5.0		1.0		5.0		10.0		---		16.0		100.0		4.0		30.0		--		--	
	22-Apr-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5		0.7	ND	0.5		23.0		0.6	ND	0.5		11.8		9300	ND	0.5	ND	0.5	ND	0.5		0.6		22.0	ND	0.5	ND	0.5	ND	
	22-Apr-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		25.0	ND	0.5	ND	0.5		14.0		11100	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	28-Apr-88	ND	2.0	ND	2.0	ND	50.0	ND	50.0	ND	50.0	ND	50.0	ND	50.0	ND	50.0	ND	50.0	ND	50.0		11600	ND	50.0	ND	0.5	ND	0.5	ND	50.0	ND	50.0	ND	50.0	ND	0.5	ND	
	05-May-88	ND	2.0	ND	2.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0		14100	ND	25.0	ND	0.5	ND	0.5	ND	25.0	ND	25.0	ND	25.0	ND	0.5	ND	
	05-May-88	ND	2.0	ND	2.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0	ND	25.0		11900	ND	25.0	ND	0.5	ND	0.5	ND	25.0	ND	25.0	ND	25.0	ND	0.5	ND	
	11-May-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		11000	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	18-May-88	ND	2.0	ND	2.0	ND	50.0	ND	50.0		1.7	ND	50.0		22.8	ND	50.0	ND	50.0		14.0		8900	ND	50.0	ND	0.5	ND	0.5		1.7		82.0	ND	50.0	ND	0.5	ND	
	18-May-88	ND	2.0	ND	2.0		0.8	ND	50.0		2.0	ND	50.0		21.8	ND	50.0	ND	50.0		17.0		6900	ND	50.0	ND	0.5	ND	0.5	ND	50.0		78.0	ND	50.0	ND	0.5	ND	
	27-May-88	ND	2.0	ND	2.0		0.5	ND	0.5		1.0	ND	0.5		18.0	ND	0.5	ND	0.5		5.4		6700	ND	0.5	ND	0.5	ND	0.5		0.6		18.0	ND	0.5	ND	0.5	ND	
	03-Jun-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5		1.0	ND	0.5		20.0	ND	0.5	ND	0.5		3.3		4500	ND	0.5	ND	0.5	ND	0.5		0.5		12.0	ND	0.5	ND	0.5	ND	
	03-Jun-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5		1.0	ND	0.5		20.0	ND	0.5	ND	0.5		3.3		6600	ND	0.5	ND	0.5		2.5	ND	0.5		11.0	ND	0.5	ND	0.5	ND	
	16-Jun-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5		0.7	ND	0.5		49.0	ND	0.5	ND	0.5		2.8		3900	ND	0.5	ND	0.5		2.4		1.6		27.0		2.2	ND	0.5	ND	
	16-Jun-88	ND	2.0	ND	2.0		2.1	ND	0.5		1.1	ND	0.5		28.0	ND	0.5	ND	0.5		3.2		5300	ND	0.5	ND	0.5	ND	0.5		2.0		31.0		5.0	ND	0.5	ND	
*	30-Jun-88	ND	2.0	ND	2.0	ND	2.8	ND	2.8		160.0	ND	4.7	ND	1.6	ND	3.8	ND	2.8	ND	2.8		4500	ND	6.0	ND	0.5	ND	0.5	ND	0.5	ND	16.0	ND	6.0	ND	4.7	ND	
*	30-Jun-88	ND	2.0	ND	2.0	ND	2.8	ND	2.8		160.0	ND	4.7	ND	1.6	ND	3.8	ND	2.8	ND	2.8		4300	ND	6.0	ND	0.5		2.6	ND	0.5		15.0	ND	6.0	ND	4.7	ND	
	15-Jul-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5		8.4	ND	0.5		30.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		4.0	ND	0.5	ND	0.5		3.2		42.0	ND	0.5	ND	0.5	ND	
	27-Jul-88	ND	2.0	ND	2.0		1.0		0.7		11.0	ND	0.5		26.0	ND	0.5	ND	0.5		3.7		9700	ND	0.5	ND	0.5	ND	0.5	ND	0.5		22.0	ND	0.5	ND	0.5	ND	
	27-Jul-88	ND	2.0	ND	2.0		0.8	ND	0.5		9.9	ND	0.5		26.0	ND	0.5	ND	0.5		3.7		11000	ND	0.5	ND	0.5	ND	0.5	ND	0.5		24.0	ND	0.5	ND	0.5	ND	
	12-Aug-88	ND	2.0	ND	2.0		0.8	ND	0.5		5.6	ND	0.5		16.0	ND	0.5	ND	0.5		4.0		14000	ND	0.5	ND	0.5	ND	0.5		0.9		20.0	ND	0.5	ND	0.5	ND	
	12-Aug-88	ND	2.0	ND	2.0		0.9	ND	0.5		5.8	ND	0.5		20.0	ND	0.5	ND	0.5		4.2		12000	ND	0.5	ND	0.5	ND	0.5		0.9		20.0	ND	0.5	ND	0.5	ND	
	26-Aug-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5		3.4	ND	0.5		20.0	ND	0.5	ND	0.5		2.7		10000	ND	0.5	ND	0.5	ND	0.5	ND	0.5		16.0	ND	0.5	ND	0.5	ND	
	26-Aug-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5		3.2	ND	0.5		17.0	ND	0.5	ND	0.5		2.8		14000	ND	0.5	ND	0.5	ND	0.5		0.6		17.0	ND	0.5	ND	0.5	ND	
	09-Sep-88	ND	2.0	ND	2.0	ND	0.5		0.5		1.7	ND	0.5		19.0	ND	0.5	ND	0.5		2.1		940	ND	0.5	ND	0.5	ND	0.5		0.6		13.0	ND	0.5	ND	0.5	ND	
	23-Sep-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5		2.1	ND	0.5		19.0	ND	0.5	ND	0.5		2.5		13000	ND	0.5		0.5	ND	0.5	ND	0.5		13.0	ND	0.5	ND	0.5	ND	
	30-Sep-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5		1.3	ND	0.5		15.0	ND	0.5	ND	0.5		1.4		8600	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	30-Sep-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5		1.1	ND	0.5		14.0	ND	0.5	ND	0.5		1.3		7900	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	02-Nov-88	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0		2.6	ND	1.0	ND	1.0	ND	1.0		449	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	
	02-Dec-88	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0		7.0	ND	1.0	ND	1.0	ND	1.0		1009	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	2.9	ND	1.0	ND	1.0	1.4	**
	02-Dec-88	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0		2262	ND	1.0	ND	0.5	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	
	04-Jan-89	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		4100	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	03-Feb-89	ND	2.0	ND	2.0		0.7		4.7		0.8	ND	0.5		7.7		0.8	ND	0.5		1.8		475	ND	0.5	ND	0.5	ND	0.5	ND	0.5		5.6	ND	0.5	ND	0.5	ND	
	03-Feb-89	ND	2.0	ND	2.0		0.7		1.3		0.6	ND	0.5		6.9		0.7	ND	0.5		1.5		470	ND	0.5	ND	0.5	ND	0.5	ND	0.5		4.2	ND	0.5	ND	0.5	ND	
MW-7																																							
	09-Mar-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	18-Mar-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	25-Mar-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	01-Apr-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	15-Apr-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	1.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	28-Apr-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	2.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	11-May-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	3.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	27-May-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	1.4	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	16-Jun-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	2.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	
	27-Jul-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	2.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	

601TBL.WK1 REVISION DATE 15-Dec-89

Table 3. Results of Chemical Analyses of Ground-Water Samples
Purgeable Halocarbons (EPA Methods 601 and 8010)

WELL	DATE	DICHLORO-DIFLUORO-METHANE		CHLORO-METHANE		1,1 DI-CHLORO-ETHENE		METHYLENE CHLORIDE		TRANS 1,2 DICHLORO-ETHENE		1,1 DI-CHLORO-ETHANE		CHLORO-FORM		1,1,1 TRI-CHLORO-ETHANE		CARBON TETRA-CHLORIDE		1,2 DI-CHLORO-ETHANE		TRICHLORO-ETHENE		1,2 DI-CHLORO-PROPANE		BROMO-DICHLORO-METHANE		CIS-1,3-DI-CHLORO-PROPENE		1,1,2 TRI-CHLORO-ETHANE		TETRA-CHLORO-ETHENE		CHLORO-BENZENE		BROMO-FORM		ALL OTHER 601 COMPOUNDS	
		ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l
DHS Action Level (a)		--		--		6.0		40.0		16.0		20.0		--		200.0		5.0		1.0		5.0		10.0		---		16.0		100.0		4.0		30.0		--		--	
	26-Aug-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		1.7	ND	0.5	ND	0.5	ND	0.5		8.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.6	ND	0.5	ND	0.5	ND
	30-Sep-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		4.4	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	02-Nov-88	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0		2.7	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND
	01-Dec-88	ND	1.0	ND	1.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	04-Jan-89	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	03-Feb-89	ND	2.0	ND	2.0	ND	0.5		1.3	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		2.2	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
MW-8																																							
	10-Mar-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		130.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	18-Mar-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		12.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	25-Mar-88	ND	2.0	ND	2.0		1.3	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.7		5.8	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.8	ND	0.5	ND	0.5	ND
	01-Apr-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		6.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.9	ND	0.5	ND	0.5	ND
	15-Apr-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.6	ND	0.5	ND	0.5	ND	0.5		9.8	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.7	ND	0.5	ND	0.5	ND
	28-Apr-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.9	ND	0.5	ND	0.5	ND	0.5		20.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	11-May-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		10.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	27-May-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		1.7	ND	0.5	ND	0.5	ND	0.5		13.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	27-May-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		1.8	ND	0.5	ND	0.5	ND	0.5		11.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	16-Jun-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		1.8	ND	0.5	ND	0.5	ND	0.5		22.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	27-Jul-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		2.4	ND	0.5	ND	0.5	ND	0.5		18.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	26-Aug-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		7.2	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	30-Sep-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.5	ND	0.5	ND	0.5	ND	0.5		8.5	ND	0.5	ND	0.5	ND	1.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	02-Nov-88	ND	1.0	ND	1.0		3.1	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0		3.4	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND
	02-Dec-88	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0		2.8	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND
	04-Jan-89	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.7	ND	0.5	ND	0.5	ND	0.5		5.4	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	03-Feb-89	ND	2.0	ND	2.0	ND	0.5		1.2	ND	0.5	ND	0.5		1.2	ND	0.5	ND	0.5	ND	0.5		4.4	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
MW-9																																							
	10-Mar-88	ND	2.0	ND	2.0		9.0	ND	0.5	ND	0.5		2.6	ND	0.5		2.3	ND	0.5		3.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.6	ND	0.5	ND	0.5	ND
	21-Mar-88	ND	2.0	ND	2.0		12.6	ND	0.5	ND	0.5		3.0	ND	0.5		2.6	ND	0.5		5.0		1.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
*	30-Jun-88	ND	2.0	ND	2.0	ND	2.8	ND	2.8	ND	1.6	ND	4.7	ND	1.6	ND	3.8	ND	2.8	ND	2.8	ND	1.9	ND	6.0	ND	0.5	ND	0.5	ND	0.5		4.1	ND	6.0	ND	4.7	ND
	15-Jul-88	ND	2.0		17.0		5.8	ND	0.5	ND	0.5		1.1		6.0		0.7	ND	0.5		1.3		1.2	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.5	ND	0.5	ND	0.5	ND
	15-Jul-88	ND	2.0		31.0		4.7	ND	0.5	ND	0.5		1.0		5.4		0.6	ND	0.5		1.0		0.7	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.5	ND	0.5	ND	0.5	ND
	26-Aug-88	ND	2.0	ND	2.0		1.5	ND	0.5	ND	0.5		0.7		5.7	ND	0.5	ND	0.5		2.1	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.5	ND	0.5	ND	0.5	ND
	29-Sep-88		42.0	ND	2.0		1.6	ND	0.5	ND	0.5		0.8		4.8	ND	0.5	ND	0.5		1.8	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.5	ND	0.5	ND	0.5	ND
	01-Nov-88	ND	1.0	ND	1.0	ND	1.0		16.0	ND	1.0		1.0		5.1	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND
	01-Dec-88	ND	1.0	ND	1.0		4.0	ND	0.5	ND	0.5		3.6		5.7	ND	0.5	ND	0.5		1.6		0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	03-Feb-89	ND	2.0	ND	2.0		9.7		1.0	ND	0.5		5.1		3.0		0.8	ND	0.5		1.8		0.8	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
MW-10																												ND	0.5									
	09-Sep-88		1.7	ND	2.0		16.0	ND	0.5	ND	0.5		4.1	ND	0.5	ND	0.5	ND	0.5		17.0		62	ND	0.5	ND	0.5	ND	1.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	29-Sep-88		1.1	ND	2.0		9.1	ND	0.5	ND	0.5		2.5	ND	0.5	ND	0.5	ND	0.5		40.0		73	ND	0.5	ND	0.5	ND	1.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
	01-Nov-88	ND	1.0	ND	1.0		10.7		13.7	ND	1.0		3.0	ND	1.0	ND	1.0	ND	1.0		7.5		55	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND
	02-Dec-88	ND	1.0	ND	1.0		5.8	ND	1.0	ND	1.0		2.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0		42.2	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND
	03-Feb-89	ND	2.0	ND	2.0		20.0		1.5	ND	0.5		3.7	ND	0.5	ND	0.5	ND	0.5		12.0		120.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND
MW-11																																							
	09-Sep-88	ND	2.0	ND	2.0		2.6	ND	0.5	ND	0.5		2.7	ND	0.5		1.4	ND	0.5		28.0		5.6	ND	0.5	ND	0.5	ND	1.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND

Table 3. Results of Chemical Analyses of Ground-Water Samples
Purgeable Halocarbons (EPA Methods 601 and 8010)

WELL	DATE	DICHLORO-DIFLUORO-METHANE		CHLORO-METHANE		1,1 DI-CHLORO-ETHENE		METHYLENE CHLORIDE		TRANS 1,2 DICHLORO-ETHENE		1,1 DI-CHLORO-ETHANE		CHLORO-FORM		1,1,1 TRI-CHLORO-ETHANE		CARBON TETRA-CHLORIDE		1,2 DI-CHLORO-ETHANE		TRICHLORO-ETHENE		1,2 DI-CHLORO-PROPANE		BROMO-DICHLORO-METHANE		CIS-1,3-DI-CHLORO-PROPENE		1,1,2 TRI-CHLORO-ETHANE		TETRA-CHLORO-ETHENE		CHLORO-BENZENE		BROMO-FORM		ALL OTHER 601 COMPOUNDS	
		ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l
DHS Action Level (a)		--		--		6.0		40.0		16.0		20.0		--		200.0		5.0		1.0		5.0		10.0		---		16.0		100.0		4.0		30.0		--		--	
	29-Sep-88	ND	2.0	ND	2.0		0.6	ND	0.5	ND	0.5		0.6		3.3	ND	0.5	ND	0.5		130.0		4.4	ND	0.5	ND	0.5	ND	1.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	01-Nov-88	ND	1.0	ND	1.0	ND	1.0		15.9	ND	1.0	ND	1.0	ND	1.0		3.5	ND	1.0		27.0	ND	1.0	ND	1.0	ND	1.0	ND	0.5	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0
	02-Dec-88	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0		55.4		2.6	ND	1.0	ND	1.0	ND	0.5	ND	0.5		1.0	ND	0.5	ND	0.5	ND	0.5
	03-Feb-89	ND	2.0	ND	2.0		1.2		1.5	ND	0.5		2.5	ND	0.5	ND	0.5	ND	0.5		42.0		2.3	ND	0.5	ND	0.5	ND	0.5	ND	0.5								
BLANK																																							
	09-Mar-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	83.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	21-Mar-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	25-Mar-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	31-Mar-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	08-Apr-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	15-Apr-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	22-Apr-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	28-Apr-88	ND	2.0	ND	2.0	ND	0.5		1.2	ND	0.5		7.4	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	05-May-88	ND	2.0	ND	2.0	ND	0.5		1.7	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	11-May-88	ND	2.0	ND	2.0	ND	0.5		35.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	18-May-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	27-May-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	03-Jun-88	ND	2.0	ND	2.0	ND	0.5		3.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	16-Jun-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5		0.6	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
*	30-Jun-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	15-Jul-88	ND	2.0	ND	2.0	ND	0.5		0.7	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	1.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	27-Jul-88	ND	2.0	ND	2.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	1.0	ND	0.5	ND	0.5	ND	0.5	ND	0.5
	02-Nov-88	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	NO	1.0		1.1	ND	1.0	ND	1.0	ND	0.5	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0
	01-Dec-88	ND	1.0	ND	1.0	ND	0.5		1.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0
	02-Dec-88	ND	1.0	ND	1.0	ND	1.0	ND	1.0		12.7	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0
	03-Feb-89	ND	2.0	ND	2.0	ND	0.5		2.6	ND	0.5	ND	0.5	ND	0.5		1.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5	ND	0.5

NOTES:
(a): Marshack, 1988.
ST: Status.
ND: Not detected at level shown.
NT: Not tested.
* : Analysis performed by NET Pacific using EPA Test Method 624
**: Compound detected was 1,1,2,2-Tetrachloroethane

Table 1. Ground Water Elevations*, March - November 1988
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

WELL NO:	MW-9		MW-10		MW-11	
	GROUND SURFACE	TOP OF CASING	GROUND SURFACE	TOP OF CASING	GROUND SURFACE	TOP OF CASING
	38.69	38.50	36.81	36.86	37.99	37.56
DATE (1988)	Depth to Water	Elevation	Depth to Water	Elevation	Depth to Water	Elevation
03/09	23.25	15.25	-	-	-	-
03/10	23.13	15.37	-	-	-	-
03/18	24.86	13.64	-	-	-	-
03/21	25.33	13.17	-	-	-	-
06/30	28.83	9.67	-	-	-	-
07/15	29.28	9.22	-	-	-	-
07/27	29.54	8.96	-	-	-	-
08/12	-	-	-	-	-	-
08/26	30.02	8.48	-	-	-	-
09/09	30.15	8.35	27.02	9.84	28.97	8.59
09/23	30.31	8.19	27.20	9.66	29.11	8.45
09/30	30.39	8.11	27.25	9.61	29.15	8.41
11/02	30.53	7.97	27.47	9.39	29.39	8.17

* Elevations are in feet above mean sea level (MSL)

PACRENWL.WK1 REVISION DATE 22-Dec-88

Table 6. Results of Chemical Analyses of Monitoring Well Ground-Water Samples
Purgeable Aromatics (EPA Method 8020)
Petroleum Hydrocarbons (EPA Method 8015)

WELL	DATE	BENZENE		TOLUENE		CHLORO-BENZENE		ETHYL-BENZENE		XYLENES		1,3 DI-CHLORO-BENZENE		1,4 DI-CHLORO-BENZENE		1,2 DI-CHLORO-BENZENE		TPH AS GASOLINE		TPH AS DIESEL	
		ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l
DHS Action Level			0.7		100		30		680		620		130	LOQ	0.2		130		--		--
	1988																				
MW-9																					
	03/10		110.0		95.0	ND	0.4		16.0		230.0	ND	0.4	ND	0.4	ND	0.4		4700	ND	10.0
	03/21		400.0		184.0		0.4	ND	0.2	ND	0.2	ND	0.2	ND	0.2	ND	0.2		3400	ND	1.0
*	06/30		160.0		83.0	ND	6.0	ND	7.2	NT		ND	6.0	ND	6.0	ND	6.0		91	NT	
	07/15		200.0		170.0	ND	0.2	ND	0.2		81.0	ND	0.2	ND	0.2	ND	0.2		880	NT	
	07/15		110.0		77.0	ND	0.2	ND	0.2		46.0	ND	0.2	ND	0.2	ND	0.2		180	NT	
	08/26		65.0		28.0	ND	0.2	ND	0.2		40.0	ND	0.2	ND	0.2	ND	0.2		970	NT	
	09/29		75.0		113.0	ND	0.2	ND	0.2		53.0	ND	0.2	ND	0.2	ND	0.2		140	NT	
	11/01		140.0		63.0	ND	0.2	ND	0.2		40.0	ND	0.2	ND	0.2	ND	0.2		480	NT	
MW-10																					
	09/09		910.0		690.0	ND	4.0		42.0		270.0	ND	4.0	ND	4.0	ND	4.0		2900	NT	
	09/29		140.0		16.0	ND	0.2	ND	0.2		230.0	ND	0.2	ND	0.2	ND	0.2		1700	NT	
	11/01		200.0		55.0	ND	0.2	ND	0.2		250.0	ND	0.2	ND	0.2	ND	0.2		1380	NT	
MW-11																					
	09/09		520.0		670.0	ND	2.0		13.0		180.0	ND	2.0	ND	2.0	ND	2.0		1200	NT	
	09/29		3.6		1.2	ND	0.2	ND	0.2		250.0	ND	0.2	ND	0.2	ND	0.2		1700	NT	
	11/01		1300.0		1900.0	ND	0.2		91.0		820.0	ND	0.2	ND	0.2	ND	0.2		6500	NT	

NOTES:

ST: Status.
ND: Not detected at level shown.
NT: Not tested.
LOQ: Limit of Quantification.
* : Analysis performed by NET Pacific using EPA Test Method 624.

Table 7. Results of Chemical Analyses of Monitoring Well Ground-Water Samples
Purgeable Halocarbons (EPA Method 8010)
Ethylene Dibromide (EPA Method 504)

WELL	DATE	DICHLORO-DIFLUORO-METHANE		CHLORO-METHANE		1,1 DI-CHLORO-ETHENE		METHYLENE CHLORIDE		1,1 DI-CHLORO-ETHANE		CHLORO-FORM		1,1,1 TRI-CHLORO-ETHANE		1,2 DI-CHLORO-ETHANE		TRICHLORO-ETHENE		TETRA-CHLORO-ETHENE		ALL OTHER 601 COMPOUNDS		ETHYLENE DIBROMIDE	
		ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l	ST	ug/l
DHS ACTION LEVEL		--		--			6.0		40.0		20.0		--		200.0		1.0		5.0		4.0		--		--
	1988																								
MW-9																									
	03/10	ND	2.0	ND	2.0		9.0	ND	0.5		2.6	ND	0.5		2.3		3.5	ND	0.5		0.6	ND	0.5	NT	
	03/21	ND	2.0	ND	2.0		12.6	ND	0.5		3.0	ND	0.5		2.6		5.0		1.0	ND	0.5	ND	0.5	NT	
*	06/30	ND	2.0	ND	2.0	ND	2.8	ND	2.8	ND	4.7	ND	1.6	ND	3.8	ND	2.8	ND	1.9	ND	4.1	ND		NT	
	07/15	ND	2.0		17.0		5.8	ND	0.5		1.1		6.0		0.7		1.3		1.2	ND	0.5	ND		NT	
	07/15	ND	2.0		31.0		4.7	ND	0.5		1.0		5.4		0.6		1.0		0.7	ND	0.5	ND		NT	
	08/26	ND	2.0	ND	2.0		1.5	ND	0.5		0.7		5.7	ND	0.5		2.1	ND	0.5	ND	0.5	ND		NT	
	09/29		42.0	ND	2.0		1.6	ND	0.5		0.8		4.8	ND	0.5		1.8	ND	0.5	ND	0.5	ND		NT	
	11/01	ND	1.0	ND	1.0	ND	1.0		16.0		1.0		5.1	ND	1.0	ND	1.0	ND	1.0	ND	1.0	ND	1.0		0.15
MW-10																									
	09/09	ND	2.0	ND	2.0		16.0	ND	0.5		4.1	ND	0.5	ND	0.5		17.0		62	ND	0.5	ND		NT	
	09/29	ND	2.0	ND	2.0		9.1	ND	0.5		2.5	ND	0.5	ND	0.5		40.0		73	ND	0.5	ND		NT	
	11/01	ND	1.0	ND	1.0		10.7		13.7		3.0	ND	1.0	ND	1.0		7.5		55.0	ND	1.0	ND	1.0		0.03
MW-11																									
	09/09	ND	2.0	ND	2.0		2.6	ND	0.5		2.7	ND	0.5		1.4		28.0		5.6	ND	0.5	ND		NT	
	09/29	ND	2.0	ND	2.0		0.6	ND	0.5		0.6		3.3	ND	0.5		130.0		4.4	ND	0.5	ND		NT	
	11/01	ND	1.0	ND	1.0	ND	1.0		15.9	ND	1.0	ND	1.0	ND	1.0		27.0	ND	1.0	ND	1.0	ND	1.0		0.16

NOTES:

ST: Status.

ND: Not detected at level shown.

NT: Not tested.

* : Analysis performed by NET Pacific using EPA Test Method 624

Table 3. RESULTS OF ORGANIC CHEMICAL ANALYSES OF GROUNDWATER SAMPLES FROM MONITORING WELLS

Purgeable Aromatics (EPA Method 8020)
Petroleum Hydrocarbons (EPA Method 8015)

WELL	DATE	BENZENE	TOLUENE	ETHYL BENZENE	XYLENES, TOTAL	TPH AS GASOLINE
LOD	(mg/l)	0.0005/0.0002 *		0.0005/0.0002 *		0.25/0.05**
MW-3	10-Mar-88	ND	ND	ND	ND	ND
	18-Mar-88	ND	ND	ND	ND	ND
	25-Mar-88	ND	ND	ND	ND	ND
	1-Apr-88	0.7	0.4	ND	1.2	ND
	15-Apr-88	ND	ND	ND	ND	ND
	28-Apr-88	ND	ND	ND	ND	ND
	28-Apr-88	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	ND
	11-May-88	ND	ND	ND	ND	ND
	27-May-88	ND	ND	ND	ND	ND
	16-Jun-88	ND	ND	ND	ND	ND
	27-Jul-88	ND	ND	ND	ND	ND
	26-Aug-88	ND	ND	ND	ND	ND
	30-Sep-88	ND	ND	ND	ND	ND
	2-Nov-88	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND
	2-Dec-88	ND	ND	ND	ND	ND
	4-Jan-89	ND	ND	ND	ND	ND
	3-Feb-89	ND	0.0009	ND	ND	ND (0.25)
	3-Dec-90	ND	0.0002 †	ND	ND	ND
	8-Mar-91	ND	ND	ND	ND	ND
	6-Jun-91	ND	ND	ND	ND d	NT
MW-7	4-Apr-89	ND	0.0007	0.0010	0.0012	ND
	3-May-89	ND	0.0012	0.0018	0.0048	0.27
	6-Jun-89	0.0010	0.001	0.0022	0.0011	0.4
	7-Jul-89	0.0002	0.001	0.00034	0.0059	0.56
	2-Aug-89	ND	0.0015	0.0054	0.0059	0.7
	7-Sep-89	ND	ND	ND	0.0015	0.59
	5-Oct-89	ND	0.0011	0.0006	0.0013	0.73
	2-Nov-89	0.0002	0.001	0.0055	0.0036	0.63
	6-Dec-89	0.0006	0.0087	0.0059	0.0036	0.32
	3-Jan-90	0.0007	0.0007	0.0006	0.0013	0.18
	1-Feb-90	ND	0.0009	ND	0.0003	ND
	28-Feb-90	ND	0.0006	0.0004	0.0052	0.09
	11-Apr-90	ND	0.0007	0.0033	0.0029	0.130
	18-May-90	ND	0.0008	0.0014	0.0008	0.43
	13-Sep-90	ND	0.0019	ND	ND	NT
	3-Dec-90	0.0002	0.0024	0.0019	0.0012	0.32
	11-Feb-91	ND	ND	ND	ND	ND
	8-Mar-91	ND	ND	ND	ND	ND
	6-Jun-91	ND	ND	ND	ND d	ND
MW-12	15-Feb-89	ND	ND	ND	ND	ND
	3-Mar-89	NT	NT	NT	NT	ND
	5-Apr-89	0.0014	0.0023	ND	0.0054	ND
	2-May-89	0.026	0.0033	ND	0.0063	0.10
	7-Jun-89	0.034	0.0037	ND	0.012	0.18
	6-Jul-89	0.029	0.0025	ND	0.0059	0.12
	2-Aug-89	0.023	0.002	ND	0.005	ND
	7-Sep-89 @	0.051/0.059	0.0016/0.0022	ND/ND	0.0049/0.0058	ND/ND
	5-Oct-89 @	0.037/0.040	0.0032/0.0031	ND/ND	0.0086/0.0094	ND/ND
	2-Nov-89	0.0056	0.0011	ND	0.0019	0.071
	6-Dec-89	0.0062	0.0012	ND	0.0017	0.06
	3-Jan-90	0.0086	0.0010	ND	0.0012	0.09
	1-Feb-90 @	0.0018/0.0024	0.0010/0.0004	ND/ND	0.0005/0.0004	ND/ND
	1-Mar-90	0.0016	0.0014	ND	0.0003	ND
	11-Apr-90	0.0066	0.0174	0.0015	0.0116	0.147
	18-May-90	ND	0.0009	ND	ND	ND
	12-Sep-90	ND	ND	ND	0.0002	NT
	3-Dec-90	0.0006	0.0002 †	ND	0.0002 †	ND

Table 2. RESULTS OF ORGANIC CHEMICAL ANALYSES OF GROUNDWATER SAMPLES FROM MONITORING WELLS CHINATOWN REDEVELOPMENT PROJECT AREA

Purgeable Aromatics (EPA Method 8020)
Petroleum Hydrocarbons (EPA Method 8015)

WELL	DATE	BENZENE	TOLUENE	ETHYL BENZENE	XYLENES, TOTAL	TPH AS GASOLINE
		LOD (mg/l) ppb 0.0005/0.0002	LOD (mg/l) 0.0005/0.0002 *	LOD (mg/l) 0.0005/0.0002 *	LOD (mg/l) 0.0005/0.0002 *	LOD (mg/l) 0.25/0.05 * ppb
MW-3	10-Mar-88	ND	ND	ND	ND	ND
	18-Mar-88	ND	ND	ND	ND	ND
	25-Mar-88	ND	ND	ND	ND	ND
	1-Apr-88	0.7	0.4	ND	1.2	ND
	15-Apr-88	ND	ND	ND	ND	ND
	28-Apr-88 @	ND/ND (0.4)	ND/ND (0.4)	ND/ND (0.4)	ND/ND (0.4)	ND/ND
	11-May-88	ND	ND	ND	ND	ND
	27-May-88	ND	ND	ND	ND	ND
	16-Jun-88	ND	ND	ND	ND	ND
	27-Jul-88	ND	ND	ND	ND	ND
	26-Aug-88	ND	ND	ND	ND	ND
	30-Sep-88	ND	ND	ND	ND	ND
	2-Nov-88	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND
	2-Dec-88	ND	ND	ND	ND	ND
	4-Jan-89	ND	ND	ND	ND	ND
	3-Feb-89	ND	0.0009 .9	ND	ND	ND
	3-Dec-90	ND	0.0002 † .2	ND	ND	ND
need 1 more Q →	8-Mar-91	ND	ND	ND	ND	ND
	6-Jun-91	ND	ND	ND	ND a	NT
MW-7	4-Apr-89	ND	0.0007	0.0010	0.0012	ND
	3-May-89	ND	0.0012	0.0018	0.0048	0.27
	6-Jun-89	0.0010	0.001	0.0022	0.0011	0.40
	7-Jul-89	0.0002	0.001	0.00034	0.0059	0.56
	2-Aug-89	ND	0.0015	0.0054	0.0059	0.70
	7-Sep-89	ND	ND	ND	0.0015	0.59
	5-Oct-89	ND	0.0011	0.0006	0.0013	0.73
	2-Nov-89	0.0002	0.001	0.0055	0.0036	0.63
	6-Dec-89	0.0006	0.0087	0.0059	0.0036	0.32
	3-Jan-90	0.0007	0.0007	0.0006	0.0013	0.18
	1-Feb-90	ND	0.0009	ND	0.0003	ND
	28-Feb-90	ND	0.0006	0.0004	0.0052	0.09
	11-Apr-90	ND	0.0007	0.0033	0.0029	0.13
	18-May-90	ND	0.0008	0.0014	0.0008	0.43
	13-Sep-90	ND	0.0019	ND	ND	NT
	3-Dec-90	0.0002	0.0024	0.0019	0.0012	0.32
	11-Feb-91	ND	ND	ND	ND	ND
	8-Mar-91	ND	ND	ND	ND	ND
	6-Jun-91	ND	ND	ND	ND a	ND
	20-Dec-91	0.0002 .2	ND	0.0029	0.0078	0.32 320
	27-Mar-92	0.0006 .6	ND b	0.0010	0.0020	0.11 110
	25-Jun-92	ND	0.0009 .9	0.0017	0.0035	0.14 140
MW-12	15-Feb-89	ND	ND	ND	ND	ND
	3-Mar-89	NT	NT	NT	NT	ND
	5-Apr-89	0.0014	0.0023	ND	0.0054	ND
	2-May-89	0.026	0.0033	ND	0.0063	0.10
	7-Jun-89	0.034	0.0037	ND	0.012	0.18
	6-Jul-89	0.029	0.0025	ND	0.0059	0.12
	2-Aug-89	0.023	0.002	ND	0.005	ND
	7-Sep-89 @	0.051/0.059	0.0016/0.0022	ND/ND	0.0049/0.0058	ND/ND
	5-Oct-89 @	0.037/0.040	0.0032/0.0031	ND/ND	0.0086/0.0094	ND/ND
	2-Nov-89	0.0056	0.0011	ND	0.0019	0.071
	6-Dec-89	0.0062	0.0012	ND	0.0017	0.06
	3-Jan-90	0.0086	0.0010	ND	0.0012	0.09
	1-Feb-90 @	0.0018/0.0024	0.0010/0.0004	ND/ND	0.0005/0.0004	ND/ND
	1-Mar-90	0.0016	0.0014	ND	0.0003	ND
	11-Apr-90	0.0066	0.0174	0.0015	0.0116	0.147
	18-May-90	ND	0.0009	ND	ND	ND
	12-Sep-90	ND	ND	ND	0.0002	NT
	3-Dec-90	0.0006 .6	0.0002 †	ND	0.0002 †	ND

Stopped

Table 7. Results of Organic Chemical Analyses of Monitoring and System Well Samples

Purgeable Aromatics (EPA Method 8020)
Petroleum Hydrocarbons (EPA Method 8015)

WELL	DATE	BENZENE	TOLUENE	ETHYL BENZENE	XYLENES, TOTAL	TPH AS GASOLINE
LOD	(mg/l)	0.0005/0.0002 *		0.0005/0.0002 *		0.25/0.05**
MW-12						
	15-Feb-89	ND	ND	ND	ND	ND
	03-Mar-89	NT	NT	NT	NT	ND
	05-Apr-89	0.0014	0.0023	ND	0.0054	ND
	02-May-89	0.026	0.003	ND	0.0063	0.10
	07-Jun-89	0.034	0.0037	ND	0.012	0.18
	06-Jul-89	0.029	0.0025	ND	0.0059	0.12
	02-Aug-89	0.023	0.002	ND	0.005	ND
	07-Sep-89 @	0.051/0.059	0.0016/0.002	ND/ND	0.0049/0.0058	ND/ND
	05-Oct-89 @	.037/.040	.0032/.0031	ND/ND	.0086/.0094	ND/ND
MW-13						
	02-Mar-89	NT	NT	NT	NT	1.4
	04-Apr-89	0.041	0.039	0.0038	0.28	0.71
	01-May-89	0.048	0.049	0.013	0.13	0.34
	07-Jun-89	0.051	0.037	0.02	0.082	0.98
	06-Jul-89	0.210	0.054	0.013	0.109	0.76
	02-Aug-89	0.098	0.011	0.0005	0.031	0.27
	07-Sep-89	0.039	0.0020	ND	0.0050	ND
	04-Oct-89	4.0	1.6	0.20	1.5	9.2
MW-14						
	02-Mar-89	NT	NT	NT	NT	ND
	04-Apr-89	0.44	0.063	ND	0.27	1.4
	01-May-89	0.35	0.011	ND	0.094	0.94
	07-Jun-89 @	0.057/ND	0.0022/ND	0.0005/ND	0.043/ND	1.1/0.64
	06-Jul-89	3.0	1.7	0.050	3.6	14
	01-Aug-89	0.49	0.084	ND	0.84	4.5
	06-Sep-89	1.0	0.090	ND	1.4	4.9
	04-Oct-89	0.70	0.015	ND	0.75	3.1
MW-15						
	03-Mar-89	NT	NT	NT	NT	3.9
	04-Apr-89	0.88	0.97	0.11	0.93	3.7
	02-May-89	1.5	1.1	0.086	0.74	2.7
	07-Jun-89	5.7	4.3	0.3	2.4	22
	05-Jul-89	2.0	3.0	0.26	2.0	12
	03-Aug-89	2.6	2.8	0.75	3.8	24
	06-Sep-89	1.1	1.4	0.23	1.3	7.3
	04-Oct-89	0.59	1.1	0.076	0.59	3.7

Table 7. Results of Organic Chemical Analyses of Monitoring and System Well Samples

Purgeable Aromatics (EPA Method 8020)
Petroleum Hydrocarbons (EPA Method 8015)

WELL	DATE	BENZENE	TOLUENE	ETHYL BENZENE	XYLENES, TOTAL	TPH AS GASOLINE
LOD	(mg/l)	0.0005/0.0002 *		0.0005/0.0002 *		0.25/0.05**
MW-16						
	02-Mar-89	NT	NT	NT	NT	2.1
	04-Apr-89	2.1	2.2	0.18	1.4	6.7
	02-May-89	0.74	0.94	0.11	0.95	2.7
	07-Jun-89	0.37	0.56	0.51	0.35	14
	05-Jul-89	1.9	2.7	1.8	4.5	16
	03-Aug-89 @	1.8/1.9	2.6/2.6	0.18/0.19	5.7/6.0	17/17
	06-Sep-89	0.96	3.3	0.26	1.3	8.9
	04-Oct-89	0.72	2.1	0.16	1.3	5.4
MW-17						
	04-Apr-89	3.1	2.9	0.27	3.9	12
	02-May-89	1.2	1.0	0.11	1.4	3.9
	07-Jun-89	1.2	1.2	ND	1.3	6.3
	05-Jul-89	3.0	3.3	2.7	3.9	18
	02-Aug-89	4.8	9.5	0.63	14	47
	03-Aug-89	5.1	6.1	0.73	12	NT
	06-Sep-89	2.8	4.5	0.32	8.4	21
	04-Oct-89	0.47	0.092	0.018	1.0	2.8
MW-18						
	15-Feb-89	ND	ND	ND	ND	ND
	03-Mar-89	NT	NT	NT	NT	ND
	05-Apr-89	ND	ND	ND	ND	ND
	02-May-89	ND	ND	ND	ND	ND
	07-Jun-89	ND	ND	ND	ND	ND
	06-Jul-89	ND	ND	ND	ND	ND
	02-Aug-89	ND	ND	ND	ND	ND
	06-Sep-89	ND	ND	ND	ND	ND
	05-Oct-89	ND	ND	ND	ND	ND
EW-1						
	04-Apr-89	1.6	1.0	0.087	1.8	5.9
	01-May-89	3.2	1.2	0.15	1.4	6.3
	05-Jun-89	7.7	5.0	0.2	3.5	24
	05-Jul-89	4.4	5.1	0.32	3.8	24
	02-Aug-89	3.1	4.0	0.4	2.9	23
	06-Sep-89	3.0	3.7	0.26	3.0	11
	05-Oct-89	1.3	1.7	LT 0.10	0.3	7.3

Table 2. RESULTS OF ORGANIC CHEMICAL ANALYSES OF GROUNDWATER SAMPLES FROM MONITORING WELLS CHINATOWN REDEVELOPMENT PROJECT AREA

Purgeable Aromatics (EPA Method 8020)
Petroleum Hydrocarbons (EPA Method 8015)

WELL	DATE	BENZENE LOD (mg/l) 0.0005/0.0002 *	TOLUENE LOD (mg/l) 0.0005/0.0002 *	ETHYL BENZENE LOD (mg/l) 0.0005/0.0002 *	XYLENES, TOTAL LOD (mg/l) 0.0005/0.0002 *	TPH AS GASOLINE LOD (mg/l) 0.25/0.05 * *
MW-18	15-Feb-89	ND	ND	ND	ND	ND
	3-Mar-89	NT	NT	NT	NT	ND
	5-Apr-89	ND	ND	ND	ND	ND
	2-May-89	ND	ND	ND	ND	ND
	7-Jun-89	ND	ND	ND	ND	ND
	6-Jul-89	ND	ND	ND	ND	ND
	2-Aug-89	ND	ND	ND	ND	ND
	6-Sep-89	ND	ND	ND	ND	ND
	5-Oct-89	ND	ND	ND	ND	ND
	1-Nov-89	ND	ND	ND	0.0013	0.10
	6-Dec-89	ND	0.0009	0.0014	0.0098	ND
	2-Jan-90	0.016	0.0080	ND	ND	ND
	1-Feb-90	ND	ND	ND	0.0002	ND
	1-Mar-90	0.0003	ND	0.0005	0.0003	ND
	11-Apr-90	0.0004	0.0006	ND	ND	NT
	18-May-90	ND	ND	ND	0.0003 †	ND
	13-Sep-90	0.0027	0.0002 †	ND	ND	ND
	4-Dec-90	0.0029	0.0003	ND	ND a	NT
	8-Mar-91	0.0009	ND	ND	ND b	ND
	6-Jun-91	ND	ND b	ND b	ND b	NT
	19-Sep-91	ND b	ND	ND b	ND b	NT
	20-Dec-91	0.0004	ND b	ND b	0.0007	NT
	27-Mar-92	0.0016	ND b	ND b		
	25-Jun-92	0.0008				
MW-19	15-Dec-89	5.0	0.30	0.078	0.61	12
	3-Jan-90	3.0	0.46	0.12	1.1	13
	1-Feb-90	1.1	0.022	LT 0.0040	0.032	1.9
	1-Mar-90	4.2	0.92	0.24	0.82	9.2
	11-Apr-90	3.8	1.1	0.82	0.34	10
	18-May-90	5.6	0.75	0.70	0.78	11
	13-Sep-90	1.4	1.2	0.35	1.6	NT
	4-Dec-90	2.1	1.5	0.42	1.6	12
	11-Feb-91	0.45	0.12	0.086	0.21	2.7
	8-Mar-91	0.52	0.057	0.020	0.083	1.4
	10-May-91	0.32	0.088	0.055	0.160	1.8
	6-Jun-91 @	0.36/0.46	0.027/0.038	0.023/0.030	0.092/0.15	3.4/NT
	19-Sep-91	0.21	0.023	0.094	0.15	3.5
	20-Dec-91	1.0 –	0.24	0.5	1.2	9.6 –
	27-Mar-92	0.34	0.13	0.12	0.34	3.6
	25-Jun-92	1.1 – 1,100	0.38	0.53	1.6	10 – 10,000
MW-20	15-Dec-89	ND	ND	ND	ND	ND
	3-Jan-90	0.0004	0.0004	ND	0.0008	ND
	1-Feb-90	ND	0.0014	ND	0.0005	ND
	28-Feb-90	ND	ND	ND	0.0005	ND
	11-Apr-90	0.0028	0.0110	0.0011	0.0066	ND
	18-May-90	ND	ND	ND	ND	NT
	12-Sep-90	ND	0.0002 † .2	ND	ND	ND
	3-Dec-90	ND	ND	ND	ND	ND
	8-Mar-91	ND	ND	ND	ND	NT
	6-Jun-91	ND			ND a	
MW-21	27-Aug-90	ND	ND	ND	ND	NT
	12-Sep-90	ND	ND	ND	0.0011 † .1	NT
	3-Dec-90	ND	0.0005 † .5	ND	ND	ND
	8-Mar-91	ND	ND	ND	ND	ND
	6-Jun-91	ND			ND a	NT

Table 2. RESULTS OF ORGANIC CHEMICAL ANALYSES OF GROUNDWATER SAMPLES FROM MONITORING WELLS CHINATOWN REDEVELOPMENT PROJECT AREA

Purgeable Aromatics (EPA Method 8020)
Petroleum Hydrocarbons (EPA Method 8015)

WELL	DATE	BENZENE	TOLUENE	ETHYL BENZENE	XYLENES, TOTAL	TPH AS GASOLINE
		LOD (mg/l) 0.0005/0.0002 *	LOD (mg/l) 0.0005/0.0002 *	LOD (mg/l) 0.0005/0.0002 *	LOD (mg/l) 0.0005/0.0002 *	LOD (mg/l) 0.25/0.05 * *
MW-22	27-Aug-90	ND	ND	ND	ND	NT
	13-Sep-90	ND	ND	ND	ND	NT
	4-Dec-90	ND	0.0002 †	ND	0.0002 †	ND
	8-Mar-91	ND	ND	ND	ND	ND
	6-Jun-91	ND	ND	ND	ND a	NT
MW-23	27-Aug-90	ND	ND	ND	ND	NT
	13-Sep-90	ND	ND	ND	ND	NT
	4-Dec-90	ND	0.0002 †	ND	ND	ND
	8-Mar-91	ND	ND	ND	ND	ND 2.95
	6-Jun-91	ND	0.0004	ND	ND a	NT
	20-Dec-91	ND	ND	ND b	ND b	NT
	27-Mar-92	0.0056	0.0064	0.0016	0.0082	NT
	25-Jun-92	ND/ND b	ND/ND b	ND/ND b	ND/ND b	NT/NT
BLANK	5-Apr-89	0.5	ND	ND	ND	ND
	1-May-89	ND	ND	ND	ND	ND
	6-Jun-89 @	ND/ND	ND/ND	ND/ND	ND/ND	ND/ND
	1-Aug-89	ND	ND	ND	ND	ND
	2-Aug-89	ND	ND	ND	ND	ND
	3-Aug-89	ND	ND	ND	ND	ND
	6-Sep-89	ND	ND	ND	ND	ND
	7-Sep-89	ND	ND	ND	ND	ND
	4-Oct-89	ND	ND	ND	ND	ND
	2-Nov-89	ND	ND	ND	ND	ND
	5-Dec-89	ND	ND	ND	ND	ND
	3-Jan-90	ND	0.0006	ND	0.0017	ND
	13-Sep-90	ND	ND	ND	ND	NT
	11-Feb-91	ND	ND	ND	ND	NT
	8-Mar-91	ND	ND	ND	ND	ND
	19-Sep-91	ND b	ND b	ND b	ND b	ND
	20-Dec-91	ND	ND	ND b	ND b	NT
	27-Mar-92	ND b	ND b	ND b	ND b	NT
	25-Jun-92	ND b	ND b	ND b	ND b	NT

NOTES:

Results reported in milligrams per liter (mg/l); equivalent to parts per million.
Analyses performed by PACE Laboratories, Inc., Novato, California.
Specific limits of detection for compounds detected in June 1992 groundwater samples are presented in the appendix of this report.
LOD: Limit of Detection.
ND: Not detected at or above LOD.
NT: Not tested.
(0.4): Numbers in parentheses are limits of detection.
*: LOD Changed to 0.0002 on 01-May-89, unless otherwise noted.
**: LOD Changed to 0.05 on 01-May-89, unless otherwise noted.
†: PACE laboratory reported toluene and total xylenes in the method blanks analyzed along with the samples.
@: Two values indicate results of duplicate analyses.
LT: Less than the concentration indicated.
a: Method detection limit is 0.0004 mg/l.
b: Method detection limit is 0.0005 mg/l.

18625

MW-3

EW-22
44:33

EM-13

EM-12

EM-14

BA-10

IW-10

DW-1

MW-5

EW-21

IW-11

10th Street

MW-7
0.130:0.43

Franklin Street

Webster Street

MW-14

EW-3

EW-4

EW-20

EW-1

EW-2

MW-9

MW-15

IW-7

EW-5

MW-13

EW-19

BA-1

BA-4

MW-16

BA-2

IW-8

BA-5

EW-6
28:59

MW-17

EW-18

IW-6

BA-3

IW-4

IW-5

BA-6

IW-9

EW-7

IW-3

EW-17

IW-2

BA-7

MW-20
ND:ND

MW-12
0.147:ND

IW-1

IW-12

IW-14

IW-13

EB-3

MW-19
10:11

BA-8

BA-9

EW-8

MW-11

EW-15
7.6:32

EW-14

EW-13

EW-12

EW-11

EW-10

MW-10

EW-16

EW-9

9th Street

MW-18
ND:ND

EXPLANATION

- Approximate Former Location of Gas Station
- Approximate Former Location of Underground Fuel Tanks
- EB-3 — Approximate Location of Previously Installed Piezometer
- MW-7 — Approximate Location of HLA Monitoring Well
- EW-15 — Extraction Well
- IW-1 — Injection Well
- EM-12 — Approximate Location of EBMUD Dewatering Well
- 7.6:32 — Petroleum Hydrocarbon Concentration (mg/l) as Gasoline April 1990: May 1990 [limit of detection (LOD) = 0.05 mg/l]
- ND — Not Detected at or above LOD
- BA-1 — Infiltration Basin

0 50 100
SCALE IN FEET

N

Concentrations of Petroleum Hydrocarbons in Groundwater
Pacific Renaissance Plaza
Oakland, California

Harding Lawson Associates
Engineers and Geoscientists
HLA

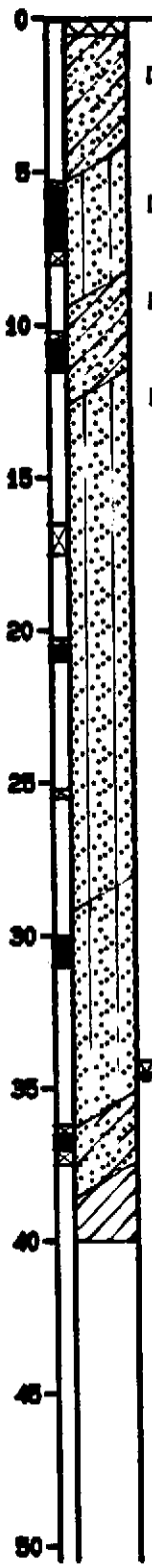
DRAWN ML
JOB NUMBER 9382,040.02
APPROVED
DATE 6/90
REVISED
DATE

PLATE

7420

Equipment 8" Hollow Stem Auger

Elevation NA Date 8/2/88



Fill

DARK YELLOWISH BROWN (10YR 4/6) CLAYEY SAND (SC) medium dense, dry to moist

DARK BROWN (10YR 3/3) SILTY SAND (SM) medium dense, moist, trace clay

DARK YELLOWISH BROWN (10YR 4/4) CLAYEY SAND (SC) very dense, moist, fine- to very fine-grained sand

DARK YELLOWISH BROWN (10YR 4/4) SILTY SAND (SM) medium dense, moist

change to very dense

dark yellowish brown (5Y 4/2.5) with olive gray mottling, strong solvent odor

OLIVE GRAY (5Y 4/2) SILTY SAND (SM) very dense, moist, strong solvent odor

OLIVE GRAY (5Y 4/2) CLAYEY SAND (SC) very dense, moist, solvent odor

OLIVE GRAY (5Y 5/2) CLAY (CL) medium stiff, saturated

bottom of boring at 40.0 ft

Harding Lawson Associates
Engineers and Geoscientists

Log of Boring B-1
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

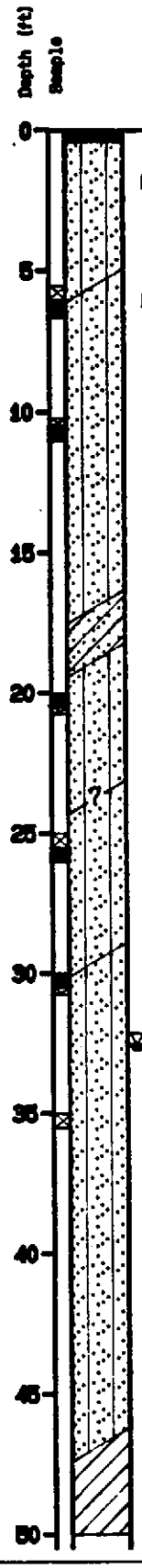
PLATE **A2**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382, 030.02	DFL	10/88		

7422

Equipment 8" Hollow Stem Auger

Elevation NA Date 8/1/88



Asphalt

DARK BROWN (7.5YR 3/2) SILTY SAND (SM) loose to medium dense, moist, trace clay, brick fragments (fill)

DARK YELLOWISH BROWN (10YR 4/6) SILTY SAND (SM) loose, moist

DARK YELLOWISH BROWN (10YR 3/4) CLAYEY SAND (SC) medium dense, moist

DARK YELLOWISH BROWN (10YR 4/6) SILTY SAND (SC) medium dense, moist

DARK GRAYISH BROWN (2.5Y 4/2) SILTY SAND (SM) very dense, moist, trace clay

DARK YELLOWISH BROWN (10YR 3/6) SILTY SAND (SM) very dense, moist

sample saturated

OLIVE (5Y 5/3) SILTY CLAY (CL) medium stiff, wet

bottom of boring at 50.0 ft

Harding Lawson Associates
Engineering and Environmental Services

Log of Boring B-2
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

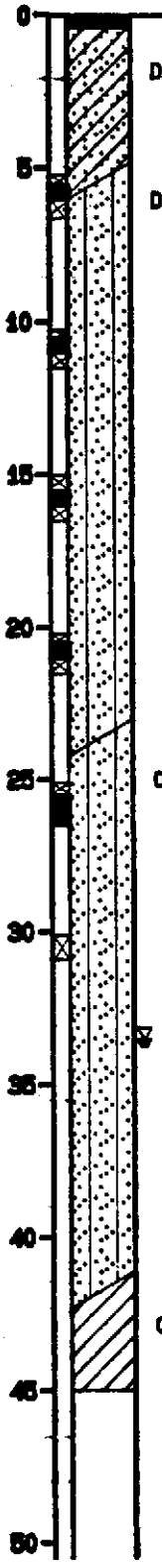
PLATE A3

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382, 030.02	DFL	10/88		

7421

Equipment 8" Hollow Stem Auger

Elevation NA Date 7/29/88



Asphalt

DARK BROWN (7.5YR 3/2) CLAYEY SAND (SC) medium dense, moist, brick fragments (fill)

DARK YELLOWISH BROWN (10YR 4/6) loose, moist

same, more dense

same, less dense

same, moist

OLIVE BROWN (2.5Y 4/4) SILTY SAND (SM) very dense, moist, trace clay

same, no clay

OLIVE (5Y 5/2) SILTY CLAY (CL) medium stiff, trace sand

bottom of boring at 45.0 ft

Harding Lawson Associates
Engineering and
Environmental Services

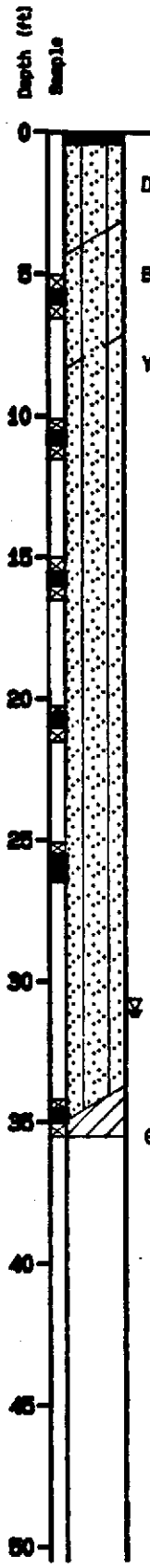
Log of Boring B-3
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

PLATE
A4

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382, 030.02	DPL	10/88		

Equipment 8" Hollow Stem Auger

Elevation NA Date 7/25/88



Asphalt

DARK BROWN to BROWN SILTY SAND (SM) medium dense, moist, brick fragments (fill)

BROWN TO YELLOWISH BROWN SILTY SAND (SM) medium dense, moist, medium- to fine-grained

YELLOWISH BROWN SILTY SAND (SM) very dense, moist

same, moist, trace of clay

same

same, absence of clay

color change to gray at 33.0 ft

GRAYISH BROWN TO GRAY CLAY (CL) stiff, wet, trace fine-grained sand

bottom of boring at 35.5 ft

Harding Lawson Associates
Engineering and Environmental Services

Log of Boring B-4
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

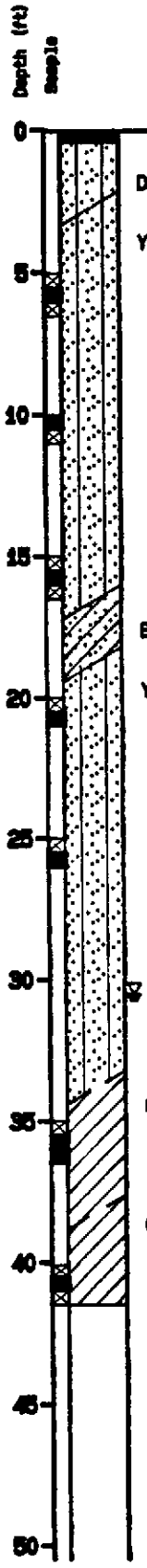
PLATE **A5**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382, 030.02	DFL	10/88		

7424

Equipment 8" Hollow Stem Auger

Elevation NA Date 7/25/88



Asphalt

DARK BROWN SILTY SAND (SM) medium dense, moist, brick fragments (fill)

YELLOWISH BROWN SILTY SAND (SM) dense, moist, medium- to fine-grained

color change to light yellow and gray mottling, very dense

BROWN CLAYEY SAND (SC) dense, moist

YELLOWISH BROWN SILTY SAND (SM) very dense, moist, medium- to fine-grained

same

GRAYISH BROWN SANDY CLAY (CL) very stiff, wet, fine- to very fine-grained sand

GRAYISH BROWN CLAY (CL) hard, wet, trace of fine sand

bottom of boring at 41.5 ft

Harding Lawson Associates
Engineering and Environmental Services

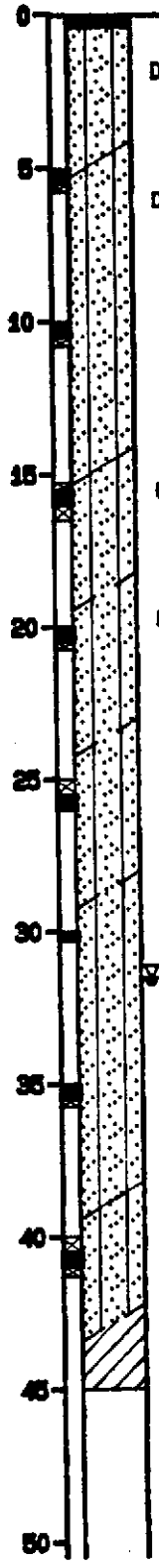
Log of Boring B-5
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

PLATE **A6**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382, 030.02	DFL	10/88		

Equipment 8" Hollow Stem Auger

Elevation NA Date 8/1/88



Asphalt

DARK BROWN (10YR 3/3) SILTY SAND (SM) loose, moist, fine- to very fine-grained, brick fragments (fill)

DARK YELLOWISH BROWN (10YR 4/6) SILTY SAND (SM) dense, moist, medium- to very fine-grained, trace of clay

same

GRAY (10YR 5/1) SILTY SAND (SM) with brown (7.5YR 4/6) mottling, dense, moist, trace clay

DARK YELLOWISH BROWN (10YR 4/6) SILTY SAND (SM) very dense, moist

GRAYISH BROWN (2.5Y 5/2) SILTY SAND (SM) very dense, moist

DARK YELLOWISH BROWN (10YR 4/6) SILTY SAND (SM) very dense, wet

same, saturated

LIGHT OLIVE BROWN (2.5Y 5/4) SILTY SAND (SM) very dense, saturated

OLIVE GRAY (5Y 5/2) CLAY (CL) very stiff

bottom of boring at 45.0 ft

Harding Lawson Associates
Engineering and Environmental Services

Log of Boring B-6
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

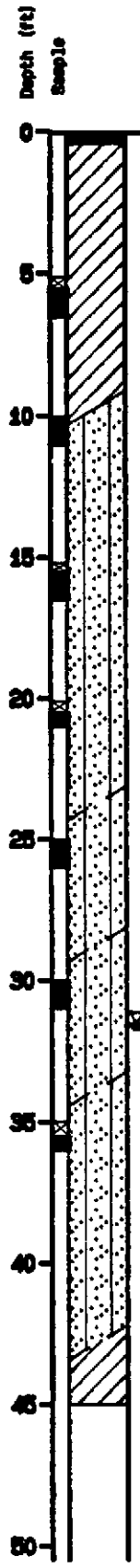
PLATE **A7**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382, 030.02	DPL	10/88		

1429

Equipment 8" Hollow Stem Auger

Elevation NA Date 8/2/88



Asphalt

DARK BROWN (10YR 3/3) SANDY CLAY (CL) medium stiff, moist, brick fragments (fill)

DARK YELLOWISH BROWN (10YR 4/6) SILTY SAND (SM) very dense, moist, trace clay

same

same

GRAYISH BROWN (2.5Y 5/2) SILTY SAND (SM) dense, moist, trace clay

OLIVE GRAY (5Y 5/2) SILTY SAND (SM) very dense, moist, hydrocarbon odor

DARK GRAY BROWN (2.5Y 4/2) SILTY SAND (SM) dense, saturated

GRAY (2.5Y N5) medium stiff, trace sand

bottom of boring at 4.50 ft

Harding Lawson Associates
Engineering and
Environmental Services

Log of Boring B-7
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

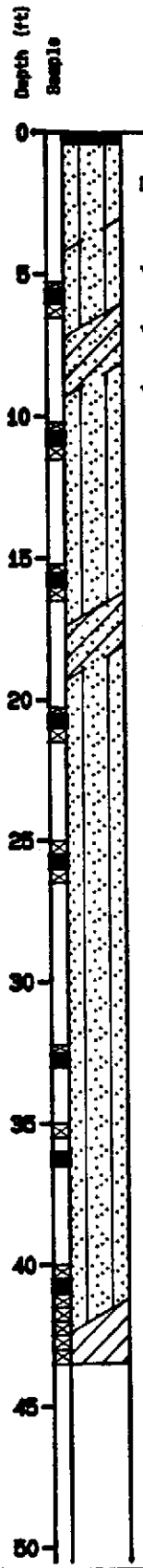
PLATE
A8

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382, 030.02	DFL	10/88		

7428

Equipment 8" Hollow Stem Auger

Elevation NA Date 7/26/88



Asphalt

DARK BROWN SILTY SAND (SM) medium dense, moist

YELLOWISH BROWN TO RED BROWN SILTY SAND (SM) loose, moist, medium- to fine-grained

YELLOWISH BROWN CLAYEY SAND (SC) medium stiff, moist

YELLOWISH BROWN SILTY SAND (SM) dense, moist

YELLOWISH BROWN CLAYEY SAND (SC) medium stiff, moist, medium- to very fine-grained

YELLOWISH BROWN SILTY SAND (SM) very dense, moist, medium- to very fine-grained

color change to yellowish brown with grayish brown mottling

color change to grayish brown, sample saturated

same

GRAYISH BROWN CLAY (CL) very stiff, trace fine sand

bottom of boring at 43.5 ft

Harding Lawson Associates
Engineers and Geoscientists

Log of Boring B-10
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

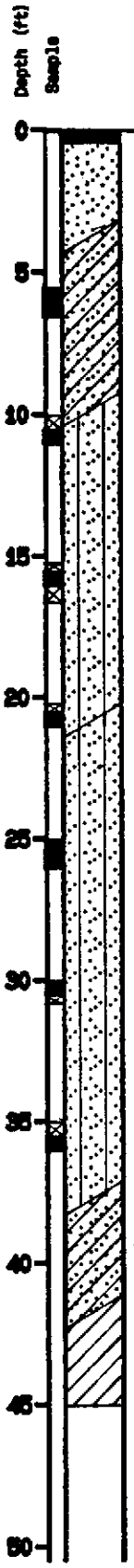
PLATE **A10**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382.030.02	DFL	11/88		

7429

Equipment 8" Hollow Stem Auger

Elevation NA Date 8/5/88



Asphalt

DARK BROWN (10YR 3/3) GRAVELLY SAND (SP) medium dense, moist

DARK BROWN (10YR 3/3) CLAYEY SAND (SC) medium dense, moist

DARK YELLOWISH BROWN (10YR 4/6) SILTY SAND (SM) very dense, moist

same, medium dense

same, very dense

LIGHT OLIVE BROWN (2.5Y 5/4) SILTY SAND (SM) dense, moist

strong hydrocarbon odor

same

sample saturated

OLIVE GRAY (5Y 4/2) CLAYEY SAND (SC) very dense, saturated

OLIVE GRAY (5Y 4/2) SILTY CLAY (CL) hard, wet, trace fine sand

bottom of boring at 45.5 ft

Harding Lawson Associates
Engineers and Geoscientists

Log of Boring B-12
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

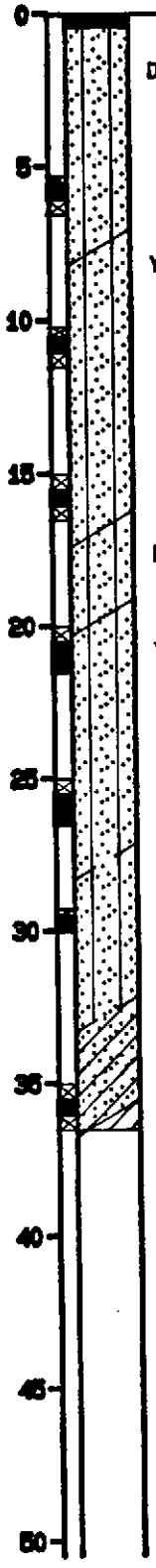
PLATE **A11**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382.030.02	DFL	10/88		

7430

Equipment 8" Hollow Stem Auger

Elevation NA Date 7/26/88



Asphalt

DARK BROWN (7.5YR 3/2) SILTY SAND (SM) medium dense, moist, brick fragments (fill)

YELLOWISH BROWN (10YR 3/3) SILTY SAND (SM) dense, moist

color change to green mottling, hydrocarbon odor

DARK BROWN (10YR 3/3) SILTY SAND (SM) very dense, moist, trace clay

YELLOWISH BROWN (10R 5/4) SILTY SAND (SM) very dense, moist, strong hydrocarbon odor

same, very strong hydrocarbon odor

OLIVE GRAY (5Y 4/2) SILTY SAND (SM) very dense, wet, no odor

OLIVE GRAY (5Y 4/3) CLAYEY SAND (SC) very dense, saturated, no odor

OLIVE GRAY (5Y 4/3) CLAY (CL) hard, no odor

bottom of boring at 36.5 ft

Harding Lawson Associates
Engineers and Geoscientists

Log of Boring B-13
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

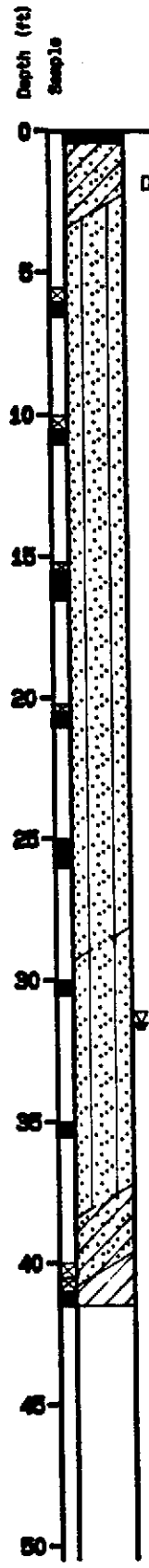
PLATE **A12**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382, 030.02	DFL	10/88		

7432

Equipment 8" Hollow Stem Auger

Elevation NA Date 8/3/88



Asphalt

DARK BROWN (7.5YR 3/2) CLAYEY SAND (SC) medium dense, moist

DARK YELLOWISH BROWN (10YR 4/4) SILTY SAND (SM) dense, moist

same

same, trace clay

same

same, strong hydrocarbon odor

OLIVE GRAY (5Y 4/2) SILTY SAND (SM) very dense, saturated (below 30')

same, no odor

OLIVE GRAY (5Y 4/2) CLAYEY SAND (SC) very dense, saturated

OLIVE GRAY (5Y 4/2) SILTY CLAY (CL) hard, wet, fine- to very fine-grained sand

bottom of boring at 41.5 ft

Harding Lawson Associates
Engineers and Geoscientists

Log of Boring B-16
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

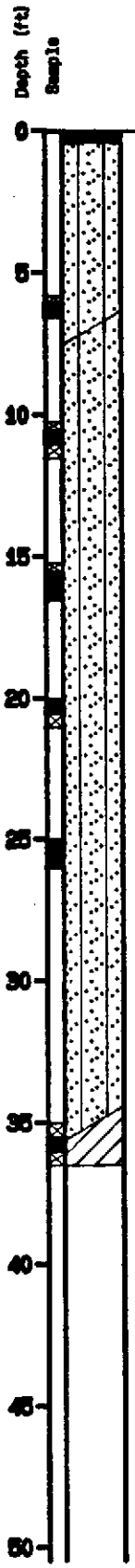
PLATE **A14**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382, 030.02	DFL	10/88		

7433

Equipment 8" Hollow Stem Auger

Elevation NA Date 7/28/88



Asphalt

DARK BROWN (7.5YR 3/2) SILTY SAND (SM) medium dense, moist

DARK YELLOWISH BROWN (10YR 4/6) SILTY SAND (SM) dense, moist, medium- to very fine-grained

same, color change to yellowish red (5YR 4/6) mottling

same

same, hydrocarbon odor in samples

GRAYISH BROWN (2.5Y 5/2) SILTY CLAY (CL) very stiff

bottom of boring at 36.5 ft

Harding Lawson Associates
Engineers and Geoscientists

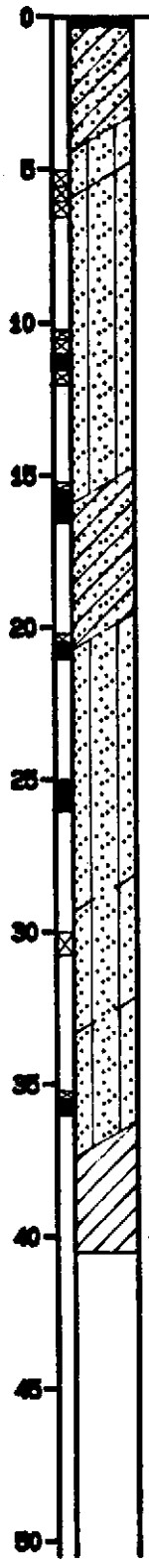
Log of Boring B-17
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

PLATE **A15**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382, 030.02	DFL	10/88		

Equipment 8" Hollow Stem Auger

Elevation NA Date 7/29/88



Asphalt

DARK BROWN (7.5YR 3/2) CLAYEY SAND (SC) medium dense, moist, brick fragments (fill)

BLACK (7.5YR N2/) SILTY SAND (SM) loose, moist, brick fragments (fill)

DARK YELLOWISH BROWN (10YR 4/6) SILTY SAND (SM) with brown (7.5YR 5/8) mottling, medium dense, moist, medium- to fine-grained

same

DARK YELLOWISH BROWN (10YR 4/6) CLAYEY SAND (CL) with olive (2.5Y 4/4) mottling, dense, moist

DARK YELLOWISH BROWN (10YR 4/6) SILTY SAND (SM) very dense, damp

same, strong hydrocarbon odor

DARK GRAY (5Y 4/1) SILTY SAND (SM) dense, saturated

DARK GRAYISH BROWN (2.5Y 4/2) SILTY SAND (SM) very dense, saturated

GRAYISH BROWN (2.5Y 5/2) SILTY CLAY (CL) medium stiff

bottom of boring at 40.5 ft

Harding Lawson Associates
Engineers and Geoscientists

Log of Boring B-19
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

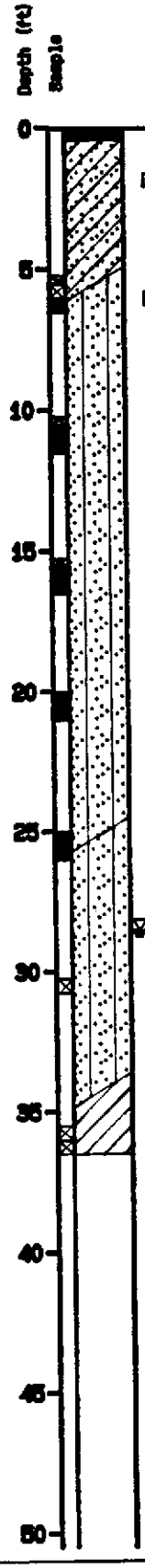
PLATE **A17**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382, 030.02	DFL	10/88		

7436

Equipment 8" Hollow Stem Auger

Elevation NA Date 7/28/88



Asphalt

DARK BROWN (7.5YR 3/2) CLAYEY SAND (SC) medium dense, moist, brick and wood fragments (fill)

DARK YELLOWISH BROWN (10YR 4/6) SILTY SAND (SM) medium dense, moist, trace clay

same, increase in density

color change to dark yellowish brown (10YR 4/4)

increase in density, absence of clay

GRAYISH BROWN (2.5Y 5/2) SILTY SAND (SM) with dark yellowish brown (10YR 4/6) mottling, dense, moist, trace clay

sample saturated

GRAYISH BROWN (2.5Y 5/2) SILTY CLAY (CL) very stiff

bottom of boring at 36.5 ft

Harding Lawson Associates
Engineering and
Environmental Services

Log of Boring B-20
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

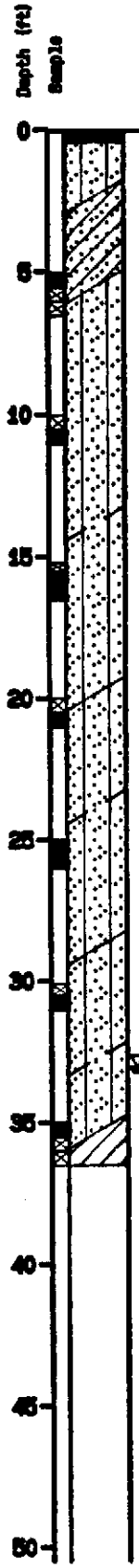
PLATE
A18

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382, 030.02	DFL	10/88		

7438

Equipment 8" Hollow Stem Auger

Elevation NA Date 8/3/88



Asphalt

DARK BROWN (10YR 4/3) SILTY SAND (SM) medium dense, moist

BLACK (10YR 2/1) CLAYEY SAND (SC) medium dense, moist

YELLOWISH BROWN (10YR 5/6) SILTY SAND (SM) medium dense, moist

same

LIGHT OLIVE BROWN (2.5Y 5/4) SILTY SAND (SM) very stiff, moist, trace clay

DARK YELLOWISH BROWN (10YR 4/6) SILTY SAND (SM) dense, moist

GRAYISH BROWN (2.5Y 5/2) SILTY SAND (SM) with gray (2.5Y N5/) mottling, very dense, moist, hydrocarbon odor, trace clay

DARK YELLOWISH BROWN (10YR 4/6) SILTY SAND (SM) dense, moist

GRAYISH BROWN (2.5Y 5/2) SILTY SAND (SM) dense, wet

GRAYISH BROWN (2.5Y 5/2) CLAY (CL) very stiff, wet

bottom of boring at 36.5 ft

Harding Lawson Associates
Engineering and Environmental Services

Log of Boring B-22
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

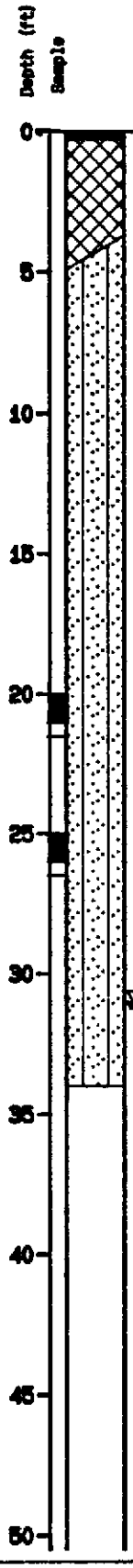
PLATE A20

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382, 030.02	DFL	10/88		

7440

Equipment 8" Hollow Stem Auger

Elevation ft Date 9/22/88



ASPHALT

DARK BROWN CLAY (FILL)

YELLOWISH BROWN SILTY SAND (SM) 10YR 5/6 moist, medium-grained sand, minor clay content

color change to light olive-brown 2.5Y 5/4

bottom of boring at 34.0 ft

Harding Lawson Associates
Engineers and Geoscientists

Log of Boring B-23
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
City of Oakland, California

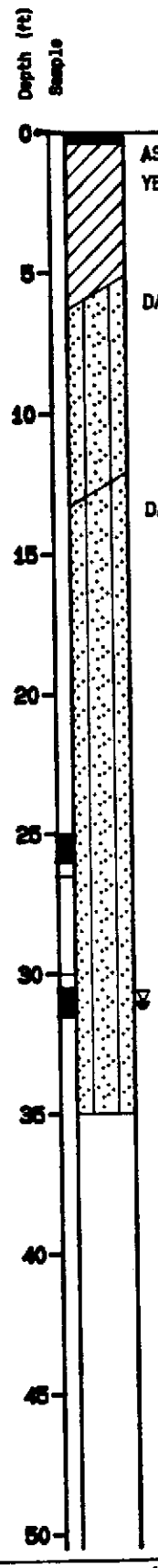
PLATE
A21

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382, 030.02	DPL	11/88		

7439

Equipment 8" Hollow Stem Auger

Elevation NA Date 9/22/88



ASPHALT

YELLOWISH RED SILTY CLAY (CL) 5YR 4/6 with minor coarse sand/gravel (FILL)

color change to olive-brown 2.5Y 4/4

DARK YELLOWISH BROWN SILTY SAND (SM) 10YR 4/4 moist, fine- to medium-grained sand, minor clay content

DARK YELLOWISH BROWN CLAYEY SAND (SC) moist, fine-grained

color change to brown 10YR 5/3

hydrocarbon odor at 24.0 ft

heavy hydrocarbon odor

bottom of boring at 35.0 ft

Harding Lawson Associates
Engineers and Geoscientists

Log of Boring B-24
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
City of Oakland, California

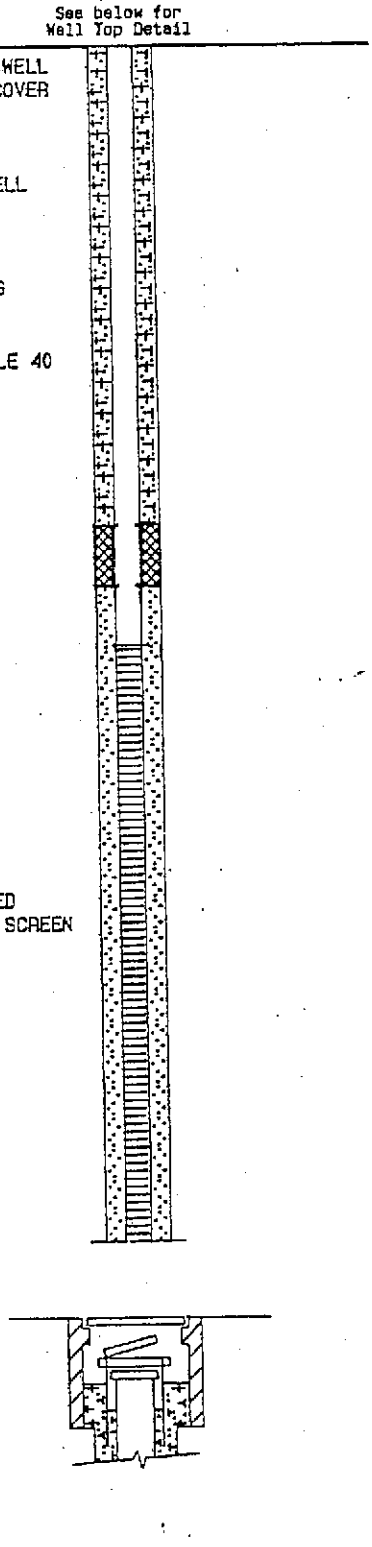
PLATE
A22

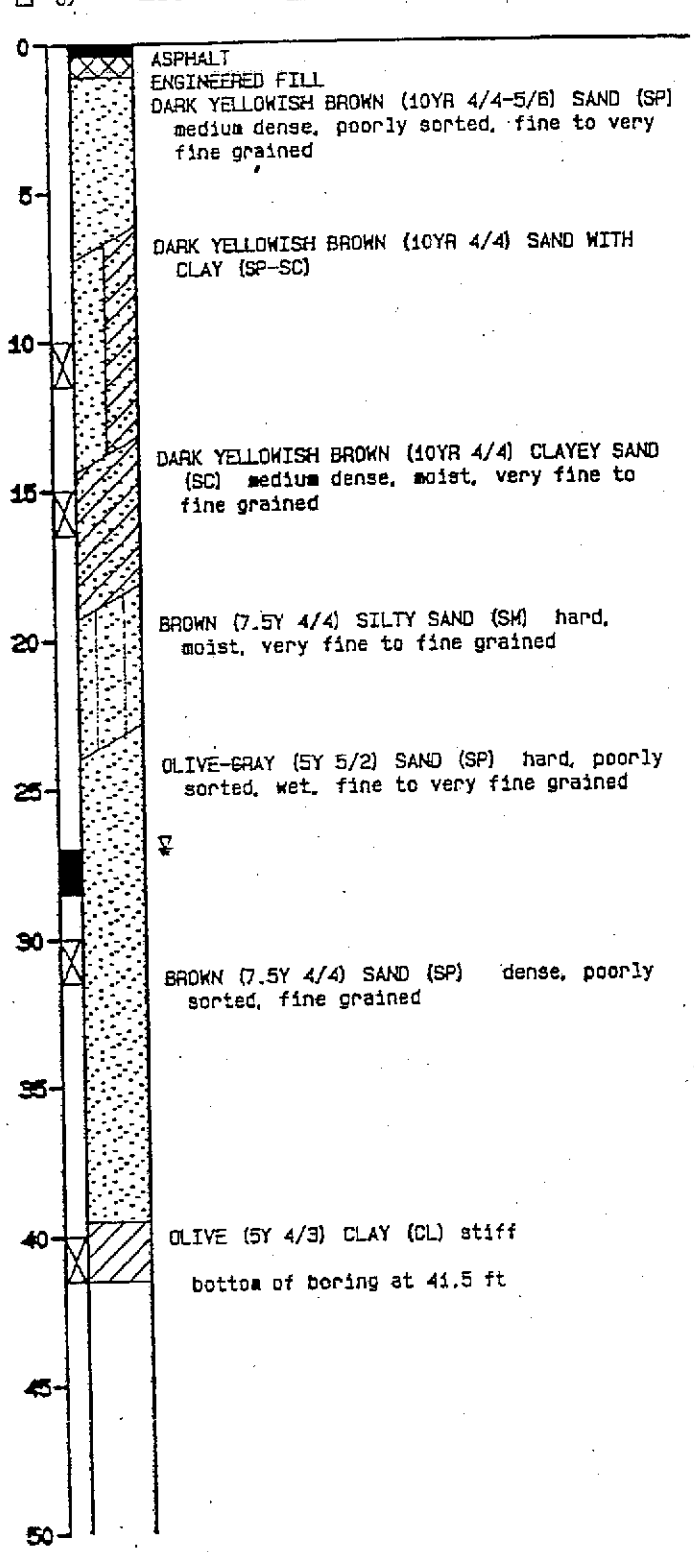
DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382, 030.02	DFL	11/88		

Top of PVC Casing
Elevation 38.35 ft

Equipment CME 55 Hollow Stem Auger

Elevation 39.0 ft Date 12/10/87





ASPHALT
ENGINEERED FILL
DARK YELLOWISH BROWN (10YR 4/4-5/6) SAND (SP) medium dense, poorly sorted, fine to very fine grained

DARK YELLOWISH BROWN (10YR 4/4) SAND WITH CLAY (SP-SC)

DARK YELLOWISH BROWN (10YR 4/4) CLAYEY SAND (SC) medium dense, moist, very fine to fine grained

BROWN (7.5Y 4/4) SILTY SAND (SM) hard, moist, very fine to fine grained

OLIVE-GRAY (5Y 5/2) SAND (SP) hard, poorly sorted, wet, fine to very fine grained

BROWN (7.5Y 4/4) SAND (SP) dense, poorly sorted, fine grained

OLIVE (5Y 4/3) CLAY (CL) stiff

bottom of boring at 41.5 ft

Harding Lawson Associates
Engineers and Geoscientists

Log of Boring and Well Completion Detail MW-3
City of Oakland Chinatown Redevelopment Area
Ground-Water Investigation
Oakland, California

PLATE A2

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382.012.02		1/88		

Top of PVC Casing
Elevation 37.86 ft

GROUND SURFACE

See below for Well Top Detail

12 IN. DIAMETER STEEL WELL HOUSING WITH LOCKING COVER

WATERPROOF WELL CAP

REINFORCED CONCRETE WELL HOUSING ENCLOSURE
BENTONITE-CEMENT SEAL

12 IN. DIAMETER BORING

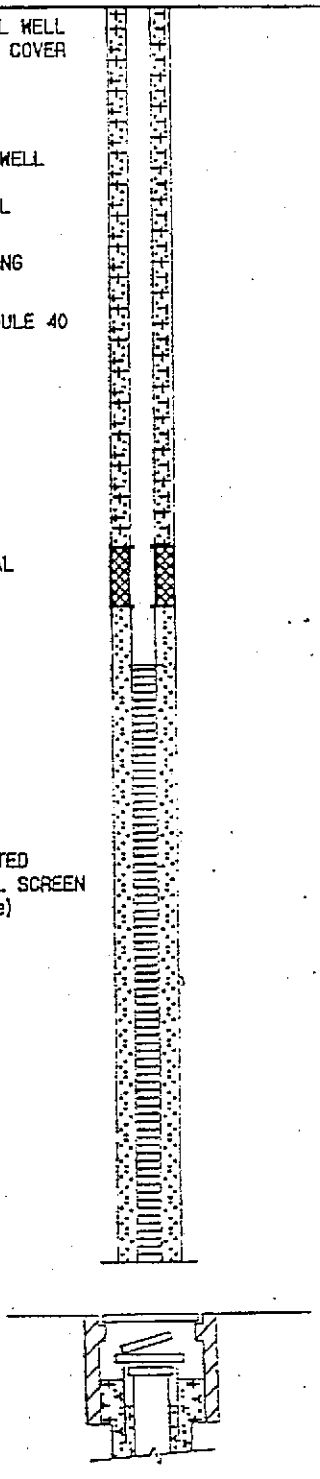
4 IN. DIAMETER SCHEDULE 40 PVC WELL CASING

BENTONITE PELLET SEAL

SAND FILTER PACK
(size: Monterey #3)

4 IN. DIAMETER SLOTTED SCHEDULE 40 PVC WELL SCREEN
(0.020 in. slot size)

BOTTOM CAP



Depth (ft) | Sample

Equipment CME 55 Hollow Stem Auger

Elevation 38.5 ft Date 12/12/87

0 — CONCRETE
DARK BROWN (10YR 3/3) SILTY SAND (SM) medium dense, moist

5 — YELLOWISH BROWN (10YR 5/6) SAND WITH CLAY (SP-SC) medium dense, poorly sorted

10 — DARK YELLOWISH BROWN (10YR 4/4) CLAYEY SAND (SC) medium dense

15 — BROWN (7.5YR 4/4) SAND (SP) poorly sorted, very fine to fine grained

20 — OLIVE-GRAY (5YR 5/2) SAND (SP) dense, poorly sorted

25 — color change to BROWN (2.5Y 4/4)

30 — BROWN (10YR 5/3) SANDY GRAVEL WITH CLAY (GC) hard

35 — OLIVE (5Y 4/3) CLAY WITH SILT (CL) stiff

40 — bottom of boring at 46.5 ft

Boring extended from 42.0 to 46.5 ft using 7" diameter auger

45

50

Harding Lawson Associates
Engineers and Geoscientists

Log of Boring and Well Completion Detail MW-5
City of Oakland Chinatown Redevelopment Area
Ground-Water Investigation
Oakland, California

PLATE **A4**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382.012.02		1/88		

4452

Top of PVC Casing Elevation 39.59 ft

GROUND SURFACE

See below for Well Top Detail

OVA (ppm)

Depth (ft)

Sample

Equipment CME 75 HSA 10.75"dia

Elevation 40.0 ft Date 3/1/88

10-3/4 IN. DIAMETER BORING
0 to 45.0 ft

4 IN. DIAMETER SCHEDULE 40 PVC WELL CASING
0.5 to 20.0 ft

BENTONITE-CEMENT SEAL
0 to 16.0 ft

BENTONITE PELLET SEAL
16.0 TO 18.0 ft

MONTEREY #3 SAND PACK
18.0 TO 44.0 ft

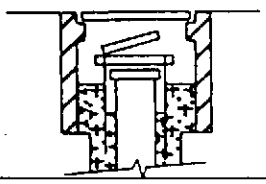
4 IN. DIAMETER SLOTTED SCHEDULE 40 PVC WELL SCREEN (0.020 in. slot size)
20.0 to 44.0 ft

BOTTOM WELL CAP at 44.0 ft

BOREHOLE CLEANED OUT to 44.0 ft

WATERPROOF WELL CAP

STEEL WELL HOUSING WITH LOCKING COVER



OVA (ppm)	Depth (ft)
0	0
0	5
0	10
3.2	15
400	20
98	25
4.2	30
	35
	40
	45
	50

CONCRETE SIDEWALK

DARK BROWN SILTY SAND (SM) (10YR 3/3) medium dense, moist, very fine- to fine-grained

YELLOWISH BROWN SAND WITH CLAY (SP-SC) (10YR 5/6) dense, moist, very fine- to fine-grained

color change to BROWNISH YELLOW (10YR 6/6)

OLIVE GRAY SAND (SP) (5YR 5/2) dense, saturated, very fine- to fine-grained

▼ (3/1/88)

BROWN SAND (SP) (10YR 5/2) dense, saturated, very fine- to fine-grained

BROWN SANDY CLAY WITH GRAVEL (CL) (10YR 5/3) very stiff to hard, saturated, few coarse angular gravel

OLIVE CLAY WITH SILT (CL) (5YR 4/3) hard, saturated

BOTTOM OF BOREHOLE at 45.0 ft

Harding Lawson Associates
Engineering and Environmental Services

Log of Boring and Well Completion Detail MW-6
A-Aquifer Monitoring Well Installation
City of Oakland
Oakland, California

PLATE **A2**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382, 023.02		11/88		

Top of PVC Casing Elevation 39.10 ft

GROUND SURFACE

See below for Well Top Detail

10-3/4 IN. DIAMETER BORING
0 to 44.5 ft

4 IN. DIAMETER SCHEDULE 40 PVC WELL CASING
0.5 to 20.0 ft

BENTONITE CEMENT SEAL
0 TO 16.0 ft

BENTONITE PELLET SEAL
16.0 to 18.0 ft

MONTEREY #3 SANDPACK
18.0 to 43.0 ft

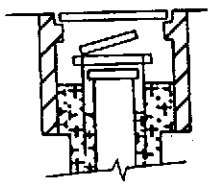
4 IN. DIAMETER SLOTTED SCHEDULE 40 PVC WELL SCREEN
(0.020 in. slot size)
20.0 to 43.0 ft

BOTTOM WELL CAP at 43.0 ft

BOREHOLE CLEANED OUT to 43.0 ft

WATERPROOF WELL CAP

STEEL WELL HOUSING WITH LOCKING COVER



Depth (ft)	Sample	OVA (ppm)
0		70
5		5
10		1
15		2
20		7
25		0
30		0
35		
40		
45		
50		

CONCRETE
BASEROCK
DARK BROWN SILTY SAND (SM) (10YR 3/3) medium dense, moist, very fine to fine-grained

YELLOWISH BROWN SAND WITH CLAY (SP-SC) (10YR 5/6) medium dense, moist, poorly graded, very fine- to fine-grained

color change to yellowish brown (10YR 5/4)

becomes loose

OLIVE-GRAY SAND (SP) (5YR 5/2) medium dense, saturated, fine-grained

▼ (3/7/88)
BROWN SAND (SP) (10YR 5/3) medium dense, saturated, fine-grained

becomes loose

BROWN SANDY GRAVEL WITH CLAY (GP)

PALE OLIVE CLAY (CL) (5Y 6/5) very stiff, moist

BOTTOM OF BOREHOLE at 44.5 ft

Equipment CME 75 HSA 10.75"dia

Elevation 39.4 ft Date 3/7/88

Harding Lawson Associates
Engineering and Environmental Services

Log of Boring and Well Completion Detail MW-7
A-Aquifer Monitoring Well Installation
City of Oakland
Oakland, California

PLATE **A3**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382, 023.02	DFulmer	11/88		

4454

Top of PVC Casing
Elevation 40.47 ft

GROUND SURFACE

See below for Well Top Detail

10-3/4 IN. DIAMETER BORING
0 to 41.5 ft

4 IN. DIAMETER SCHEDULE 40 PVC WELL CASING
0.5 to 20.0 ft

BENTONITE CEMENT SEAL
0 TO 16.0 ft

BENTONITE PELLET SEAL
16.0 to 18.0 ft

MONTEREY #3 SANDPACK
18.0 to 40.0 ft

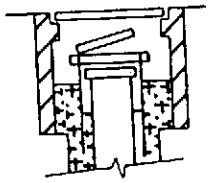
4 IN. DIAMETER SLOTTED SCHEDULE 40 PVC WELL SCREEN
(0.020 in. slot size)
20.0 to 40.0 ft

BOTTOM WELL CAP at 40.0 ft

BOREHOLE CLEANED OUT to 40.0 ft

WATERPROOF WELL CAP

STEEL WELL HOUSING WITH LOCKING COVER



OVA (ppm)

0
0
0
0
7
0

Depth (ft) | Sample

Equipment CME 75 HSA 10.75"dia

Elevation 40.6 ft Date 3/8/88

0 ASPHALT
COBBLESTONES
DARK BROWN SILTY SAND (SM) (10YR 3/3) with gravel, medium dense, moist

5

YELLOWISH BROWN SAND WITH CLAY (SP) (10YR 5/6) medium dense, moist, very fine- to fine-grained

10

15

20

OLIVE-GRAY SAND (SP) (5YR 5/2) dense, wet, very fine to fine-grained
▽ (3/8/88)

25

BROWN SAND (SP) (10YR 5/3) dense, saturated, very fine to fine-grained

30

35

BROWN CLAYEY GRAVEL (GC) dense, saturated, gravels to 2-in. diameter

PALE OLIVE LEAN CLAY (CL) (5YR 6/3) saturated, few sand

40

BOTTOM OF BOREHOLE at 41.5 ft

45

50

Harding Lawson Associates
Engineering and Environmental Services

Log of Boring and Well Completion Detail MW-8
A-Aquifer Monitoring Well Installation
City of Oakland
Oakland, California

PLATE **A4**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382, 023.02	DF Wland	11/88		

4455

Top of PVC Casing
Elevation 38.50 ft

GROUND SURFACE

See below for Well Top Detail

OVA (ppm)

Depth (ft)

Sample

Equipment CME 75 HSA 10.75"dia

Elevation 38.7 ft Date 2/29/88

10-3/4 IN. DIAMETER BORING
0 to 41.5 ft

4 IN. DIAMETER SCHEDULE 40
PVC WELL CASING
0.5 to 20 ft

BENTONITE-CEMENT SEAL
0 to 16 ft

BENTONITE PELLET SEAL
16 to 18 ft

MONTEREY #3 SAND PACK
18 TO 40 ft

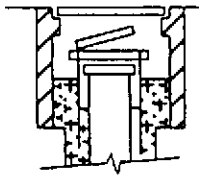
4 IN. DIAMETER SLOTTED
SCHEDULE 40 PVC WELL SCREEN
(0.020 in. slot size)
20 to 40 ft

BOTTOM WELL CAP at 40 ft

BOREHOLE CLEANED OUT
to 40 ft

WATERPROOF WELL CAP

STEEL WELL HOUSING
WITH LOCKING COVER



OVA (ppm)	Depth (ft)	
0	0	ASPHALT
		YELLOWISH BROWN SAND (SP) (10YR 5/6) medium dense, moist
	5	DARK BROWN SILTY SAND (SM) (10YR 3/3) medium dense, moist, very fine- to fine-grained
48		DARK YELLOWISH BROWN SAND (SP) (10YR 4/4) dense, moist, poorly graded, very fine- to fine-grained, minor clay
	10	
58	15	color change to brownish yellow (10YR 5/4)
880	20	OLIVE GRAY SAND (SP) (5YR 5/2) dense, moist, poorly graded
	25	▼ (2/29/88)
>1000		BROWN SAND (SP) (10YR 5/3) dense, saturated
	30	
	35	
0	40	LIGHT OLIVE CLAY (CL) (5YR 6/3) hard, saturated, trace silt
		BOTTOM OF BOREHOLE at 41.5 ft
	45	
	50	

Harding Lawson Associates
Engineering and Environmental Services

Log of Boring and Well Completion Detail MW-9
A-Aquifer Monitoring Well Installation
City of Oakland
Oakland, California

PLATE **A5**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382.023.02		11/88		

7437

Top of PVC Casing
Elevation 36.36 ft

GROUND SURFACE

See below for Well Top Detail

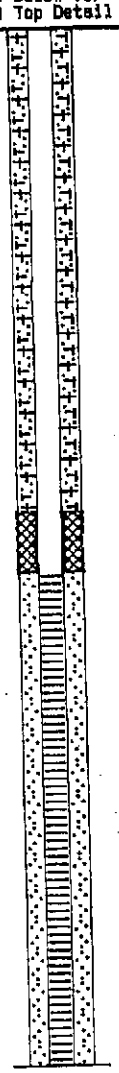
10 INCH DIAMETER BORING
0 to 34.5 ft

4 INCH DIAMETER SCH 40
PVC BLANK CASING
0.5 to 19.5 ft
BENTONITE-CEMENT SEAL
1 to 16 ft

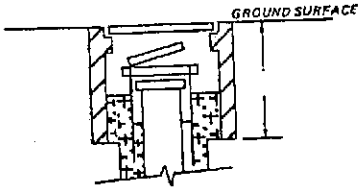
BENTONITE PELLET SEAL
16 to 18 ft
SANDPACK (Lonestar #3)
18 to 34.5 ft

4 INCH DIAMETER SLOTTED
PVC SCREEN
(0.020" slot size)
19.5 to 34.5 ft

BOTTOM WELL CAP
HOLE CLEANED OUT TO 34.5 ft



Well Top Detail
NOT TO SCALE



Depth (ft) | Sample

Equipment 8" Hollow Stem Auger

Elevation 36.81 Date 7/28/88

0 — Asphalt
DARK BROWN (7.5YR 4/4) CLAYEY SAND (SC) medium stiff, moist, glass and brick fragments (fill)

5 — DARK BROWN (7.5YR 4/4) SILTY SAND (SM) dense, moist, trace clay

10 — same

15 — same

20 — color change to brown (75.YR 5/6), absence of clay

25 — GRAY (2.5Y N5/) SILTY SAND (SM) very dense, wet, hydrocarbon odor

30 — OLIVE BROWN (2.5Y 4/4) SILTY SAND (SM) very dense, wet

35 — GRAYISH BROWN (2.5Y 5/2) SILTY SAND (CL) very stiff, trace fine-grained sand
bottom of boring at 36.5 ft

40

45

50

Harding Lawson Associates
Engineering and Environmental Services

Log of Boring B-21 and Well Completion Detail MW-10
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

PLATE **A19**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382, 030.02	DFL	10/88		

7434

Top of PVC Casing
Elevation 37.56 ft

Equipment 8" Hollow Stem Auger
Elevation 37.99 Date 8/4/88

GROUND SURFACE

See below for Well Top Detail

Blows/foot | Core Recov. %/RQD | Depth (ft) | Sample

10 INCH DIAMETER BORING
0 to 40 ft

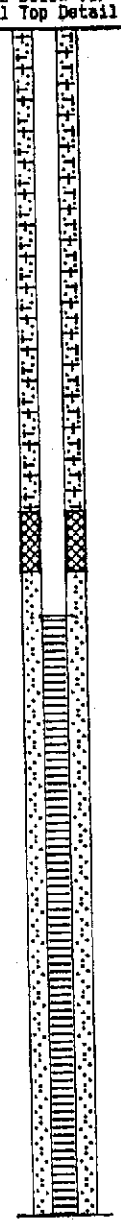
4 INCH DIAMETER SCH 40 PVC BLANK CASING
0.5 to 19.5 ft
BENTONITE-CEMENT SEAL
1 to 16 ft

BENTONITE PELLET SEAL
16 to 18 ft

SANDPACK (Lonestar #3)
18 to 39.5 ft

4 INCH DIAMETER SLOTTED PVC SCREEN
(0.020" slot size)
19.5 to 39.5 ft

BOTTOM WELL CAP
HOLE CLEANED OUT TO 39.5 ft



0 — Asphalt
DARK BROWN (10YR 2/2) CLAYEY SAND (SC) medium stiff, moist, brick fragments (fill)

5 — DARK YELLOWISH BROWN (10YR 4/4) CLAYEY SAND (SC) medium stiff, moist

BLACK (2.5Y N2/) SILTY SAND (SM) medium dense, moist, waste oil odor increase in gravels

10 — DARK YELLOWISH BROWN (10YR 4/6) SILTY SAND (SM) very dense, moist, trace clay

15 — same

20 — same

25 — OLIVE (5Y 5/3) SILTY SAND (SM) dense, moist, hydrocarbon odor

DARK YELLOWISH BROWN SILTY SAND (SM) dense, moist
wet below 30.7 ft

30

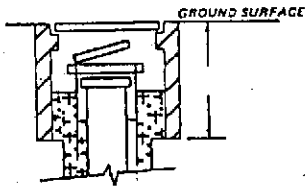
35 — GRAYISH BROWN (2.5Y 5/2) SILTY CLAY (CL) medium stiff

40 — bottom of boring at 40.0 ft

45

50

Well Top Detail



Harding Lawson Associates
Engineering and Environmental Services

Log of Boring B-18 and Well Completion Detail MW-11
Pacific Renaissance Plaza
Chinatown Redevelopment Project Area
Oakland, California

PLATE **A16**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	9382, 030.02	DPL	10/88		

CASE CLOSURE SUMMARY
Leaking Underground Fuel Storage Tank Program

I. AGENCY INFORMATION

Date: 8/24/95

Agency name: **Alameda County-HazMat** Address: **1131 Harbor Bay Pky**
City/State/Zip: **Alameda CA 94502** Phone: **(510) 567-6700**
Responsible staff person: **Jennifer Eberle** Title: **Hazardous Materials Spec.**

II. CASE INFORMATION

Site facility name: **Pacific Renaissance Plaza**
Site facility address: **1000 Franklin St., Oakland CA 94607**
RB LUSTIS Case No: **N/A** Local Case No./LOP Case No.: **4036**
URF filing date: **12/24/91** SWEEPS No: **N/A**

Responsible Parties: **Addresses:** **Phone Numbers:**

Attn: Donnell Choy, City Attorney, Oakland Redevelopment Agency, 505-14th St., 12th Floor, Oakland CA 94612 (510-238-3493)

Attn: Andrew Clark-Clough, City of Oakland, Office of Public Works, Environmental Division, 1333 Broadway, Suite 330, Oakland CA 94612 (510-238-6361)

Tank No:	Size in gal.:	Contents:	Closed in-place or removed?:	Date:
1	1,000	unknown	removed	12/16/91
2	1,000	unknown	removed	12/16/91

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and type of release: unknown
Site characterization complete? YES
Date approved by oversight agency: na
Monitoring Wells installed? YES Number: 9
Proper screened interval? YES
Highest GW depth below ground surface: 23.62 Lowest depth: 32.35 (MW-7)
Flow direction: generally west to south (construction activities have influenced gw flow direction)
Most sensitive current use: Pacific Renaissance Plaza
Are drinking water wells affected? NO Aquifer name: N/A
Is surface water affected? NO Nearest affected SW name: N/A
Off-site beneficial use impacts (addresses/locations): N/A

Leaking Underground Fuel Storage Tank Program

Report(s) on file? YES Where is report(s) filed?
Alameda County, 1131 Harbor Bay Pky, Alameda Ca 94502

Treatment and Disposal of Affected Material:

Material	Amount (include units)	Action (Treatment of Disposal w/destination)	Date
Tank	two 1,000 gal	disposed to H&H (manifest #91511243)	12/16/91
Soil	320 yd3	Disposed to McKittrick site, McKittrick CA (non-haz manifests)	12/23/91
purge water			

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (Continued)
Maximum Documented Contaminant Concentrations - - Before and After Cleanup

Contaminant	Soil (ppm) Before	Soil (ppm) After	Water (ppb)**** Before	Water (ppb)**** After
TPH (Gas)	19,000	420	320	ND
TPH (Diesel)	4,100	52	NA	
Benzene	53	0.330	0.20	ND
Toluene	340	7.100	ND	ND
Xylene	580	19.000	7.8	ND
Ethylbenzene	150	3.700	2.9	ND
Oil & Grease (nonpolar)	310	NA	NA	
semi-VOCs	*	**	NA	
Heavy metals	***	NA	NA	

Comments (Depth of Remediation, etc.):
* 2.1 ppm 2-methylnaphthalene, 2.3 ppm naphthalene
** 0.900 ppm naphthalene, 0.910 ppm 2-nitroaniline
*** all <10X the STLCs
****MW7 only, from 12/20/91 to 6/24/93 sampling events

Leaking Underground Fuel Storage Tank Program

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? Undetermined
Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? Undetermined
Does corrective action protect public health for current land use? YES
Site management requirements: NA
Should corrective action be reviewed if land use changes? YES
Monitoring wells Decommissioned:
Monitoring wells were installed to evaluate gw quality in the Chinatown Redevelopment Project Area.
Decommissioning is not solely dependent on this case closure.
Number Decommissioned: Number Retained:
List enforcement actions taken: none
List enforcement actions rescinded: none

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Jennifer Eberle Title: Hazardous Materials Specialist
Signature: Date: 8-24-95

Reviewed by
Name: Dale Klettke Title: Hazardous Materials Specialist
Signature: Date: 09/26/95

Name: Amy Leech Title: Hazardous Materials Specialist
Signature: Date: 09/25/95

VI. RWQCB NOTIFICATION

Date Submitted to RB: 11/6/95 RB Response: Approved
RWQCB Staff Name: Kevin Graves Title: AWRCE Date: 11/6/95

VII. ADDITIONAL COMMENTS, DATA, ETC.

Two 1,000-gal USTs were removed in 12/91 from below the sidewalk at Franklin Street at the former location of 10th Street. See Plate 1 They were discovered during construction of a ventilator duct for the Pacific Renaissance Plaza (PRP) bldg. The contents were unknown but thought to be fuel oil. The northern UST was filled w/grout. Approximately 50 yd3 of green-stained soil surrounding the USTs was excavated and stockpiled; the soil had a strong petroleum odor.

Leaking Underground Fuel Storage Tank Program

Two soil samples were collected from below the USTs at 7'bgs. See Plate 2. Results indicated up to 19,000 ppm TPHg, 4,100 ppm TPH-d, 53 ppm benzene, elevated TEX, <1ppm naphthaline and 2-nitroaniline, 400 ppm TOG, and 310 ppm nonpolar O&G. See Tables 1 and 2.

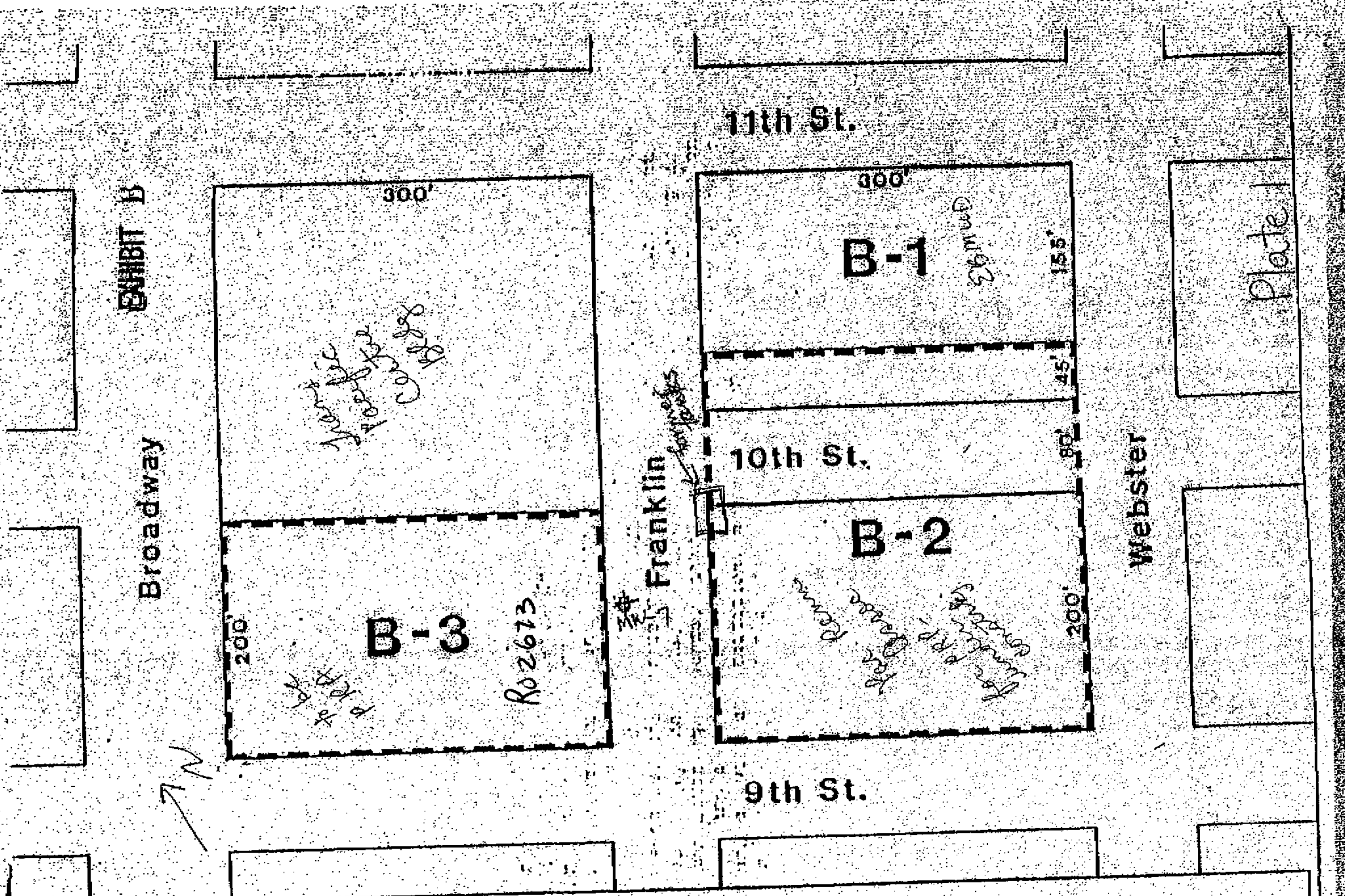
Approximately 700 yd3 of soil was excavated between 12/16/91 and 12/27/91. Of this amount, approximately 320 yd3 were disposed at McKittrick Waste Disposal Site. The remaining 380 yd3 did not appear contaminated, and was "handled by the general contractor in accordance w/standard construction practice." See pg 3, 11/16/92 "Tank Closure Report" by HLA. Soil was apparently removed to 20'bgs.

On 12/30/91, 16 confirmatory soil samples collected at 20'bgs in the ventilator duct excavation. See Plate 2. The sixteen soil samples were made into four 4-point composite samples by the lab: composite A, B, C, and D. Composite samples A and B were taken closest to the former USTs. The maximum concentrations detected from these samples were (from Composite sample A): 420 ppm TPH-g, 52 ppm TPH-d, 0.330 ppm benzene, some TEX, and semi-VOCs. See Table 1. These can be considered the contaminant concentrations left in place.

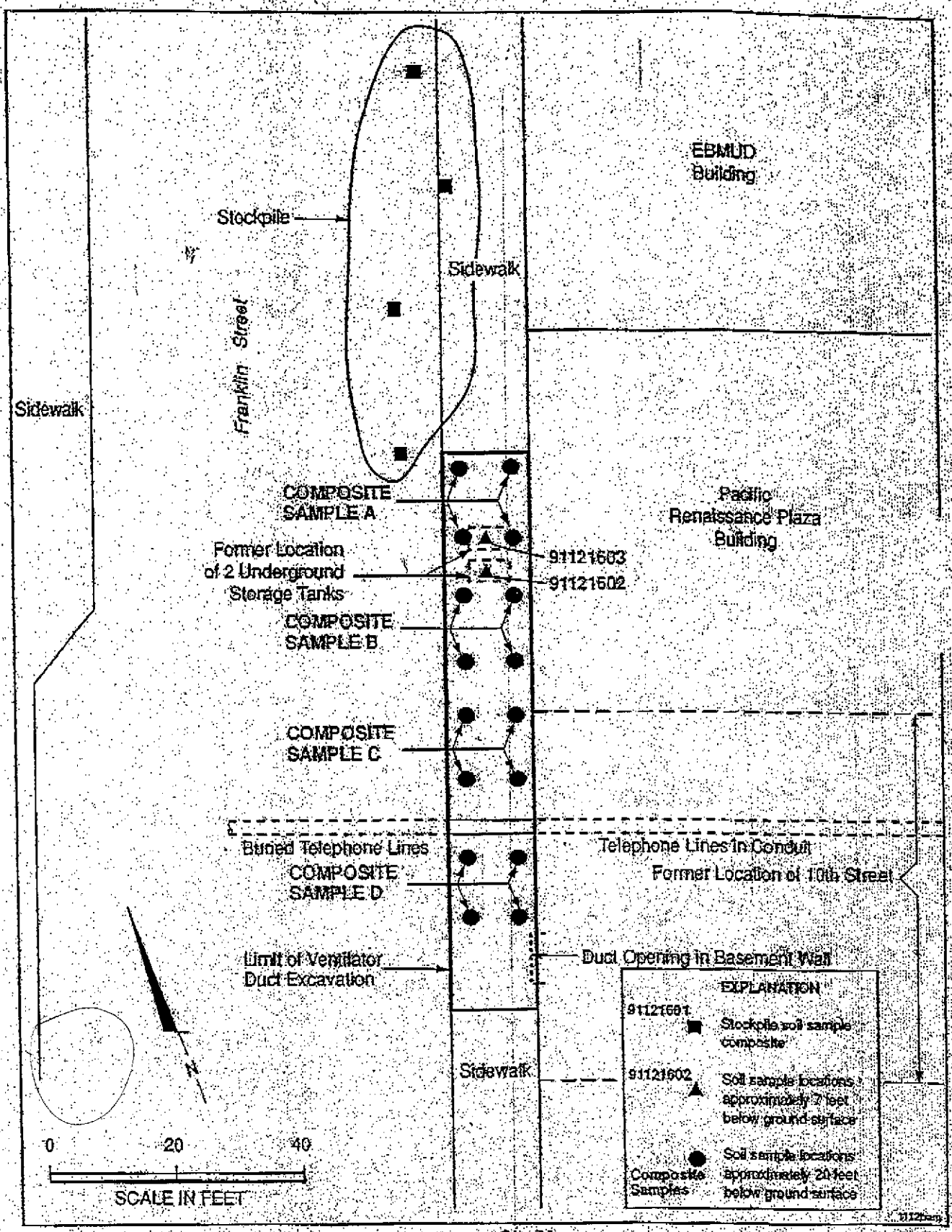
Nine groundwater monitoring wells were installed prior to the removal of the subject USTs between 1988-1990 in the vicinity of this site to evaluate groundwater quality in the Chinatown Redevelopment Project Area. However, the only well of concern is MW7, which is situated approximately 70' W-NW from the former USTs. The other wells span a very large area more than 2 square blocks. The initial groundwater flow direction was Westerly, prior to the construction of the EBMUD admin bldg or the PRP bldg. These buildings have three levels of underground parking. These structures apparently force groundwater coming in from the North and Northeast to either move West along 11th Street or go around the EBMUD bldg and down Franklin Street. Groundwater has been sampled quarterly from MW7 from 4/4/89 until 6/24/93. Concentrations of BTEX and TPH-g were very low to ND. Benzene was ND for the last 3 quarters, while TPH-g was ND for the last quarter sampled. See Table 3.

Although the County requested another well, located closer to and downgradient of the former USTs, the installation of such a well would have interfered w/PRP construction activities, disrupted traffic along busy Franklin St., and create risks of damaging major underground utilities in the area, such as an international telephone line and the BART tube. Analytical results of monitoring wells MW-12 and MW-20 located ~150 feet south and southwest, respectively, of the former UST pit have exhibited ND to low levels of TPHg and BTEX during periodic sampling in 1990 for MW-12 and 1990-1993 for MW-20.

It was agreed that further characterization and remediation of soil in this area would not be necessary, pursuant to discussions between the County, RWQCB (Rich Hiett), the Oakland Redevelopment Agency, and Harding Lawson Assoc. This is documented in the City's letter to Jennifer Eberle, dated 1/19/93. There was concern that workers digging in this area may come into contact with contaminated soil. The City proposed to implement a warning system within their permit tracking system, which would allow a database search for "flagged" conditions. This "database flag" will allow City staff to notify an individual, applying for a City permit to excavate, of the types of materials suspected to be present in the subsurface below Franklin Street between 9th and 11th Streets. This approach was accepted in a letter from the County to the City, dated 2/9/93. It is the City's responsibility to implement this system.



PERIMETER PLOT PLAN



Harding Lawson Associates
Engineering and Environmental Services

Site Map
Tank Closure Report
Chinatown Redevelopment Project Area
Oakland, California

PLATE 1

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
pgc	21078.03	RLN	10/92	

Harding Lawson Associates

Table 1. Soil Sample Analytical Results for Petroleum Hydrocarbon Characterization[1]
Tank Closure Report
Underground Storage Tanks
Chinatown Redevelopment Project Area
Oakland, California

				Composite Sample A	Composite Sample B	Composite Sample C	Composite Sample D
Sample Number	91121601	91121602	91121603	(91123001 to 91123004)	(91123005 to 911223008)	(91123009 to 91123012)	(91123013 to 91123016)
Sample Date	12/16/91	12/16/91	12/16/91	12/30/91	12/30/91	12/30/91	12/30/91
Sample Location	Stockpile	UST Excavation	UST Excavation	Ventilator Duct Excavation	Ventilator Duct Excavation	Ventilator Duct Excavation	Ventilator Duct Excavation
Sample Depth (ft. bgs)[2]	NA	7	7	20	20	20	20
Composite Sample	Yes	No	No	Yes	Yes	Yes	Yes
TPH as Gasoline[3]	1.5	19,000	3.1	420	1.4	ND<1	ND<1
TPH as Diesel[4]	16	4,100	5.9	52*	1.5	ND<1	ND<1
TPH as Motor Oil[4]	83	ND<10	ND<10	NT	NT	ND<1	ND<1
TPH as Creosote	ND<10	ND<10	ND<10	NT	NT	ND<1	ND<1
Benzene[5]	ND<0.0025	53	0.046	0.330	ND<0.0025	ND<0.0025	ND<0.0025
Toluene[5]	0.0092	340	0.130	7.100	ND<0.0025	ND<0.0025	ND<0.0025
Ethyl Benzene[5]	ND<0.0025	150	0.077	3.700	0.0035	ND<0.0025	ND<0.0025
Total Xylenes[5]	0.0025	580	0.370	19.000	0.012	ND<0.0025	ND<0.0025
Purgeable Halocarbons[6]	NT	NT	NT	ND**	ND**	ND**	ND**
Semivolatiles[7]	NT	2-Methylnaphthalene 2.1 Naphthalene 2.3	2-Methylnaphthalene 84.00 Naphthalene 6.300	Naphthalene 0.900 2-Nitroaniline 0.810	ND**	ND**	ND**

ND<1 - Not detected at indicated detection limit.
NA - Not applicable.
NT - Not tested.
1 Results are presented in milligrams per kilogram (mg/kg).
2 ft bgs - feet below ground surface.
3 EPA Test Method 5030 GC/FID.
4 EPA Test Method 3550 GC/FID.
5 EPA Test Method 8020 GC.
6 EPA Test Method 8010 GC.
7 EPA Test Method 8270 GCMS.
* Laboratory reports petroleum hydrocarbons quantified as diesel appear to be a lighter hydrocarbon than diesel.
** See laboratory analytical results for detection limits of individual analytes.

E24664-H
November 18, 1992

Table 2. Soil Sample Analytical Results for Disposal Characterization[1]
Tank Closure Report
Underground Storage Tanks
Chinatown Redevelopment Project Area
Oakland, California

Sample number	91121601	91121602	91121603
Sample date	12/16/91	12/16/91	12/16/91
Sample location	Stockpile	UST Excavation	UST Excavation
Sample depth (ft bgs)[2]	NA	7	7
Oil and Grease (total)[3]	6,300	400	ND<50
Oil and Grease (nonpolar)[4]	6,300	310	ND<50
Polychlorinated Biphenyls[5]	NT	ND<0.66	ND<0.66
Volatile Organics[6]	NT	Ethyl benzene 33 Toluene 96 Total Xylenes 460	Benzene 0.005 Ethylbenzene 0.070 Toluene 0.340 1,1,1-Trichloroethane 0.028 Trichloroethene 0.050 Total Xylenes 0.800
Cadmium[7]	ND<2.0	2.8	2.6
Chromium[7]	40	45	46
Lead[8]	7.8	4.2	4.7
Nickel[7]	29	36	36
Zinc[7]	29	23	60
pH - Corrosivity[9]	7.5	8.0	NT
Flashpoint/Ignitability[10]	>140	88	NT
Cyanide[11]	ND<0.2	ND<0.2	NT

1 All results are presented in milligrams per kilogram (mg/kg).
2 ft bgs - feet below ground surface.
3 EPA Method 5520C.
4 EPA Method 5520C/E/F.
5 EPA Method 8270 GCMS.
6 EPA Method 8240.
7 EPA Method 6010.
8 EPA Method 7421.
9 EPA Method 150.1, results in pH units.
10 EPA Method 1010, results in degrees F.
11 EPA Method 9010

Harding Lawson Associates

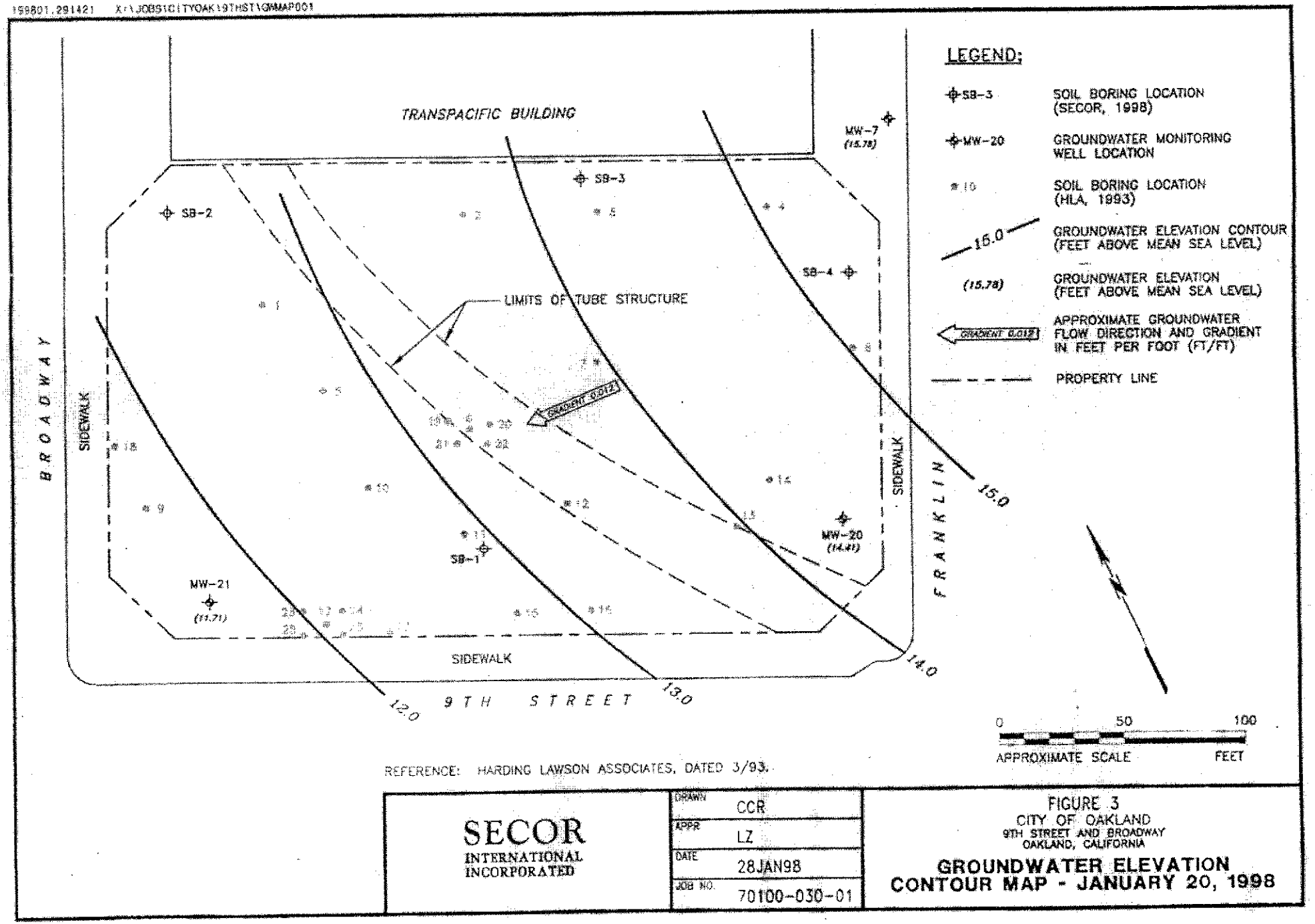
3

Table 1 RESULTS OF ORGANIC CHEMICAL ANALYSES OF GROUNDWATER SAMPLES FROM MONITORING WELLS
CHINATOWN REDEVELOPMENT PROJECT AREA

Purgeable Aromatics (EPA Method 8020)
Petroleum Hydrocarbons (EPA Method 8015)

WELL	DATE	BENZENE LOD (mg/l) 0.0005/0.0002	TOLUENE LOD (mg/l) 0.0005/0.0002	ETHYL BENZENE LOD (mg/l) 0.0005/0.0002	XYLENES, TOTAL LOD (mg/l) 0.0005/0.0002	TPH AS GASOLINE LOD (mg/l) 0.25/0.1
MW-3	10-Mar-88	ND	ND	ND	ND	ND
	18-Mar-88	ND	ND	ND	ND	ND
	25-Mar-88	ND	ND	ND	ND	ND
	1-Apr-88	0.7	0.4	ND	1.2	ND
	15-Apr-88	ND	ND	ND	ND	ND
	28-Apr-88 @	ND/ND (0.4)	ND/ND (0.4)	ND/ND (0.4)	ND/ND (0.4)	ND/ND
	11-May-88	ND	ND	ND	ND	ND
	27-May-88	ND	ND	ND	ND	ND
	16-Jun-88	ND	ND	ND	ND	ND
	27-Jul-88	ND	ND	ND	ND	ND
	29-Aug-88	ND	ND	ND	ND	ND
	30-Sep-88	ND	ND	ND	ND	ND
	2-Nov-88	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND
	2-Dec-88	ND	ND	ND	ND	ND
	4-Jan-89	ND	ND	ND	ND	ND
	3-Feb-89	ND	0.0009	ND	ND	ND
	3-Dec-90	ND	0.0002 †	ND	ND	ND
	8-Mar-91	ND	ND	ND	ND ▲	NT
	6-Jun-91	ND	ND	ND		
MW-7	4-Apr-89	ND	0.0007	0.0010	0.0012	ND
	3-May-89	ND	0.0012	0.0038	0.0048	0.27
	6-Jun-89	0.0010	0.001	0.0022	0.0031	0.40
	7-Jul-89	0.0002	0.001	0.00034	0.0059	0.56
	2-Aug-89	ND	0.0015	0.0054	0.0055	0.70
	7-Sep-89	ND	ND	ND	0.0015	0.59
	5-Oct-89	ND	0.0011	0.0008	0.0013	0.78
	2-Nov-89	0.0002	0.0010	0.0055	0.0036	0.62
	6-Dec-89	0.0006	0.0087	0.0052	0.0025	0.32
	3-Jan-90	0.0007	0.0007	0.0005	0.0013	0.18
	1-Feb-90	ND	0.0009	ND	0.0003	ND
	28-Feb-90	ND	0.0004	0.0004	0.0052	0.09
	11-Apr-90	ND	0.0007	0.0033	0.0029	0.13
	18-May-90	ND	0.0008	0.0014	0.0008	0.43
	13-Sep-90	ND	0.0019	ND	ND	NT
	3-Dec-90	0.0002	0.0024	0.0019	0.0012	0.32
	11-Feb-91	ND	ND	ND	ND	ND
	8-Mar-91	ND	ND	ND	ND	ND
	6-Jun-91	ND	ND	ND	ND ▲	ND
tank removal →	20-Dec-91	0.0002	ND ▲	0.0029	0.0078	0.32 → 0.11 ppm
	27-Mar-92	0.0008 = 0.8 ppb	0.0009	0.0019	0.0020	0.11 → 140 ppb
	25-Jun-92	ND	0.0010	0.0017	0.0035	0.14 → 150 ppb
	21-Jan-93	ND	ND	0.0017	0.0021	0.15
	[illegible]			ND	ND	ND
MW-12	15-Feb-89	ND	ND	ND	ND	ND
	3-Mar-89	NT	NT	NT	NT	NT
	5-Apr-89	0.0014	0.0023	ND	0.0054	ND
	2-May-89	0.026	0.0013	ND	0.0083	0.19
	7-Jun-89	0.034	0.0037	ND	0.012	0.18
	6-Jul-89	0.029	0.0026	ND	0.0059	0.12
	2-Aug-89	0.023	0.002	ND	0.005	ND
	7-Sep-89 @	0.051/0.059	0.0015/0.0022	ND/ND	0.0041/0.0059	ND/ND
	5-Oct-89 @	0.037/0.040	0.0033/0.0031	ND/ND	0.0065/0.0064	ND/ND
	2-Nov-89	0.0055	0.0013	ND	0.0018	0.071
	6-Dec-89	0.0052	0.0012	ND	0.0017	0.05
	3-Jan-90	0.0086	0.0010	ND	0.0012	0.09
	1-Feb-90 @	0.0015/0.0024	0.0010/0.0004	ND/ND	0.0005/0.0004	ND/ND
	1-Mar-90	0.0016	0.0014	ND	0.0003	ND
	11-Apr-90	0.0065	0.0174	0.0015	0.0118	0.147
	18-May-90	ND	0.0009	ND	ND	ND
	12-Sep-90	ND	ND	ND	0.0002	ND
	3-Dec-90	0.0006	0.0002 †		0.0002 †	ND

mw TBL2.JUN693 (6/4/93)



REFERENCE: HARDING LAWSON ASSOCIATES, DATED 3/93.

SECOR
INTERNATIONAL
INCORPORATED

DRAWN	CCR
APPR	LZ
DATE	28JAN98
JOB NO.	70100-030-01

FIGURE 3
CITY OF OAKLAND
9TH STREET AND BROADWAY
OAKLAND, CALIFORNIA

GROUNDWATER ELEVATION CONTOUR MAP - JANUARY 20, 1998

TABLE 3
GROUNDWATER ANALYTICAL RESULTS
9th Street and Broadway
Oakland, California

Sample Number	Date	TPHg[a] (ug/l)[b]	TPHd[c] (ug/l)	BTEX[d] (ug/l)	MTBE[e] (ug/l)	VOCs[f] (ug/l)
MW-7	1/20/98	ND[g]	ND	ND	ND	ND
MW-20	1/20/98	ND	ND	ND	ND	chloroform:17 1,2-DCA[h]:2.0
MW-21	1/20/98	ND	ND	ND	ND	chloroform:27 PCE[i]:4.8

Notes:

(a) Total petroleum hydrocarbons as gasoline.
(b) Micrograms per liter.
(c) Total petroleum hydrocarbons as diesel.
(d) Benzene, toluene, ethylbenzene, and xylenes.
(e) Methyl tertiary butyl ether.
(f) Halogenated volatile organic compounds.
(g) Not detected at specified reporting limit.
(h) 1,2-Dichloroethane
(i) Tertrachloroethene.

CHROMALAB, INC.

Environmental Services (SDB)

January 22, 1998 *Submission #:* 9801230

SECOR-SF

Atten: Charles Melancon

Project: CITY OF OAKLAND *Project#:* 70100-030-01
Received: January 21, 1998

re: One sample for Gasoline BTEX MTBE analysis.
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-7
Spl#: 167166 *Matrix:* WATER
Sampled: January 20, 1998 *Run#:*10770 *Analyzed:* January 21, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	N.D.	106	1
MTBE	N.D.	5.0	N.D.	96	1
BENZENE	N.D.	0.50	N.D.	106	1
TOLUENE	N.D.	0.50	N.D.	109	1
ETHYL BENZENE	N.D.	0.50	N.D.	104	1
XYLENES	N.D.	0.50	N.D.	105	1

Vincent Vancil
Chemist

Michael Verona
Operations Manager

415-882-4406

CHROMALAB, INC.

Environmental Services (SDB)

January 22, 1998 *Submission #:* 9801230

SECOR-SF

Atten: Charles Melancon

Project: CITY OF OAKLAND *Project#:* 70100-030-01
Received: January 21, 1998

re: One sample for Gasoline BTEX MTBE analysis.
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-20
Spl#: 167167 *Matrix:* WATER
Sampled: January 20, 1998 *Run#:* 10770 *Analyzed:* January 21, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	N.D.	106	1
MTBE	N.D.	5.0	N.D.	96	1
BENZENE	N.D.	0.50	N.D.	106	1
TOLUENE	N.D.	0.50	N.D.	109	1
ETHYL BENZENE	N.D.	0.50	N.D.	104	1
XYLENES	N.D.	0.50	N.D.	105	1

Vincent Vancil
Chemist

Michael Verona
Operations Manager

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(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

AS 9132-0:BTEXQC0220
SINCE 1450

CHROMALAB, INC.

Environmental Services (SDB)

January 22, 1998 *Submission #:* 9801230

SECOR-SF

Atten: Charles Melancon

Project: CITY OF OAKLAND *Project#:* 70100-030-01
Received: January 21, 1998

re: One sample for Gasoline BTEX MTBE analysis.
Method: SW846 8020A Nov 1990 / 8015Mod

Client Sample ID: MW-21
Spl#: 167168 *Matrix:* WATER
Sampled: January 20, 1998 *Run#:*10770 *Analyzed:* January 21, 1998

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
GASOLINE	N.D.	50	N.D.	106	1
MTBE	N.D.	5.0	N.D.	96	1
BENZENE	N.D.	0.50	N.D.	106	1
TOLUENE	N.D.	0.50	N.D.	109	1
ETHYL BENZENE	N.D.	0.50	N.D.	104	1
XYLENES	N.D.	0.50	N.D.	105	1

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AS Virtual:BTEX0C0220