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WORKPLAN ADDENDUM
including
An Updated Site Conceptual Model, and
A Revised Soil & Groundwater Investigation Workplan

Former Durham Transportation Facility
Alameda County Fuel Leak Case No. R00000047
19984 Meekland Avenue
Hayward, Alameda County

January 27, 2005

Subject Site: Vacant Lands

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Section 1: EXECUTIVE SUMMARY

This *Workplan Addendum* addresses Alameda County Environmental Health (ACEH) comments and information requests presented in their letter dated December 2, 2004. ACEH comments were based on their review of Weber, Hayes and Associates (WHA) documents which included:

- July 30, 2004, *Soil and Groundwater Investigation Workplan*
- July 30, 2004, *Revised Site Conceptual Model;* and
- October 14, 2004, *Semi-Annual Groundwater Monitoring Report,*

As requested by ACEH, this *Workplan Addendum* has combined technical responses, revisions to the Site Conceptual Model (SCM), and revisions to the workplan into a single report. The addendum is organized as follows:

Section 2: **Response to Technical Comments**: This section presents WHA responses to ACEH comments and identifies revised sections in the *Refined SCM* (Section 3) and the *Revised Soil and Groundwater Investigation Workplan* (Section 4).

Section 3: **Updated Site Conceptual Model:** This portion of the report presents the amended SCM and includes subsections addressing regional and site hydrogeology.

Section 4: **Revised Soil and Groundwater Investigation Workplan:** The amended workplan includes requested technical revisions.

This addendum includes further refinement of the SCM and presents:

- a description of the subject site and adjoining lands,
- a description of the regional and local hydrogeologic setting,
- a summary of previous environmental characterization investigations and remedial actions including source removal excavation and pump and treat operations, and
- an updated well conduit study.

The addendum also includes proposed soil and groundwater investigation work tasks designed to address SCM data gaps including:

- determining whether the second saturated zone has been impacted by petroleum hydrocarbons,
- determining whether elevated concentrations of dissolved fuel contaminants, specifically benzene, are migrating offsite at levels exceeding groundwater cleanup goals;
- conducting additional sampling of the monitoring well network to confirm attenuation of contaminant concentrations in groundwater .

We believe completion of the proposed work tasks described in Section 4 of this addendum will fill in a few remaining data gaps including

- confirming there are no significant groundwater concentrations migrating offsite,
- confirming no significant residual soil or groundwater contamination remains onsite,

- confirming the fuel release has not impacted the deeper groundwater bearing zone and no sensitive receptors are being impacted by the low-level, residual contaminant compounds, and
- confirming there is evidence of attenuation, and that groundwater clean-up goals have been met or will be met in a reasonable time frame.

Section 2: RESPONSE TO TECHNICAL COMMENTS

This section presents WHA responses to recent ACEH comments and identifies revised sections in the *Refined SCM* (Section 3) and the *Revised Soil and Groundwater Investigation Workplan* (Section 4).

ACEH Technical Comments & Weber, Hayes and Associates Responses

1 **ACEH Comment #1** - **Assessment of Deeper Water-Bearing Zone**: We reiterate our May 13, 2004, request that you refine your understanding of the regional and site hydrogeology. We concur with Weber, Hayes' proposal to evaluate the potential impact to deeper groundwater by drilling and sampling boring CDP-1 adjacent to the former production well location; however, no depth range for sampling was proposed. Prior to approving your sampling plan, ACEH requires additional information. Using the information from the well survey (see Comment 2, below), we request that you determine likely depths and thicknesses of the Newark Aquifer (Shallow Aquifer and main portion), the Newark Aquitard and other lithologic units beneath the site. Weber, Hayes states that the Newark Aquifer is most likely the primary production zone for most of the area's private irrigation and domestic wells. Please:

I) determine the likely depth of the Newark Aquifer beneath the site,
ii) evaluate the likelihood of the former onsite production well being screened within the Newark Aquifer, and
iii) report your findings in the workplan addendum requested below.

#1 Response: The regional and local hydrogeologic setting section of the Addendum (Section 2.3) includes estimated depths and thicknesses of the Shallow Aquifer subunit (a.k.a. "shallow water bearing zone") and the underlying Newark Aquifer. These estimates have been extrapolated from a review of existing boring and well logs and published regional models. The depth to the top of the 35-50 foot thick Newark Aquifer is roughly estimated to be at 65-75 feet below ground surface (bgs). The proposed Confirmation Driven Probe deeper boring (CDP-1, Figure 2)) will extend at least 5 feet into saturated soils of the Newark aquifer for groundwater sampling (described further in Section 3.0).

2 **ACEH Comment #2** - **Well Survey**: We reiterate our May 13, 2004, request that you review all driller's logs available from the DWR and ACPWA for wells within ½ mile of the site. Tasks 2 and 3 in Weber, Hayes' July 30, 2004 workplan are acceptable as proposed to meet our request. As stated in our May 13, 2004 letter your well survey will provide additional lithologic data which needs to be incorporated in your cross-sections and will provide the basis for your sampling plan. Accordingly, this task needs be complete prior to proposing additional site investigation. Please note that ACEH requires that you provide location addresses and copies of DWR driller's reports for all wells identified in your survey. Please perform the requested well survey, update your SCM as necessary, and report your findings in the workplan addendum requested below.

ACEH Technical Comments & Weber, Hayes and Associates Responses

#2 Response: We previously mapped 78 water wells located within a ½ mile radius of the subject site based on a list provided by the local water well management agency (Alameda County Public Works Agency - ACPWA). We have subsequently received a stack of well logs from the State Department of Water Resources (DWR) and have tabulated both data sets onto a summary table (Table 4) and field mapped wells located within ½ mile of the site (Figure 9). ACPWA lists and written copies of all DWR well logs are included as Appendix A.

Even though municipal utilities provide the drinking water supply for businesses and residences within the City of Hayward, existing records show that 132 wells have been drilled within a ½ mile radius of the site since 1908, including 16 "orphan" locations having no specific address. A written log exists for 84 of the 132 wells (the remaining 48 wells, which were identified on the ACPWA list, did not have DWR well logs). Figure 4 presents the location and general lithology by depth, of water wells located within 1,000 feet of the subject site. None of the documented wells appear to be threatened based on the mapped extent of residual dissolved fuel contaminants (see Figure 7). This exhaustive summary of existing wells and well records within a ½-mile of the site completes the well search.

3. **ACEH Comment #3 - Site Map:** We reiterate our May 13, 2004, request that you prepare a revised map of the site and downgradient area. Toward this request, Task 4 in Weber, Hayes' July 30, 2004 workplan is acceptable as proposed; however, additional work is necessary to fully respond to our request. In addition to surveying monitoring well locations, our May 13, 2004, letter requested that you map additional structures in the site vicinity. Your revised map needs to include the former fuel island and LUST piping locations, offsite buildings, and other structures to help clearly identify the physical location of your plume and its potential impacts. In meeting this requirement, we suggest that you accordingly revise Figure 2 in both Weber, Hayes' workplan and SCM provided that this figure is to scale and that additional area north and west of the subject site shown. Please prepare the revised site map, update your SCM as necessary, and report your findings in the workplan addendum requested below.

#3 Response: As requested, changes have been made to the site map including identification of product pipe locations and off-site structures (see Figure 2). The site was re-surveyed in 2004 and the well locations and elevations have been confirmed (see Figure 8).

ACEH Technical Comments & Weber, Hayes and Associates Responses

4 **ACEH Comment #4 - Cleanup Levels**: The site USTs were removed in 1989, and approximately 594 cubic yards of contaminated soil were removed from the site in 2002. The source has been substantially removed and residual soil concentrations are below the RWQCB-SFBR ESLs. However, site groundwater was most recently sampled on September 23, 2004, and the highest detected concentrations for the event were 7,000 ug/L TPHg, 470 ug/L benzene, 86 ug/L toluene, 1,000 ug/L ethylbenzene, and 2,200 ug/L xylenes, detected in onsite monitoring well MW-5. The 2002 soil excavation appears to have had minimal, if any, impact on dissolved petroleum hydrocarbon concentration trends. Groundwater hydrocarbon concentrations have generally remained stable over the past 3 years. Weber, Hayes stated in their July 2, 2003 *Groundwater Monitoring Report* that dissolved oxygen concentrations measured in site monitoring wells suggest that aerobic biodegradation petroleum hydrocarbons is occurring at the site; however, no evaluation of the degradation rate or the contaminant mass remaining has been performed.

Weber, Hayes proposes modified cleanup levels for groundwater as part of their July 30, 2004, *Revised SCM*. California DHS drinking water Maximum Contaminant Levels (MCLs) multiplied by a dilution attenuation factor (DAF) of 10 was suggested as a preliminary level for onsite groundwater. Based on the investigation data submitted to date, no onsite or offsite water wells have been or are likely to be impacted by the release. Accordingly, ACEH concurs that a DAF 10 would likely be protective of potential receptors. However, we question Weber, Hayes selection of drinking water screening levels as they do not consistently select the most conservative levels, and their rationale supporting selection of the various screening levels is not clear.

For example, Weber, Hayes proposes an ethylbenzene level of 7,000 ug/L presumably based on the historical ethylbenzene MCL. In September 2003, DHS revised the ethylbenzene MCL downward to 300 ug/L (22 CCR section 64431), and the RWQCB-SFBR ESLs specify an action level of 30 ug/L based on the USEPA secondary MCL. Further, Weber, Hayes' proposed cleanup goals for TPHg, toluene and xylenes are not based on the most conservative screening levels as summarized in the RWQCB-SFBR ESLs. Weber, Hayes' provides no justification to support their selection. Accordingly, ACEH cannot concur with the proposed cleanup levels to ethylbenzene, toluene, xylenes and TPHg. ACEH finds the proposed onsite groundwater level of 10 ug/L benzene and 50 ug/L MTBE to be based on the most conservative drinking water standards, and protective of human health and the environment with respect to other potential exposure pathways; and therefore acceptable as preliminary levels for active site remediation.

In reconsidering your proposed cleanup levels, please note that the June 1999 *East Bay Plan Groundwater Basin Beneficial Use Evaluation Report* by the RWQCB-SFBR identifies the site's groundwater basin as having both potential and existing beneficial use for municipal water supply. Further, the July 1995 San *Francisco Bay Basin Water Quality Control Plan* (the Basin Plan) indicates that water quality objectives for this area need to be protective of municipal supply. The Basin Plan refers to the RWQCB-CVR report *A Compilation of Water Quality Goals* (most recent version dated August 2003) as a potential source of current water quality numerical objectives; these same figures can be found in the RWQCB-ESLs, Tables F-1a, F-3, and 1-1. We request that you propose revised cleanup levels for groundwater that are protective of all current and foreseeable future potential receptors likely to be affected by your groundwater plume. In addition, we request that you identify the applicable cleanup goals (i.e. water quality objectives) for your site.

Please note that SWRCB Resolution No. 92-49 specifies compliance with cleanup goals and objectives within a reasonable time frame. Therefore, according to the SWRCB, even if the requisite level of water quality has not yet been attained, a site may be closed if the level will be attained within a reasonable period. Active remediation to reduce onsite groundwater concentrations to Basin Plan water quality objectives, or even to within an order of magnitude of these objectives, may not be technically or economically feasible. Accordingly, we recommend that you evaluate:

I) the historic and likely future rates of biodegradation,
ii) the likely time period' required for intrinsic bioremediation of the site to achieve cleanup goals, and
iii) the reasonableness of the anticipated time frame in the context of existing basin and potential future onsite groundwater use.

Provided that Basin Plan water quality objectives will be achieved within a reasonable time period, and that the site otherwise qualifies as a low risk groundwater case, ACEH will consider your case for closure. Please present your Modified Cleanup Levels, including rationale supporting your selection, and state the applicable cleanup goals (i.e., water quality objectives) in the workplan addendum requested below.

Response #4: Previously proposed cleanup goals for groundwater were intended to be 10 times the State Maximum Contaminant Levels (MCLs) for drinking water with the exception of TPH which has no established MCL. This was in agreement with levels recommended by ACEH in the May 13, 2004 directive ("the goal of 10x the MCL would be considered a reasonable proposal" for a maximum plume concentration that may migrate beyond the borders of the subject site, page 4, section 3). However, as requested in the recent ACEH directive dated December 20, 2004, we have revised the proposed modified cleanup levels to be more conservative than MCLs for drinking water, and instead based on the California Regional Water Quality Control Board, San Francisco Bay Region's (RWQCB-SFBR) *Environmental Screening Levels* (see Section 2.35, below).

The modified cleanup levels listed below are site-specific concentrations proposed for this low-risk fuel release and are meant to achieve Basin Plan water quality objectives within a reasonable time period. The levels are meant to be the maximum plume concentrations that may not migrate beyond the borders of the subject site.

Table: **Proposed Cleanup Levels**
- all concentrations in ug/L (parts per billion, ppb) -

	TPH-gas	Benzene	Toluene	Ethyl-Benzene	Xylenes	MTBE
State MCL's for Drinking Water:	Not Established	1	100	300	1750	13
RWQCB-SFBR **Final ESLs** (basis)	100 (T&O)	1 (DWT)	40 (T&O)	30 (T&O)	13 (AHG)	5 (T&O)
Proposed Cleanup Levels (10 Times the ESLs)	**1,000**	**10**	**400**	**300**	**130**	**50**

- **RWQCB-SFBR:** California Regional Water Quality Control Board, San Francisco Bay Region
- **Final ESL's**= "Final" Environmental Screening Levels, based on the lowest (most conservative) screening level (T&O, DWT, or AHG) established by RWQCB-SFBR for the protection of groundwater quality.
- **T&O**= Taste & Odor; **DWT**= Drinking Water Toxicity **AHG:** Aquatic Habitat Goal
- Proposed Cleanup Levels based on shallow groundwater being a potential groundwater resource.

ACEH Technical Comments & Weber, Hayes and Associates Responses

It is our opinion that the excavation of the soil contamination at the former underground tank locations, which included removal of fuel-impacted, saturated soils from the zone of fluctuating groundwater (smear zone), **has significantly eliminated the primary source of ongoing groundwater contamination.** Only three of the nine wells that make up the monitoring network currently contain elevated levels of Total Petroleum Hydrocarbons (TPH). Specifically, on-site wells MW-5, MW-6, and MW-9, all located within 60 feet of the source, contained elevated TPH-gas concentrations ranging from 1,900-7,000 parts per billion (ppb), ethylbenzene ranging from 230-1,000 ppb, and xylenes ranging from 79-2,200 ppb. Only one well, MW-5, located only a few feet from the former fuel tank pit, contained elevated benzene (470 ppb, see Figure 7). Figures 10 through 15 present individual charts of decreasing benzene and TPH-gasoline concentrations in on-site wells MW-5 (source well) and MW-9 (property line well), as well as downgradient well MW-10. The charts all show a consistent decrease in concentrations since monitoring began in 1990. This downward trend is observed in all the wells which suggests the source of the contamination has been removed and natural attenuation mechanisms are is successfully lowering residual contaminant concentrations in a reasonable time frame. All remaining wells contain only trace to non-detectable contaminant concentrations.

5 **ACEH Comment #5** - Chemical Analyses: In the Revised SCM, Weber, Hayes states that the previous detection of 2,100 ug/L lead in site groundwater may have been the result of improper sample collection methods; however, no data is presented to substantiate this claim. Please revise your sampling plan to include total lead, in the workplan addendum requested below. Also, we recommend that you evaluate intrinsic biodegradation that may be occurring at your site. Accordingly, as part of future groundwater monitoring events, please collect and analyze groundwater samples from both within and surrounding the contaminant plume for bioparameters, including: DO, ORP, methane, nitrate, sulfate, and dissolved ferrous iron.

Response #5: We will address previous elevated detection of lead by obtaining a confirmation groundwater sample from CDP-1 for certified laboratory lead testing.

We previously cited the presence of significantly depressed dissolved oxygen concentrations within the core of the plume as likely evidence of aerobic biodegradation of the residual petroleum hydrocarbons. At your request, we will obtain additional bio-parameters including ORP, methane, nitrate, sulfate, and dissolved ferrous iron, to provide further evidence of biodegradation. Once data is available, we will evaluate potential degradation rates, the contaminant mass remaining, historic and likely future rates of biodegradation, the approximate time period' required to achieve cleanup goals, and the reasonableness of the anticipated time frame in the context of existing basin and potential future onsite groundwater use.

ACEH Technical Comments & Weber, Hayes and Associates Responses

6 **ACEH Comment #6 - Site Conceptual Model**: We request that you update your site conceptual model to incorporate the results of additional work performed pursuant to comments 1 through 4 above. In addition, Weber, Hayes' July 30, 2004, *Revised SCM* needs to be further revised to include the following:

A. Summary tables of chemical concentrations in each historically sampled media (including soil, groundwater and soil vapor). Tables need to include all historical data (soil and groundwater since 1986) for the site.
B. Evaluation of the likely time period required for the site to meet water quality objectives. Your evaluation needs to be based on historical trends, intrinsic bioremediation, and contaminant mass remaining in soil and groundwater. This data is requested to support the statements regarding natural attenuation made by Weber, Hayes in their August 22,2003, closure request and in their March 27, 2003, letter regarding revised site specific cleanup goals.
C. Current status of assessment of risk to human health and the environment posed by residual contamination at the site. Please submit a copy of the April 18, 2003 RWQCB email referenced in the Revised SCM, and please reference the appropriate current documents.
D. If necessary, proposed activities to investigate and fill data gaps identified above.

#6 Response:

A.) All available historical records of sampled media have been included in the tables section of the report.

B.) As noted in #5 Response (above), we will obtain additional bio-parameters including ORP, methane, nitrate, sulfate, and dissolved ferrous iron, to provide further evidence of biodegradation. Once the new data is generated, we will evaluate degradation rates and attempt to assess the contaminant mass remaining to extrapolate an approximate time period needed to achieve cleanup goals.

C.) Exposure pathways are limited and the risk to human health and the environment is considered negligible.

- Soil contamination has been satisfactorily remediated to health-based levels.
- Shallow groundwater contamination in excess of proposed cleanup levels is limited to within the property boundaries and no documented shallow groundwater pumping occurs within 500 feet of the subject site which is well beyond the extent of the known plume limits.
- Deeper groundwater will be investigated during the current phase of drilling and sampling (see Section 4).
- There is virtually no potential for indoor air impacts as: 1) there are no structures on the site; 2) the plume of dissolved contaminants in groundwater is aged gas (majority of volatile compounds have degraded); 3) groundwater is encountered at relatively deep depths (30 feet bgs); and, 4) the source of shallow impacted soils has been removed and dissolved contaminants in groundwater are encountered below relatively low-permeability soils.
- In addition, the Tier 1 screening level for protection of indoor air under a residential exposure scenario is set at 1,900 ug/L (ppb) for benzene in groundwater (RWQCB-ESLs, Table E-1a), which is far higher then remaining benzene concentrations in groundwater at the site.

D.) See *Revised Soil and Groundwater Workplan* (Section 4).

ACEH Technical Comments & Weber, Hayes and Associates Responses

7 **ACEH Comment #7 - Investigation Report**: In addition to the report elements proposed by Weber, Hayes, ACEH requests that your final investigation report include the supporting documentation listed below.

A. Updated local and regional maps showing location of sources, extent of soil and groundwater contamination for appropriate depth intervals.
B. Updated geologic cross-sections (parallel and perpendicular to the contaminant plume axis).
C. Identification and listing of any data gaps that require further investigation during subsequent phases of work.
D. If necessary, proposed activities to investigate and fill data gaps identified above.

#7 Response:
As requested, these tasks will be incorporated into the final investigation report.

Section 3: REFINED SITE CONCEPTUAL MODEL

3.1 SITE DESCRIPTION

The subject site is located at the northeastern corner of Meekland Avenue and Blossom Way intersection, a mixed light commercial and residential area in Alameda County, California (Figure 1). The property is zoned as Neighborhood Commercial ("CN"), which is a district designed to accommodate at convenient locations those limited commercial uses which are necessary to meet basic shopping and service needs of persons in the surrounding areas. The flat-lying, approximately 21,000 ft^2 commercial site previously operated as a motor vehicle fueling station from the 1940s through the late 1980s. In 1989-1990, the site's underground fuel storage tanks (USTs) and existing structures at the site were removed and no business has operated at the property since that time. The commercial site is fenced off on all sides and contains no structures. The site is encapsulated with concrete and asphalt except were at previous UST and remedial excavation locations.

The subject parcel is situated at an elevation of approximately 55 feet above mean sea level and is located approximately ½-mile south of the westward flowing San Lorenzo Creek, and approximately three miles east of the San Francisco Bay (Figure 1). There are no ecologically sensitive areas such as surface water or wetlands or habitat for endangered species within 1,000 feet of the site.

The fenced parcel is bounded by single family residences to the northwest and northeast and contains street frontage to the southwest (Meekland Avenue) and southeast (Blossom Way , see Figure 2). Parcels across Meekland Avenue and Blossom Way are commercial and include Hank's Liquor Store (southwest), Hoang's Auto Repair Shop (south), mixed commercial retail stores (southeast). Both the liquor store and the auto repair shop parcels previously contained gasoline stations (see Figure 2).

3.11 Water Supply: Drinking water for the area is supplied by East Bay Municipal Utility District (EBMUD), Hayward Water, and Moreland Mutual Water District (MMWD). EBMUD water is imported from the Mokulume River system, with additional contributions from EBMUD Reservoir network located in the East Bay hills. Hayward Water is supplied by San Francisco Water Department, which imports water from Hetch Hetchy Reservoir. MMWD obtains their groundwater supply from a production well located approximately 5 miles southwest of the site. It has been reported by Alameda County Flood Control and Water Conservation District

(ACFC-WCD) that the Shallow Zone Aquifer (also discussed below) is not to be used for domestic water supply.

The subject site previously contained a 4-inch diameter, PVC water supply well which was closed in December 1989 by tremie grouting (CTTS, February 16, 1990). Prior to closure, the base of this water well was tagged at a depth of 67.9' - additional details are provided in the Well and Conduit Study section of this report (see section 2.4).

3.12 Planned Land Use: No development design plans have been proposed. As noted above, the site has been vacant since the underground fuel storage tanks and site structures were removed in 1989-1990. The site is zoned CN and will be a prime location for commercial business development once the fuel release issue is resolved.

3.2 REGIONAL AND LOCAL HYDROGEOLOGIC SETTING

3.21 Regional Geology: The site is located within the Coast Ranges province of California between the northwest-trending Hayward and San Andreas faults. The basement rock type between these two faults is the Franciscan Formation which is overlain by younger sedimentary rocks derived from the erosional process of the Mt. Diablo Range, and locally the San Leandro Hills.

Surface soils in the area were generated from erosion of the San Leandro Hills east of the site in alluvial cone and fluvial depositional environments and are up to 300 to 800 feet thick. The alluvial cones generally consist of a mixture of permeable gravels, sands and clays, and range in thickness from 50 feet at fan heads and canyons and 20 feet where these deposits interfinger with fluvial deposits at the outer margins of the fans (Helley, Lajoie, and Burke, 1972). In general the particle size, particle distribution and bed thickness of the alluvium decreases with increasing distance from the San Leandro Hills, westward toward San Francisco Bay. Based on review of site lithology (dominantly clays and silts with interbeds of sands and clayey sands), and distance from the San Leandro Hills, the site appears to be positioned near the outer margin of the alluvial fan sequence, where interfingering of fluvial deposits is apparent (see Regional Geologic Map, Figure 4).

3.22 Regional Hydrogeology[1]: Average annual rainfall for the City of Hayward is approximately 18 inches and most of the precipitation occurs in November through March. Recharge to the underlying aquifer system is from infiltration of precipitation, irrigation return flow, and stream flow.

The area has been divided into two aquifer zones, *Upper* and *Lower Zone*. The *Upper Zone* is

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[1]: CRWQCB- Region 2: *A Comprehensive Groundwater Protection Evaluation for the South San Francisco Bay Basins*, May 2003, and
California Department of Water Resources Bulletin No.118-1, *Evaluation of Ground Water Resources: South San Francisco Bay Volume II: Additional Fremont Study Area*, August, 1973.

located from ground surface to approximately 400 feet bgs while the *Lower Zone* is from 400 to 800 feet bgs. The *Upper Zone* aquifer contains three westward-dipping aquifers separated by extensive aquicludes. The aquifers are identified in increasing depth as the Newark, Centerville, and Fremont Aquifers (see Regional Geologic Cross-Section, Figure 5). The aquifers comprise of gravels and sands deposited from ancestral creeks as fluvial or alluvial deposits. The aquicludes comprise of silts and clays deposited from distal portions of the alluvial fans and from San Francisco Bay a marine and estuarian deposits.

The shallowest of these 3 main aquifers, the Newark Aquifer, is reported to contain an extensive permeable gravel layer which thickens from the forebay (20 foot thick) to the Hayward Fault (140 feet thick). The Newark Aquifer is first encountered at depths of 10-to-20 feet below mean sea level (MSL) in the vicinity of the subject site, and is estimated to be approximately 35-50 feet thick, based on the regional model and the closest, deep DWR well log: #17-F3, located 1,200 feet downgradient of the site (see Figure 3). This would place the top of the Newark Aquifer at a depth of approximately 65 to 75 feet below ground surface - ground surface at the subject site is 55 feet above MSL. The Newark Aquifer is reported to be overlain by a thick layer of silt and clay called the Newark Aquiclude.

The Newark Aquifer is documented to contain an additional subzone known as the "Shallow Aquifer" (also known as the "shallow water bearing zone"). This "Shallow Aquifer" subzone is semi-confined or perched and is reported to be found at depths ranging from ground surface to approximately 50 feet below ground surface. It is limited in areal extent and pinches out toward the west as schematically shown on the Regional Geologic Cross-Section (see Figure 5). First-encountered, saturated soils beneath the site have been initially logged at depths ranging from 30-to-35 feet below ground surface (= elevation of 20-to-25 feet above MSL) and groundwater has generally risen approximately 10 feet after the aquifer is penetrated. The groundwater monitoring wells at the subject site appear to be screened within this "Shallow Aquifer subzone of the *Upper Zone* aquifer system given:

- the subject site's surface elevation of 55 feet above MSL and is located in the vicinity of the subzone known as the "Shallow Aquifer",
- only one water bearing zone was encountered during drilling at the site which was encountered at an elevation of 20-to-25 feet above MSL,
- projected depth of the top of the Newark Aquifer is approximately 15-to-20 feet below MSL.
- A recently completed Water Well Survey (section 2.4 of this report) uncovered 8 sites located within 1,000 feet radius of the subject site. Of these 8 sites, only 3 had logs describing subsurface soil type and saturation to a maximum depth of 83 feet bgs (the closest logged well is over 500 feet away - see Figure 3). The logs suggest there is a shallow saturated zone of low-permeability of silts and clays that is underlain by a saturated sand and gravel zone. For example:
    - Well 8-Q6, located 900 feet north of the site (Figure 4), contained wet silty-clay (12-38' bgs), separated from an underlying sand unit by 30 feet of clays and silts (38-68' bgs).
    - Well 17-F3, located 1,200 feet southwest of the site (Figure 4), contained a shallow

sand unit (23-56' bgs), separated from a 36-foot thick sand & gravel unit by 30 feet of sandy clay (46–64' bgs).

Underlying the Newark Aquifer is a fairly impermeable aquiclude and then the Centerville Aquifer. The Centerville Aquifer is reported to be found at depths of approximately 180-200 feet below ground surface.

3.23 Site Soils: The shallow soil lithology at the site has been observed to depths of 46 feet and only one groundwater bearing zone has been penetrated. Boring logs indicate there have been at least seven unconsolidated units logged beneath the site to a depth of 46 feet which include (in depth-increasing order):

1. sand/gravel fill,
2. clay,
3. sandy clay and/or clayey silt,
4. clayey and/or silty sand,
5. fat and/or lean clay,
6. poorly graded and/or silty sand, and
7. lean clay, as the bottom-most unit (unit seven).

Shallow soil lithology beneath the site and laterally offsite (to within 175 feet) appears fairly homogeneous based on monitoring well logs reviewed (CTTS, Inc. April 1991 & November 1992), and logs of driven probe borings (WHA June 2001 & February 2002). The general lithology of the site is depicted in cross sections A-A', B-B', and C-C' on Figure 6. Drillers logs of soil lithology encountered during drilling of water wells within 1,000 feet of the site is included on Figure 3. Geologic logs of borings and monitoring wells drilled as part of the current fuel leak investigation are included in Appendix A as a reference.

- Monitoring Wells (MW) were constructed as follows:
  - MW-5, 6, and 7 are all completed to 45 feet below ground surface (bgs) with 20 feet of screen;
  - MW-8 and MW-9 are constructed to 40 feet bgs (20 feet of screen);
  - MW-10, 11, and 12 are constructed to 40 feet bgs (15 feet of screen);
  - There is no well construction logs for either MW-3 or MW-4, although it is believed to be constructed similar to the other 40 foot wells with 15 or 20 feet of screen.

- Driven Probe (DP) borings were drilled as follows:
  - DP-1 terminates at 46 feet bgs;
  - DP-2, 3, 4, 5, 6, 7, 8, and 9 terminate at 25-28 feet bgs.
  - Landfill acceptance borings (LABDP-1, LABDP-2) terminate at 38-40 feet bgs.

The aquifer beneath the site appears to be semi-confined due to rise of groundwater levels to 22-23 feet bgs only after penetrating the deeper sand unit (unit 6) at depth. The basal clay unit encountered (unit 7) appears to be an aquitard underlying the upper shallow groundwater bearing zone. Specifically, the shallow lithology is described as follows:

- **Unit #1**: Sand/Gravel Fill is present in monitoring well logs MW-3, 4, 6, 7, 12 from just below the asphalt surface to 2 to 4 feet below ground surface (bgs) depending. Generally the fill is in the northern portion of the site and at the southwestern corner (at MW-4).

- **Unit #2:** Clay, is generally 2 to 4 feet thick and consistently present in most all borings and well logs to depths of either 3.5 or 7 feet bgs. The unit is described as a fat clay with some moisture but not water bearing.

- **Unit #3:** Sandy Clay, ranges in thickness from 6 to 16 feet, and is consistently present in all borings and well logs from depths of 3.5 or 7 feet bgs to depths of either 10 or 23 feet bgs. This unit is generally stiff, lacking moisture and mottled. The sandy clay unit generally appears to be thinning to the west toward MW-10 and MW-11 (Figure 6). A clayey sand was observed at the base of this unit in MW-5 and DP-3 and may be a preferential pathway.

- **Unit #4:** Clayey Sand, is generally around 4 feet thick, except in DP-10 and MW-4 where it is 10 and 15 feet thick, respectively. This clayey sand unit consistently encountered at depths of 10 or 15 feet bgs in all borings and well logs except DP-1 and MW-12 (different logging techniques?). This unit is not a water bearing unit but was described as being moist to very moist depending on time of year logged.

- **Unit #5:** Fat and/or Lean Clay, was logged to be consistently 10 feet thick and up to 15 and 20 feet thick wells MW-5 and MW-3, MW-6, MW-11. The clay was consistently present in starting at depths of 20 feet bgs and contained some interbeds of sands in the lower half. This unit has been described as being both moist and dry (lean) and medium stiff to very stiff. This clay is not believed to be a groundwater bearing unit even though it is submerged in all monitoring wells constructed onsite (semi-confined aquifer in the underlying unit (unit #6).

- **Unit #6:** Poorly Graded Sand and/or Silty Sand, is generally 5 to 7 feet thick (up to 10 feet thick in MW-10) and was logged in most of the boring logs and in half of the well logs at depths of around 30 to 35 feet bgs. This unit is absent in MW-4, 8, 11, and 12 (the southern and northern portions of site) leaving a northwest and southeast trend of this unit in the subsurface, similar to groundwater flow direction and perhaps a distinct preferential flow path. This unit is interpreted to be the Shallow Aquifer and once it is penetrated, groundwater rises to static levels of 22- 23 feet bgs.

- **Unit #7:** Lean Clay, is generally logged as being 5 feet thick (up to 10 feet thick in MW-7 and DP-1) and is generally present in all borings and well logs, and is the deepest unit encountered during drilling at the site. Most monitoring wells terminate 2 to 5 feet into this unit.

3.24 Site Hydrogeology: First-encountered, saturated soils beneath the site were first logged at depths of about 30-to-35 feet below ground surface (= elevation of 20-to-25 feet above MSL) and groundwater has typically risen approximately 10 feet following aquifer penetration. As described above, the groundwater monitoring wells at the subject site appear to be screened within this "Shallow Aquifer subzone of the *Upper Zone* aquifer system given:

- The subject site is located in the vicinity of the subzone known as the "Shallow Aquifer" and at a surface elevation of approximately 55 feet above MSL.
- Only one water bearing zone was encountered during drilling at the site which was a relatively thin, 5-10 feet thick sand unit which was encountered at an elevation of 20-to-25 feet above MSL (30-to-35 feet bgs).
- The top of the Newark Aquifer in the vicinity of the site is projected to first encountered at depths of approximately 15-to-20 feet below MSL (70 to 75 feet bgs) and the aquifer is reported to be upwards of 50 feet thick.
- Local driller's logs (Figure 3) do not show consistency between the few wells within 1,000 feet of the site. A deep well log does suggest the bottom of the Newark Aquifer is at a depth of approximately 100 feet below ground surface which is underlain by a 60-foot thick clay aquitard (see simplified log of well 17-F3, Figure 3).

The hydraulic gradient is relatively flat, on the order of 0.002 feet per foot and consistently in a westward direction toward the San Francisco Bay (see Figure 8). A typical silty sand -to-sand aquifer would have a generic hydraulic conductivity ranging from 10^{-7} to 10^{-5} m/s and a gradient of 0.002 feet per foot would have groundwater velocity's ranging between 5.9 and 591 feet per year . Dissolved plume migration would be further retarded by typical contaminant breakdown properties (dispersion, advection, biodegradation,).

3.25 Site Hydrogeologic Summary: Petroleum hydrocarbons compounds have been detected in the first encountered groundwater beneath the site which is a semi-confined aquifer. The detection indicates a pathway exists between the former fuel release (source) and the shallow aquifer. Downward transport of the fuel release (gravity) coupled with the observed presence of clayey sand stringers interbedded in the clay unit above the shallow aquifer, provide the potential mechanism and pathway for the vertical movement to the groundwater bearing zone. Subsequent lateral movement to the west (downgradient direction) has also been documented during water quality monitoring.

3.3 SUMMARY OF PREVIOUS INVESTIGATIONS & REMEDIAL ACTIVITIES

The subject site was operated as a motor vehicle fueling station since the 1940's. In the 1960s Harbert Transportation purchased the site and operated it as a vehicle fueling and maintenance facility until 1986. In 1986, Durham Transportation of Austin, Texas purchased the property and operated the site as a fueling and maintenance facility until 1989. A number of environmental *investigations and remedial actions have since occurred at the subject site and are documented in the* list of environmental reports referenced at the end of this report. Environmental tasks included removal of the fueling facility installation, groundwater pumping and remedial excavation, delineation of soil and groundwater contamination including the installation of a number of groundwater monitoring wells which currently includes eight onsite and 2 off-site wells (Figure 2)

3.31 Underground Tank Closures and Initial Monitoring: In August 1989, four underground storage tanks (USTs) were removed from the site. Applied Geosystems, CTTS, and AGI-Technologies completed preliminary subsurface investigations and concluded that soil and groundwater beneath the subject site were impacted by petroleum hydrocarbons (PHCs) and volatile organic compounds (VOCs). Reports indicate that soils excavated following the UST removals were backfilled within a plastic-lined excavations (CTTS, November 1, 1992). Documentation also indicates that two additional USTs located adjacent to dispensers removed in 1989 were pulled in the early 1950's, and that a sump located in the northern portion of the site contained petroleum hydrocarbon contamination (CTTS, November 27, 1990). In March 1990 the site structures were demolished and removed and the site has remained undeveloped and unoccupied since that time. CTTS records indicate quarterly monitoring continued through June 1993, and subsequently decreased to twice in 1994 (third and fourth quarters), once in 1995 (third quarter) and twice in 1996 (first and third quarters).

3.32 Groundwater Remediation: Between approximately December 1, 1992 and December 31, 1993 onsite groundwater pump and treat remediation operations were reportedly conducted by CTTS Inc. Monitoring Wells MW-5, 6, and 7 were set up to pump groundwater from the subsurface through three carbon canisters inline with each other to a holding tank and ultimately to the sanitary sewer.

3.33 Source Removal - Interim Remedial Action: Soil sampling from a number of exploratory borings and groundwater sampling during ongoing monitoring indicated that elevated concentrations of fuel contamination was present at the former location of the former UST facility removed in 1989 (source). Specifically, sampling confirmed that significant concentrations of petroleum hydrocarbon contamination remained at two isolated areas:

- beneath the former dispensers (removed 1989) at a location which previously contained two USTs that were removed in the early 1950's, and,
- beneath the former excavation pit (excavated in 1989) which was reportedly backfilled with the excavated material (CTTS, November 1, 1992).

Despite the presence of elevated petroleum hydrocarbons at the source, groundwater monitoring showed the plume was limited in lateral extent and had no fuel oxygenates including MTBE.

An Interim Remedial Action (IRA) which included removal of the residual petroleum hydrocarbon contamination was approved and in January 2002, six foot- diameter augers were used to drill out 40 foot shafts of contaminated soils from the excavation footprint (former excavation pit and the dispenser areas - see Figure 2). The excavation successfully removed approximately 600 yds^3 contaminated soil from the vadose zone, the soil/groundwater interface, the smear zone. In addition, 400 pounds of Oxygen Release Compound® (ORC) was added to the saturated zone to enhance the ability of aerobic microbes to degrade contaminants (WHA report; February 8, 2002). Fourteen soil samples (12 sidewall and 2 base) confirmed that the remaining source soil was removed to target cleanup levels (see table below):

Maximum IRA Soil Sample Results
All results in parts per million (mg/kg, ppm)

Identification	TPH-g	Benzene	Toluene	Ethyl-benzene	Xylenes
Highest Soil Sample Concentrations	34	0.041	0.014	0.12	0.6
Soil Cleanup Goal ESLs	100	0.044	2.9	3.3	1.5

- ESLs: Environmental Screening Levels, which were established by CRWQCB-SFBR
- **This summary shows that residual soil concentrations are *below* ESLs.**

Following source soil removal operations, the following data exists for the monitoring well network at the site:

- Groundwater concentrations in closest wells (MW-3, 5, 6, and 9) have continued to show generally decreasing concentration trendlines following source removal operations, although some contaminant oscillation is apparent (see Figures10-15). Currently, only one well (MW-5) located a few feet from the source contains concentrations of benzene above the groundwater cleanup goal of 10 ppb (benzene = 470 ppb).

- The remaining upgradient and sidegradient wells are now non-detect for constituents of concern and provide good definition regarding the lateral extent of contamination (wells MW-4, -7, -8, -11, and -12).

- Downgradient well MW-10 continues to show a continual decline in hydrocarbon concentrations (see Figures 14 and 15).

3.34 Conclusions of Source Removal Activities: It is our opinion that the excavation of the soil contamination at the former underground tank locations, which included removal of fuel-impacted, saturated soils from the zone of fluctuating groundwater (smear zone), has significantly eliminated the primary source of ongoing groundwater contamination. Only three of the nine wells that make up the monitoring network currently contain elevated levels of Total Petroleum Hydrocarbons (TPH). Specifically, on-site wells MW-5, MW-6, and MW-9, all located within 60 feet of the source, contain TPH-gas concentrations ranging from 1,900-7,000 parts per billion (ppb) and only one well, MW-5 - located only a few feet from the former fuel tank pit, contained elevated benzene (470 ppb, see Figure 7). All remaining wells contain only trace to non-detectable contaminant concentrations including downgradient well MW-10 located 175 feet from the source.

3.35 Proposed Risk-Based Cleanup Goals: A number of assessments of risk were completed to assess potential risk to human health and the environment using Risk-Based Cleanup Standards[2] on the basis that shallow groundwater beneath the site was not used as a drinking water resource and there were no sensitive receptors within close proximity to the site that

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[2]: California Regional Water Quality Control Board, San Francisco Bay Region's publication: *Application of Risk-Based Screening Levels and Decision Making to Sites with Impacted Soil and Groundwater* (2002, revised 2003).

could be potentially impacted by residual petroleum hydrocarbon contamination (PHC). Preliminary communication with Roger Brewer at California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR) indicated that the revised site specific clean-up goals were sufficient and that it appeared that the site soil and groundwater concentrations were within the site clean-up goals (e-mail from Roger Brewer, April 18, 2003, Appendix E). A request for site closure was submitted in August 2003 which was subsequently denied in May 2004 in an ACEH Technical Memorandum requiring new clean-up goals and additional information (ACEH directive, dated May 13, 2004).

Subsequently, new cleanup goals for groundwater were submitted in the *Revised Site Conceptual Model* report dated July 30, 2004. The proposed cleanup goals were intended to be 10 times the State Maximum Contaminant Levels (MCLs) for drinking water with the exception of TPH which has no established MCL. This was in agreement with levels recommended by ACEH in the May 13, 2004 directive ("the goal of 10x the MCL would be considered a reasonable proposal" for a maximum plume concentration that may migrate beyond the boarders of the subject site, page 4, section 3). However, as requested in the recent ACEH directive dated December 20, 2004, we have revised these proposed modified cleanup levels downward to be more conservative than MCLs for drinking water, and instead have based them on RWQCB-SFBR *Environmental Screening Levels.*

The modified cleanup levels listed below are site-specific concentrations proposed for this low-risk fuel release and are meant to achieve Basin Plan water quality objectives within a reasonable time period. The levels are meant to be the maximum plume concentrations that may not migrate beyond the boarders of the subject site.

Table: **Proposed Cleanup Levels**
- all concentrations in ug/L (parts per billion, ppb) -

	TPH-gas	Benzene	Toluene	Ethyl-Benzene	Xylenes	MTBE
State MCL's for Drinking Water:	Not Established	1	100	300	1750	13
RWQCB-SFBR **Final ESLs** (basis)	100 (T&O)	1 (DWT)	40 (T&O)	30 (T&O)	13 (AHG)	5 (T&O)
Proposed Cleanup Levels (10 Times the ESLs)	1000	10	400	300	130	50

- **RWQCB-SFBR:** California Regional Water Quality Control Board, San Francisco Bay Region
- **Final ESL's**= "Final" Environmental Screening Levels, based on the lowest (most conservative) screening level (T&O, DWT, or AHG) established by RWQCB-SFBR for the protection of groundwater quality.
- **T&O**= Taste & Odor; **DWT**= Drinking Water Toxicity **AHG:** Aquatic Habitat Goal
- Proposed Cleanup Levels based on shallow groundwater being a potential groundwater resource.

Exposure pathways are limited and the risk to human health and the environment is considered insignificant due to the following conditions:

- Soil contamination has been satisfactorily remediated to health-based levels.

- Shallow groundwater contamination in access of proposed cleanup levels is limited to within the property boundaries and no documented shallow groundwater pumping occurs within 500 feet of the subject site which is well beyond the extent of the known plume limits.
- Deeper groundwater will be investigated during the current phase of drilling and sampling (see Section 3).
- There is virtually no potential for indoor air impacts as: 1) there are no structures on the site; 2) the plume of dissolved contaminants in groundwater is aged gas (majority of volatile compounds have degraded); 3) groundwater is encountered at relatively deep depths (30 feet bgs); and, 4) the source of shallow impacted soils has been removed and dissolved contaminants in groundwater are encountered below relatively low-permeability soils.
- In addition, the Tier 1 screening level for protection of indoor air under a residential exposure scenario is set at 1,900 ug/L (ppb) for benzene in groundwater (RWQCB-ESLs, Table E-1a).

3.36 Conclusions of Summary of Previous Investigations: Based on ACEH Technical Memorandum (ACEH, Dec 2, 2004), WHA has revised the groundwater clean-up goals to levels directed by Alameda County Environmental Health which are protective of a drinking water supply. The *Revised Soil and Groundwater Investigation Workplan* targets data gaps identified in the response to comments and text portions of this report. Specific data gaps to be addressed include the following:

- *Based on the revised groundwater cleanup goals, only two wells (MW-5 and MW-9)* contain concentrations of benzene that exceed the groundwater cleanup goals, while all other wells contain concentrations that meet groundwater cleanup goals. Based on this review, WHA plans to drill two borings, both at the downgradient property line, to determine if groundwater contamination is present at acceptable risk-based concentrations (i.e. below the maximum plume concentration that may migrate beyond the borders of the site).
- Determining whether the former on-site production well was screened within the Newark Aquifer and determining whether the second saturated zone is impacted with residual fuel contaminant compounds. To confirm that this previous, on-site water well is not acting as a vertical conduit for downward migration of dissolved fuel contaminants, a boring will be continuously cored to minimum depths of 70 feet, soils will be critically logged for the deeper groundwater bearing zone, and discrete sampling of the deeper groundwater bearing zone will be completed.
- As noted in #5 Response (above), we will obtain additional bio-parameters including ORP, methane, nitrate, sulfate, and dissolved ferrous iron, to provide further evidence of biodegradation. Once the new data is generated, we will evaluate degradation rates and attempt to assess the contaminant mass remaining to extrapolate an approximate time period needed to achieve cleanup goals.
- A calculation of the estimation of release mass. The *Revised Soil and Groundwater Investigation Workplan* (section 5, below) will address a work task designed to extrapolate a rough estimation of release mass based on a review existing laboratory results.

3.4 WELL AND CONDUIT STUDY

A well/conduit study was conducted which included investigation to identify water wells within ½-mile radius of the site (i.e., monitoring and production wells; active, inactive, standby, destroyed, abandoned), provide details of their construction (where available), and an interpretation of their possible contribution to plume dispersal, should there be any. The results of this study were used to refine the Site Conceptual Model and determine whether utility conduits or offsite wells would allow the spread of petroleum hydrocarbon contaminated groundwater.

Private and public utility companies were contacted to obtain information subsurface utility installations and information on wells within ½-mile radius of the site. Agencies contacted included the Alameda County Public Works Agency (ACPWA) Land Development Department, Maintenance & Operations Department and Water Resources Section, and the Department of Water Resources.

3.41 Well Conduit Study: Both the California State Department of Water Resources (DWR) and the local ACPWA Water Resources Section sent us their query results on wells within ½-mile radius of our site. This data has been compiled onto Table 3 according to well number (Township, Section, and Range). Included in the query, if available were; site addresses and city; well owners; drilling dates; elevations of well heads; total depth of wells; groundwater depths; well diameters; well types; and whether or not there was a drilling log associated with the well. The wells were field checked and are presented on Figure 9. Copies of ACPWA lists and all DWR well logs are included as Appendix A.

Even though municipal utilities provide the drinking water supply for businesses and residences within the City of Hayward, existing records show that 132 wells have been drilled within a ½ mile radius of the site`since 1908, including 16 "orphan" locations having no specific address. A written log exists for 84 of the 132 wells (the remaining 48 wells, which were identified on the ACPWA list, did not have DWR well logs). Figure 3 presents the location and general lithology by depth, of water wells located within 1,000 feet of the subject site. None of the documented wells appear to be threatened based on the mapped extent of residual dissolved fuel contaminants (see Figure 7).

WHA staff confirmed the address location of wells identified to be within a ½ mile radius of the site by driving by and looking for pump houses or electrical poles which service the pump house. Generally, the irrigation wells were located at a large residential complex (mobile home, apartments, or condominiums), while the monitoring wells were located at active or abandoned gasoline stations. Domestic wells were generally noted by observing a pump house on the property. Particular attention was given to those wells which were near the site, especially domestic and irrigation wells.

The closest two wells (17-C1, 17-C2, no geologic logs available) were approximately 600 feet northwest (cross-gradient) of the site, and were listed by ACPWA to be irrigation wells. These wells are not located near the limits of the sites' dissolved PHC plume and are not considered to be potential conduits for vertical transport of PHC-impacted groundwater. The groundwater plume at the subject site is estimated to be at a maximum, 120-160 feet long (Figure 7). None of the other wells are close to the lateral ends of the dissolved plume. **Based on the information gathered and field observations, there are no private or public water wells near the subject site that appear to have the potential to be a vertical conduit for transporting PHC-contamination to deeper groundwater bearing zones.**

3.42 Utility Conduit Study: On July 28, 2003 WHA staff mapped above ground and below ground utilities in the intersection of Blossom Way and Meekland Avenue. Each manhole cover was identified and mapped, as was all street lighting and overhead electrical. Following field mapping and after receiving utility maps from the utility companies (Oraloma Sewer, EBMUD, and Pacific Gas & Electric) , a utility map was created. Based on our field inspections the deepest conduit at the site is approximately 8 feet bgs, approximately 14 feet above the groundwater table. **Based on the information gathered and field observations, there are no utility conduits near the subject site that could serve as a horizontal conduit for transporting PHC-contamination to the shallow groundwater bearing zone.**

3.43 Conclusions to Well and Conduit Study: In this Revised SCM, WHA will evaluate a 4-inch diameter PVC well which was destroyed under permit by tremie grouting operations by HEW Drilling Inc. with oversight by CTTS on December 12, 1989 (CTTS, February 16, 1990). It was reported that the well was 67.9 feet deep, with static groundwater at 29.9 feet bgs. Additionally, it was reported that the groundwater in the well was sampled prior to it being destroyed. The groundwater sample obtained from this well (depth unknown) contained concentrations of TPH-g, at 1,800 parts per billion (ppb), benzene at 200 ppb, ethylbenzene at 24 ppb, toluene at 18 ppb, and xylene at 34 ppb, 1,2 DCA at 0.15 ppb and lead at 2,100 ppb. No TCE, or PCE was detected. Confirmation lead sampling will determine whether the lead concentration is accurate (i.e. was the groundwater sample filtered and acidified prior to lead analysis).

Section 4.0: REVISED SOIL &GROUNDWATER INVESTIGATION WORKPLAN

This *Revised Soil and Groundwater Investigation Workplan (SGIW)* describes proposed work tasks targeting for the former Harbert Transportation facility. The purpose of this *Workplan* is designed to provide additional information to fill in the data gaps of the revised SCM. Specifically, work tasks described in this *Workplan* are designed to collect data to address whether there is an impact to the next groundwater bearing zone (drilling a deep boring), and whether there is further evidence of dissolved contaminant attenuation in groundwater (test selected wells for additional bio-parameters). Data collected is designed to investigate and confirm that:

- natural attenuation is occurring at the site and no significant dissolved contamination is migrating offsite (collect additional samples and test for bio-parameters,
- there is evidence of significant residual contamination onsite (mass and attenuation estimates),
- there is no contamination relating to releases from this property in the deeper groundwater

bearing zone (deep boring and sampling),

- the clean-up goals for soil and groundwater have been met.

4.1 Description and Rational of Workplan Tasks: The following tasks will provide additional supporting data to elaborate and support our current SCM. The following tasks will be completed upon written approval by ACEH. The tasks include;

Task 1:	Pre-field Activities
Task 2:	Identification and Confirmation Sampling of Deeper Groundwater Bearing Zone
Task 3:	Confirmation Groundwater Sampling at Downgradient Property Line (MW-9)
Task 4:	Additional Groundwater Monitoring & Testing for Bioparameters
Task 5:	Summary Reporting

Task 1: **Pre-Field Activities:** Prior to conducting field work, WHA will obtain site access, encroachment permits, if applicable, and boring permits from Alameda County Public Works Agency (ACPWA). WHA will also prepare a site health and safety plan to perform Workplan tasks. Underground Safety Alert (USA) will be contacted 48-hours prior to field work to identify any and all underground utilities that may be encountered during drilling. Project coordinating will include scheduling a Geoprobe drilling rig with a C-57 license (Enprob, C-57 License # 777007) to conduct the drilling and sampling. WHA plans to use dual tube sampling equipment to prevent downward migration of contamination during drilling. Additionally, WHA will coordinate with the county agency/inspectors so they can oversee project status and drilling operations, as well as making sure the site health and safety plan for this investigation is followed.

Task 2: **Identification and Confirmation Sampling of Deeper Groundwater Bearing Zone:** This task is being conducted to confirm that a previous, on-site water well is not acting as a vertical conduit for downward migration of dissolved fuel contaminants. The well was reported to be constructed to 67.9 feet below ground surface (bgs) with static water at 29.9 feet bgs and was destroyed under permit by filling the well with grout to ground surface via tremie pipe (Dec-1989). Prior to the permitted destruction, groundwater was sampled and laboratory tested. The results indicated that the groundwater from this well contained some elevated concentrations of TPH-g, BTEX, and lead. Since there is no available construction details it is unclear where the well screens were positioned. To confirm that this previous, on-site water well is not acting as a vertical conduit for downward migration of dissolved fuel contaminants, we will continuously core soil to minimum depths of 75 feet, critically log soils for identifying multiple saturated zones (i.e. Shallow Aquifer, and the Newark Aquifer), and complete discrete sampling of the deeper groundwater bearing zone. Our goal will be to penetrate the Newark Aquifer and obtain 1 to 2 hydropunch samples

Currently, the lithology at the site has been observed to depths of 46 feet and only one groundwater bearing zone has been penetrated. Boring logs indicate there are at least seven unconsolidated units comprising the upper 46 feet beneath the site including (in depth increasing order); sand/gravel fill, clay, sandy clay and/or clayey silt, clayey and/or silty sand, fat and/or lean clay, poorly graded and/or silty sand, and lean clay as the bottom most unit (unit seven). The subsurface lithology appears fairly homogeneous beneath the site, and laterally (within 175 feet) offsite. Proposed exploratory drilling will help determine whether the bottom most lean clay (unit 7) is a significant aquitard separating the Shallow Aquifer from the deeper groundwater bearing zone (Newark Aquifer).

Based on the existing water well information and known lithology, we proposes to drill a single, deep Confirmation Driven Probe (CDP-1) boring directly adjacent to the former well (see Figure 2). This location is selected as a worst-case location in order to confirm there has been no significant impact to Newark Aquifer. The boring will be logged and sampled by an experienced environmental geologist. The borehole will be continuously cored in 4-foot intervals and an Organic Vapor Analyzer (OVA) calibrated for benzene will be used for detection of potential volatile organic vapors. We expect to initially encounter groundwater at a depth of approximately 32 feet (confined conditions will cause water to rise to depths of around 23 feet below ground surface (bgs). We will continue to core and log soils to beyond the base of the Shallow Aquifer and an effort will be made to seal off the aquifer using hollow stem augers and/or a GeoProbe dual tube rods to seal off the upper groundwater bearing zone while obtaining deeper soil core. Soils will be carefully inspected and logged with emphasis on determining depth and thickness of a potential aquitard separating the Shallow Aquifer and the Newark Aquifer. Field methodology, sampling protocol and a site health and safety plan is presented in Appendix D.

At least one discrete grab groundwater sample will be obtained beneath any encountered aquitard to assess potential impacts to the deeper groundwater bearing zone. Soil samples will be collected and held for evaluation. Once groundwater is encountered, a groundwater grab sample will be obtained and analyzed for:

- Total Petroleum Hydrocarbons as gasoline (TPH-g),
- Methyl-Tert-Butyl Ether (MTBE),
- Benzene, Toluene, Ethylbenzene, Xylene (BTEX)
- Total Lead.
-

If analytical concentrations indicate that groundwater in the deeper bearing zone is below groundwater clean up goals, and the Site Conceptual Model is further validated with additional field data, we will petition for site closure.

Task 3: **Confirmation Groundwater Grab Sampling at Downgradient Property Line:** Figures 10 through 15 present individual charts of decreasing benzene and TPH-gasoline concentrations in on-site wells MW-5 (source well) and MW-9 (property line well), as well as downgradient well MW-10. The charts all show a consistent decrease in concentrations since monitoring began in 1990. This downward trend is observed in all the wells which suggests the source of the contamination has been removed and natural attenuation mechanisms are is successfully lowering residual contaminant concentrations in a reasonable time frame. All remaining wells contain only trace to non-detectable contaminant concentrations.

These decreasing concentration trends indicate on-site well MW-9 is a reasonable monitoring sentinel for extrapolating concentrations at the property boundary.

Task 4: **Groundwater Monitoring & Sampling for Bioparameters:** This task will involve obtaining groundwater samples from five of the ten wells that make up the monitoring well network. These groundwater samples will serve as confirmation samples for the shallow groundwater bearing zone to confirm whether contaminant concentrations are continually decreasing with natural attenuation, and for demonstrating the lack of plume migration off site. Proposed wells to monitor for the bioparameters include: an upgradient well (MW-8), a well at the source (MW-5), two on- wells positioned at the downgradient property line (MW-3, MW-9), and offsite well MW-10, located furthest downgradient from the source. Monitoring well groundwater samples obtained will be analyzed for:

- TPH-g, MTBE, BTEX
- Bio-parameters including ORP, methane, nitrate, sulfate, and dissolved ferrous iron, to provide further evidence of biodegradation.

Field methodology for monitoring well sampling is included in Appendix D. Once the new data is generated, we will evaluate degradation rates and attempt to assess the contaminant mass remaining to extrapolate an approximate time period needed to achieve cleanup goals.

Task 5: **Reporting of Tasks 1 through 4:** This task will detail tasks 1 through 4 by compiling all field work data, observations, and reviewing lithologic logs and groundwater analytical results. WHA will provide a written report that will document field activities, summary of findings, recommendations and conclusions for the site. This report will be prepared for our client for submittal to ACEH and CRWQCB.

4.1 Schedule of Workplan Tasks

- Task 1 (Pre-Field Activities): This tasks will commence within two weeks of written approval by the lead regulatory agencies.

- Tasks 2 & 3 (Confirmation Sampling: Soil and Groundwater Drilling and Testing of the Deeper Groundwater Bearing Zone): These tasks will commence within two-three weeks of written approval by the lead regulatory agencies and pending drill rig availability.

- Task 4 (Two Additional Rounds of Groundwater Monitoring & Sampling for Bioparameters): This task will commence within two-three weeks of written approval by the lead regulatory agencies.

- Task 5 (Reporting of Tasks 1 through 7): This task will be completed three to four weeks following receipt of laboratory results, expected to be approximately eight weeks following written approval by the lead regulatory agencies.

All work to be conducted within this *Workplan* will be supervised by a Certified Engineering Geologist, or Registered Geologist and conform to all state and local codes and regulations. If you have any questions in regards to this *Workplan* please call us at our office.

Section 5.0 LIMITATIONS

Our service consists of professional opinions and recommendations made in accordance with generally accepted geologic and engineering principles and practices. This warranty is in lieu of all others, either expressed or implied. The analysis and proposals in this report are based on sampling and testing which are necessarily limited. Additional data from future work may lead to modification of the opinions expressed herein.

Thank you for the opportunity to aid in the assessment and cleanup of this site. If you have any questions or comments regarding this project please call us at (831) 722 - 3580.

Sincerely yours,

Joe Hayes

REGISTERED GEOLOGIST
JOSEPH P. HAYES
No. 1628
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Pat Hoban
Senior Geologist

Joseph Hayes
Principal Hydrogeologist

6.0 REFERENCES

AGI Technologies reports for work completed at 19984 Meekland Avenue, Hayward:

- August 29, 1994. *Quarterly Groundwater Monitoring*
- September 19, 1994. *Quarterly Groundwater Monitoring*
- February 1, 1995. *Quarterly Groundwater Monitoring*
- August 16, 1995. *Development of Risk-Based Cleanup Standards*
- November 9, 1995. *Work Plan Off-Site Contamination Assessment*
- November 29, 1995. *Quarterly Groundwater Monitoring*
- April 30, 1996. *Quarterly Groundwater Monitoring*
- January 6, 1997. *September 1996 Quarterly Groundwater Monitoring*
- February 4, 1998. *Final Report Development of Risk-Based Cleanup Standards*

Alameda County Health Care Services Agency, Environmental Health Services letters and directives:

- June 17, 1999: *Requests for Additions/Modifications to the Risk Assessment*
- July 11, 2000: *Groundwater Monitoring and Work Plan Request*
- August 8, 2000:*Groundwater Monitoring and Work Plan Request - Clarification*
- November 1, 2000: *Approval of Work Plan for Soil and Groundwater Sampling*
- November 15, 2000: *Review of Third Quarter 2000 Groundwater Monitoring Report*
- December 4, 2000. *Approval of Work Plan for Soil and Groundwater Sampling*
- February 21, 2001: *Concurrence with work proposed in Fourth Quarter 2000 Groundwater Monitoring Report*
- June 26, 2001: *Concurrence with work proposed in First Quarter 2001 Groundwater Monitoring Report*
- November 29, 2001: *Receipt of "Status Report-UST Assessment and Cleanup" dated November 6, 2001, and Concurrence with work proposed in Second Quarter 2001 Groundwater Monitoring Report*
- December 13, 2001: *Concurrence with work proposed in Addendum to Interim Remedial Action and Modified Feasibility Study*
- January 14, 2002: *10% Increase in Interim Remedial Action Costs Acceptable*
- January 28, 2002: *Time Extension for Submitting Excavation / Interim Remedial Action Report*
- October 23, 2002: *Concurrence with Recommendations to Continue Groundwater Monitoring and Calculate Active Cleanup Goals*
- April 15, 2003 (e-mail): *Concurrence with Recommendations for Well/Conduit Study, and increase search Radius to ½ Mile*
- May 13, 2004: *RE: SWI, SCM and Case Closure Request*

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- July 20, 1986: *Subsurface Environmental Investigation, Two Soil Borings, and Monitoring Well Installation*

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- September 13, 1989. *Report on Underground Tank Removal*
- November 27, 1990. *Phase II Report*
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- January 31, 1990: *Report on Well Abandonment and Groundwater Monitoring Well Installations*
- July 2, 1990: *Progress Report #1, Period Covering 3/23/90-6/30/90,*
- August 2, 1990 *Progress Report #2, Period Covering 7/l/90-7/31/90,*
- September 21, 1990. *Progress Report #3, Period Covering 8/l/90-8/31/90,*
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- April 4, 1991. *Progress Report #8, Period Covering 2/l/91-3/31/91,*
- June 30, 1991. *Progress Report #11, Period Covering 6/l/91-6/30/9,*
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- March 10, 1993. *Progress Report #18, Period Covering 12/l/92-1/31/93*
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- July 24, 2001. *Groundwater Monitoring Report - Second Quarter 2001*
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- December 7, 2001. *Addendum to Interim Remedial Action -*
- December 11, 2001. *Feasibility Study and Modified Interim Remedial Action -*
- January 14, 2002. *Facsimile with information regarding 10% Cost Overrun - Interim Remedial Action*
- February 8, 2002: *Interim Remedial Action, Large-Diameter Auger Excavation Operations, and Fourth Quarter 2001 Quarterly Groundwater Monitoring,*
- May 2, 2002. *Groundwater Monitoring Report - First Quarter 2002*
- September 12, 2002. *Groundwater Monitoring Report - Second Quarter 2002,*
- December 27, 2002 *Proposed Site-Specific Cleanup Goals, Groundwater Monitoring Report - Third Quarter 2002*
- March 27, 2003. *Proposed Site-Specific Cleanup Goals - Revised, Groundwater Monitoring Report - Fourth Quarter 2002,*
- July 2, 2003. *Groundwater Monitoring Report - First Quarter 2003,*
- August 22, 2003 *Fuel Leak Case Closure Request and Groundwater Monitoring Report - Second Quarter 2003, 19984 Meekland Avenue, Hayward, CA*

Table 1

Summary of Groundwater Elevation and PHC Analytical Data

Former Harbert Transportation Facility, 19984 Meekland Avenue, Hayward, Ca.

Monitoring Point Information						***Laboratory Analytical Results***											***Field Measurements***	
						Total Petroleum Hydrocarbons	***Volatile Organic Compounds***								***Lead Scavengers***			
Well I.D.	***TOC Elevation (feet, NGVD)***	***Screen Interval (feet, bgs)***	***Date Sampled***	***Depth to Groundwater (feet, TOC)***	***Groundwater Elevation (feet, NGVD)***	***Gasoline (ug/L)***	***Benzene (ug/L)***	***Toluene (ug/L)***	***Ethylbenzene (ug/L)***	***Xylenes (ug/L)***	***MTBE (ug/L)***	***TBA (ug/L)***	***Ethanol (ug/L)***	***Fuel Oxygenates (ug/L)***	***1,2-DCA (ug/L)***	***EDB (ug/L)***	***Dissolved Oxygen (mg/L)***	***Redox Potential (ORP) (mV)***
MW-3	55.44	20 - 40?																
		▲	09/23/04	24.26	31.18	160	ND	ND	2.9	ND	ND	ND	ND	ND	ND	ND	0 39	112
			06/24/03	22.53	32.91	260	ND	ND	5.6	2.8	ND*	–	–	–	–	–	0.18	-2
			03/21/03	22.41	33.03	460	3.3	1.4	5 6	< 2.5	ND*	–	–	–	–	–	0.15	-34
			12/30/02	21.32	34.12	70	ND	ND	2 1	< 1	ND*	–	–	–	–	–	0.14	536
			08/27/02	23.87	31.57	350	0.56	1.1	14	3.4	ND	–	–	–	–	–	0.13	216
			06/13/02	22.92	32.52	300	1.1	1.4	4	1.8	ND	–	–	–	–	–	0.14	194
			03/21/02	21.96	33.48	240	0.94	2.5	12	11.7	ND	–	–	–	–	–	0 1	–
			12/18/01	23.59	31.85	270	1.6	1.7	13	5.4	ND	–	–	–	–	–	–	–
			09/20/01	24.16	31.28	380	1 7	2.6	32	8.9	ND	–	–	–	–	–	0.4	–
			06/20/01	23.55	31.89	760	4.4	2.4	62	23	ND*	–	–	–	–	–	–	–
			03/29/01	22.02	33.42	170	1 1	ND	10	1.6	ND	–	–	–	–	–	0.6	–
			01/12/01	23 41	32.03	310	2.4	2.2	4.4	10	ND	–	–	–	–	–	0 7	–
			09/27/00	23.09	32.35	430	ND	ND	44	ND	ND	–	–	ND	–	–	1	–
MW-4	55.71	20 - 40?																
		▲	09/23/04	24.47	31.24	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0 94	297
			06/24/03	22.74	32.97	–	–	–	–	–	–	–	–	–	–	–	1.01	22
			03/21/03	22.49	33.22	–	–	–	–	–	–	–	–	–	–	–	1.03	18
			12/30/02	21 50	34 21	ND	ND	ND	ND	< 1	ND	–	–	–	–	–	0.41	368
			08/27/02	24 07	31.64	–	–	–	–	–	–	–	–	–	–	–	0.21	187
			06/13/02	23.15	32.56	ND	ND	ND	ND	ND	ND	–	–	–	–	–	0 20	392
			03/21/02	22.15	33.56	ND	ND	ND	ND	ND	ND	–	–	–	–	–	0.2	–
			12/18/01	23.80	31.91	ND	ND	0.9	ND	ND	ND	–	–	–	–	–	–	–
			09/20/01	24.32	31.39	ND	ND	ND	ND	ND	ND	–	–	–	–	–	0.4	–
			06/20/01	23 74	31 97	ND	ND	ND	ND	ND	ND	–	–	–	–	–	–	–
			03/29/01	22.22	33 49	ND	ND	4.2	ND	ND	ND	–	–	–	–	–	0 5	–
			01/12/01	23.60	32.11	ND	ND	ND	ND	ND	ND	–	–	–	–	–	0 7	–
			09/27/00	23 25	32.46	ND	ND	ND	ND	ND	ND	–	–	ND	–	–	2.5	–
MW-5	56 03	25 - 45																
		▲	09/23/04	24.79	31.24	7,000	470	86	1,000	2,200	< 6	< 200	< 2,000	< 100	< 10	< 10	0.20	64
			06/24/03	23.08	32.95	3,800	100	58	310	670	< 1.5*	–	–	–	–	–	0.05	-67
			03/21/03	22 99	33.04	4,800	190	82	370	700	< 5*	–	–	–	–	–	0.07	-72
			12/30/02	21 88	34.15	130	5.8	1.0	9.9	5.9	ND*	–	–	–	–	–	0.14	251
			08/27/02	24.42	31.61	1,900	170	14	210	93	ND*	–	–	–	–	–	0.43	207
			06/13/02	23 57	32.46	1,500	24	16	120	110	ND*	–	–	–	–	–	0.06	144
			03/21/02	24.69	31.34	360	11	9.4	28	62	ND	–	–	–	–	–	0.1	–
			12/18/01	23 15	32 88	780	21	12	86	94	ND*	–	–	–	–	–	–	–
			09/20/01	24.75	31.28	2,300	46	41	280	330	ND*	–	–	–	–	–	0.3	–
			06/20/01	24 15	31.88	6,500	120	130	740	940	ND*	–	–	–	–	–	–	–
			03/29/01	22 69	33.34	13,000	220	510	1000	2700	ND*	–	–	–	–	–	0.4	–
			01/12/01	23.97	32.06	1,100	62	40	150	290	ND*	–	–	–	–	–	0.3	–
			09/27/00	23.69	32.34	18,000	840	2.9	1200	3500	< 30	–	–	ND	–	–	0.4	–
MW-6	56.01	25 - 45																
		▲	09/23/04	24.81	31.20	4,400	< 2.5	< 2 5	350	79	< 1.5	< 50	< 500	< 25	< 2.5	< 2 5	0.16	34
			06/24/03	23.06	32.95	1,500	< 5	< 5	35	15	< 0.6*	–	–	–	–	–	0.09	-23
			03/21/03	22.96	33.05	1 200	6 3	< 5	54	< 10	ND*	–	–	–	–	–	0 09	-45
			12/30/02	21 91	34 10	670	2 5	< 1 25	29	2 7	ND*	--	--	--	--	--	0 15	321
			08/27/02	24 44	31 57	1 300	< 2 5	7 2	210	55	ND*	--	-	--	--	-	0 14	231
			06/13/02	23 53	32 48	1 600	<1 25	4 7	67	5 3	< 1 5*	--	-	--	--	--	0 53	233
			03/21/02	23 11	32 90	750	0 77	1 2	39	3 2	ND*	--	--	--	--	--	0 1	--
			12/18/01	24 16	31 85	3 700	33	8 7	320	110	< 1 5*	--	--	--	--	--	--	--
			09/20/01	24 72	31 29	2 500	11	8 6	240	94	ND*	--	--	--	--	--	0 3	--
			06/20/01	24 13	31 88	1,800	14	4 6	160	79	ND*	--	--	--	--	--	--	--
			03/29/01	22 56	33 45	610	2 2	ND	37	4 6	ND*	--	--	--	--	--	0 5	--
			01/12/01	23 97	32 04	2 300	16	3 5	290	83	ND*	--	--	--	--	--	0 5	--
			09/27/00	23 56	32 45	1 300	ND	4 3	200	17	ND	-	-	ND	-	--	0 5	

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Summary of Groundwater Elevation and PHC Analytical Data

Former Harbert Transportation Facility, 19984 Meekland Avenue, Hayward, Ca.

Monitoring Point Information			*Date Sampled*	*Depth to Groundwater (feet, TOC)*	*Groundwater Elevation (feet, NGVD)*	*Laboratory Analytical Results*											*Field Measurements*	
						Total Petroleum Hydrocarbons	*Volatile Organic Compounds*								*Lead Scavengers*		*Dissolved*	*Redox*
Well I.D.	*TOC Elevation (feet, NGVD)*	*Screen Interval (feet, bgs)*				*Gasoline (ug/L)*	*Benzene (ug/L)*	*Toluene (ug/L)*	*Ethylbenzene (ug/L)*	*Xylenes (ug/L)*	*MTBE (ug/L)*	*TBA (ug/L)*	*Ethanol (ug/L)*	*Fuel Oxygenates (ug/L)*	*1,2-DCA (ug/L)*	*EDB (ug/L)*	*Oxygen (mg/L)*	*Potential (ORP) (mV)*
MW-7	56.66	25 - 45																
		▲	09/23/04	25.38	31.28	ND	ND	ND	0.73	ND	ND	ND	ND	ND	ND	ND	0 90	301
			06/24/03	23.62	33.04	–	–	–	–	–	–	–	–	–	–	–	0.58	32
			03/21/03	23.50	33 16	–	–	–	–	–	–	–	–	–	–	–	0.51	20
			12/30/02	22.34	34 32	ND	ND	ND	ND	< 1	ND*	–	–	–	–	–	0.17	370
			08/27/02	24 98	31 68	–	–	–	–	–	–	–	–	–	–	–	0.22	369
			06/13/02	24.07	32.59	ND	ND	ND	ND	ND	ND	–	–	–	–	–	0.20	370
			03/21/02	23 05	33.61	ND	ND	ND	ND	ND	ND	–	–	–	–	–	0	–
			12/18/01	24.70	31.96	290	ND	ND	119	4.6	ND	–	–	–	–	–	–	–
			09/20/01	25.27	31 39	290	0.98	ND	12	4.5	ND*	–	–	–	–	–	0.4	–
			06/20/01	24 68	31 98	430	2.4	0.96	30	9.7	ND*	–	–	–	–	–	–	–
			03/29/01	23.10	33 56	ND	ND	ND	ND	ND	ND	–	–	–	–	–	0 5	–
			01/12/01	24 49	32.17	1,600	13	0.86	150	35	ND*	–	–	–	–	–	0.5	–
			09/27/00	24.18	32 48	270	13	6.6	11	ND	ND	–	–	ND	–	–	0.5	–
MW-8	56.16	20 - 40																
		▲	09/23/04	24.81	31 35	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.92	301
			06/24/03	23 03	33 13	–	–	–	–	–	–	–	–	–	–	–	1.71	12
			03/21/03	22 91	33 25	–	–	–	–	–	–	–	–	–	–	–	1.62	15
			12/30/02	21 79	34.37	ND	ND	ND	ND	< 1	ND*	–	–	–	–	–	1.36	365
			08/27/02	24 43	31.73	–	–	–	–	–	–	–	–	–	–	–	1.98	402
			06/13/02	23.54	32.62	ND	ND	ND	ND	ND	ND	–	–	–	–	–	1.96	394
			03/21/02	22.51	33 65	ND	ND	ND	ND	ND	ND	–	–	–	–	–	2.4	–
			12/18/01	24.16	32 00	ND	ND	ND	ND	ND	ND	–	–	–	–	–	–	–
			09/20/01	24.68	31 48	ND	ND	ND	ND	ND	ND	–	–	–	–	–	1.6	–
			06/20/01	24.09	32.07	ND	ND	ND	ND	ND	ND	–	–	–	–	–	–	–
			03/29/01	22.56	33 60	ND	ND	0.8	ND	ND	ND	–	–	–	–	–	1.9	–
			01/12/01	23.93	32 23	ND	ND	ND	ND	ND	ND	–	–	–	–	–	2.1	–
			09/27/00	23.59	32.57	ND	ND	ND	ND	ND	ND	–	–	ND	–	–	1 9	–
MW-9	55.21	20 - 40																
		▲	09/23/04	24.00	31.21	1,900	< 2.5	< 2.5	230	180	< 1.5	< 50	< 500	< 25	< 2 5	< 2.5	0.26	190
			06/24/03	22.30	32.91	2,900	25	9.1	230	270	< 1.5*	–	–	–	–	–	0.08	-66
			03/21/03	22.17	33.04	5,900	190	24	470	630	< 5*	–	–	–	–	–	0.10	-84
			12/30/02	21.09	34.12	2,800	140	25	200	370	ND*	–	–	–	–	–	0.15	276
			08/27/02	23.69	31.52	310	27	2.5	20	20	ND*	–	–	–	–	–	0.18	154
			06/13/02	22 76	32.45	5,100	140	21	490	300	< 1.5*	–	–	–	–	–	0.14	135
			03/21/02	21.76	33.45	510	26	4.6	50	52	ND	–	–	–	–	–	0.1	–
			12/18/01	23 38	31.83	6,400	640	120	630	1300	< 1.5*	–	–	–	–	–	–	–
			09/20/01	23 94	31.27	3,400	270	38	390	430	ND*	–	–	–	–	–	0.3	–
			06/20/01	23.36	31 85	8,300	330	88	850	1700	< 0 6*	–	–	–	–	–	–	–
			03/29/01	21.61	33.60	1,600	110	14	240	150	ND*	–	–	–	–	–	0.4	–
			01/12/01	23.17	32 04	10,000	550	110	1200	2200	ND*	–	–	–	–	–	0.5	–
			09/27/00	22.90	32.31	1,000	40	6.7	110	55	ND	–	–	ND	–	–	0.5	–
MW-10	54.74	25 - 40																
		▲	09/23/04	23.81	30 93	600	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.63	160
			06/24/03	22.21	32.53	750	< 2.5	< 2.5	< 2 .5	< 5	< 1.5*	–	–	–	–	–	0.09	-22
			03/21/03	22 00	32 74	700	3 4	1 4	0 71	1	ND*	--	--	--	--	--	0 06	-62
			12/30/02	20 78	33 96	1,200	5 6	< 5	< 5	< 10	ND*	--	--	--	--	--	0 18	267
			08/27/02	23 46	31 28	1,800	< 2 5	15	3 9	5	ND*		-	--	--	--	0 14	183
			06/13/02	22 56	32 18	1,700	0 77	6 2	3 3	2 9	< 0 3*	--	--	--	--	--	0 28	201
			03/21/02	21 53	33 21	1,500	ND	11	3 1	ND	ND*	--	--	--	--	--	0 1	--
			12/18/01	21 11	33 63	1,500	7 9	2 9	ND	ND	< 0 6*	--	--	--	--		--	-
			09/20/01	23 70	31 04	1,200	6	9 9	12	3 9	ND*	--	--	--	--	-	0 4	
			06/20/01	23 17	31 57	810****	3	1 6	5 1	13	ND*	--	--	--	--	--	--	--
			03/29/01	21 63	33 11	600****	2	0 65	ND	0 72	ND	--	--	--	-	--	0 5	--
			01/12/01	22 99	31 75	530	3 7	1 9	2 1	4 5	ND	--	--	--	-	-	0 6	
			09/27/00	22 72	32 02	880	ND	ND	ND	ND	ND	--	--	ND	--	-	0 4	--

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Monitoring Point Information						*Laboratory Analytical Results*											*Field Measurements*	
						Total Petroleum Hydrocarbons	*Volatile Organic Compounds*								*Lead Scavengers*			
Well I.D.	*TOC Elevation (feet, NGVD)*	*Screen Interval (feet, bgs)*	*Date Sampled*	*Depth to Groundwater (feet, TOC)*	*Groundwater Elevation (feet, NGVD)*	*Gasoline (ug/L)*	*Benzene (ug/L)*	*Toluene (ug/L)*	*Ethylbenzene (ug/L)*	*Xylenes (ug/L)*	*MTBE (ug/L)*	*TBA (ug/L)*	*Ethanol (ug/L)*	*Fuel Oxygenates (ug/L)*	*1,2-DCA (ug/L)*	*EDB (ug/L)*	*Dissolved Oxygen (mg/L)*	*Redox Potential (ORP) (mV)*
MW-11	55.20	25 - 40																
		▲	09/23/04	24.04	31.16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.50	301
			06/24/03	22.37	32.83	–	–	–	–	–	–	–	–	–	–	–	0.43	21
			03/21/03	22.24	32 96	–	–	–	–	–	–	–	–	–	–	–	0.32	24
			12/30/02	21.11	34 09	ND	ND	ND	ND	< 1	ND	–	–	–	–	–	0.16	374
			08/27/02	23.68	31 52	–	–	–	–	–	–	–	–	–	–	–	0.13	369
			06/13/02	22.78	32.42	ND	ND	ND	ND	ND	ND	–	–	–	–	–	0.15	380
			03/21/02	21.76	33.44	ND	ND	ND	ND	ND	ND	–	–	–	–	–	0.1	–
			12/18/01	23 39	31.81	ND	ND	0.56	ND	ND	ND	–	–	–	–	–	–	–
			09/20/01	23 87	31.33	ND	ND	ND	ND	ND	ND	–	–	–	–	–	0.4	–
			06/20/01	23.39	31.81	ND	ND	ND	ND	ND	ND	–	–	–	–	–	–	–
			03/29/01	21.84	33.36	ND	ND	4.5	ND	ND	ND	–	–	–	–	–	0.6	–
			01/12/01	23.21	31 99	ND	ND	2.1	ND	ND	ND	–	–	–	–	–	0.6	–
			09/27/00	22.43	32 77	63	ND	ND	ND	ND	ND	–	–	ND	–	–	0.6	–
MW-12	56 49	25 - 40																
		▲	09/23/04	25.16	31.33	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.92	298
			06/24/03	23.41	33.08	–	–	–	–	–	–	–	–	–	–	–	1.25	29
			03/21/03	23.28	33 21	–	–	–	–	–	–	–	–	–	–	–	1.23	22
			12/30/02	22.16	34.33	ND	ND	ND	ND	< 1	ND	–	–	–	–	–	0 77	372
			08/27/02	24.68	31.81	–	–	–	–	–	–	–	–	–	–	–	0.60	410
			06/13/02	23.86	32.63	ND	ND	ND	ND	ND	ND	–	–	–	–	–	0.51	400
			03/21/02	22.86	33.63	ND	ND	ND	ND	ND	ND	–	–	–	–	–	0 7	–
			12/18/01	24.49	32.00	ND	ND	0.86	ND	ND	ND	–	–	–	–	–	–	–
			09/20/01	24 95	31.54	ND	ND	ND	ND	ND	ND	–	–	–	–	–	0.7	–
			06/20/01	24.47	32.02	ND	ND	ND	ND	ND	ND	–	–	–	–	–	–	–
			03/29/01	22.91	33.58	ND	ND	5	ND	ND	ND	–	–	–	–	–	1	–
			01/12/01	24.28	32.21	ND	ND	1 1	ND	ND	ND	–	–	–	–	–	1	–
			09/27/00	23.98	32.51	ND	ND	ND	ND	ND	ND	–	–	ND	–	–	1.2	–
Practical Quantitation Limit:						***▲25 / 50***	***0.5***	***0.5***	***0.5***	***1***	***1***	***10***	***100***	***5***	***0.5***	***0.5***	–	–
Maximum Contaminant Levels (MCLs) / Action Levels (Als)						***1,000***	***1***	***150***	***700***	***1,750***	******5***	*****12***	–	–	***0.5***	***0.5***	–	–
♦ ACEH Proposed Cleanup Goals						***10,000***	***10***	***1,500***	***7,000***	***17,500***	***50***	***120***	***NA***	***NA***	***5***	***5***	–	–

NOTES:

T.O.C. = Top of Casing Elevation Calculated groundwater elevation = TOC - Depth to Groundwater. Referenced to NGVD.

TPH-g = Total Petroleum Hydrocarbons as gasoline. MTBE = Methy - tert - Butyl Ether

F.O.'s = Fuel Oxygenates = Di-isopropyl ether (DIPE), tertiary Butyl Alcohol (TBA), Ethyl tertiary Butyl Ether (ETBE), tertiary amyl Methyl Ether (TAME)

1,2-DCA = 1,2-Dichloroethane

EDB= 1,2-Dibromoethane

VOC's = Volatile Organic Compounds D.O. = Dissolved Oxygen

ug/L = micrograms per liter, parts per billion; mg/L = milligrams per liter, parts per million

ND = Not Detected at the Practical Quantitation Limit (PQL); <X = Not Detected at the elevated PQL, X. PQL elevated because of sample dilution.

-- = Data not collected or measured, or analysis not conducted

MCL = Maximum Contaminant Level for drinking water in California (Department of Health Services,

** Confirmed by GC/MS method 8260*

*** = Action Level* **** = Secondary MCL / water quality goal*

***** = Laboratory Report indicates results within quantitation range chromatographic pattern not typical of fuel*

▲ = Groundwater samples collected on September 23 2004 have all been analyzed by EPA Method GC - MS 8260B This analytical method is more accurate and as a result the laboratory's Practical Quantitation Limit for TPH-g is 25 ppb

♦ – As per the Alameda County Environmental Health letter dated May 13 2004 the proposed cleanup goals reflect a maximum contaminant concentration that may migrate beyond the boundaries of the subject site

A goal of 10 X the MCL is considered a reasonable goal by the Alameda County Environmental Health Department

Table 2

Summary of Historical Groundwater Analytical Data (- 1986 through 1996)

Harbert Transportation/Meekland Avenue

Hayward, California

AGI TECHNOLOGIES

		EPA Test Methods										
		8015 Modified			8020				8010			
Well	Date Sampled	TPH-G	TPH-D	TPH-MO	Benzene	Ethylbenzene	Toluene	Total Xylenes	TCE	PCE	1,2-DCA	Other
		µg/L			µg/L				µg/L			µg/L
MW1	07/86	42,000	NA	NA	5,500	NA	4,900	6,100	NA	NA	NA	
	03/90	27,000	NA	NA	2,700	491	840	800	ND	ND	ND	
	07/90	27,000	11,000	ND	4,000	ND	1,500	4,400	ND	ND	62	
	10/90	43,000	6,500	ND	3,400	1,200	2,700	5,300	0.4	ND	26	
	01/91	22,000	2,700	ND	3,000	990	1,600	2,600	ND	ND	27	
	04/91	42,000	3,100[a]	NA	5,100	1,200	3,700	3,200	ND	ND	120	
	07/91	46,000	4,300[a]	NA	6,500	830	2,900	3,700	ND	ND	64	
	10/91	27,000	4,300[a]	NA	4,400	1,100	1,400	3,200	ND	ND	25	
	01/92	27,000	14,000[a]	NA	3,300	1,200	1,600	3,800	ND	ND	24	
	04/92	33,000	11,000[a]	NA	8,900	1,200	3,500	3,700	ND	ND	120	
	07/92	41,000	19,000[a]	NA	5,600	1,300	2,600	4,000	ND	ND	49	
	10/92	33,000	3,500[a]	NA	4,400	1,200	2,100	4,000	ND	ND	61	
MW3	11/89	29,000	NA	NA	4,600	680	1,100	1,100	ND	ND	36	Lead 40
	11/89	NA	NA	NA	NA	NA	NA	NA	ND	ND	36	Lead 40
	03/90	12,000	NA	NA	2,300	59	300	490	ND	ND	ND	
	07/90	7,300	990	ND	5,200	ND	440	480	ND	ND	67	
	10/90	6,200	970	ND	75	7.5	150	250	ND	ND	48	
	10/90	NA	NA	NA	NA	NA	NA	NA	ND	ND	22	Lead 3
	01/91	4,600	680	ND	2,200	220	110	89	ND	ND	40	
	04/91	8,300	640[a]	NA	2,800	370	490	760	ND	ND	43	
	07/91	6,600	890[a]	NA	2,000	250	230	380	ND	ND	29	
	10/91	6,300	1,700[a]	NA	2,000	410	330	550	ND	ND	27	
	01/92	4,000	790[a]	NA	1,200	250	60	200	ND	ND	22	
	04/92	7,400	1,800[a]	NA	730	370	180	640	ND	ND	19	
	07/92	3,000	2,400[a]	NA	190	ND	2.8	410	ND	ND	30	
	10/92	5,000	970[a]	NA	1,300	320	45	340	ND	ND	26	
	01/93	2,300	680[a]	NA (2)	630	180	31	330	ND	ND	13	
	06/93	5,000	1,100[a]	ND	730	240	43	380	ND	ND	13	

Table 2
Summary of Historical Groundwater Analytical Data
Harbert Transportation/Meekland Avenue
Hayward, California

		EPA Test Methods										
		8015 Modified			8020				8010			
Well	Date Sampled	TPH-G	TPH-D	TPH-MO	Benzene	Ethylbenzene	Toluene	Total Xylenes	TCE	PCE	1,2-DCA	Other
		µg/L			µg/L				µg/L			µg/L
MW4	11/89	ND	NA	NA	33	1.3	1	5.2	NA	NA	NA	Lead 12
	03/90	ND	NA	NA	7.4	2	2	1.1	ND	ND	ND	
	07/90	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	10/90	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.9	
	01/91	80	ND	ND	9.2	2.4	1.7	0.7	0.7	ND	0.5	
	04/91	1,400	130[a]	NA	2,200	72	ND	17	ND	ND	ND	
	07/91	130	ND	NA	14	3.3	9.7	ND	ND	ND	ND	
	10/91	ND	ND	NA	5.3	1	ND	0.8	ND	ND	0.81	
	01/92	ND	ND	NA	6.8	1.3	ND	ND	ND	ND	ND	
	04/92	780	130[a]	NA	ND	51	ND	4.8	ND	ND	ND	
	07/92	ND	ND	NA	ND	ND	ND	ND	ND	ND	1.6	
	10/92	100	ND	NA	9.5	ND	ND	ND	ND	ND	1.3	
	01/93	960	240[a]	NA	200	ND	ND	2.6	ND	ND	ND	
	06/93	650	140[a]	ND	150	41	4.6	9.4	ND	ND	1	
						21	ND	ND	ND	ND	3,7	
MW5	10/90	9,600	1,900	ND	1,200	70	160	520	ND	ND	22	Lead 3
	01/91	10,000	1,200	ND	1,600	720	200	510	ND	ND	33	
	04/91	18,000	860[a]	NA	2,500	550	580	500	ND	ND	61	
	07/91	15,000	2,200[a]	NA	4,800	610	1,100	760	ND	ND	62	
	10/91	14,000	3,300[a]	NA	5,000	530	820	800	ND	ND	49	
	01/92	12,000	1,900[a]	NA	4,300	390	380	590	ND	ND	56	
	04/92	23,000	6,400[a]	NA	8,600	ND	2,600	1,900	ND	ND	125	
	07/92	27,000	5,900[a]	NA	6,000	ND	1,500	1,600	ND	ND	93	
	10/92	13,000	2,100[a]	NA	4,600	140	470	550	ND	ND	59	
	01/93	18,000	1,900[a]	NA	5,800	560	1,900	1,600	ND	ND	110	
	01/93	19,000	2,100[a]	NA	4,600	370	1,600	1,400	ND	ND	120	
	06/93	22,000	2,900[a]	ND	8,300	740	2,500	1,900	ND	ND	110	
	06/93	23,000	2,300[a]	ND	9,600	730	3,000	1,900	ND	ND	110	

Table 2

Summary of Historical Groundwater Analytical Data

Harbert Transportation/Meekland Avenue
Hayward, California

		EPA Test Methods										
		8015 Modified			8020				8010			
Well	Date Sampled	TPH-G	TPH-D	TPH-MO	Benzene	Ethylbenzene	Toluene	Total Xylenes	TCE	PCE	1,2-DCA	Other
		µg/L			µg/L				µg/L			µg/L
MW6	10/90	27,000	4,700	ND	2,700	450	2,800	3,300	ND	ND	40	Lead 9
	01/91	7,200	1,600	ND	1,400	ND	200	830	ND	ND	23	
	04/91	17,000	800 [a]	NA	2,800	610	1,200	1,800	ND	ND	53	
	07/91	11,000	1,400 [a]	NA	1,200	ND	380	750	ND	ND	29	
	10/91	4,800	1,600 [a]	NA	380	69	340	730	ND	ND	22	
	01/92	6,100	1,200 [a]	NA	460	180	200	590	ND	ND	26	
	04/92	7,200	1,800 [a]	NA	340	350	460	920	ND	ND	30	
	07/92	8,600	1,700 [a]	NA	1,300	380	280	1,100	ND	ND	35	
	10/92	1,600	110 [a]	NA	230	70	20	88	ND	ND	24	
	01/93	13,000	2,100 [a]	NA	2,500	370	540	2,400	ND	ND	36	
	06/93	7,400	1,900 [a]	ND	1,500	480	120	1,400	ND	ND	29	
MW7	10/90	14,000	2,700	ND	390	ND	18	1,200	ND	1.3	14	Lead 11
	01/91	4,500	1,400	ND	320	42	48	350	ND	ND	10	
	04/91	2,400	NA	NA	320	77	62	130	ND	0.6	11	
	07/91	2,000	910 [a]	NA	470	ND	24	88	ND	ND	9.7	
	10/91	ND	370 [a]	NA	ND	ND	ND	ND	ND	0.68	4.5	
	01/92	1,100	290 [a]	NA	230	45	7	88	ND	3.5	6.4	
	04/92	1,700	520 [a]	NA	310	78	28	170	ND	0.5	3.2	
	07/92	1,900	590 [a]	NA	410	78	21	170	ND	2.1	8.7	
	07/92 (dup)	1,200	700 [a]	NA	21	1	2.6	90	ND	2	8.2	
	10/92	1,800	320 [a]	NA	410	31	11	75	ND	1	7.4	
	01/93	2,100	660 [a]	NA	390	100	21	270	ND	0.6	3.7	
	06/93	4,400	1,100 [a]	ND	830	330	49	620	ND	ND	8.6	

Table 2

Summary of Historical Groundwater Analytical Data

Harbert Transportation/Meekland Avenue

Hayward, California

AGI TECHNOLOGIES

		EPA Test Methods										
		8015 Modified			8020				8010			
Well	Date Sampled	TPH-G	TPH-D	TPH-MO	Benzene	Ethylbenzene	Toluene	Total Xylenes	TCE	PCE	1,2-DCA	Other
		µg/L			µg/L				µg/L			µg/L
MW8	02/91	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	
	04/91	ND	ND	NA	ND	ND	ND	ND	ND	0.5	ND	
	07/91	ND	ND	NA	ND	ND	2	ND	ND	1.2	ND	
	10/91	ND	ND	NA	ND	ND	0.6	ND	ND	0.4	ND	
	01/92	ND	ND	NA	ND	ND	ND	ND	ND	0.68	ND	
	04/92	ND	ND	NA	ND	ND	ND	ND	ND	0.8	ND	
	07/92	ND	ND	NA	ND	ND	3.3	ND	ND	1.6	ND	
	10/92	ND	ND	NA	ND	ND	ND	ND	ND	1.4	ND	
	01/93	ND	ND	NA	ND	ND	ND	ND	ND	0.8	ND	
	06/93	ND	ND	ND	ND	ND	ND	ND	ND	1.4	ND	
MW9	02/91	6,000	1,600	NA	180	19	170	200	ND	ND	13	
	04/91	4,200	410[a]	NA	520	130	410	580	ND	ND	26	
	07/91	1,900	180[a]	NA	190	12	52	77	ND	6.5	12	
	10/91	880	300[a]	NA	160	31	44	83	ND	ND	10	
	01/92	380	120[a]	NA	14	7.6	2.2	14	ND	ND	9.6	
	04/92	2,900	700[a]	NA	510	80	260	260	ND	ND	11	
	07/92	4,400	1,300[a]	NA	860	210	340	640	ND	ND	22	
	10/92	200	290[a]	NA	6.8	1.4	2.1	7.8	ND	ND	12	
	01/93	8,500	740[a]	NA	2,400	390	620	1,500	ND	ND	29	
	06/93	8,200	1,300[a]	ND	2,400	360	480	1,500	ND	ND	29	
MW10	01/92	13,000	3,700[a]	NA	130	580	110	3,000	ND	ND	33	
	05/92	15,000	5,000[a]	NA	180	ND	18	2,700	ND	ND	20	
	05/92 (dup)	13,000	7,500[a]	NA	240	490	65	2,500	ND	ND	22	
	07/92	8,100	4,400[a]	NA	74	360	ND	1,100	ND	ND	29	
	10/92	3,200	1,500[a]	NA	ND	ND	ND	320	ND	ND	25	
	01/93	7,500	2,200[a]	NA	130	170	20	710	ND	ND	18	
	06/93	8,000	2,100[a]	ND	69	7.9	ND	490	ND	ND	16	

Table 2
Summary of Historical Groundwater Analytical Data
Harbert Transportation/Meekland Avenue
Hayward, California

AGI TECHNOLOGIES

		EPA Test Methods										
		8015 Modified			8020				8010			
Well	Date Sampled	TPH-G	TPH-D	TPH-MO	Benzene	Ethylbenzene	Toluene	Total Xylenes	TCE	PCE	1,2-DCA	Other
		µg/L			µg/L				µg/L			µg/L
MW11	01/92	6,200	3,200[a]	NA	23	250	ND	1,100	ND	ND	ND	
	04/92	160	1,200[a]	NA	ND	ND	ND	ND	ND	ND	ND	
	07/92	2,100	710[a]	NA	39	100	2.3	53	ND	ND	ND	
	10/92	660	220[a]	NA	2.9	19	ND	3.8	ND	ND	ND	
	10/92	770	230[a]	NA	3.2	26	ND	5.7	ND	ND	ND	
	01/93	780	370[a]	NA	10	2.1	ND	39	ND	ND	ND	
	06/93	2,500	160[a]	ND	27	99	ND	34	ND	ND	ND	
MW12	12/92	2,800	1,700[a]	NA	14	ND	ND	ND	ND	ND	ND	
	06/93	1,100	750[a]	ND	19	21	ND	57	ND	ND	ND	
B1	01/93	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	
	06/93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
F3	02/93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Well Abandoned	12/89	1,800	NA	NA	200	24	18	34	ND	ND	0.15	Lead 2,100
Average[b]		6,665	1,883	250	1,562	235	517	871	0.21	0.41	24.8	
Laboratory Detection Limit		50	50	500	0.5	0.5	0.5	0.5	0.4	0.4	0.4	

Notes:

a) The detection for petroleum hydrocarbons as diesel appears to be due to the presence of lighter hydrocarbons rather than diesel.
b) Average of sampled data, ND equals 1/2 detection limit.
µg/L - Micrograms per liter is approximately equivalent to parts per billion, depending on density of water.
NA - Not analyzed.
ND - Not detected.
TPH-G - Total petroleum hydrocarbons quantified as gasoline.
TPH-D - Total petroleum hydrocarbons quantified as diesel.
TPH-MO - Total petroleum hydrocarbons quantified as motor oil.

TCE - Trichloroethylene.
PCE - Tetrachloroethylene.
1,2-DCA - 1,2-Dichloroethane.

Table 2
Summary of Groundwater Chemical Analyses

Harbert Transportation/Meekland Avenue
Hayward, California

Well	Date Sampled	EPA Test Methods								
		8015 M		BETX 5030/8020				8010		
		TPH Gasoline µg/L	TPH Diesel µg/L	Benzene	Ethylbenzene	Toluene	Xylenes	1,2-DCA µg/L	PCE µg/L	TCE µg/L
				µg/L						
MW3	07/28/94	7,700	970 [a]	1,800	810	ND	600	22	ND	ND
	10/21/94	7,400	810	1,900	900	37	780	25	ND	ND
	09/15/95	NS	NS	NS	NS	NS	NS	NS	NS	NS
	03/14/96	NS	NS	NS	NS	NS	NS	NS	NS	NS
	09/26/96	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW4	07/28/94	120	ND	7.9	0.7	1.1	ND	ND	ND	ND
	10/21/94	69	ND	3.4	ND	ND	ND	ND	ND	ND
	09/15/95	110	ND	2.5	ND	0.85	ND	2.3	ND	ND
	03/14/96	300	69 [b]	3.3	0.74	ND	ND	1.6	ND	ND
	09/26/96	ND	ND	ND	ND	ND	ND	1.2	ND	ND
MW5	07/29/94	30,000	2,200 [a]	9,300	1,100	1,800	2,300	110	ND	ND
	10/21/94	23,000	1,500	7,900	780	1,500	2,900	85	ND	ND
	09/15/95	NS	NS	NS	NS	NS	NS	NS	NS	NS
	03/14/96	NS	NS	NS	NS	NS	NS	NS	NS	NS
	09/26/96	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW6	07/29/94	15,000	2,100 [b]	3,100	1,100	71	2,000	37	ND	ND
	10/21/94	18,000	1,500	3,900	1,200	170	3,200	35	ND	ND
	09/15/95	NS	NS	NS	NS	NS	NS	NS	NS	NS
	03/14/96	NS	NS	NS	NS	NS	NS	NS	NS	NS
	09/26/96	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW7	07/29/94	2,600	530 [c]	470	220	ND	310	2.7	6	ND
	10/21/94	1,700	280	290	140	4.5	240	1.8	0.74	ND
	09/15/95	NS	NS	NS	NS	NS	NS	NS	NS	NS
	03/14/96	NS	NS	NS	NS	NS	NS	NS	NS	NS
	09/26/96	NS	NS	NS	NS	NS	NS	NS	NS	NS

Table 2
Summary of Groundwater Chemical Analyses
Harbert Transportation/Meekland Avenue
Hayward, California

Well	Date Sampled	EPA Test Methods								
		8015 M		BETX 5030/8020				8010		
		TPH Gasoline µg/L	TPH Diesel µg/L	Benzene	Ethylbenzene	Toluene	Xylenes	1,2-DCA µg/L	PCE µg/L	TCE µg/L
				µg/L						
MW8	07/28/94	ND	78 [a]	ND	ND	ND	ND	ND	ND	ND
	10/21/94	ND	ND	ND	ND	ND	ND	ND	0.72	ND
	09/15/95	ND	ND	ND	ND	ND	ND	ND	0.74	ND
	03/14/96	ND	ND	ND	ND	ND	ND	ND	0.63	ND
	09/26/96	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW9	07/28/94	6,000	1,300 [c]	90	170	27	370	26	ND	ND
	10/21/94	6,900	600	1,800	280	220	1,500	31	ND	ND
	09/15/95	NS	NS	NS	NS	NS	NS	NS	NS	NS
	03/14/96	NS	NS	NS	NS	NS	NS	NS	NS	NS
	09/26/96	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW10	07/28/94	6,700	2,000 [c]	99	180	57	430	13	ND	ND
	10/21/94	8,600	2,000	93	200	ND	680	12	ND	ND
	09/15/95	2,100	1,900	9.9	49	ND	4.9	ND	ND	ND
	03/14/96	6,800	2,000 [b]	64	98	ND	33	6.5	ND	ND
	09/26/96	7,100	420	140	210	ND	32	9.1	ND	5.9
MW11	07/28/94	450	150 [a]	6.2	20	1.1	6.6	ND	ND	ND
	10/21/94	460	190	4.9	14	ND	12	ND	ND	ND
	09/15/95	9,600	550	130	180	ND	130	8.8	ND	5.6
	03/15/96	780	310 [b]	0.74	25	ND	1.8	ND	ND	ND
	09/26/96	480	710	ND	50	ND	ND	ND	ND	ND

Table 2
Summary of Groundwater Chemical Analyses

Harbert Transportation/Meekland Avenue
Hayward, California

		EPA Test Methods								
		8015 M		BETX 5030/8020				8010		
	Date	TPH Gasoline	TPH Diesel	Benzene	Ethylbenzene	Toluene	Xylenes	1,2-DCA	PCE	TCE
Well	Sampled	µg/L	µg/L	µg/L				µg/L	µg/L	µg/L
MW12	07/28/94	240	160	1.9	12	ND	5.8	ND	ND	ND
	10/21/94	260	190	1.9	4.6	ND	6.8	ND	ND	ND
	09/15/95	NS	NS	NS	NS	NS	NS	NS	NS	NS
	03/14/96	NS	NS	NS	NS	NS	NS	NS	NS	NS
	09/26/96	NS	NS	NS	NS	NS	NS	NS	NS	NS
Method Detection Limit		50	50	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Notes:

a) Hydrocarbons quantified as diesel are primarily due to discrete peaks not indicative of diesel fuel.
b) Hydrocarbons quantified as diesel are primarily due to the presence of a lighter petroleum product (C_6-C_{12}), possibly gasoline.
c) Hydrocarbons quantified as diesel are due to the presence of a lighter petroleum product (C_6-C_{12}) and discrete peaks not indicative of diesel fuel.
1,2-DCE - 1,2-dichloroethane.
PCE - Tetrachloroethene.
TCE - Trichloroethene.
ND - Not detected at or above method detection limit.
NS - Not sampled.

TPH-Gasoline - Total petroleum hydrocarbons quantified as gasoline.
TPH-Diesel - Total petroleum hydrocarbons quantified as diesel.
µg/L - Micrograms per liter, equivalent to parts per billion.

Table 3

Summary of Soil Sample Analytical Results

Former Harbert Transportation Facility, 19984 Meekland Avenue, Hayward, CA

All soil analysis results in parts per million (mg/kg)

Investigation & Date	*Sample ID*	*Sample Depth (feet,bgs)*	*TPH-g*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Xylenes*	*MTBE*
Proposed Cleanup Levels	—	—	100	0.045	2.6	2.5	1.0	NA
Interim Remedial Action Large Diameter Auger Drilling & Source Removal (January 7, 8, 9, 10, 2002)	Soil Reuse #1a,b,c,d	4-point composite (0 - 10')	ND	ND	ND	ND	ND	ND
	Soil Reuse #2a,b,c,d	4-point composite (0 - 20')	ND	ND	ND	ND	ND	ND
	Soil Reuse #3a,b,c,d	4-point composite (0 - 20')	ND	ND	ND	ND	ND	ND
	LD#1 SW-E	35'	ND	ND	ND	0.005	0.011	ND
	LD#2 SW-W	35'	ND	ND	ND	ND	ND	ND
	LD#3 BC-N	40'	ND	ND	ND	ND	ND	ND
	LD#4 SW-N	40'	1.2	ND	0.012	0.005	0.006	ND
	LD#5 SW-N	40'	ND	ND	ND	ND	ND	ND
	LD#8 SW-S	40'	ND	ND	ND	ND	ND	ND
	LD#9 SW-E	40'	ND	ND	ND	ND	ND	ND
	LD#10 SW-E	40'	ND	ND	ND	ND	ND	ND
	LD#11 SW-W	40'	ND	ND	0.014	0.013	0.062	ND
	LD#12 SW-E	18'	ND	ND	ND	ND	ND	ND
	LD#13 SW-E	18'	ND	ND	ND	ND	ND	ND
	LD#13 SW-E	40'	ND	ND	0.006	ND	0.022	ND
	LD#14 SW-W	40'	ND	ND	ND	ND	ND	ND
	LD#15 BC-S	40'	ND	ND	ND	ND	ND	ND
	LD#16 SW-W	18'	ND	ND	ND	ND	ND	ND
	LD#16 SW-W	40'	34	**0.041**	**ND**	**0.12**	**0.62**	**ND**
Landfill Acceptance Borings (October 18, 2001)	DP-1c,d,e,f	4-point composite (15-30')	ND	ND	ND	ND	ND	ND
	DP-2c,d,e,f	4-point composite (15-30')	130	ND	0.13	0.37	1.2	ND

Table 3

Summary of Soil Sample Analytical Results

Former Harbert Transportation Facility, 19984 Meekland Avenue, Hayward, CA

All soil analysis results in parts per million (mg/kg)

Investigation & Date	*Sample ID*	*Sample Depth (feet bgs)*	*TPH-g*	*Benzene*	*Toluene*	*Ethyl-benzene*	*Xylenes*	*MTBE*
Proposed Cleanup Levels	--	--	100	0.045	2.6	2.5	1.0	NA
Soil Sampling Additional Site Assessment (February 14, 2001)	DP-1a	2	ND	ND	0.010	ND	0.025	ND
	f	23	ND	ND	ND	ND	ND	ND
	g @ 24'	24	ND	ND	ND	ND	0.007	ND
	g@27'	27	ND	ND	ND	0.007	0.015	ND
	DP-2a	2	ND	ND	0.019	0.020	0.13	ND
	d	13.5	1,800	< 0.5	4.5	19	270	ND*
	e	18.5	8,700	18	720	230	1,600	< 0.5*
	g	24	1,800	3.5	52	39.0	250	ND*
	DP-3a	2	ND	ND	0.017	0.006	0.054	ND
	b	7.5	ND	ND	0.063	0.020	0.12	ND
	e	18.5	ND	ND	ND	ND	ND	ND
	g	27.5	18	0.036	0.067	0.070	0.060	ND*
	DP-4a	2	ND	ND	0.014	0.008	0.058	ND
	e	19.5	ND	ND	ND	ND	ND	ND
	g @ 25'	25	ND	ND	ND	ND	ND	ND
	g @ 27'	27	ND	ND	ND	ND	ND	ND
	DP-5a	2	ND	ND	ND	ND	ND	ND
	d	12	ND	ND	ND	ND	ND	ND
	f	20	ND	ND	ND	ND	ND	ND
	g	24	ND	ND	ND	ND	ND	ND
	DP-6a	2	ND	ND	ND	ND	ND	ND
	d	14	ND	ND	ND	ND	ND	ND
	e	18	ND	ND	ND	ND	ND	ND
	g	24	ND	ND	ND	0.009	ND	ND
	DP-7a	2	ND	ND	ND	ND	ND	ND
	d	14	ND	ND	ND	ND	ND	ND
	e	18	ND	ND	ND	ND	ND	ND
	g	24	ND	ND	ND	ND	ND	ND
	DP-8a	2	ND	ND	ND	ND	ND	ND
	d	13	ND	ND	ND	ND	ND	ND
	e	18	ND	ND	ND	ND	ND	ND
	g	24	ND	ND	ND	ND	ND	ND
	DP-9a	2	ND	ND	ND	ND	ND	ND
	d	13	ND	ND	ND	ND	ND	ND
	e	18	ND	ND	ND	ND	ND	ND
	g	24	18	0.020	0.020	0.19	0.30	ND*
Laboratory's Practical Quantitation Limits:			1	0.005	0.005	0.005	0.005	0.05

NOTES:

Proposed Cleanup Levels: RBSLs for Surface and Subsurface Soils from Application of Risk Based Screening Levels and Decision Making to Sites with Impacted Soil and Groundwater, SFBay RWQCB, December 2001

TPH-g: Total Petroleum Hydrocarbons as gasoline

BTEX: B: Benzene, T: Toluene, E: Ethylbenzene; and X: Total Xylenes.

MTBE: Methyl-tert-Butyl Ether.

bgs: below ground surface

ND: Not detected at or above the lab's practical quantitation limit.

<X : Not detected at the elevated PQL, X. PQL elevated due to laboratory dilution.

***:** MTBE Analysis confirmed by EPA Method 8260.

Table 3
Summary of Historical Soil Analytical Data
Harbert Transportation/Meekland Avenue
Hayward, California

Sample Number	Date Sampled	Depth (ft)	EPA Test Method									
			8015 Modified			8020				8010		
			TPH-G	TPH-D	TPH-MO	Benzene	thylbenzene	Toluene	Total Xylenes	TCE	PCE	1,2-DCA
			mg/kg			mg/kg				mg/kg		
B-1	06/30/86	20.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-2	06/30/86	20.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW1	06/30/86	20.0	240 [d]	NA	NA	NA	NA	NA	NA	NA	NA	NA
T1-E	08/11/89	13.0	2.208	NA	NA	ND	33	59	180	NA	NA	NA
T1-W	08/11/89	11.0	5.203	NA	NA	12	67	83	420	NA	NA	NA
T2-E	08/11/89	13.0	6.178	NA	NA	ND	56	68	360	NA	NA	NA
T2-W	08/11/89	13.0	0.0124	NA	NA	ND	ND	ND	ND	NA	NA	NA
T3-E	08/11/89	13.0	2.857	NA	NA	1.9	36 [c]	17	220 [c]	NA	NA	NA
T3-W	08/11/89	13.0	ND	NA	NA	ND	0.013	0.026	0.11	NA	NA	NA
T4	08/11/89	7.5	ND	ND	NA	ND	0.012	0.03	0.14	NA	NA	NA
B-3	11/28/89	20.5	ND	NA	NA	0.13	ND	0.022	ND	0.2	ND	ND
B-3	11/28/89	25.5	52	NA	NA	0.44	0.2	0.48	0.93	ND	ND	ND
B-3	11/28/89	30.5	23	NA	NA	0.54	0.21	0.188	0.4	ND	ND	ND
B-4	11/28/89	15.5	ND	NA	NA	0.02	0.013	0.019	ND	NA	NA	NA
B-4	11/28/89	20.5	ND	NA	NA	0.075	0.026	0.02	0.015	NA	NA	NA
B-4	11/28/89	35.5	ND	NA	NA	ND	ND	0.013	ND	NA	NA	NA
MW3	11/28/89	20.5	NA	NA	NA	0.13	ND	0.022	ND	0.2	ND	ND
MW3	11/28/89	25.5	52	NA	NA	0.44	0.2	0.48	0.93	NA	NA	NA
MW3	11/28/89	30.5	23	NA	NA	0.54	0.21	0.188	0.4	NA	NA	NA
MW4	11/28/89	15.5	NA	NA	NA	0.02	0.013	0.019	NA	NA	NA	NA
MW4	11/28/89	20.5	NA	NA	NA	0.075	0.026	0.02	0.015	NA	NA	NA
ABW-12-12	12/12/89	12.0	1.8	NA	NA	0.2	0.024	0.018	0.034	NA	NA	NA
Test Pit #10	06/20/90	7.5	NA	NA	NA	ND	ND	0.005	NA	NA	NA	NA
Test Pit #11	06/20/90	7.5	NA	NA	NA	ND	ND	0.034	NA	NA	NA	NA
Test Pit #7	06/20/90	9.0	NA	NA	16	ND	ND	NA	NA	NA	NA	NA
Test Pit #8	06/20/90	2.5	NA	NA	20	ND	ND	0.069	NA	NA	NA	NA
Test Pit #8	06/20/90	8.0						0.017	NA	NA	NA	NA
Test Pit #9	06/20/90	7.0	NA	NA	NA	ND	ND	0.024	NA	NA	NA	NA

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Table 3
Summary of Historical Soil Analytical Data
Harbert Transportation/Meekland Avenue
Hayward, California

			EPA Test Method									
			8015 Modified			8020				8010		
Sample Number	Date Sampled	Depth (ft)	TPH-G	TPH-D	TPH-MO	Benzene	thylbenzene	Toluene	Total Xylenes	TCE	PCE	1,2-DCA
			mg/kg			mg/kg				mg/kg		
MW6	08/30/90	20.5	ND	ND	ND	0.046	ND	ND	ND	ND	ND	ND
MW6	08/30/90	30.5	23	5.3	ND	0.07	0.06	0.096	0.059	ND	ND	0.0057
MW6	08/30/90	45.5	1.2	ND	ND	0.02	0.015	0.035	0.056	ND	ND	ND
MW5	08/31/90	5.5	ND	ND	ND	ND	ND	0.0039	ND	ND	ND	ND
MW5	08/31/90	10.5	ND	ND	ND	0.037	0.0035	0.016	0.019	ND	ND	0.0024
MW5	08/31/90	20.5	560	6.4	ND	9.6	7.4	22	45	ND	ND	0.061
MW5	08/31/90	45.5	ND	ND	ND	0.014	0.0073	0.021	0.034	ND	ND	ND
TP1	09/04/90	8.5	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA
TP2	09/04/90	9.0	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA
TP3	09/04/90	9.0	NA	ND	16	NA	NA	NA	NA	NA	NA	NA
TP4	09/04/90	2.5	ND	ND	20	ND	ND	0.069	ND	ND	ND	ND
TP4	09/04/90	8.0	ND	ND	ND	ND	ND	0.017	ND	ND	ND	ND
TP5	09/04/90	7.0	ND	ND	ND	ND	ND	0.024	ND	NA	NA	NA
TP6	09/04/90	7.5	ND	ND	ND	ND	ND	0.005	ND	ND	ND	ND
TP8	09/04/90	7.5	ND	ND	ND	ND	ND	0.034	NA	ND	ND	ND
B1	10/01/90	5.5	ND	ND	13 [b]	ND	ND	0.036	ND	ND	ND	ND
B1	10/01/90	15.5	ND	ND	ND	0.04	0.0058	0.034	0.025	ND	ND	0.014
B1	10/01/90	25.5	150	3.7	ND	1.2	2.1	2.4	8.4	ND	ND	0.041
MW7	10/01/90	15.5	ND	ND	ND	ND	ND	0.015	ND	ND	ND	ND
MW7	10/01/90	25.5	ND	ND	ND	0.043	0.0034	0.0044	0.01	ND	ND	ND
MW7	10/01/90	35.5	ND	ND	ND	ND	ND	0.027	0.0057	ND	ND	ND
MW7	10/01/90	45.5	1.1	ND	ND	0.0071	0.012	0.036	0.056	ND	ND	ND
MW7	10/01/90	Auger	120	23	ND	0.31	1.7	1.4	6.9	ND	ND	0.0059
MW8	02/13/91	25.0	NA	NA	NA	ND	ND	0.0033	ND	NA	NA	NA
MW8	02/13/91	35.0	NA	NA	NA	ND	ND	0.028	ND	NA	NA	NA
MW9	02/13/91	20.0	2.2	NA	NA	0.15	0.029	0.066	0.067	ND	ND	0.0079
MW9	02/13/91	30.0	39	6	NA	0.18	0.23	0.34	1	NA	ND	0.011
MW9	02/13/91	40.0				ND	ND	0.011	ND	NA	NA	NA

Table 3
Summary of Historical Soil Analytical Data

Harbert Transportation/Meekland Avenue
Hayward, California

Sample Number	Date Sampled	Depth (ft)	EPA Test Method									
			8015 Modified			8020				8010		
			TPH-G	TPH-D	TPH-MO	Benzene	thylbenzene	Toluene	Total Xylenes	TCE	PCE	1,2-DCA
			mg/kg			mg/kg				mg/kg		
MW10	01/21/92	21.0	ND	ND	NA	0.0044	0.0036	0.014	0.018	ND	ND	ND
MW10	01/21/92	26.0	52	11 [b]	NA	ND	0.33	ND	1.5	ND	ND	ND
MW10	01/21/92	31.0	ND	ND	NA	ND	ND	0.0025	0.0034	ND	ND	ND
MW11	01/24/92	21.0	ND	ND	NA	0.0043	ND	0.008	ND	ND	ND	ND
MW11	01/24/92	30.0	ND	ND	NA	ND	0.0039	0.0041	ND	ND	ND	ND
MW11	01/24/92	35.0	ND	ND	NA	ND	ND	0.0045	ND	ND	ND	ND
MW-12-20-4	12/14/92	20.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F-1	02/05/93	8.0	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
F-3 [e]	02/05/93	8.0	2,000	1,300 [a]	ND	ND	2.5	1.6	120	ND	ND	ND
F-6	02/05/93	12.0	3,800	1,300 [a]	ND	ND	ND	ND	20	NA	NA	NA
F-8	02/05/93	12.0	1.1	110 [a]	67	ND	ND	ND	ND	NA	NA	NA
MW-12-30-6		30.0	29	11 [a]	ND	0.078	0.1	ND	0.16	ND	ND	ND
MW-12-40-8		40.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average [f]			138.5	73.4	8.8	0.46	3.35	4.15	25.2	0.013	0.001	0.005
Detection Limit			1.0	1.0	10	0.0025	0.0025	0.0025	0.0025	0.002	0.002	0.002

Notes:

a) The positive result for petroleum hydrocarbons quantified as Diesel appears to be due to the presence of lighter hydrocarbons rather than diesel.

b) The positive result for the motor oil analysis on this sample appears to be a lighter hydrocarbon than diesel.

c) Xylenes and ethylbenzene are over range.

d) Reported as total hydrocarbons by EPA Method 8020.

e) Lead = 52 mg/kg.

f) Average of concentrations, ND equal to 1/2 detection limit.

NA - Not analyzed.
ND - Not detected at indicated detection limit.
TPH-G - Total petroleum hydrocarbons quantified as gasoline.
TPH-D - Total petroleum hydrocarbons quantified as diesel.
TPH-MO - Total petroleum hydrocarbons quantified as motor oil.

TCE - Trichloroethylene.
PCE - Tetrachloroethylene.
1,2-DCA - 1,2-Dichloroethane.
1,1-DCA - 1,1-Dichloroethane.

TABLE 4
1/2-Mile Radius Well Search
19984 Meekland Avenue
Hayward, California

Township	Section	Source of Well Record.			Location		Owner	Well #	Well Details						Comments
		ACPWD	CA-DWR (Permit#)	Paper Log (attached, #)	Address	City			Drill Date	Elevation	Total Depth	Depth to Water	Casing Diam.	Use	
3S/2W	17C 5	X			19984 MEEKLAND AVE	Hayward	HARBERT TRANSPORTATION		6/86	0	42	24	2	MON	
3S/2W	17C 5	X	01-1527	22	19984 Meekland Ave.	Hayward	Durham Transportation	MW1	12/92	0	42	24	2	ABN	B1/MW-1
3S/2W	17C 6	X	01-444U	23					11/89	0	68	0	4	ABN	Well pressure grouted 12/1989, Dept to Water 29.9 ft
3S/2W	17C 7	X	01-444V	24					11/89	54	40	28	2	MON	
3S/2W	17C 8	X	01-444W	25				MW-4	11/89	55	40	28	2	MON	
3S/2W	17C 9	X							4/90	0	65	0	0	BOR	
3S/2W	17C 9		01-475H	26				MW-5	8/90		45		8		Boring Log
3S/2W	17C10	X							10/90	55	45	31	4	MON	
3S/2W	17C10		01-475I	27				MW-6	8/90		45		8		Boring Log
3S/2W	17C11	X	01-475J	28				MW-7	8/90	55	45	30	4	MON	
3S/2W	17C11	X							2/91	14	14	9	2	MON	
3S/2W	17C11		01-498G	29				MW-8	2/91		40		10		Boring Log
3S/2W	17C12	X							2/91	14	0	9	0	MON	
3S/2W	17C12		01-498H	30				MW-9	2/91						Boring Log
3S/2W	17C13	X	01-516A	31				MW10	1/92	0	40	30	4	MON	
3S/2W	17C14	X	01-516B	32				MW11	1/92	0	40	30	2	MON	
3S/2W	17C15	X	01-527U	33	19515 Meekland Ave.	Hayward	Jon Otteson		7/91	0	27	0	2	DES	Sealed with peagravel to 22 ft, balnce if casing filled with Mortar concrete to 2 ft below ground approx 27 ft drop before grading
3S/2W	17C16	X	01-537W	34	19984 Meekland Ave.	Hayward	Durham Transportation	MW12	12/92	0	40	32	2	MON	
3S/2W	17D 1	X			24 VIA HERMOSA	Hayward	GHIGLIONE		/53	45	50	0	10	IRR	
3S/2W	17D 2	X			19288 MEDFORD CT	Hayward	LEDBETTER		/55	52	45	0	6	IRR	
3S/2W	17F 1	X			20161 TIMES AV	Hayward	URBANSKI		/52	54	55	0	8	IRR	
3S/2W	17F 2	X			20987 MEEKLAND AV	Hayward	SHIMAMURA		/52	58	75	0	8	IRR	
3S/2W	17F 3	X	01-1534	35	20165 HATHAWAY	Hayward	PERKINS		6/31	55	200	0	0	IRR	DWR Lists total dept 201 ft and surface elev USGS 52
3S/2W	17F 4	X	497202	36	310 Bartlett Ave	Hayward	Anderson Lift Truck	MW-1	4/92	52	37	23	2	MON	Well sealed tp 23 ft with cement & Bentonite
3S/2W	17F 5	X	497204	37				MW-2	4/92	52	38	22	2	MON	Well sealed to 18 ft with cement & Bentonite
3S/2W	17F 6	X	497203	38				MW-3	4/92	52	38	22	2	MON	Well sealed to 21 ft with cement & Bentonite
3S/2W	17G	X	01-528T	39	21123 Meekland Blvd	Hayward	Beck Roofing	B-1	10/91	0	26	0	0	BOR*	
3S/2W	17G		01-528U	40				B-2	10/91		31			BOR	
3S/2W	17G	X	299143	41	21560 MEEKLAND AVE	Hayward	JACA CONSTRUCTION		6/88	0	25	0	0	DES	Well sealed to 25 ft with neat cement
3S/2W	17G 2	X	01-1535	42	21568 MEEKLAND AV	Hayward	FUENTES		5/34	60	92	0	8	IRR	DWR lists total dept 93 ft
3S/2W	17G 3	X	33287	43	21455 MEEKLAND	Hayward	JOHN DE NOBRIGA		10/77	0	80	37	6	IRR	Sealed to 20 ft with cement & sand. DWR list total dept 82 ft well 75 ft
3S/2W	17G 4	X	427251	44	21123 Meekland Avenue	Hayward	Beck Roofing		10/91	0	39	32	2	MON	Well sealed to 25 ft with cement & Bentonite
3S/2W	17G 5	X	427252	45					10/91	0	38	32	2	MON	Well sealed to 25 ft with cement & Bentonite
3S/2W	17G 6	X	427253	46					10/91	0	38	32	2	MON	Well sealed to 25 ft with cement & Bentonite
3S/2W	17G 7	X	01-528Q	47				MW-1	10/91	0	46	31	2	MON	Bentonite pellet seal with 2 ft cement grout
3S/2W	17G 8	X	01-528R	48				MW-2	10/91	0	38	33	2	MON	Bentonite pellet seal with 2 ft cement grout
3S/2W	17G 9	X	01-528S	49				MW-3	10/91	0	38	33	2	MON	Bentonite pellet seal with 2 ft cement grout
3S/2W	17G10	X	01-527V	50	21454 Meekland Ave	Hayward	Jon Otteson		8/91	0	36	0	2	DES	Sealed with peagravel to 22 ft, balnce if casing filled with Mortar concrete to 2 ft below ground approx 27 ft drop before grading
3S/2W	17G11	X			21123 Meekland Ave	Hayward	Beck Roofing	MW-4	7/94	0	40	28	2	MON	
3S/2W	17H		245049	51	22008 Meekland Ave	Hayward	Andy Macko		10/82		137			DES	Well sealed to 20 ft with neat cement
3S/2W	17H 1	X			308 SUNSET BLVD	Hayward	CRITES		56	71	75	0	6	IRR	
3S/2W	17H 2	X			447 WILLOW AV	Hayward	KANE		52	72	62	0	8	IRR	
3S/2W	17H 4	X	6422	52	231 SUNSET	Hayward	E BILLENGER		9/54	0	83	0	6	DOM	Not sealed from 1-3 ft
3S/2W	17H 5	X	316540	53	22008 Meekland Ave	Hayward	K/D Cedar	MW-1	7/91	0	49	36	2	MON	Well sealed to 25 ft
3S/2W	17H 6	X	316541	54				MW-2	7/91	0	49	36	2	MON	Well sealed (No other details)
3S/2W	17H 7	X	316542	55				MW-3	7/91	0	49	36	2	MON	Well sealed to 25 ft
3S/2W	17J 3		198738	56	22302 Hathaway AVE	Hayward	Diamond Bathurst Inc	DB-01	1/86		49			TES	Test well sealed to 17 ft Grout & Bentonite

TABLE 4

1/2-Mile Radius Well Search

19984 Meekland Avenue
Hayward, California

Township	Section	Source of Well Record.			Location		Owner	Well #	Well Details						Comments
		ACPWD	CA-DWR (Permit#)	Paper Log (attached, #)	Address	City			Drill Date	Elevation	Total Depth	Depth to Water	Casing Diam.	Use	
3S/2W	8K 1	X			654 HAMPTON RD	San Leandro	G. FREITAS		/55	60	60	0	6	IRR	
3S/2W	8L 1	X			451 HAMPTON RD	San Leandro	GREENFIELD		?	0	75	25	8	IRR	
3S/2W	8L 2	X			18381 HAVEN ST	San Leandro	KINSEY		/50	60	50	0	0	IRR	
3S/2W	8L 3	X			988 LEWELLING BLVD	San Leandro	KNAPP'S NURSERY		/42	57	211	0	10	IRR+	
3S/2W	8L 4		01-1470	1	20713 Western Blvd	Hayward	DEXTER'S HATCHERY		9/42		88				
3S/2W	8M	X	01-546T	2	17771 Meekland Ave.	Hayward	Jocson Auto Electric		6/92	0	22	18	0	BOR	
3S/2W	8M 1	X			477 E. LEWELLING BLVD	San Leandro	SCHRAGL		/41	42	70	0	10	IRR	
3S/2W	8M 2	X			16980 HARVARD AVE	San Leandro	SHIMAMURA		?	50	58	0	8	IRR	
3S/2W	8M 3		120252	3	17754 MEEKLAND AVE	Hayward	Hoffman		/68		85	22	8	DOM+	
3S/2W	8M 3	X			17662 MEEKLAND AV	Hayward	BURTON BUSK		/68	48	85	22	8	DOM+	
3S/2W	8M 5	X	323468	4	171 Hampton Road	Hayward	Cherryland Homes		10/89	0	40	0	0	DES	Well Seal neat cement to 22 ft, DWR dept to water 20 ft
3S/2W	8M 6	X	323471	5					10/89	0	0	0	0	DES	Well Seal neat cement to 22 ft, DWR dept to water 20 ft
3S/2W	8M 7	X	01-546Q	6	17771 Meekland Ave.	Hayward	Jocson Auto Electric	MW-1	6/92	0	31	20	2	MON	
3S/2W	8M 8	X	01-546R	7				MW-2	6/92	0	31	18	2	MON	
3S/2W	8M 9	X	01-246S	8				MW-3	6/92	0	31	22	2	MON	
3S/2W	8N 1	X			18286 MEEKLAND AVE	Hayward	BITTNER		/40	47	85	0	0	IRR	
3S/2W	8N 2	X			17754 MEEKLAND AVE	Hayward	HOFFMAN		/45	48	156	0	8	DES	
3S/2W	8P 1	X			19231 LOWELL AVE	Hayward	VANDERBURG		/55	56	50	0	0	IRR	
3S/2W	8P 2	X			203 MEDFORD AVE	Hayward	R.A. PACE		/36	56	64	0	0	IRR	
3S/2W	8P 3	X	33214	9	219 MEDFORD AVE	Hayward	NANCY SMITH		1/78	0	80	26	6	IRR	Well Seal Cement & Sand Grout to 26 ft, DWR Report list total dept at 83 ft
3S/2W	8Q 1	X	01-1471	10	546 CHERRY WAY	Hayward	ART CROWE		1/43	58	86	24	10	IRR	
3S/2W	8Q 2	X	No #	11	19751 WESTERN BLVD	Hayward	DEXTER'S HATCHERY		9/42	57	88	0	8	IRR	DWR list struck water at 22 ft
3S/2W	8Q 3	X			361 SAINT GEORGE AVE	Hayward	R.J. CHASTAIN		6/77	0	50	0	0	?	
3S/2W	8Q 4	X			326 CHERRY WAY	Hayward	WILLIAM MATHEWS		6/79	0	83	25	6	IRR	
3S/2W	8Q 5	X	33224	12	310 CHERRY WAY	Hayward	WILLIE DEDEK		4/80	0	81	23	6	IRR	Well Seal Cement & Sand to 30 ft. DWR lists Domestic & Irrigation Uses
3S/2W	8Q 6	X	33229	13	268 CHERRY WAY	Hayward	GUENTER MAHLER		3/81	0	83	27	6	IRR	Well Seal to 30 ft
3S/2W	8R 1	X			839 CHERRY WAY	Hayward	HEITMAN		/24	68	100	0	0	IRR	
3S/2W	8R 2	X			823 BLOSSOM WAY	Hayward	BURROWES		/08	69	90	0	6	IRR	
3S/2W	8R 3	X			859 MEDFORD RD	Hayward	O. HIGGINS		/39	68	85	0	10	IRR	
3S/2W	8R 5	X			21070 WESTERN BLVD	Hayward	M. VIERRA		?	64	85	0	12	DOM+	
3S/2W	8R 6	X	33205	14	559 CHERRY WAY	Hayward	MANUEL GONSALVES		4/77	0	64	31	5	IRR	Well Seal cement grout to 20 ft
3S/2W	8R 8	X	33289	15	850 CHERRY WAY	Hayward	LELAND DE QUADROS		10/77	0	100	41	6	IRR	Well Seal Cemet & Sand to 29 ft. DWR list total dept 102 ft
3S/2W	8R 9	X	106484	16	21065 WESTERN	Hayward	RON BAXTER		10/78	0	100	33	0	IRR	
3S/2W	8R10	X			21031 Western Blvd	Hayward	William and Kathy Florenc		12/95	0	35	25	2	MON	
3S/2W	8R11	X							12/95	0	35	25	2	MON	
3S/2W	8R12	X							12/95	0	35	25	2	MON	
3S/2W	17A 1	X			448 GROVE WAY	Hayward	NEVES		/28	68	108	0	0	IRR	
3S/2W	17A 2	X			854 BLOSSOM WAY	Hayward	SOUSA		/28	67	76	0	0	IRR	
3S/2W	17A 3	X	33210	17	21671 HAVILAND AVE	Hayward	DAVID PEARSON		5/77	0	72	40	5	IRR	Well sealed to 20 ft with cemented sand grout
3S/2W	17B 1	X			204 GROVE WAY	Hayward	COATES		/48	62	88	0	8	IRR	
3S/2W	17B 2	X			294 GROVE WY	Hayward	WILDE		/33	61	100	0	0	IRR	
3S/2W	17C	X			19984 Meekland Ave	Hayward	Durham Transportation		8/90	55	45	30	4	MON	
3S/2W	17C	X	01-1528	18				B-2	6/86	0	23	0	0	BOR	Boring Log
3S/2W	17C		01-475K	19				B-1	10/90		25		8		Boring Log
3S/2W	17C 1	X			162 CHERRY LN	Hayward	DEASON		/40	53	72	0	6	IRR	
3S/2W	17C 2	X			19126 MEEKLAND AV	Hayward	HARTWELL		/31	52	91	0	8	IRR	
3S/2W	17C 3	X	33208	20	163 CHERRY WAY	Hayward	FRED DEADMAN		5/77	0	56	28	6	IRR	Well Seal Cement & Sand Grout to 20 ft
3S/2W	17C 4	X	33267	21	21005 MEEKLAND AVE	Hayward	ABREV EGG CO		7/77	0	77	37	6	IRR	Well Seal Cement & Sand Grout to 20 ft

TABLE 4

1/2-Mile Radius Well Search

19984 Meekland Avenue
Hayward, California

Township	Section	Source of Well Record.			Location		Owner	Well #	Well Details						Comments
		ACPWD	CA-DWR (Permit#)	Paper Log (attached, #)	Address	City			Drill Date	Elevation	Total Depth	Depth to Water	Casing Diam.	Use	
3S/2W	17J 4		340609	57	22117 Meekland Ave	Hayward	Vince Hunt		3/91		53	36	4	TES	Well sealed to 21 ft with neat cement via tremie
3S/2W	17J 5		340610	58					3/91		54	36	4	TES	Well sealed to 26 ft with neat cement via tremie
3S/2W	17J 6		340611	59					3/91		53	36	4	TES	Well sealed to 18 ft with neat cement via tremie
3S/2W	17J 7		403243	60	22300 Hathaway	Hayward	The Price Club	B-1/MW-1	8/92		38	34	4	MON	Well sealed to 26 ft with cement & Bentonite
3S/2W	17J 8		403244	61				B-2/MW-2	8/92		50	34	4	MON	Well sealed to 27 ft with cement & Bentonite
3S/2W	17J 9		403245	62				B-3/MW-3	8/92		48	40	4	MON	Well sealed to 27 ft with cement & Bentonite
3S/2W	17J10		403246	63				B-4/MW-4	8/92		48	36	4	MON	Well sealed to 27 ft with cement & Bentonite
3S/2W	17J11		403247	64				B-5/MW-5	8/92		50	36	4	MON	Well sealed to 27 ft with cement & Bentonite
3S/2W	17J12		403248	65				B-6/MW-6	8/92		47	38	4	MON	Well sealed to 29 ft with cement & Bentonite
3S/2W	17J13		403249	66				B-7/MW-7	8/92		50	34	4	MON	Well sealed to 25 ft with cement & Bentonite
3S/2W	17J14		403250	67				B-8/MW-8	8/92		49	33	4	MON	Well sealed to 25 ft with cement & Bentonite
3S/2W	17J15		403251	68				B-9/MW-9	8/92		47	32	4	MON	Well sealed to 21 ft with cement & Bentonite
3S/2W	17L 1	X			21335 HATHAWAY AV	Hayward	BRANELLA		/51	55	70	0	8	IRR	
3S/2W	17L 2	X			442 SUNSET BLVD	Hayward	SILVERA		/51	52	80	0	8	DOM	
3S/2W	17M	X	245011	69	21134 ROYAL AVE.	Hayward	STAN FELSON		6/82	0	65	0	8	DES	Well sealed to 23 ft with neat cement
3S/2W	17M		245086	70					6/82		50		8	DES	Well sealed to 23 ft with neat cement
3S/2W	17M 1	X			421 BARTLETT ST	Hayward	LEYMURA		/48	46	60	0	8	DOM	
3S/2W	17M 1		01-1539	71	1230 Barttlett Ave	Hayward	Fred Lowrie		10/48		66				
3S/2W	17M 2	X	01-1540	72	20555 GARDEN AV	Hayward	FERNANDES		/53	49	72	30	6	IRR	DWR lists Elev USGS 50

NOTES:

[1] Cherry Lane is not a listed road in Hayward: WHA assumed well listed as being on Cherry Lane should be on Cherry Way

file: H9042\SCM|tables/Tables3-Well-Radius

TABLE 4a Orphans [1]

1/2-Mile Radius Well Search

19984 Meekland Avenue
Hayward, California

Township	Section	Source of Well Record.			Location		Owner	Well #	Well Details						Comments
		ACPWD	CA-DWR No.	Paper Log (attached, #)	Address	City			Drill Date	Elevation	Total Depth	Depth to Water	Casing Diam.	Use	
3S/2W	8M 4	X			29517 SHASTA RD	Hayward	CHARLES A. TAYLOR		5/56	0	40	6	6	DOM	
3S/2W	17D 1		01-1529	a	None Listed	Hayward	Robert King		5/30	47	273				Log Obtained by RGT 9/11/1950
3S/2W	17D 1		01-1530	b	Highway 17 and Hathaway		Givich				68	19			Log Obtained by CL 12/12/1957
3S/2W	17D 2		01-1531	c	None Listed	Hayward	Robert King		10/47	46	180		12		Log Obtained by RGT 12/23/1949
3S/2W	17D 3	X			None Listed	Hayward	R.P. KING		10/47	46	180	0	12	IRR	
3S/2W	17D 3		01-1532	d	Highway 17 and Hathaway		Givich				68				
3S/2W	17E 1	X	01-1525	e	1330 SOLANO ST	San Lorenzo	DONALD H. RUDE		4/53	0	61	18	0	DOM	
3S/2W	17E 2	X	01-1526	f	1338 SOLANO ST	San Leandro	ALEX FARKAS		4/53	40	61	11	4	DOM	
3S/2W	17E 3	X			None Listed	Hayward	TOM CAWATA		4/49	0	104	0	0	?	
3S/2W	17D 4	X	01-1533	g	None Listed	San Lorenzo	R.P. KING		5/30	0	273	0	0	?	
3S/2W	17H		01-1536	h	Willow Avenue	Hayward	McCune		4/42		128	35	8		Abandoned 2/1950
3S/2W	17H 3	X			815 POPLAR ST	Hayward	J.F. TAWNEY		?	75	100	0	8	STO	
3S/2W	17J 2		01-1537	j	746 Poplar Ave	Hayward	Victor Downin		3/54		74		6	DOM	Not Sealed
3S/2W	17K2	X	107557	k	W. A ST & HATHAWAY ST	Hayward	HUNT FOOD PRODUCTS INC.		7/65	0	680	0	0	TES	Test Bore
3S/2W	17K2		107558	l					7/65		680	80	3/16	MUN	Municipal Water Well, Sealed to 90 ft with 26" casing in 36" yole cemented
3S/2W	17M 1		01-1538	m	None Listed	Hayward	M. A. George		7/46		255		10		

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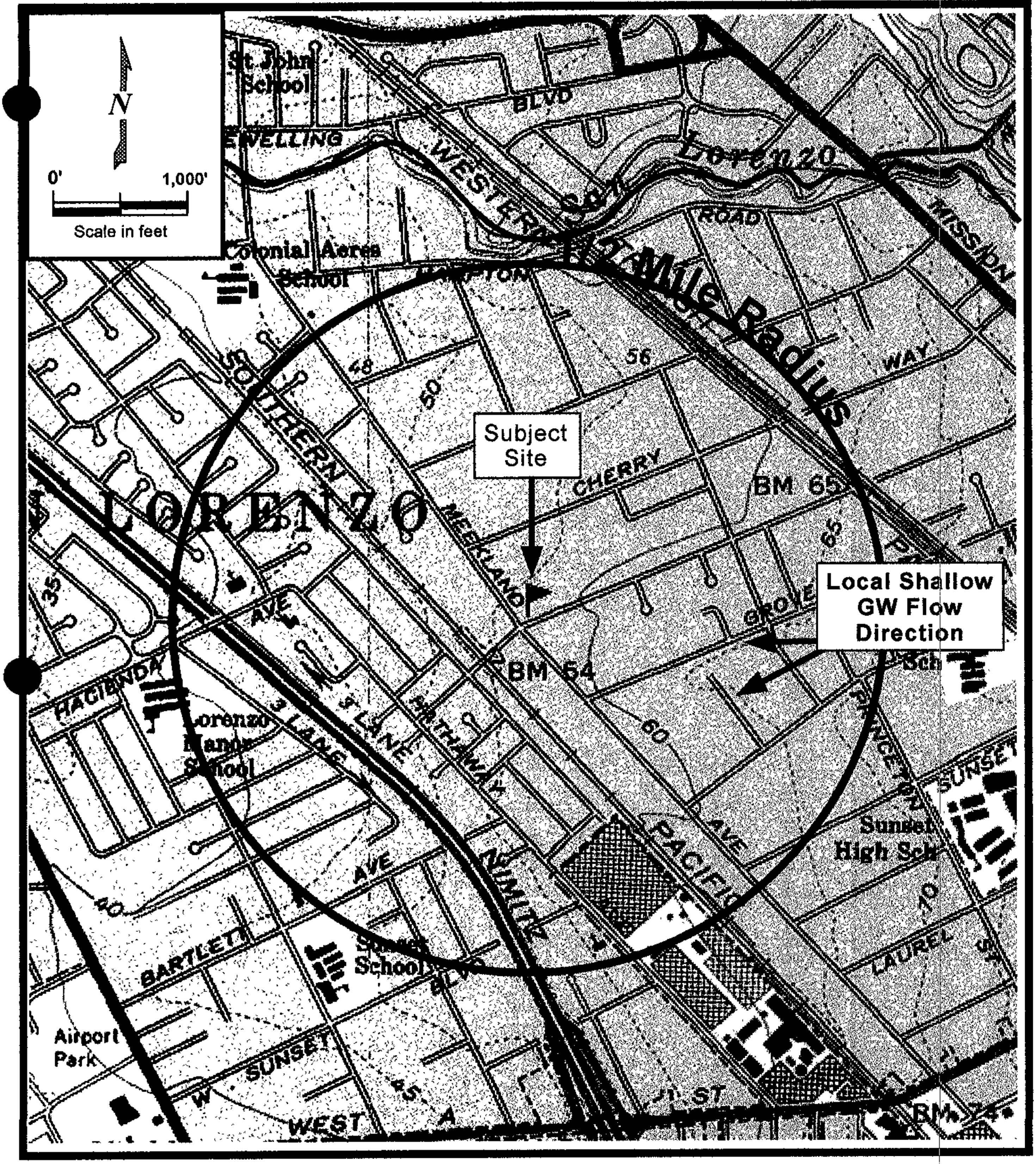
[1] Wells that could not be located due to insufficient information or invalid address information.



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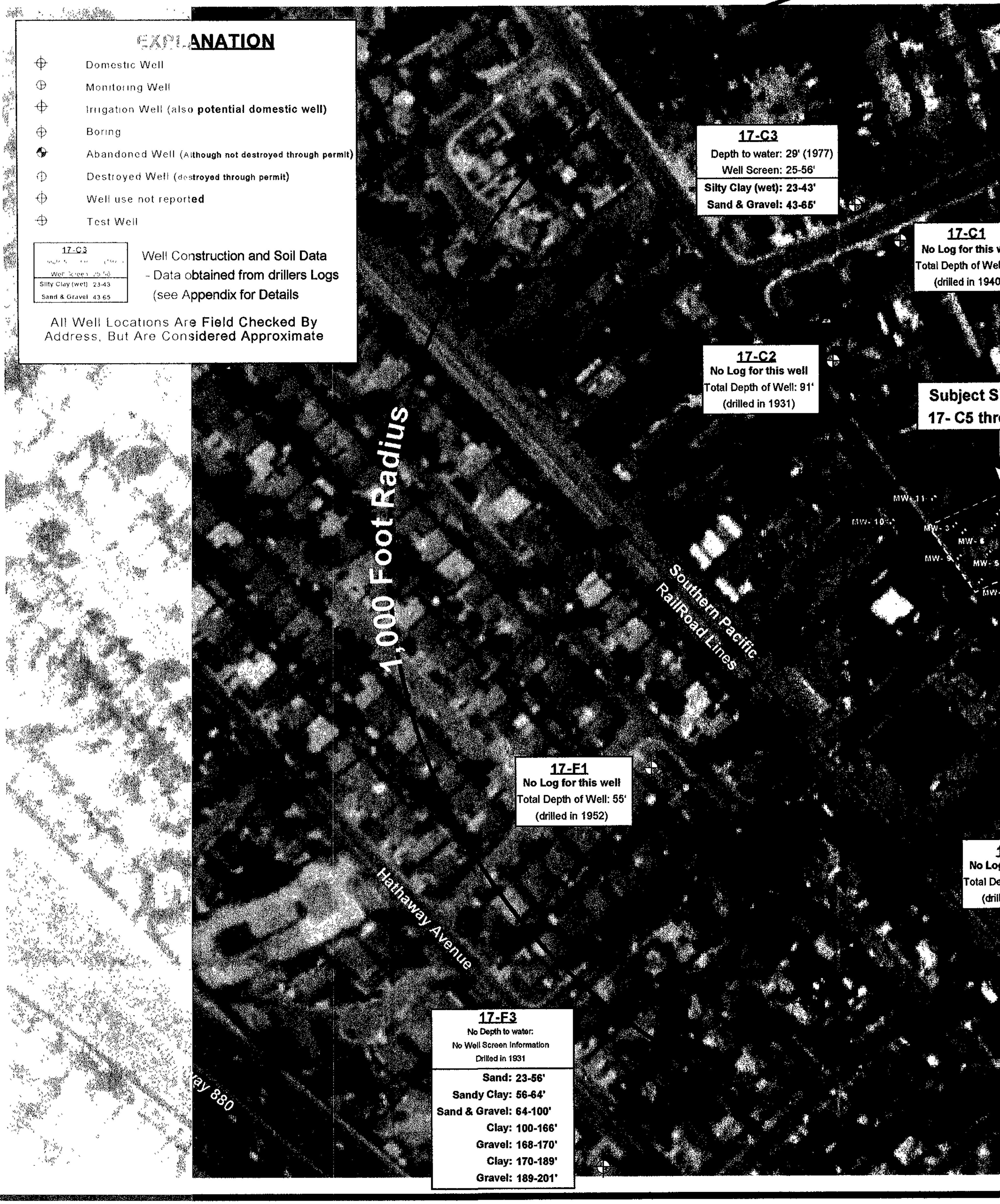
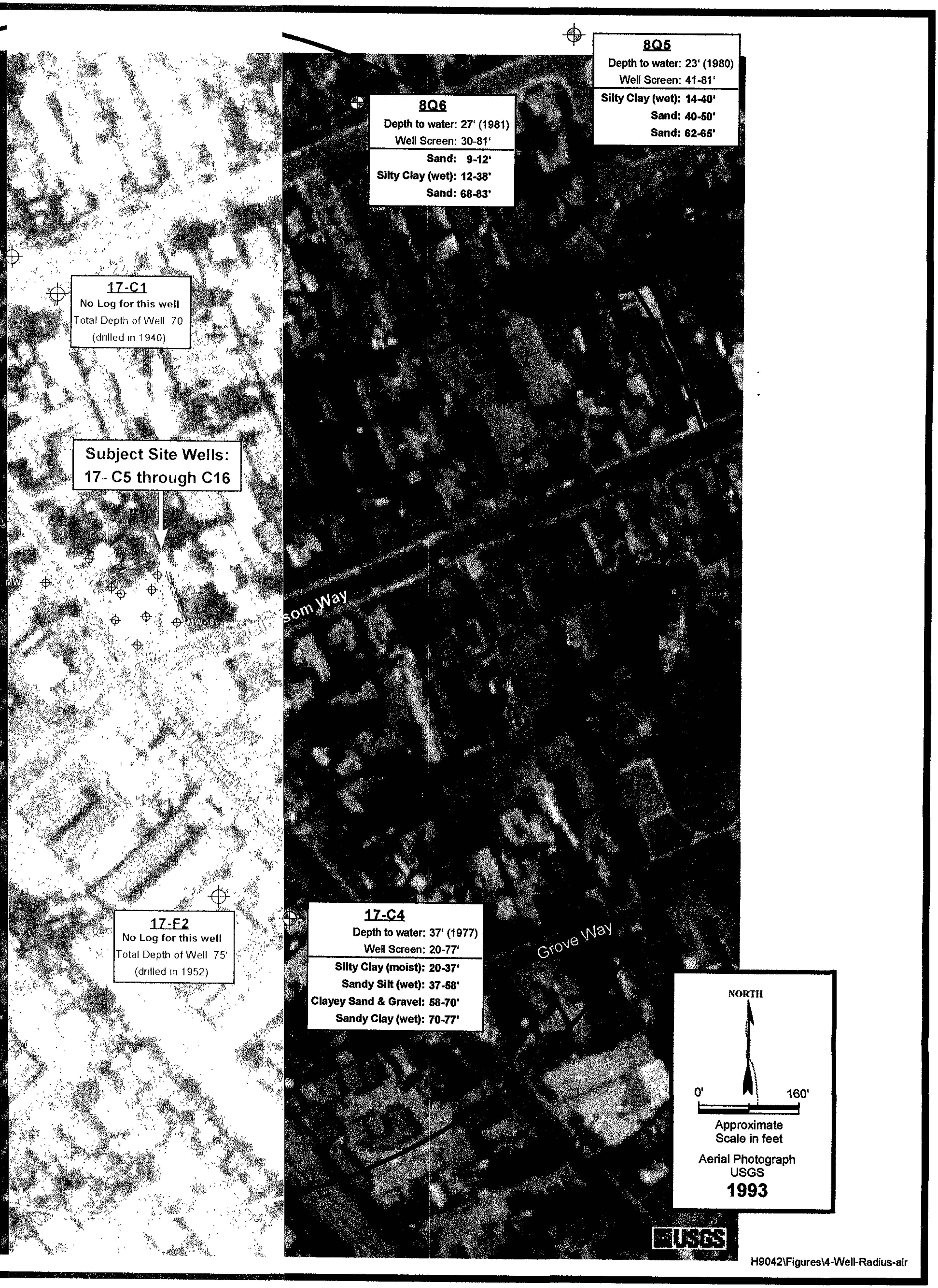
Location Map
Former Harbert Transportation Facility
19984 Meekland Avenue
Hayward, California

Figure
1
Job #
H9042


EXPLANATION
⊕ Domestic Well
⊕ Monitoring Well
⊕ Irrigation Well (also potential domestic well)
⊕ Boring
● Abandoned Well (Although not destroyed through permit)
⊕ Destroyed Well (destroyed through permit)
⊕ Well use not reported
⊕ Test Well
17-C3
Well Screen 25-56
Silty Clay (wet) 23-43
Sand & Gravel 43 65
Well Construction and Soil Data
- Data obtained from drillers Logs
(see Appendix for Details
All Well Locations Are Field Checked By
Address, But Are Considered Approximate
17-C3
Depth to water: 29' (1977)
Well Screen: 25-56'
Silty Clay (wet): 23-43'
Sand & Gravel: 43-65'
17-C1
No Log for this
Total Depth of We
(drilled in 1940
17-C2
No Log for this well
Total Depth of Well: 91'
(drilled in 1931)
Subject S
17- C5 thr
MW-11
MW-10
MW-3
MW-6
MW-9
MW-5
MW-
1,000 Foot Radius
Southern Pacific
RailRoad Lines
17-F1
No Log for this well
Total Depth of Well: 55'
(drilled in 1952)
No Lo
Total De
(dril
Hathaway Avenue
17-F3
No Depth to water:
No Well Screen Information
Drilled in 1931
Sand: 23-56'
Sandy Clay: 56-64'
Sand & Gravel: 64-100'
Clay: 100-166'
Gravel: 168-170'
Clay: 170-189'
Gravel: 189-201'
ay 880



8Q5
Depth to water: 23' (1980)
Well Screen: 41-81'
Silty Clay (wet): 14-40'
Sand: 40-50'
Sand: 62-65'

8Q6
Depth to water: 27' (1981)
Well Screen: 30-81'
Sand: 9-12'
Silty Clay (wet): 12-38'
Sand: 68-83'

17-C1
No Log for this well
Total Depth of Well 70
(drilled in 1940)

Subject Site Wells:
17- C5 through C16

17-F2
No Log for this well
Total Depth of Well 75'
(drilled in 1952)

17-C4
Depth to water: 37' (1977)
Well Screen: 20-77'
Silty Clay (moist): 20-37'
Sandy Silt (wet): 37-58'
Clayey Sand & Gravel: 58-70'
Sandy Clay (wet): 70-77'

Approximate
Scale in feet

Aerial Photograph
USGS
1993

H9042\Figures\4-Well-Radius-air

FIGURE
3
Job #
23022

Aerial Vicinity Map and Well Survey
Former Harbert Transportation
19984 Meekland Avenue
Hayward, California

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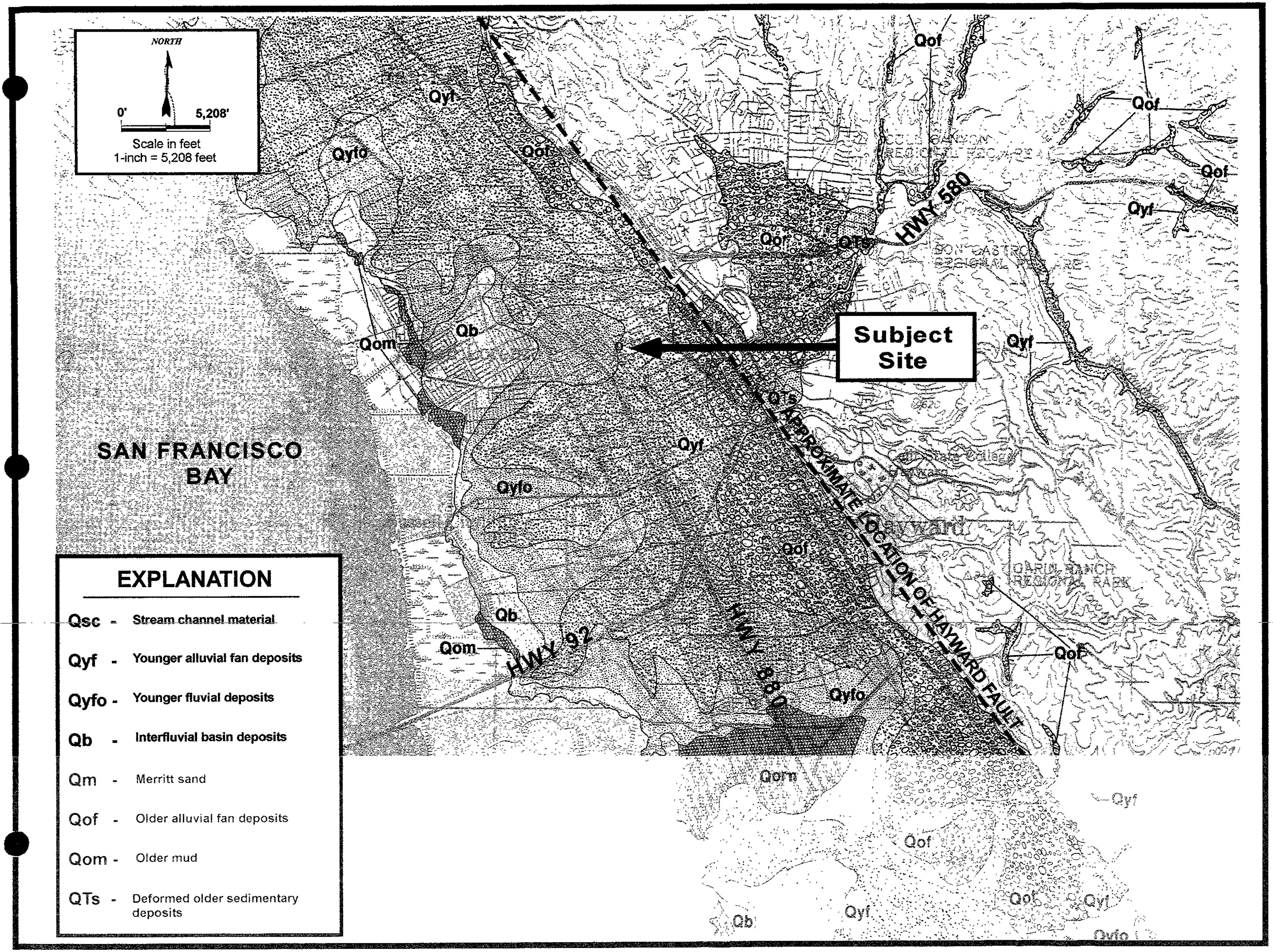

EXPLANATION

Qsc - **Stream channel material**

Qyf - **Younger alluvial fan deposits**

Qyfo - **Younger fluvial deposits**

Qb - **Interfluvial basin deposits**

Qm - Merritt sand

Qof - Older alluvial fan deposits

Qom - Older mud

QTs - Deformed older sedimentary deposits

H9042\Figures\Geologic CNV

FIGURE
4
Job #
H9042

Geologic Map
Former Harbert Transportation Facility
19984 Meekland Avenue
Hayward, California

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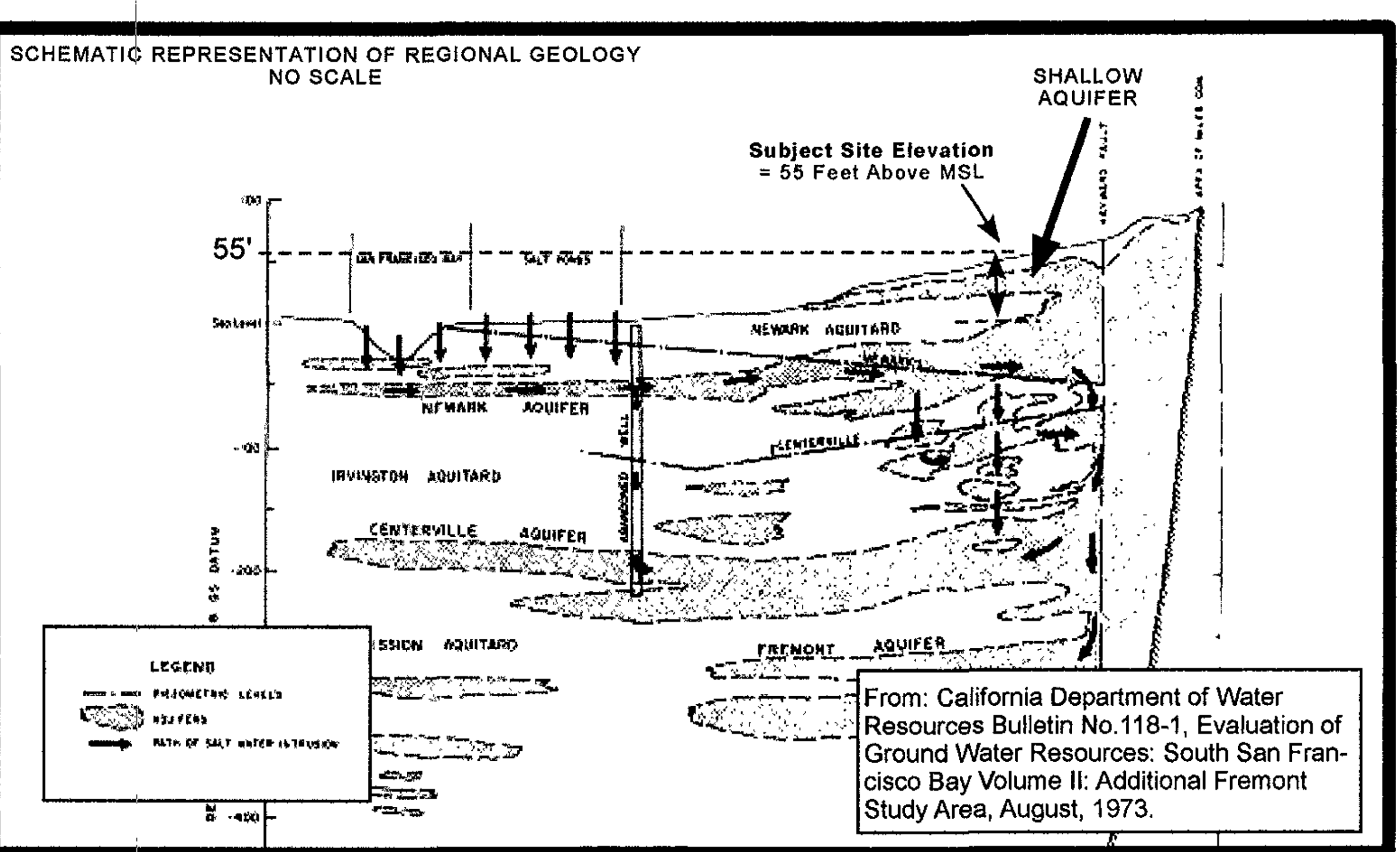
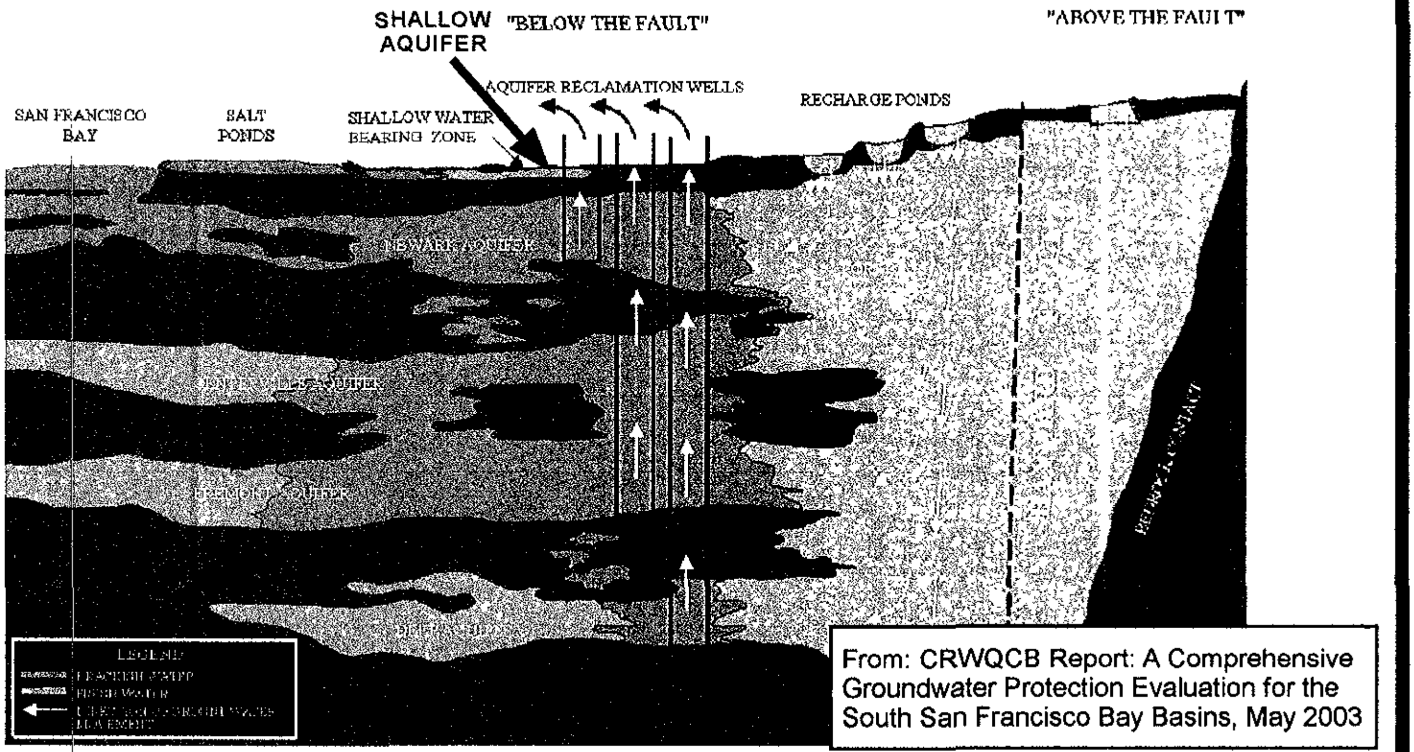


From: California Department of Water Resources Bulletin No.118-1, Evaluation of Ground Water Resources: South San Francisco Bay Volume II: Additional Fremont Study Area, August, 1973.



From: CRWQCB Report: A Comprehensive Groundwater Protection Evaluation for the South San Francisco Bay Basins, May 2003

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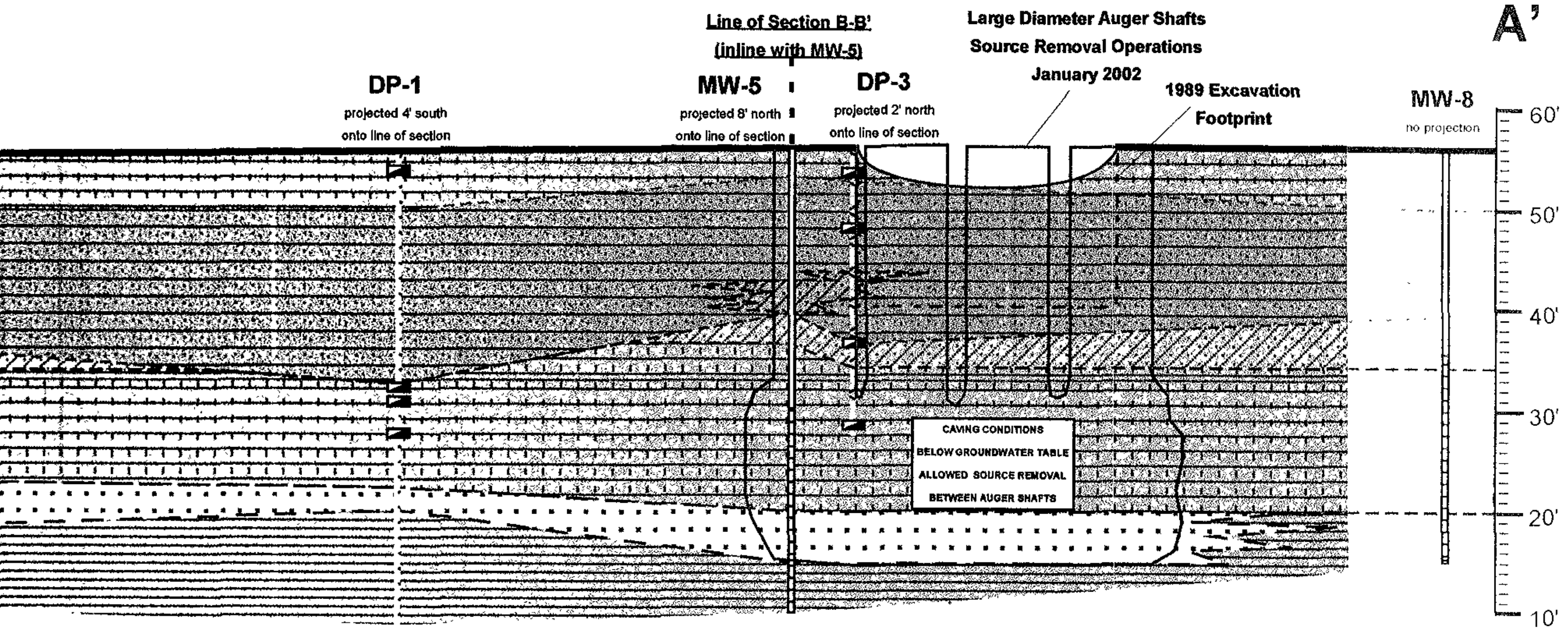
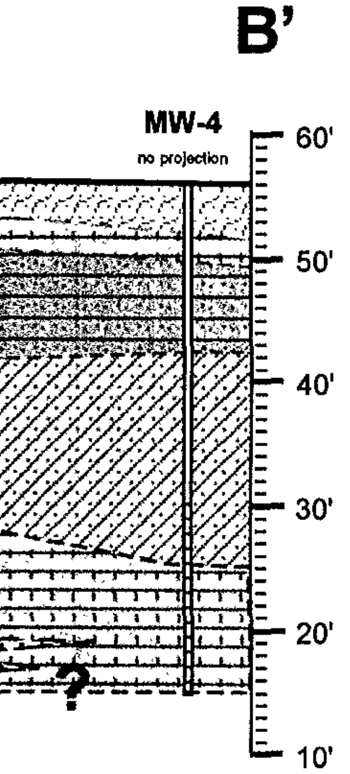
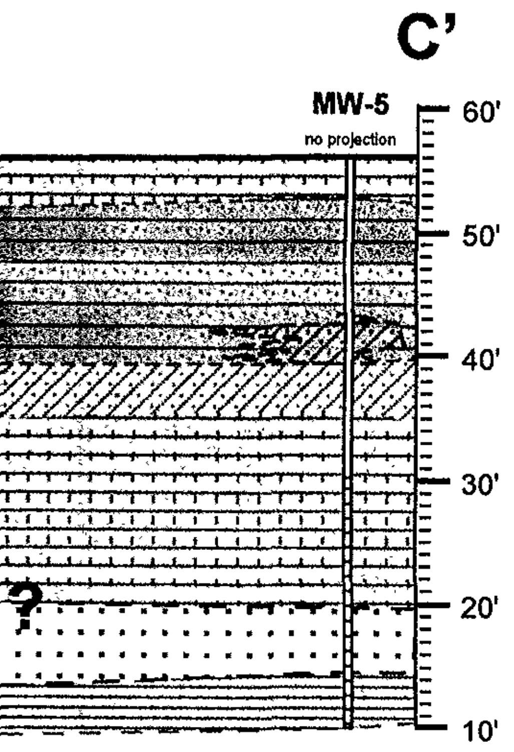
Regional Geologic Cross Section
Former Harbert Transportation Facility
19984 Meekland Avenue
Hayward, California

Figure
5
Job #
H9042







EXPLANATION:

- ■ **Asphalt.**
- ▨ **Lithologic Unit #1 - Sand/Gravel Fill**
- ▤ **Lithologic Unit #2 - Fat & Lean CLAY:** Dominantly clay with some sand that is moist.
- ▩ **Lithologic Unit #3 - Sandy CLAY to Silty CLAY:** Dominantly clay with some sand and silts. Appears to be laterally continuous with discontinuous interbeds of clayey sand and/or gradational into clayey sand
- ▨ **Lithologic Unit #4 - Clayey Silty SAND:** Dominantly sand with silt and clay binder, with occasional basal gravel
- ▤ **Lithologic Unit #5 - Fat CLAY:** Dominantly clay with some sand that is moist with discontinuous interbeds of sand lens
- ⁚ **Lithologic Unit #6 - Poorly Graded SAND and/or Silty SAND:** Dominantly sand with little or no fines groundwater bearing unit
- ☰ **Lithologic Unit #7 - Lean CLAY:** Dominantly clay with some sand that is very stiff, and low moisture content - aquitard unit
- ☐ **Cement:** Used in sealing driven probe borings.

◪ Soil sample analyzed at this depth.

▯ Monitoring well location, designation, completion depth and screened interval.

— Groundwater elevation in monitoring wells from March 29, 2001 groundwater monitoring event.

NOTES:

See Figure 2 for plan view of geologic cross-sections A-A', B-B', and C-C'
Lithology compiled from monitoring well geologic logs (completed by others), and driven probe boring geologic logs (WHA)
All elevations are referenced to National Geodetic Vertical Datum of 1929 Mean Sea Level (MSL).
No well construction information was contained on MW-3, or 4 geologic logs. Well construction inferred based on total depth and other well construction data from other onsite wells.

FIGURE
6
Job #
23022

Site Geologic Cross Sections A-A', B-B' & C-C'

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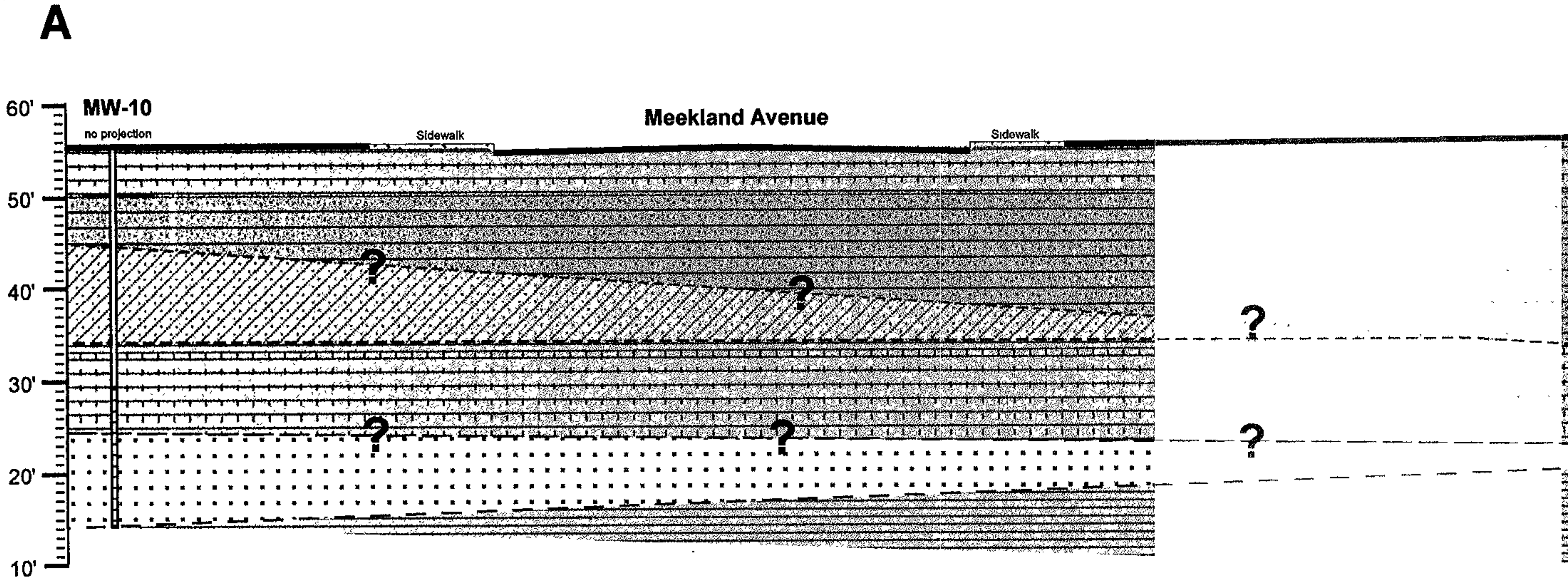
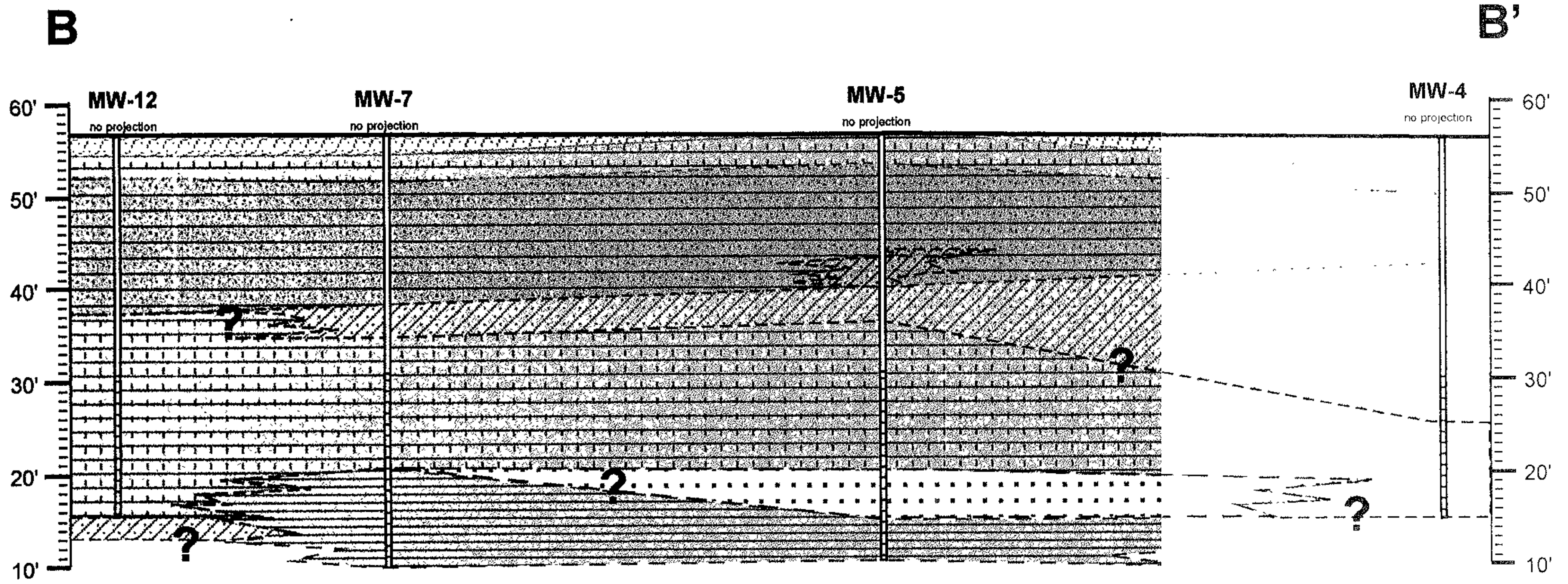
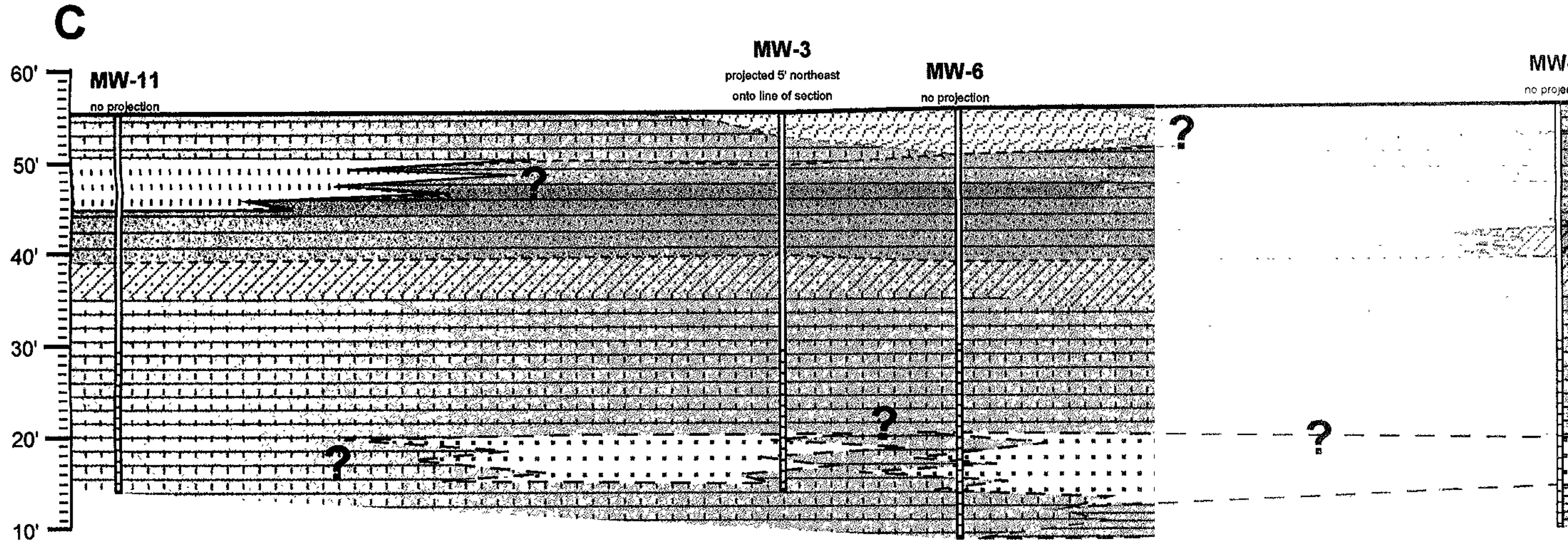

A
60'
50'
40'
30'
20'
10'
MW-10
no projection
Meekland Avenue
Sidewalk
Sidewalk
?
?
?
?
?
?


B
B'
60'
50'
40'
30'
20'
10'
MW-12
no projection
MW-7
no projection
MW-5
no projection
MW-4
no projection
?
?
?
?
?
60'
50'
40'
30'
20'
10'


C
60'
50'
40'
30'
20'
10'
MW-11
no projection
MW-3
projected 5' northeast
onto line of section
MW-6
no projection
?
?
?
?
?

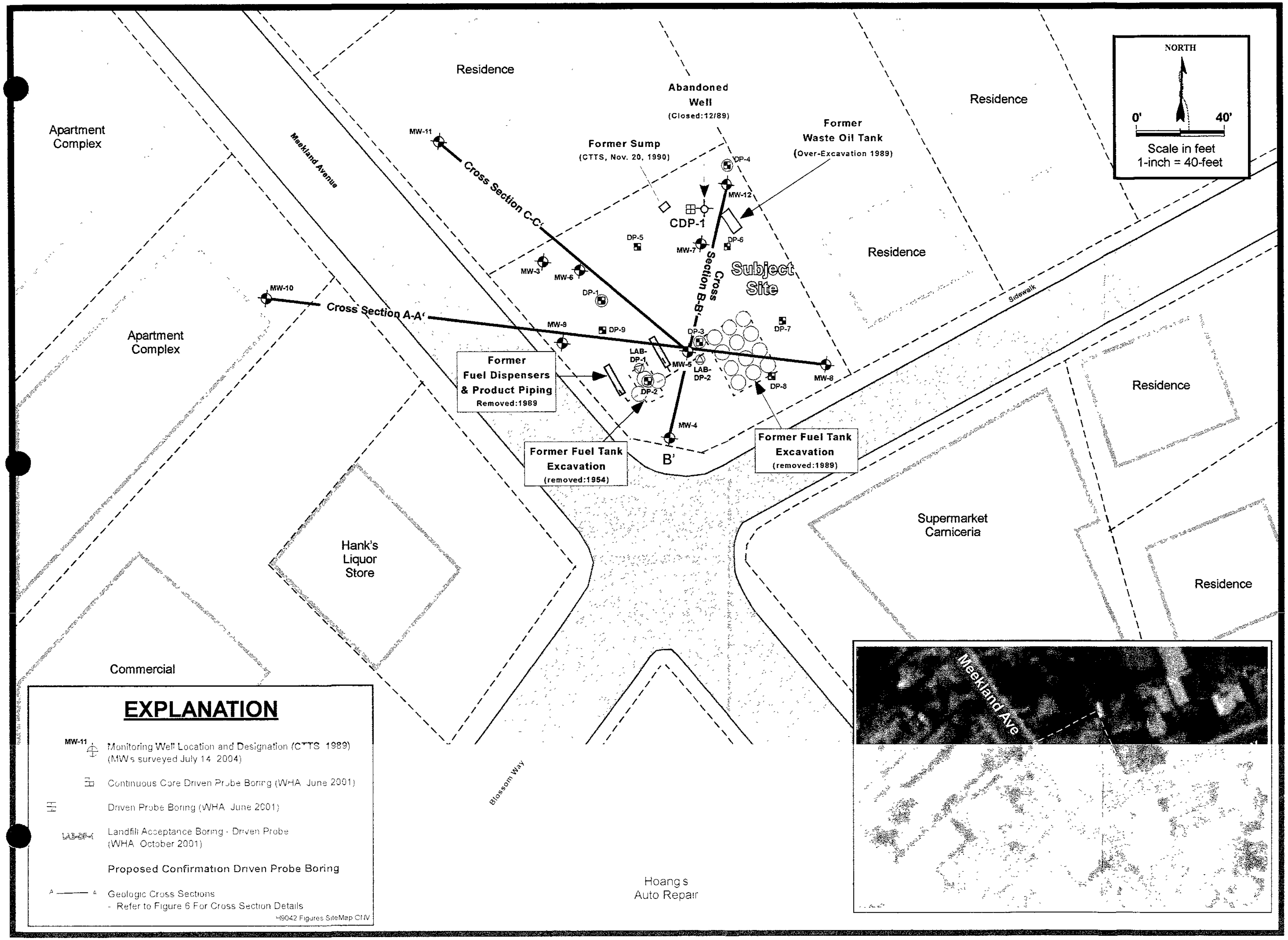


FIGURE
2
Job #
H9042

Site Map & Vicinity
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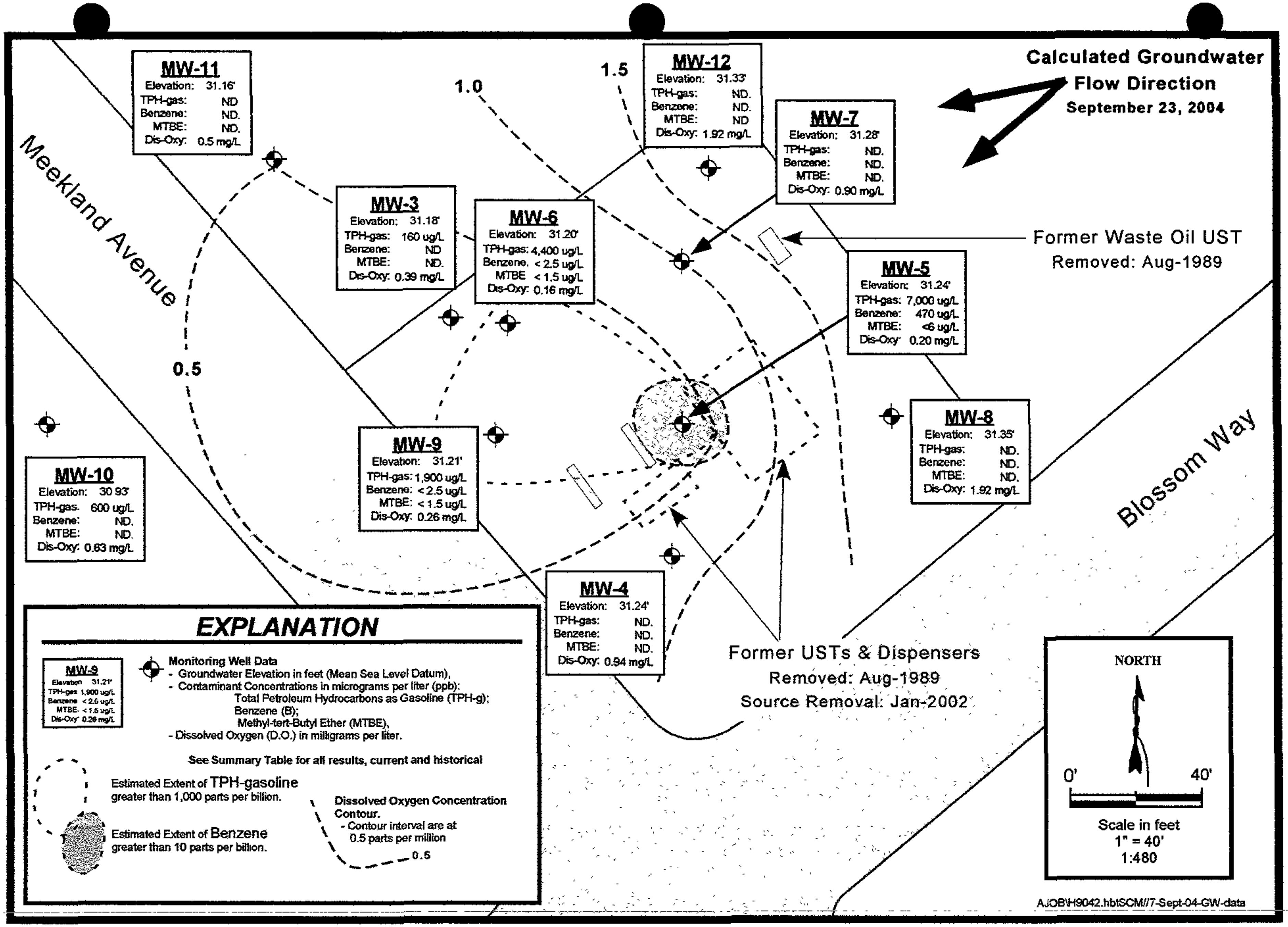
120 Westgate Drive, Watsonville, Ca. 95076
(831) 722 - 3580 (831) 662 - 3100

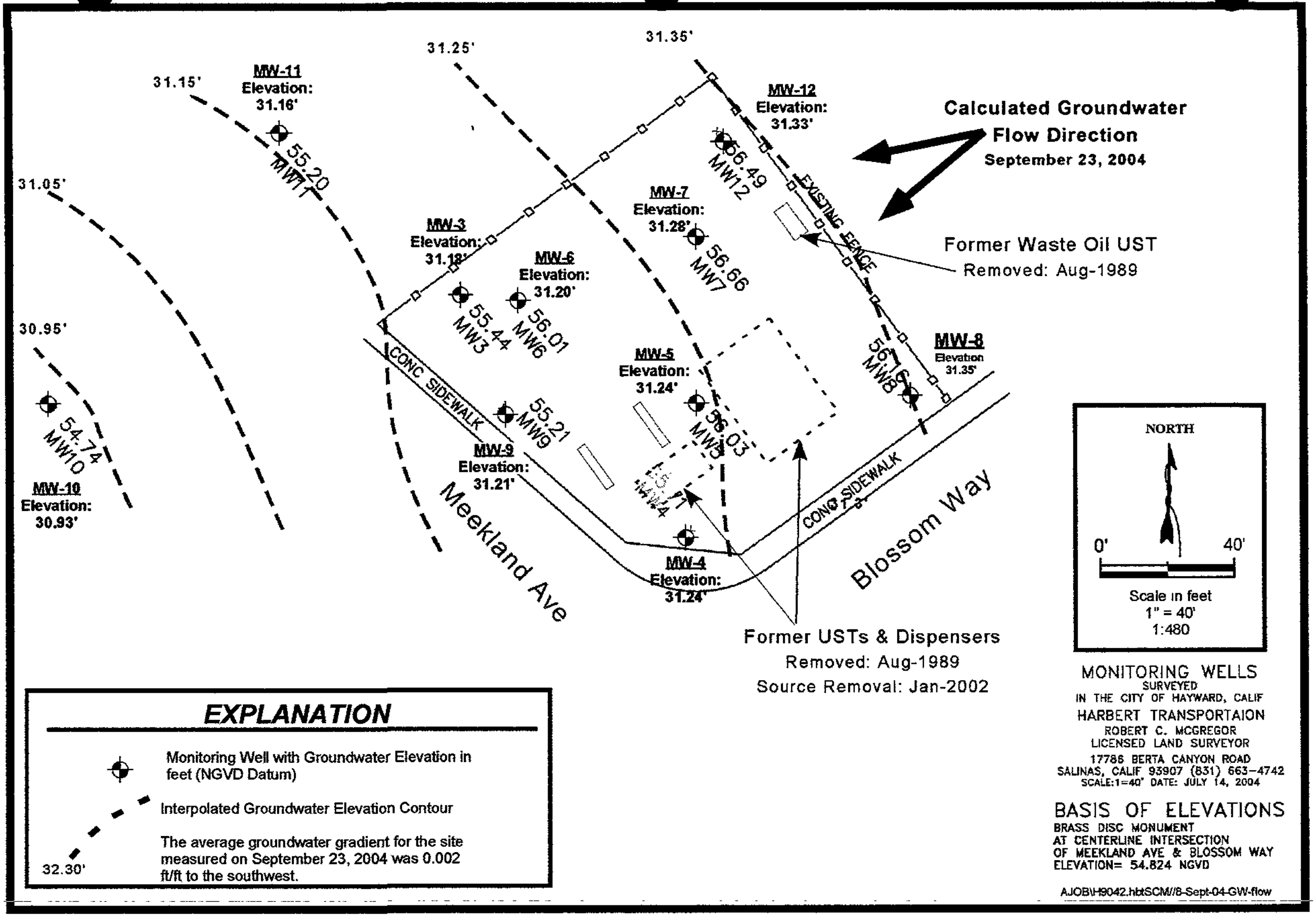


Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Drive, Watsonville, Ca. 95076
(831) 722 - 3580 (831) 662 - 3100

TPH-Gas, Benzene, and Dissolved Oxygen Concentrations in Groundwater (Sept-23, 2004)

Former Harbert Transportation Facility
19984 Meekland Avenue, Hayward, California

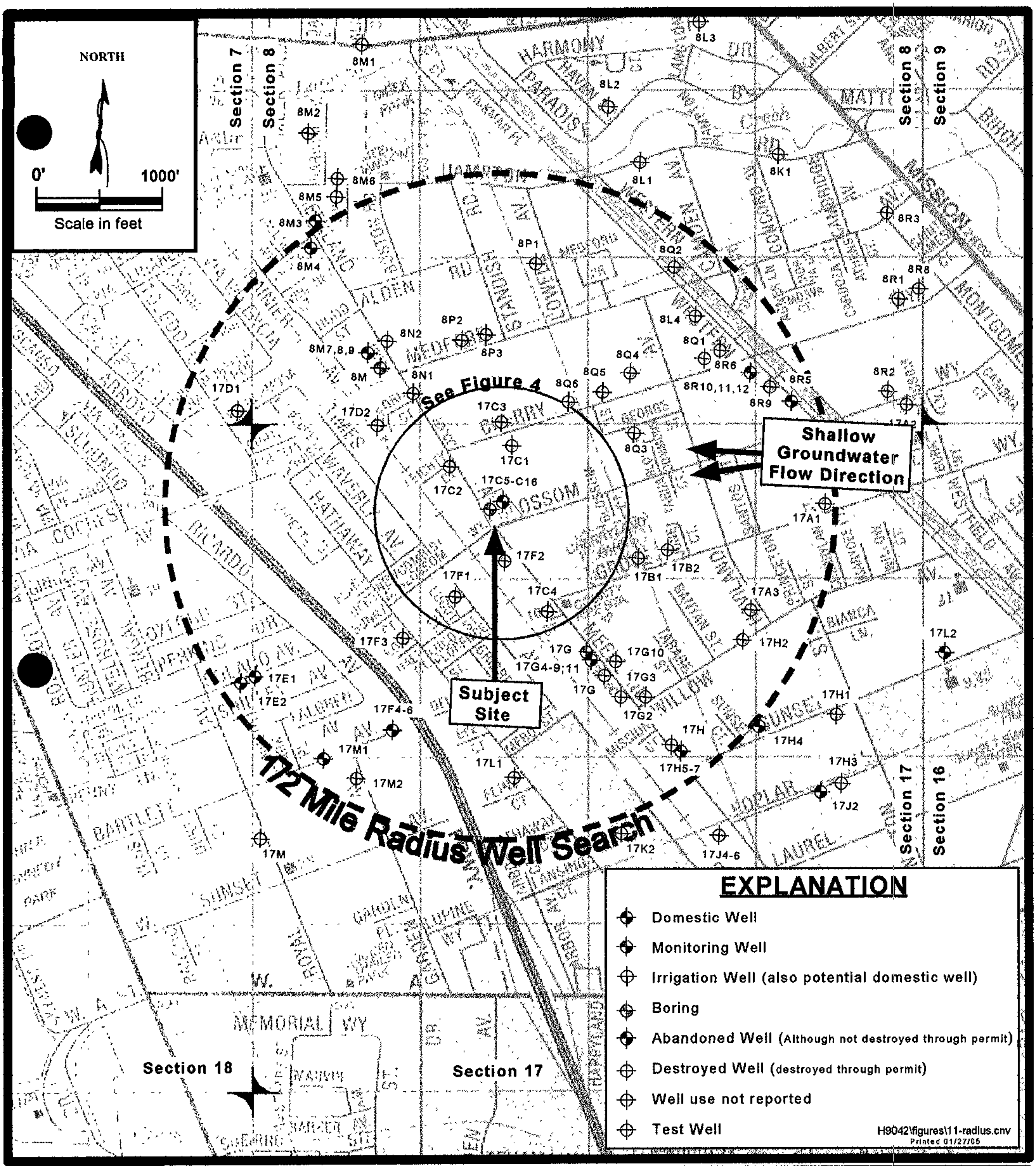
Figure 7
Project H9042



Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Drive, Watsonville, Ca. 95076
(831) 722 - 3580 (831) 662 - 3100

Surveyed Well Elevations & Calculated Groundwater Flow Contours (Sept-23, 2004)
Former Harbert Transportation Facility
19984 Meekland Avenue, Hayward, California

Figure 8
Project H9042



Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Drive, Watsonville, Ca. 95076
(831) 722 - 3580 (831) 662 - 3100

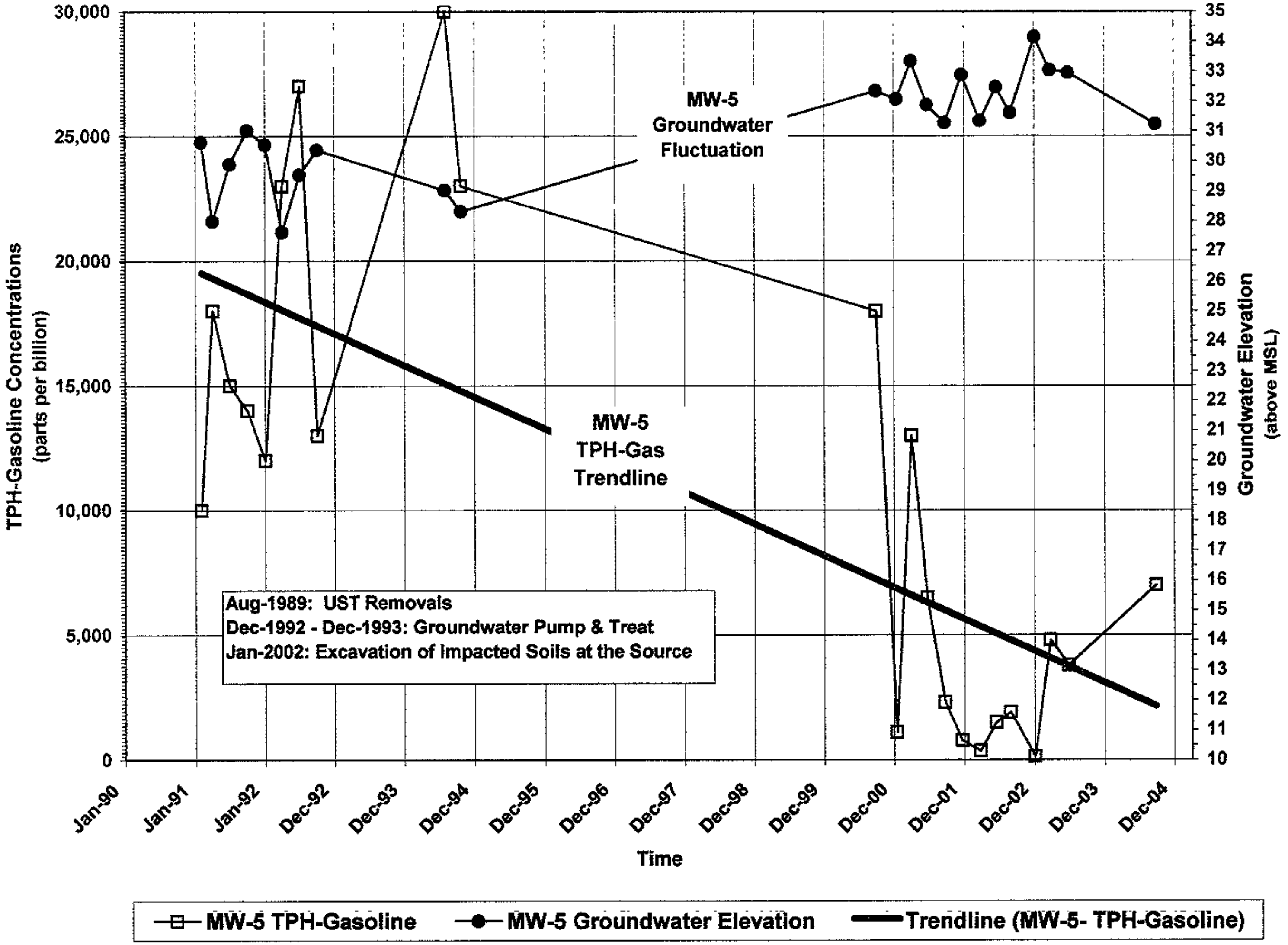
1/2-Mile Radius Well Map
Former Harbert Transportation Facility
19984 Meekland Avenue
Hayward, California

Figure
9
Job #
H9042

Figure 11

MW-5: TPH-Gasoline Concentrations 1991-2004

(MW-5, On-site, immediately adjacent to source -- former UST excavation)

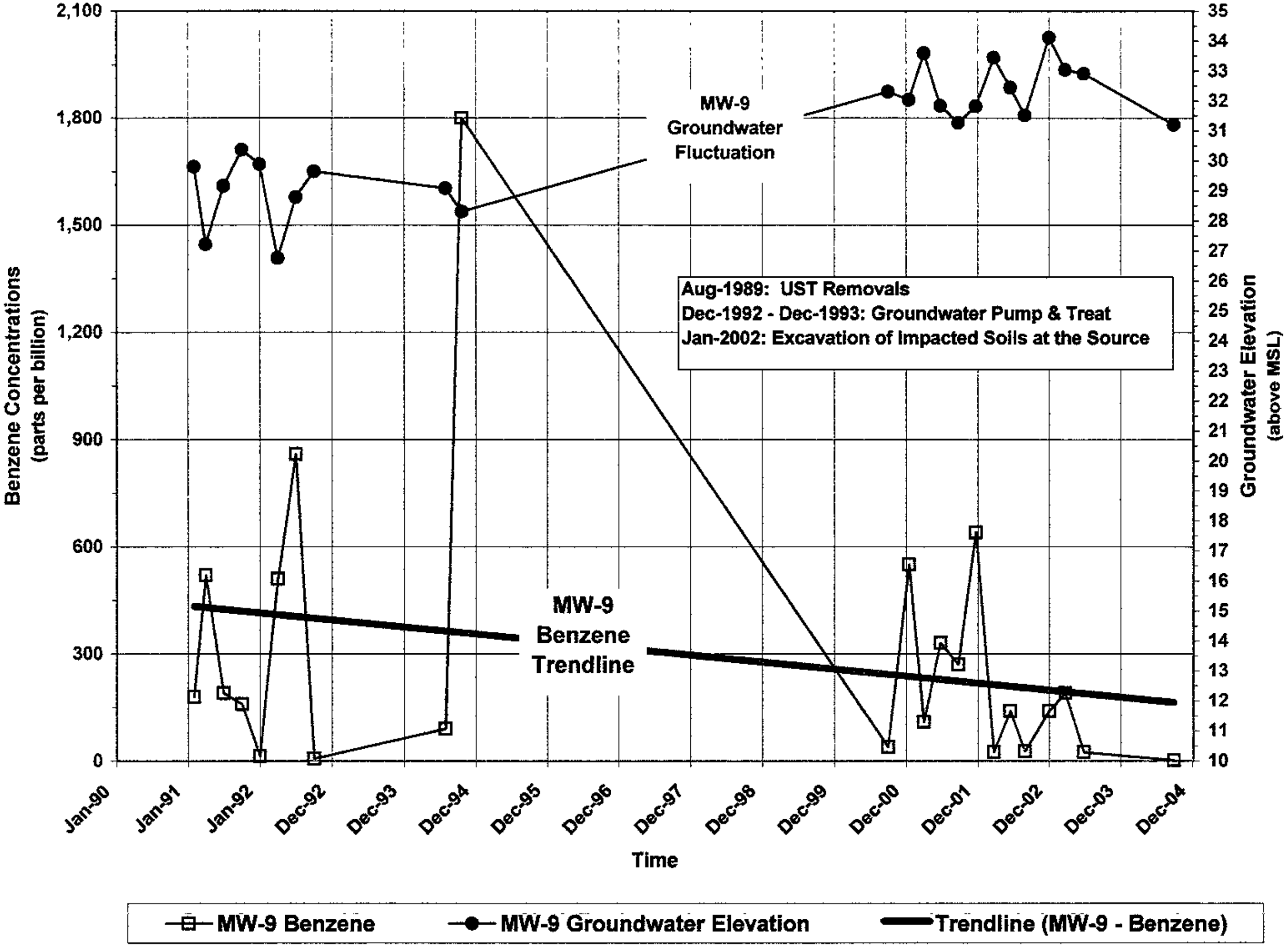


Aug-1989: UST Removals
Dec-1992 - Dec-1993: Groundwater Pump & Treat
Jan-2002: Excavation of Impacted Soils at the Source

Figure 12

MW-9: BENZENE Concentrations from 1991-2004

(MW-9, On-site near downgradient property line)

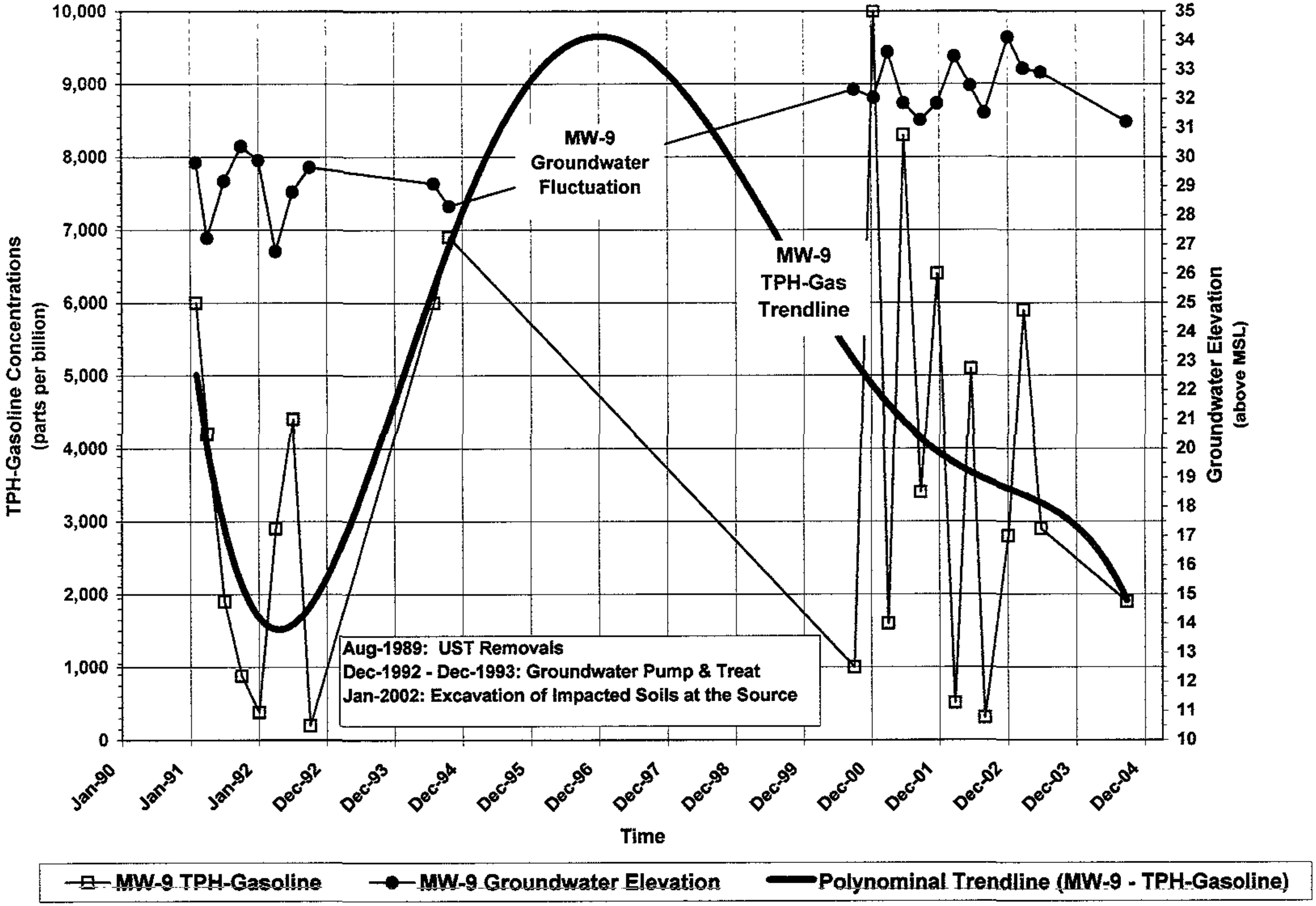


Weber, Hayes and Associates

Figure 13

MW-9: TPH-Gasoline Concentrations 1991-2004

(MW-9, On-site near downgradient property line)

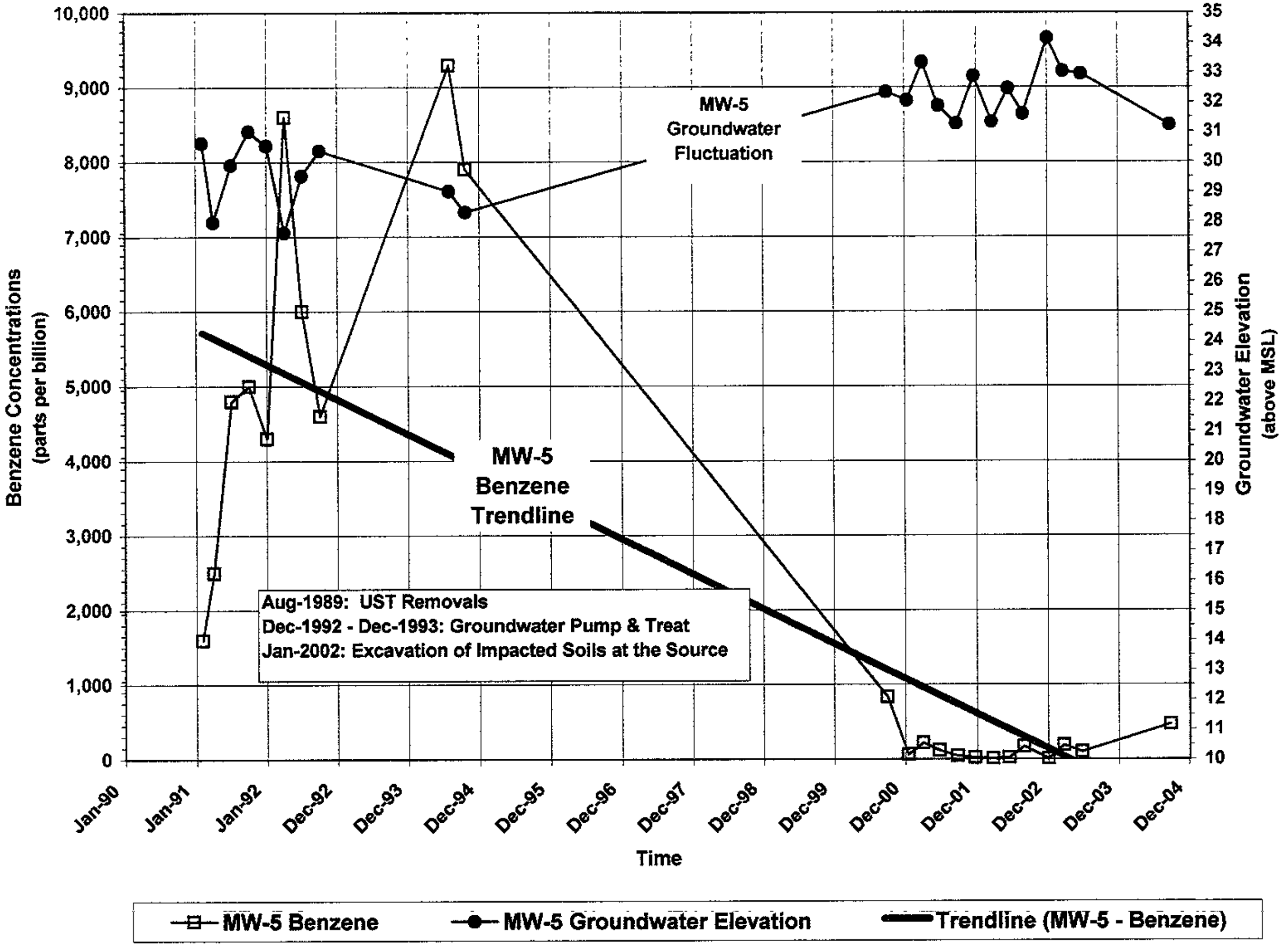


Aug-1989: UST Removals
Dec-1992 - Dec-1993: Groundwater Pump & Treat
Jan-2002: Excavation of Impacted Soils at the Source

Figure 10

MW-5: BENZENE Concentrations from 1991-2004

(MW-5, On-site, immediately adjacent to source -- former UST excavation)



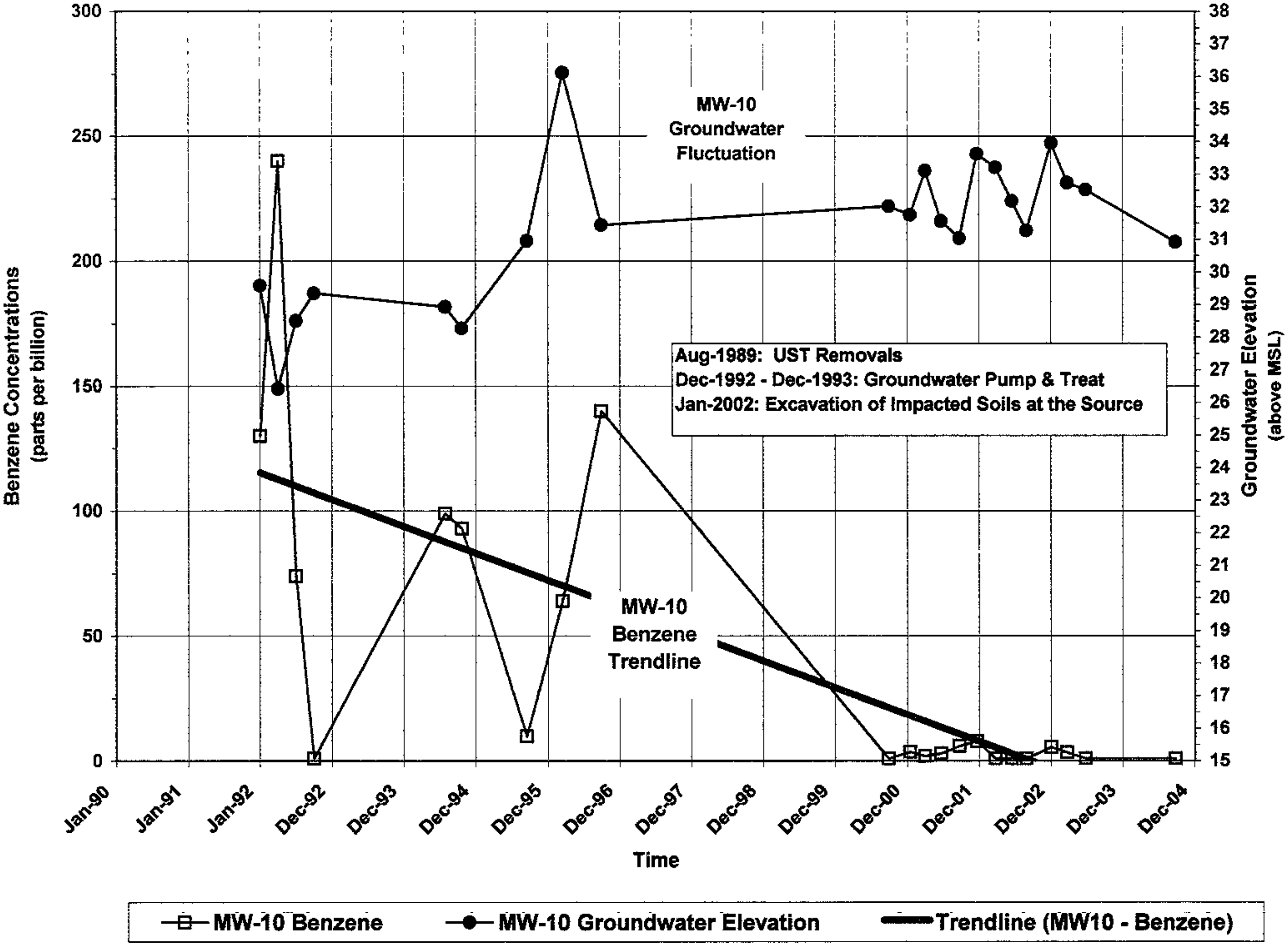
Aug-1989: UST Removals
Dec-1992 - Dec-1993: Groundwater Pump & Treat
Jan-2002: Excavation of Impacted Soils at the Source

Weber, Hayes and Associates

Figure 14

MW-10: BENZENE Concentrations from 1992-2004

(MW-10, Off-site, downgradient monitoring well)

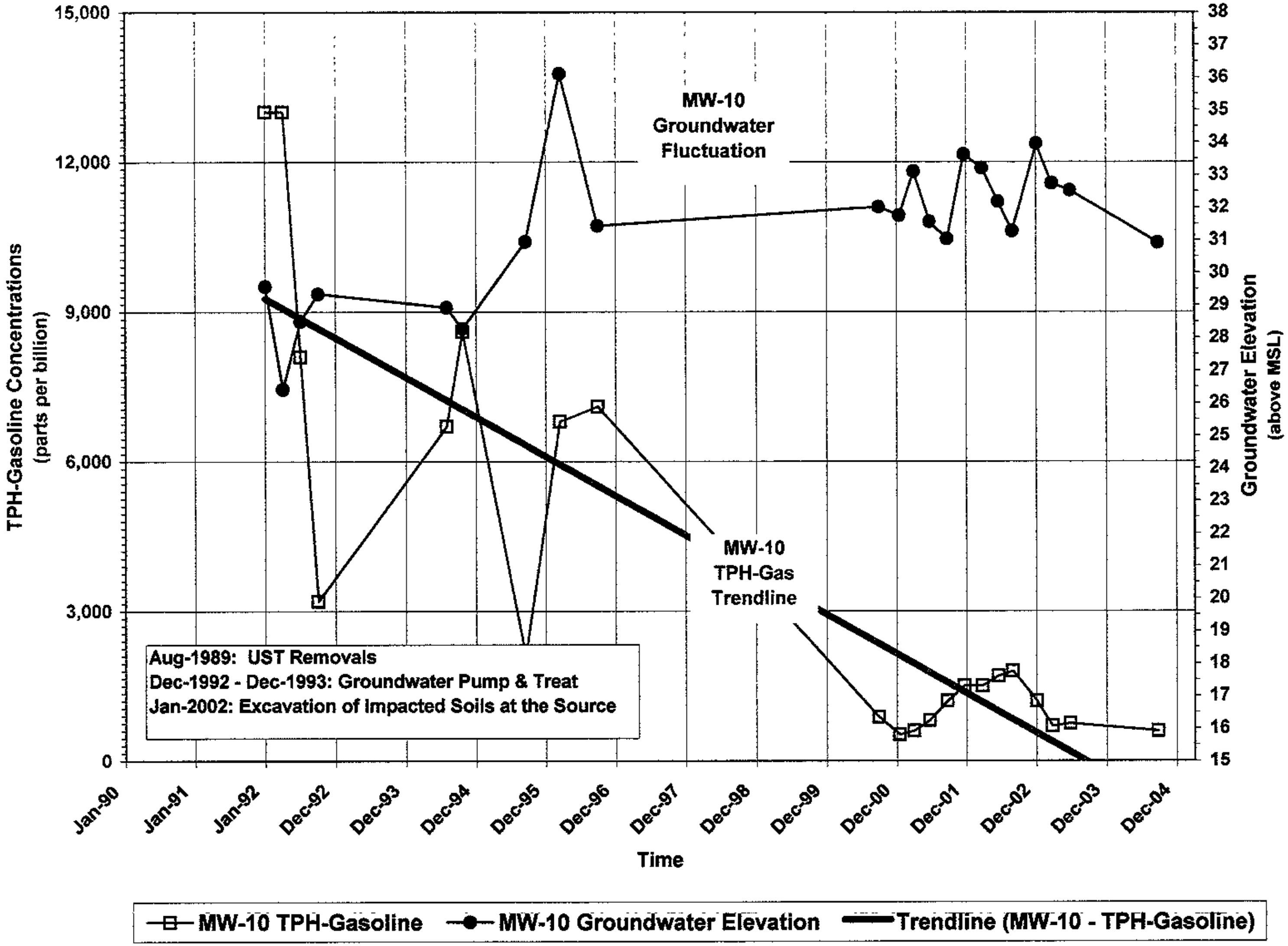


Weber, Hayes and Associates

Figure 15

MW-10: TPH-Gasoline Concentrations 1992-2004

(MW-10, Off-site, downgradient monitoring well



Aug-1989: UST Removals
Dec-1992 - Dec-1993: Groundwater Pump & Treat
Jan-2002: Excavation of Impacted Soils at the Source

APPENDIX A

Geologic Logs from 1/2-Mile Well Radius Search
(see Table 3 for Details)

Department of Water Resources Logs
and
Listing of Alameda County Flood Control & Water Conservation District

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

L71 01-546T #2

03502W08M 81

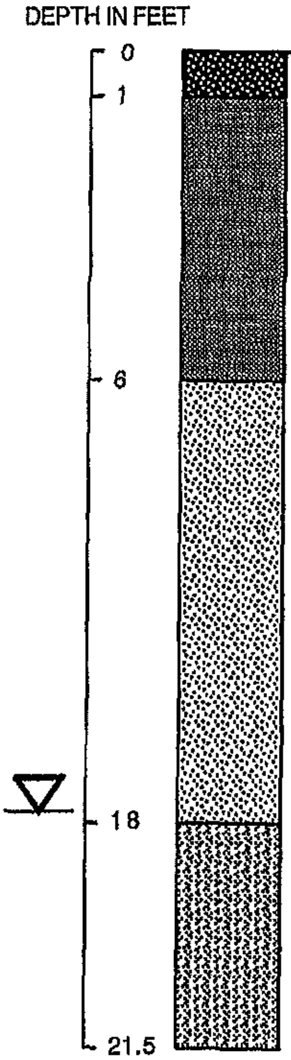
LOG OF BORING
SB-1

JOB NO. MJ 0592

CLIENT: JOCSON AUTO ELECTRIC

Date Drilled: 06/27/92

SAMPLER TYPE	SAMPLING RESISTANCE BLOWS/FT.	SAMPLE DEPTH	SOIL CLASSIFICATION
SS	1/4/5	5'	CL
SS	5/11/12	10'	ML
SS	2/4/5	15'	ML
SS	4/7/8	20'	CL



SOIL DESCRIPTION

Asphalt and gravel base

Dark grey silty CLAY. Damp with no odor. Stiff.

Light brown clayey SILT. Sandy silt layers approximately 6" thick.

Moist at approximately 16'.

Grey brown silty CLAY. Stiff and damp.

Total depth 21.5'

BORING LOGGED BY: E.M.

AUGEAS CORPORATION

TITLE: SB-1 Boring Log

DRAWN BY: JF

DATE: 07/02/92

PROJECT NO. MJ0592

1545

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

1 of 1 01-546Q #6 03S02W08M07 8M7

LOG OF BORING
MW-1

JOB NO. MJ 0592

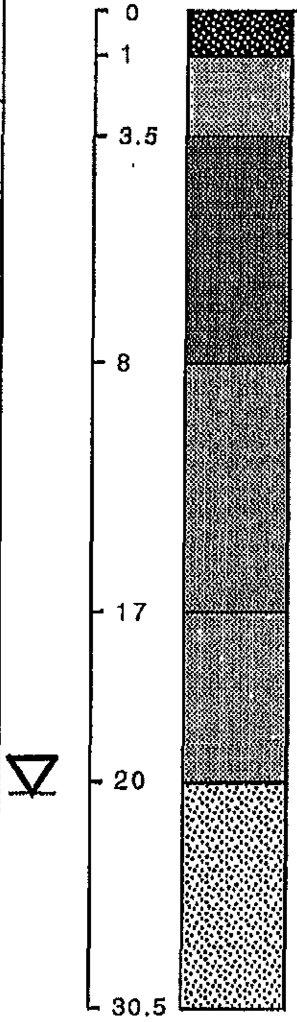
CLIENT: JOCSON AUTO ELECTRIC

Date Drilled: 06/27/92
Well Casing Top Elevation: ___
Casing Diameter: 2"
Filter Pack Type: sand
Grout Type: cement/bentonite
Screen Size: 0.020
Boring Diameter: 6 7/8"

SAMPLER TYPE	SAMPLING RESISTANCE BLOWS/FT.	SAMPLE DEPTH	SOIL CLASSIFICATION
SS	2/5/6	5'	ML
SS	5/10/17	10'	CL
SS	4/4/4	15'	CL
SS	2/4/6	20'	ML
SS	1/3/6	25'	CL
SS	1/2/3	30'	CL

DEPTH IN FEET

SOIL DESCRIPTION



Asphalt and base rock

Light brown clayey silt. Dry with no odor

Dark grey clayey SILT. Dry with no odor

Orange brown SILT with dark grey CLAY layers. Dry with no odor.

Light brown sandy SILT. Moist and soft. No odor.

Light grey-brown silty CLAY. Layers of brown silt. Damp with no odor.

Total depth 30.5'

BORING LOGGED BY: F.M.

(415) 726-7700

AUGEAS CORPORATION

TITLE: MW-1 Boring Log

DRAWN BY:	DATE:	PROJECT NO.
JF	07/02/92	MJ0592

permit 92312
C57 482390
Kriehaug

17771 Meekland Ave. 1545

01-546R

#7

03502W08M08 8M8

LOG OF BORING
MW-2

JOB NO. MJ 0592

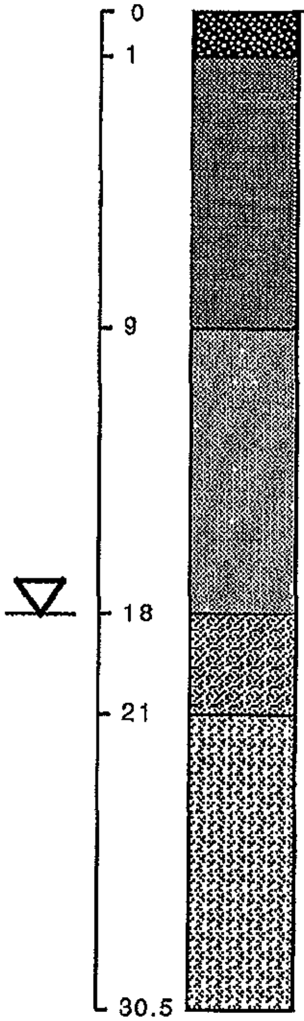
CLIENT: JOCSON AUTO ELECTRIC

Date Drilled: 06/27/92
Well Casing Top Elevation: ___
Casing Diameter: 2"
Filter Pack Type: sand
Grout Type: cement/bentonite
Screen Size: 0.020
Boring Diameter: 6 7/8"

SAMPLER TYPE	SAMPLING RESISTANCE BLOWS/FT.	SAMPLE DEPTH	SOIL CLASSIFICATION
SS	2/4/6	5'	ML
SS	3/12/15	10'	ML
SS	2/3/4	15'	ML
SS	1/2/3	20'	SM
SS	2/2/4	25'	ML
SS	3/3/4	30'	ML

DEPTH IN FEET

SOIL DESCRIPTION



Asphalt and road base gravel.

Dark grey clayey SILT. Dry with no odor.

Orange brown clayey SILT. Dry with no odor. Pebbles. Layers of dark grey silty clay up to 8" thick.

Moist at approximately 14'
Sandy silt beginning at approximately 15'

Light brown clayey SAND. Wet with no odor.

Light grey-brown clayey SILT. Damp to moist. Thin 6" layers of sandy silt: light brown and wet.

Total depth 30.5'.

BORING LOGGED BY: F.M.

AUGEAS CORPORATION

TITLE: MW-2 Boring Log

DRAWN BY:	DATE:	PROJECT NO.
JF	07/02/92	MJ0592

1545

Log1 01-5465 #8

03502W08M09 8M

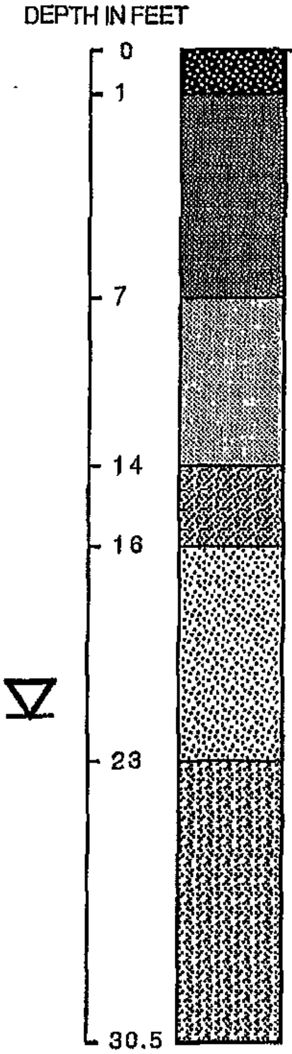
LOG OF BORING
MW-3

JOB NO. MJ 0592

CLIENT: JOCSON AUTO ELECTRIC

Date Drilled: 06/27/92
Well Casing Top Elevation: ___
Casing Diameter: 2"
Filter Pack Type: sand
Grout Type: cement/bentonite
Screen Size: 0.020
Boring Diameter: 6 7/8"

SAMPLER TYPE	SAMPLING RESISTANCE BLOWS/FT.	SAMPLE DEPTH	SOIL CLASSIFICATION
SS	2/5/6	5'	ML
SS	7/11/12	10'	ML
SS	3/5/6	15'	SM
SS	2/4/5	20'	CL
SS	2/3/3	25'	ML
SS	4/2/6	30'	ML



SOIL DESCRIPTION

Asphalt

Dark grey clayey SILT. Dry with no odor

Light brown clayey SILT. Dry with no odor. Stiff.

Light brown silty SAND. Wet with no odor.

Grey brown silty CLAY. Moist and firm with no odor.

Light brown clayey SILT.

Total depth 30.5'

BORING LOGGED BY: F.M.

AUGEAS CORPORATION

TITLE: MW-3 Boring Log

DRAWN BY:	DATE:	PROJECT NO.
JF	07/02/92	MJ0592

1545

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(WELL LOGS)

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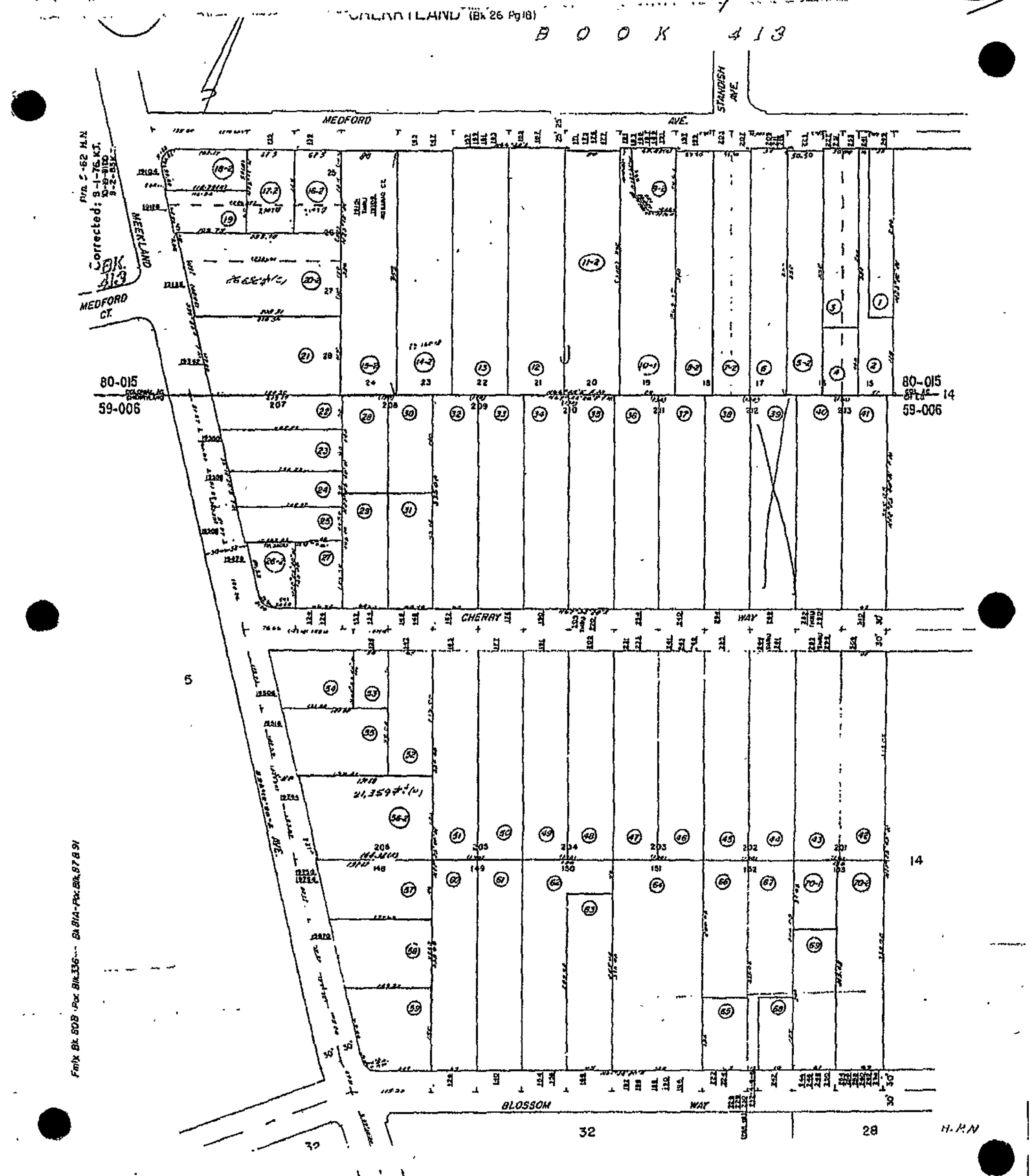
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

33229
35/2W8Q6

#13
P2



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WELL COMPLETION REPORT
(WELL LOGS)

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STATE OF CALIFORNIA DWR
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(WELL LOGS)

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

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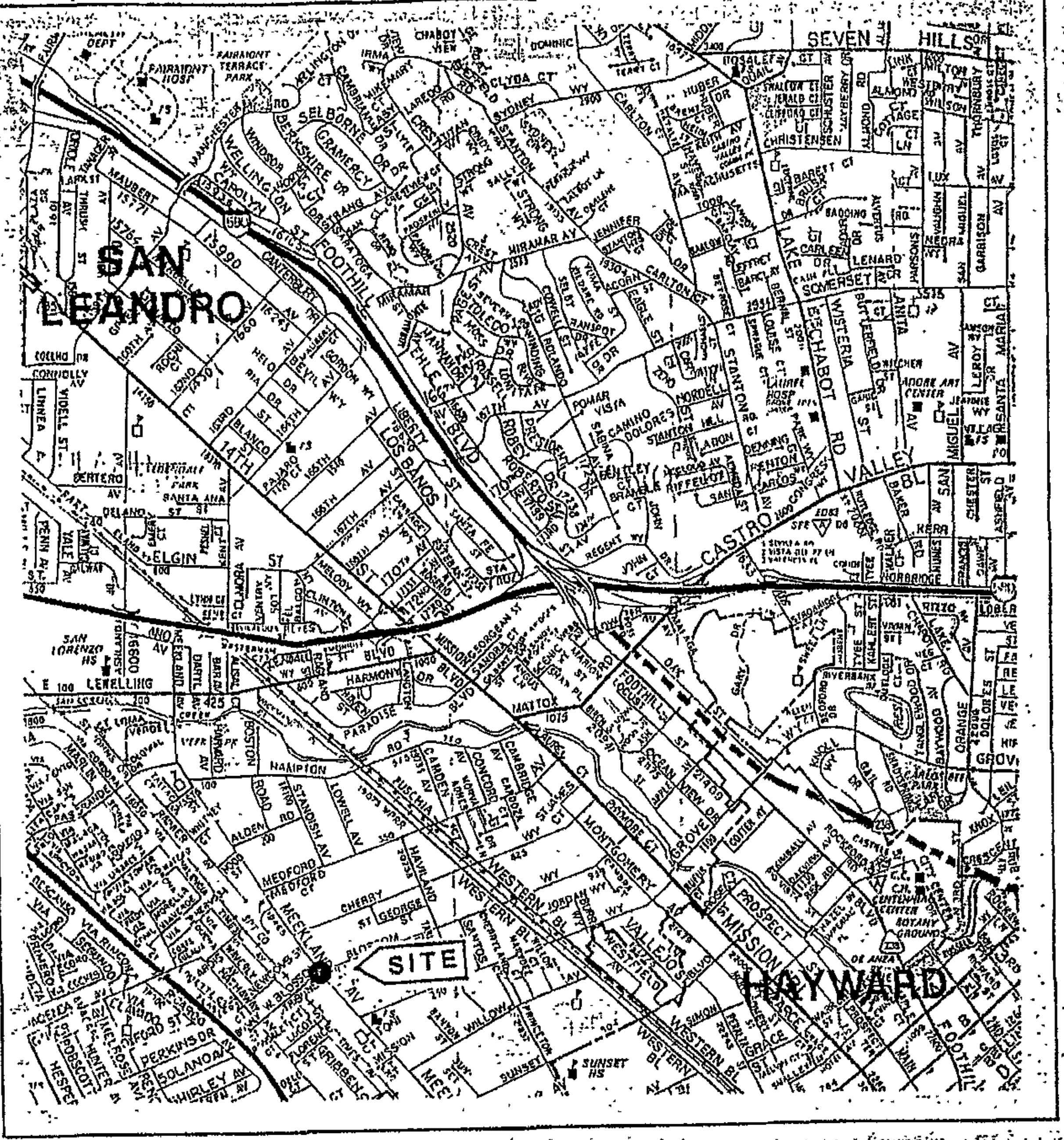
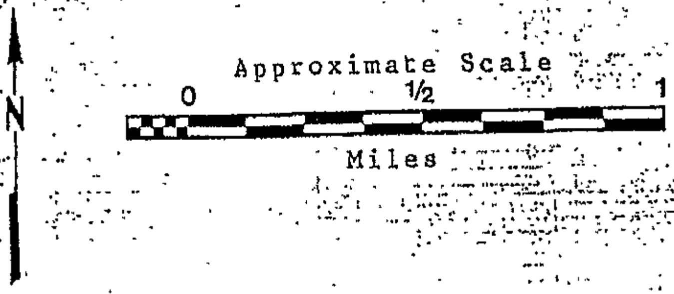
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

#18 17C

01-1528 3S/2W 19C





Source: Thomas Bros. Maps,
Alameda County, 1985

Applied GeoSystems
43255 Mission Blvd. Suite B Fremont, CA 94539 (415) 651-1906

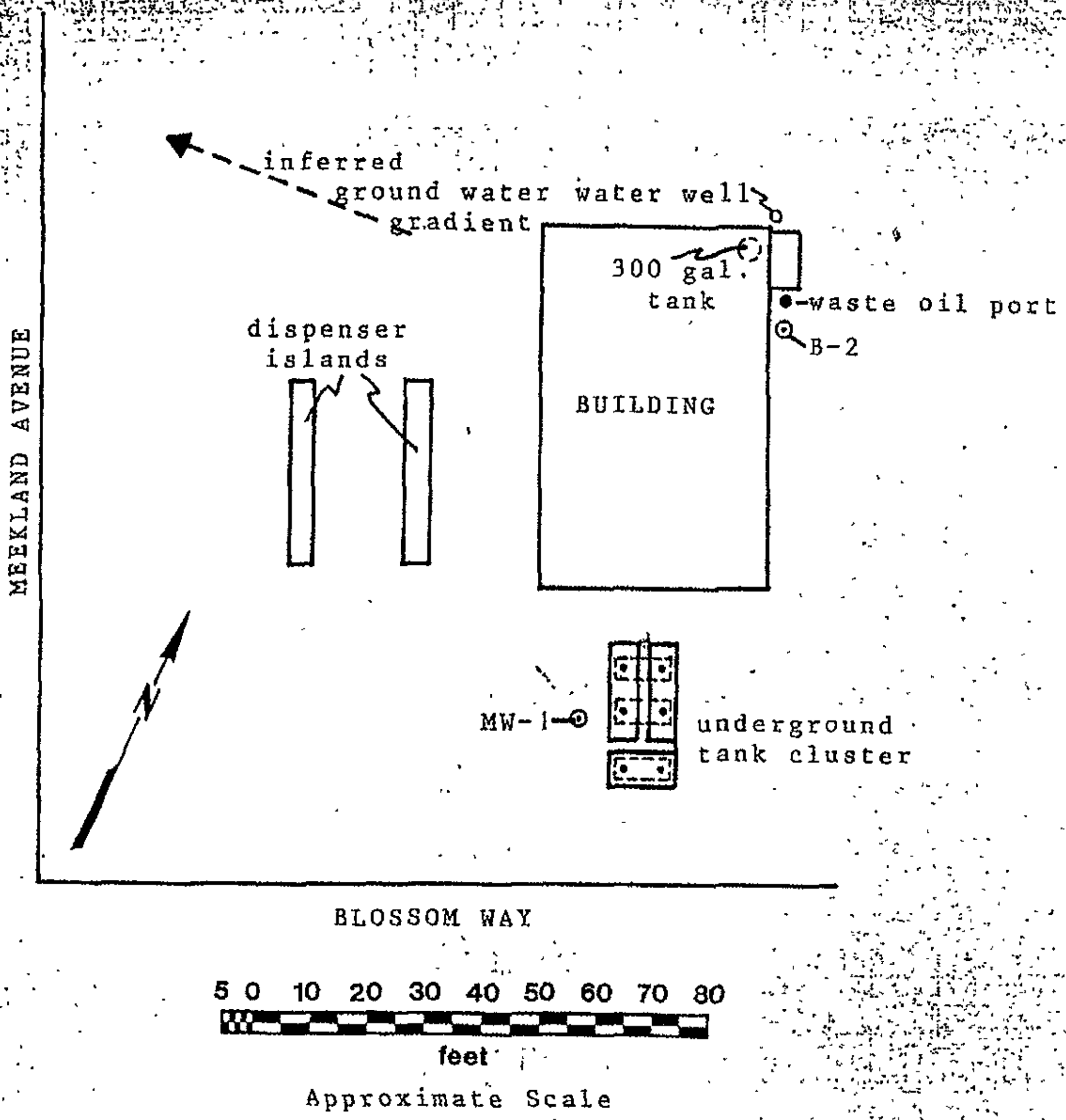
SITE VICINITY MAP
Harbert Transportation
Hayward, California

PLATE
P-1

PROJECT NO. 8660-1

#18 p2

01-1528 3S/2W 12



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PROJECT NO. 8660-1

GENERALIZED SITE PLAN

Harbert Transportation
Hayward, California

PLATE

P-2

#18 p3

01-1628 3S/2W 17C

DEPTH IN FEET	Blows/ Ft.	Sample No.	USCS	DESCRIPTION	WELL CONST.
0				6" asphalt	
			ML	Silty clay, slightly pebbly, dark brown, wet, very stiff, medium plasticity, no product odor.	
2					
4					
6	17	S-5			
8					
10					
	19	S-10		Red-brown.	
12					
14					
16					
	13	S-15	CH	Clay, green-gray, wet, stiff, high plasticity, very slight product odor.	
18					
			ML	Silty clay, red-brown, wet, stiff, medium plasticity, no product odor.	
20					
22	11 29	S-20	CH	Clay, dark green-brown, wet, stiff, medium plasticity, no product odor.	
24				Total depth = 23 feet.	

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PROJECT NO. 8660-1

LOG OF BORING B-2

Harbert Transportation
Hayward, California

PLATE
P-6

#19

01-475K 17C

3S/2W 17C

BORING LOG

Project Durham Transportation
Location see location map
Job # 90-4
Geologist/Engineer J. Alt
Drill Agency HEW Drilling
Hole/Well # B-1
Diameter of Drill Hole 8 inches
Total Depth of Hole 25 ft.
Date Started Oct. 1,1990
Date Completed Oct. 1,1990

DEPTH IN FEET	WELL CONSTRUCTION DETAIL	N-VALUE	SAMPLE	GRAPHIC SYMBOL	DESCRIPTION
0					backfill gravel, etc.
5		15	1		
10	boring log only; no well was installed	13	2		fine grain sand green with hydrocarbons; slightly silty the first foot, brown clay with black streaks
15		10	3		gravel fill in first foot, next comes green soil (silty, sandy clay), odor of old petroleum, last foot sandy clay gray (slight green tinge), some plastcity
20		8	4		dark gray silty clay; very plastic mottled brown down to approximately 21'; has greenish tint.

#19 p2

01-475K

3S/2W 17C

BORING LOG

PROJECT: Durham Transportation

JOB NUMBER: 90-4

HOLE / WELL #: B-1

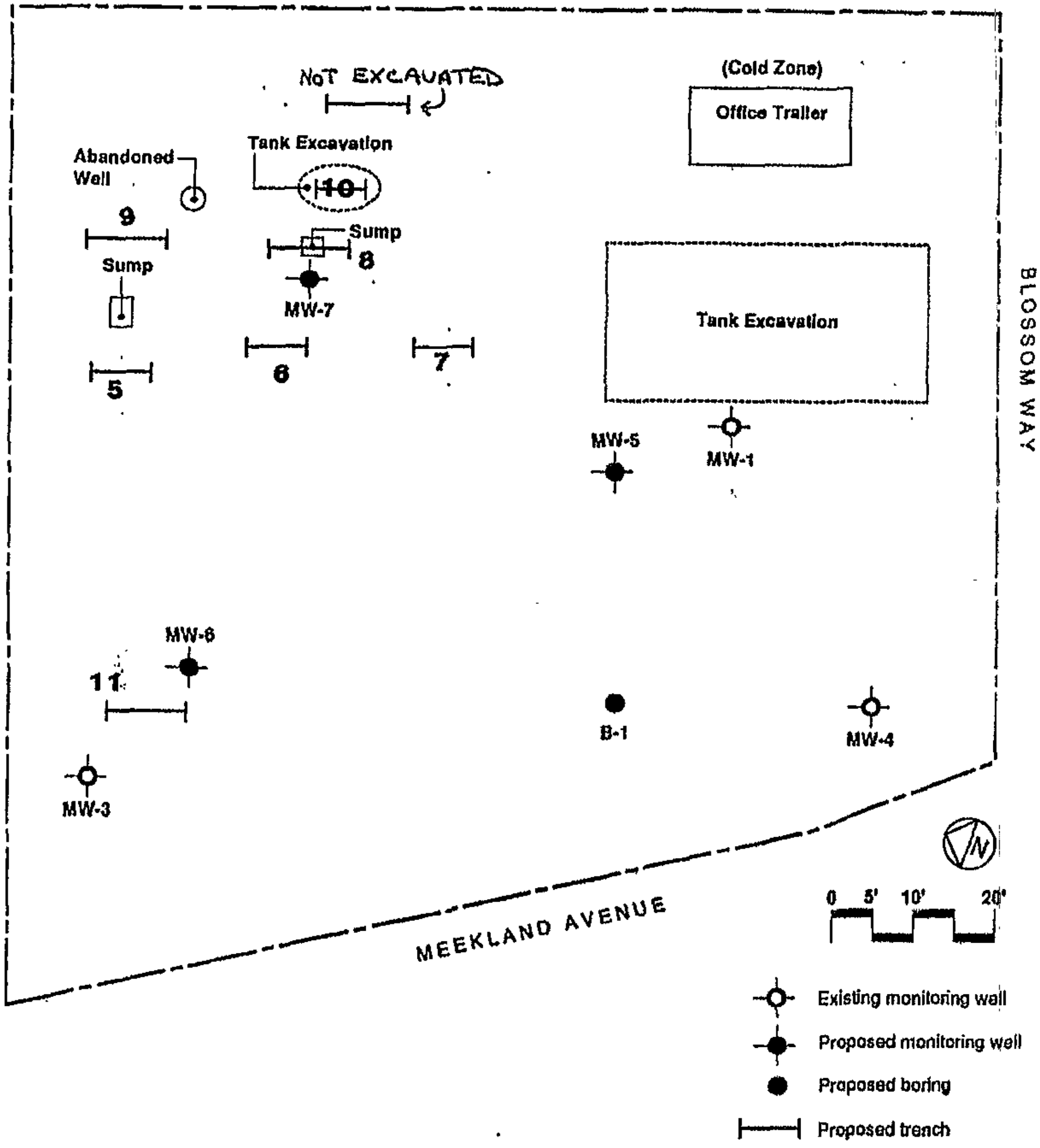
PAGE : 2 OF 2

DEPTH (FEET)	COMPLETION DETAIL	SAMPLE #	BLOW COUNTS / FOOT	USCS SYMBOL	DESCRIPTION
25		5	15		gray with slight green tinge first 10". brown clay, mottled green and orange; very plastic soil, still pretty dry.

#19p3

01-475K

3S/2W 17C



19884 Meekland Ave. Hayward

Durham Transportation - Work Plan Amendment

Plate No.: 6
Date: July 90
Scale: 1" = 20'-0"
CTTS, Inc. - Toxic Technology Services

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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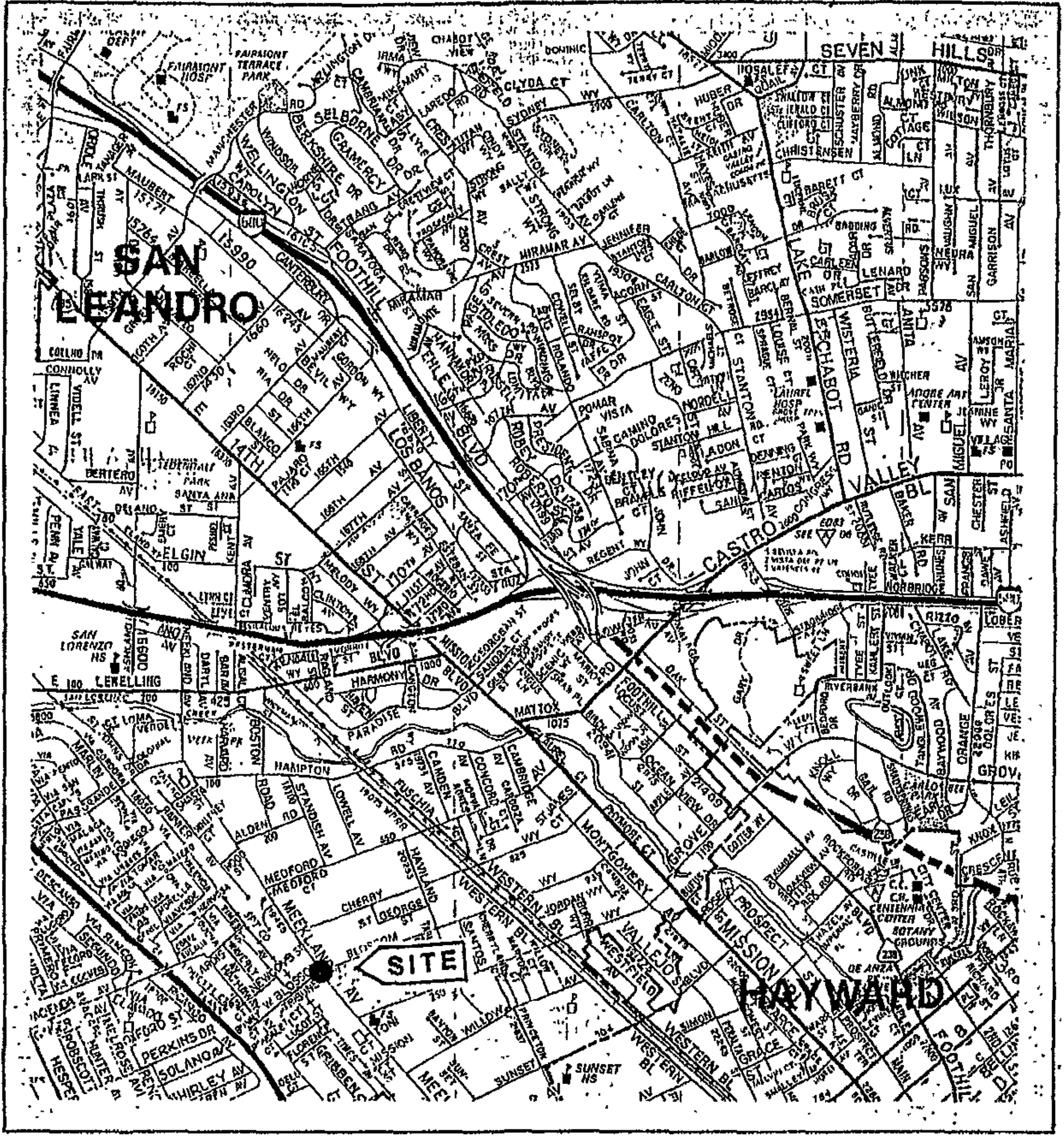
CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

#22 17CS

01-1527 3S/2W 7C



N

Approximate Scale

0 1/2 1

Miles

Source: Thomas Bros. Maps,
Alameda County, 1985

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PROJECT NO. 8660-1

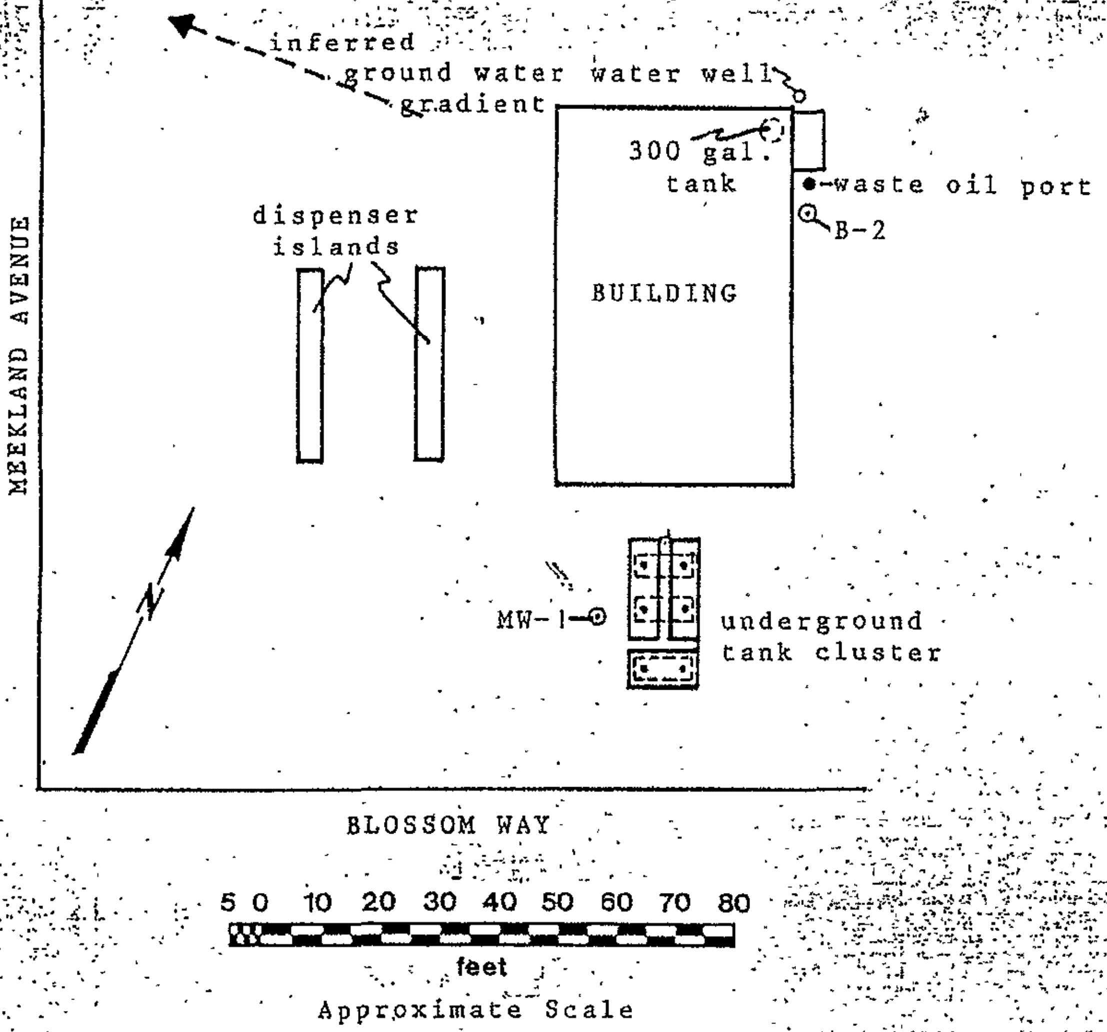
SITE VICINITY MAP
Harbert Transportation
Hayward, California

PLATE
P-1

#22p2

01-1627

3S/2W 17C



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PROJECT NO. 8660-1

GENERALIZED SITE PLAN

Harbert Transportation
Hayward, California

PLATE

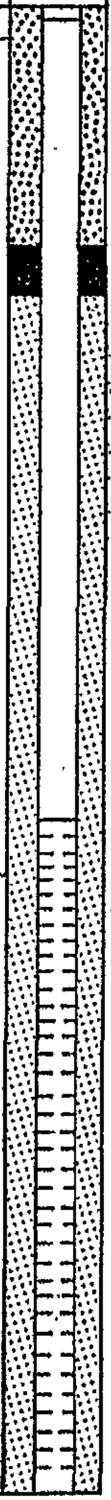
P-2

#22 p3

01-1527 3S/2W 17 C5

DEPTH IN FEET	Blows/ Ft.	Sample No.	USCS	DESCRIPTION
0				6" asphalt
2			ML	Silty clay, red-brown to black, slightly damp, very stiff, slight plasticity, no product odor.
6	17	S-5		
14	32	S-13		Green-brown to dark brown, slight odor.
16	25	S-15		Light green-brown to red-brown, dry, slight to moderate product odor.
20			CH	Clay, dark brown, moist, stiff, high plasticity, moderate to strong product odor.
21	15	S-20		
24			▼	
26	39	S-25		Light green-brown, wet, hard, moderate product odor.
30				Clay continues downward, continued on next plate.

WELL CONST.



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PROJECT NO. 8660-1

LOG OF BORING B1/MW-1

Harbert Transportation
Hayward, California

PLATE
P-4

#23 17C6

01-444U

toxic technology services inc.

~~15/4WE~~ 3S/2W 17C6

RECEIVED
FEB 22 1990
ZONE 7, ACFC&WCD

February 16, 1990
File No. 89-12

Mr. Craig Mayfield
Zone 7
5997 Parkside Drive
Pleasanton, California 94566

Subject: Well Installation Report
19984 Meekland Road, Hayward

Dear Mr. Mayfield:

Enclosed is the groundwater monitoring well and well destruction report for 19984 Meekland Road in Hayward, California. The property is currently owned by Durham Transportation.

For your information, the permit numbers are as follows:

Well Construction	Permit Number 89690
Well Destruction	Permit Number 89691

Just to clear up any misconceptions, the well which was abandoned was an unregistered well that was used for on-site operations. A permitted monitoring well was installed on-site in 1986 by Applied Geosystems. CS This well is currently operational and is referred to in the attached report as MW-1.

For your convenience, the information which is of the most interest to you has been tagged with yellow markers.

Thank you for your time and help in this matter. If you have any questions, please call the undersigned at (415) 799-1140.

Sincerely,

Lisa A. Polos

Lisa A. Polos, REA
Senior Scientist
Toxic Technology Services
CTTS, Inc.

#22p

01-1527

3S/2W-17C5

DEPTH IN FEET	Blows/ Ft.	Sample No.	USCS	DESCRIPTION	WELL CONST.
30			CH	Clay, light green-brown, wet, hard, high plasticity, moderate product odor.	
32	18	S-30		Dark green-brown, very stiff.	
34					
36	38	S-35		Red-brown, hard, slight product odor.	
38					CAVED
40					
42				Total depth = 41.5 feet.	

Applied GeoSystems

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LOG OF BORING B-1/MW-1

Harbert Transportation
Hayward, California

PLATE P-5

PROJECT NO. 8660-1

#23 P2

01-4440

casing. Above the sand-pack, at least two feet of bentonite pellets was used as a seal, and the remainder of the annulus was filled with cement grout. Monitoring Well Installation Reports with more detailed information on each of the well installations were recorded and are in the files.

The units encountered in the borings for monitoring wells MW-3 and MW-4 are shown on the boring logs (Appendix B). The soil samples collected from MW-3 had no odor above a depth of 20 feet The sample at 20 feet had a slight solvent odor. The sample was moist and was probably within the capillary fringe of the groundwater table. The sample at a depth of 25 feet had a very strong odor of gasoline. Below 25 feet the samples were from the saturated zone and had a slight odor of gasoline. The sample at 25 feet is probably within the zone of groundwater fluctuation and the contamination in the soil was deposited during a period of a higher groundwater level.

The soil samples from MW-4 had a slight odor of gasoline from a depth of 20 feet to the bottom of the boring. A very slight odor was detected in the sample from a depth of 15 feet.

Photographs taken during the sampling and installation of MW-3 and MW-4 are enclosed with this report.

During the well installation, Mr. Tom Peacock of the Alameda County Health Agency, Hazardous Materials Division, visited the site. He requested that a water sample be taken from the well that was to be abandoned and submitted for chemical analysis. A copy of Mr. Peacock's Hazardous Materials Inspection Form is presented under Appendix C.

On November 29, 1989, Mr. John Alt and Ms. Lisa Polos developed the wells by evacuating 15 gallons of water from each well by bailing prior to sampling. After the wells were developed, groundwater samples were collected using separate three-foot disposable bailers.

The first sample from each well was retrieved from the surface of the water, and the contents of the bailer were inspected to assess whether or not there was any floating product present. Groundwater from both wells had odor and sheen, but both were more noticeable in MW-3. Sample vials and jars, provided by the laboratory, were filled from the bailer.

MW-1, which was installed in 1986, was not sampled at this time, however, upon opening the well cap and checking the water level, a strong odor was detected. A sheen was observed on the water purged from this well in August 1989.

WELL ABANDONMENT

A water well was located at the northeast corner of the building

#23 p3

01-4440

and connected to a holding water tank inside the building by a galvanized surface pipe. Previous attempts to activate the pump to sample the well were not successful.

Alameda County Public Works Department has no record of a well at the subject site prior to the 1986 installation of one monitoring well by Applied Geosystems. No data were available regarding the total depth, screened interval or condition of the well. Because of the potential that the well could act as a conduit for downward migration of the near surface contamination, it was decided that the well should be grouted and abandoned.

The grouting was done on December 12, 1989 by HEW Drilling, Inc.

The well head and surface piping was removed and the pump was then taken out of the well. The well was four inches in diameter with a PVC casing. The total depth of the well was measured at 67.9 feet to the ground surface. The top of the casing was approximately one foot below the ground surface.

The depth to standing water in the well was measured at 29.9 feet from the ground surface. The well was purged by bailing and a water sample collected. The initial bailer of water has no odor, sheen or product. After bailing approximately 2 gallons, a solvent odor was detected. The odor increased in intensity as more water was extracted from the well, however, the samples collected had no noticeable odor. The sample was shipped in a cooled ice chest to TMA/Norcal and analyzed for Volatile Halogenated Hydrocarbons, Total Petroleum Hydrocarbons as gasoline and Benzene, Toluene, Ethylbenzene and Xylenes (BTEX). Results are presented in the following section.

The well was pressured grouted using a tremie pipe starting from the bottom and continuing upward. The grout mix was one 90lb. sack of Lonestar Cement Type I & II per five gallons of water. A total of 22 sacks of cement were used to grout the well. The level of the cement grout was brought up to where it overflowed the top of the casing.

Photos of the abandoned well are presented at the end of this report.

CHEMICAL DATA SUMMARY

Table 2 is a summary of positive analytical results from the soil and water samples collected.

#23 p4

01-4440

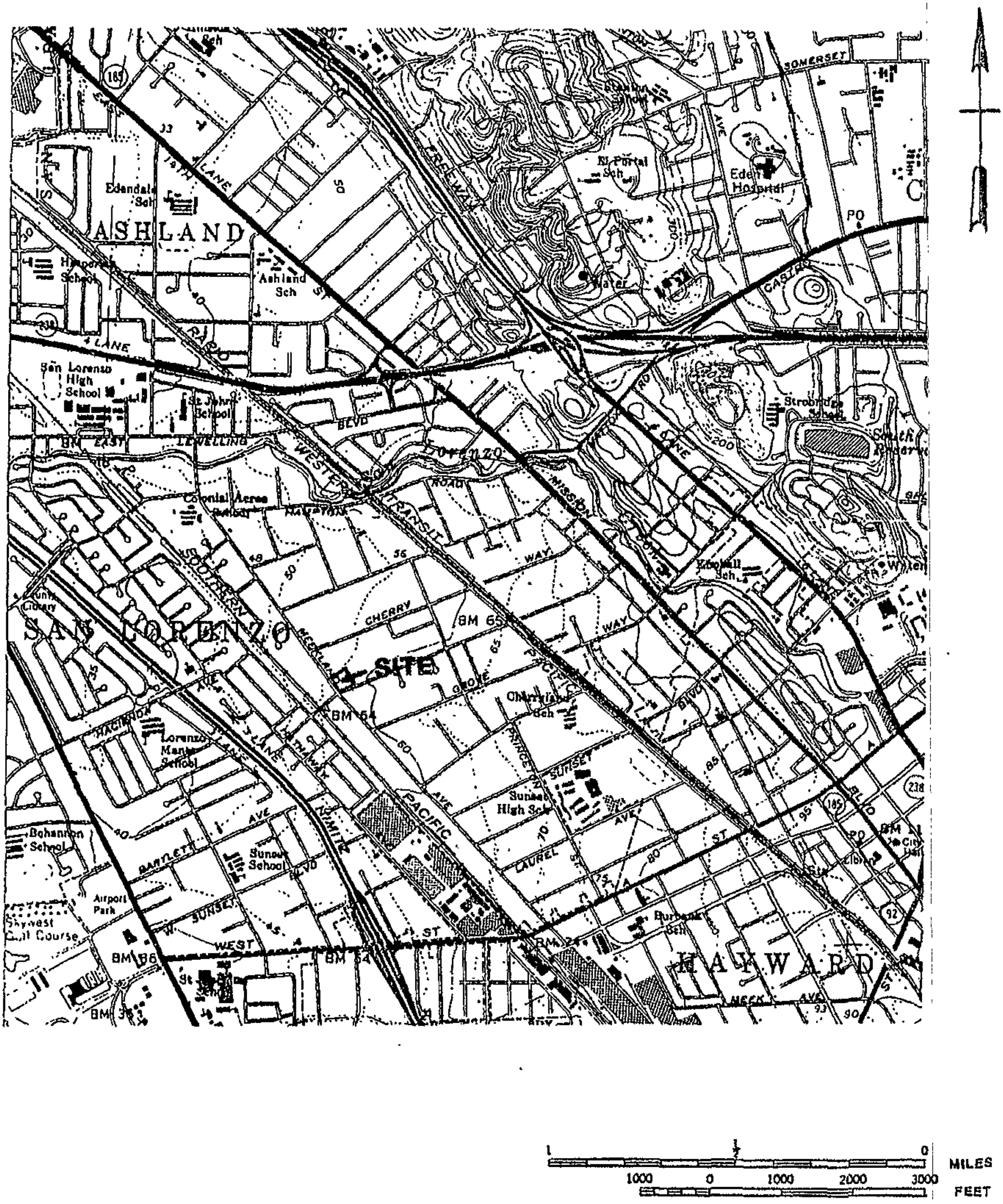
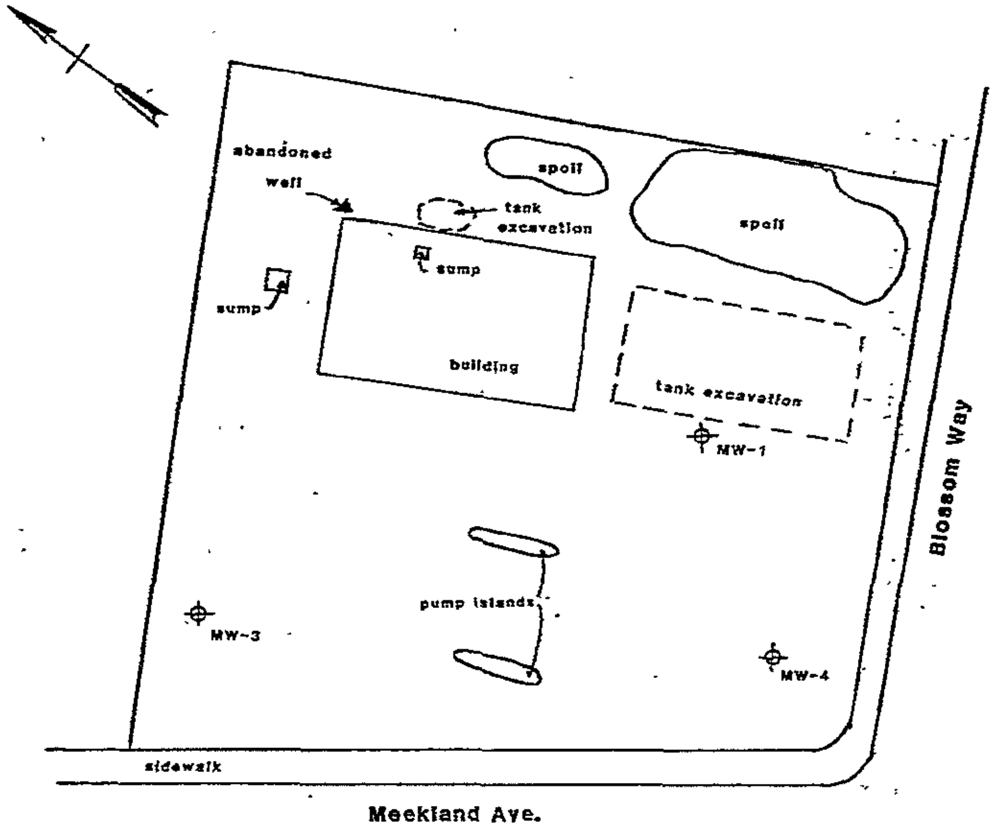


PLATE	**No. 1**

SITE LOCATION MAP

#23 PS

01-4440



SITE PLAN - DURHAM TRANSPORTION

SCALE: 1" = 20'

DATE JANUARY 1990

APPROVED BY:

DRAWN BY

REVISED

CTTS, Inc.

DRAWING NUMBER 3

#23 p6

01-4440

3S/2W 17C6

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DI

5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94566 • (415)

GROUNDWATER PROTECTION ORDINANCE PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

(1) LOCATION OF PROJECT 19984 Meekland Rd
Hayward, CA

(2) CLIENT
Name Durham Transportation (415)
Address 27577(A) Industrial Phone 887-6005
City Hayward, CA Zip 94545

(3) APPLICANT
Name Lisa Palos
GTTS, Inc (415)
Address Po Box 515 Phone 777-1140
City Rodeo, CA Zip 94572

(4) DESCRIPTION OF PROJECT
Water Well Construction ___ Geotechnical Investigation
Cathodic Protection ___ General ___
Well Destruction X Contamination ___

(5) PROPOSED WATER WELL USE
Domestic ___ Industrial ___ Irrigation ___
Municipal ___ Monitoring ___ Other ___

(6) PROPOSED CONSTRUCTION
Drilling Method:
Mud Rotary ___ Air Rotary ___ Auger ___
Cable ___ Other ___

DRILLER'S LICENSE NO. 384167

WELL PROJECTS
Drill Hole Diameter ___ in. Maximum
Casing Diameter ___ in. Depth ___ ft.
Surface Seal Depth ___ ft. Number ___

GEOTECHNICAL PROJECTS
Number of Borings ___ Maximum
Hole Diameter ___ in. Depth ___ ft.

(7) ESTIMATED STARTING DATE Nov. 28 1989
ESTIMATED COMPLETION DATE Nov. 29, 1989

(8) I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Lisa A. Palos Date 11-22-89

FOR OFFICE USE

PERMIT NUMBER 89691
LOCATION NUMBER 3S/2W 17G80

PERMIT CONDITIONS

Circled Permit Requirements Apply

[✓ A.] GENERAL
1. A permit application should be submitted so as arrive at the Zone 7 office five days prior proposed starting date.
2. Submit to Zone 7 within 60 days after complet of permitted work the original Department Water Resources Water Well Drillers Report equivalent for well projects, or drilling l and location sketch for geotechnical projects.
3. Permit is void if project not begun within days of approval date.

B. WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal industrial wells or 20 feet for domestic, irri tion, and monitoring wells unless a lesser de is specially approved.

C. GEOTECHNICAL. Backfill bore hole with compacted c tings or heavy bentonite and upper two feet with c pacted material. In areas of known or suspec contamination, tremied cement grout shall be used place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concr placed by tremie.

[✓ E.] WELL DESTRUCTION. See attached.

Approved Todd N. Wendler Date 22 Nov
Todd N. Wendler

#24

17C7

01-444V

~~5/4W~~ 3S/2W 17C7

(MW3)

toxic technology services inc.

RECEIVED
FEB 22 1990
ZONE 7, ACFC&WCD

February 16, 1990
File No. 89-12

Mr. Craig Mayfield
Zone 7
5997 Parkside Drive
Pleasanton, California 94566

Subject: Well Installation Report
19984 Meekland Road, Hayward

Dear Mr. Mayfield:

Enclosed is the groundwater monitoring well and well destruction report for 19984 Meekland Road in Hayward, California. The property is currently owned by Durham Transportation.

For your information, the permit numbers are as follows:

Well Construction	Permit Number 89690
Well Destruction	Permit Number 89691

Just to clear up any misconceptions, the well which was abandoned was an unregistered well that was used for on-site operations. A permitted monitoring well was installed on-site in 1986 by Applied Geosystems. CS This well is currently operational and is referred to in the attached report as MW-1.

For your convenience, the information which is of the most interest to you has been tagged with yellow markers.

Thank you for your time and help in this matter. If you have any questions, please call the undersigned at (415) 799-1140.

Sincerely,

Lisa A. Polos

Lisa A. Polos, REA
Senior Scientist
Toxic Technology Services
CTTS, Inc.

P.O. Box 515 ● Rodeo, California 94572 ● (415) 799-1140

#24 p2

01-444✓

John Alt and witnessed by representatives of the Eden Fire District. Product lines to the gasoline dispensers were excavated and removed on August 15, 1989.

Soil samples from the tank and pipe excavation were collected for analysis. The existing groundwater monitoring well (MW-1) was purged and sampled.

Analytical data from the soil samples taken in the pit excavation show significant gasoline, benzene, toluene, ethylbenzene and xylene contamination, particularly around tanks 1 and 2. Soil from the waste oil excavation contained low levels of contaminants. The groundwater sample had detectable levels of toluene and xylene.

On November 28, 1989, two groundwater monitoring wells were installed (Plate 3). Prior to drilling, permits were obtained. On November 29, 1989, the wells were developed and sampled. On December 12, 1989. The existing water well behind the building was purged, sampled and then abandoned according to state and local regulations.

HYDROGEOLOGIC SETTING

The subject site is underlain by generally fine-grained alluvial fan and flood plain deposits derived from the hills located approximately two miles east of the site. The deposits are late Quaternary in age and overlie rock of the Franciscan Assemblage at an unknown but probably great depth.

Three to four feet of fill generally overlies the Quaternary deposits at the site. The fill consists primarily of a clayey to sandy gravel.

The native deposits underlying the fill consist primarily of silty clay to clayey silt with minor and varying amounts of sand and gravel. Lenses of silty sand and gravel, approximately 3 to 4 inches thick, were encountered in the two borings. No other significant bedding or stratification of the units was observed to the depth explored (40 feet) and the deposits are considered to be homogeneous for hydrologic considerations.

The groundwater gradient at the site is essentially flat. The elevation of the groundwater was measured in the three monitoring wells on-site by surveying the elevation of the top of the casing and measuring the depth to groundwater using an electronic probe. The elevations are based on Alameda County benchmark BLO-MEEK located in the middle of the intersection of Blossom Way and Meekland Ave. The depth to groundwater was measured on December 19, 1989 and again on January 29, 1990. The data are presented on Table 1. They indicate a very low westward to northwestward gradient. The elevations of groundwater in the three wells are within 0.1 foot and are about at the level of error in the

#24 p3

01-444V

measuring techniques. Therefore an exact gradient was not calculated.

TABLE 1
DEPTH TO GROUNDWATER

Monitoring Well	Elev. Top of Casing	12/19/89 Depth	12/19/89 Elev.	1/29/90 Depth	1/29/90 Elev.
MW-1	55.13	29.07	26.06	28.73	26.35
MW-3	54.34	28.35	25.99	28.00	26.34
MW-4	54.61	28.59	26.02	28.18	26.43

Note: All measurements are in feet.

GROUNDWATER MONITORING WELL INSTALLATION AND SAMPLING

On November 28, 1989, two groundwater monitoring wells, identified as MW-3 and MW-4, were installed at the subject site by HEW Drilling, Inc., using a CME 55 drill rig with hollow stem augers. Mr. John Alt, CEG and Ms. Lisa Polos supervised the installation. The locations of the wells are shown on Plate 2. Augers were steam cleaned prior to the drilling of the wells. A standard split barrel sampler with 2-5/8" OD and 2" ID was used for soil sampling. It had the capacity for obtaining an 18 inch sample using three six-inch long brass liners. Prior to obtaining each sample, the disassembled sampler and the brass liners were washed in a solution of TSP in water. Each piece was triple rinsed, with the final rinse being distilled water.

A boring log was prepared for each well. Copies of these logs are presented in Appendix B. Blow counts were recorded for each six inches of penetration of the sampler, and the time at which each sample was taken was noted on the field log. Soil samples were collected at five foot intervals during the drilling. The lower-most sample liner (next to the shoe) was retained for any required chemical analysis. The soil exposed in the ends of the tube was quickly noted, and the ends were then sealed with teflon tape and snug-fitting plastic caps. The edges of the caps were sealed with plastic tape. The cap was labeled with the sample number, depth, date, and project name. The soil samples were placed in a chilled ice chest as they were collected, and selected soil samples were marked to be sent to TMA/Norcal, a State certified hazardous waste laboratory for analysis. The second and third samples were inspected and used for the sample description.

Two-inch (ID) Schedule 40 PVC pipe was used for the well casings. Each well was screened with slotted (0.020 inch openings) casings in the lower 15 feet of the well and capped at the bottom with a slip on cap. The 8-inch diameter borings were filled in the annular space between the casing and bore wall with clean #3 sand to a depth of approximately 2 feet above the top of the slotted

#24 p4

01-444V

casing. Above the sand-pack, at least two feet of bentonite pellets was used as a seal, and the remainder of the annulus was filled with cement grout. Monitoring Well Installation Reports with more detailed information on each of the well installations were recorded and are in the files.

The units encountered in the borings for monitoring wells MW-3 and MW-4 are shown on the boring logs (Appendix B). The soil samples collected from MW-3 had no odor above a depth of 20 feet The sample at 20 feet had a slight solvent odor. The sample was moist and was probably within the capillary fringe of the groundwater table. The sample at a depth of 25 feet had a very strong odor of gasoline. Below 25 feet the samples were from the saturated zone and had a slight odor of gasoline. The sample at 25 feet is probably within the zone of groundwater fluctuation and the contamination in the soil was deposited during a period of a higher groundwater level.

The soil samples from MW-4 had a slight odor of gasoline from a depth of 20 feet to the bottom of the boring. A very slight odor was detected in the sample from a depth of 15 feet.

Photographs taken during the sampling and installation of MW-3 and MW-4 are enclosed with this report.

During the well installation, Mr. Tom Peacock of the Alameda County Health Agency, Hazardous Materials Division, visited the site. He requested that a water sample be taken from the well that was to be abandoned and submitted for chemical analysis. A copy of Mr. Peacock's Hazardous Materials Inspection Form is presented under Appendix C.

On November 29, 1989, Mr. John Alt and Ms. Lisa Polos developed the wells by evacuating 15 gallons of water from each well by bailing prior to sampling. After the wells were developed, groundwater samples were collected using separate three-foot disposable bailers.

The first sample from each well was retrieved from the surface of the water, and the contents of the bailer were inspected to assess whether or not there was any floating product present. Groundwater from both wells had odor and sheen, but both were more noticeable in MW-3. Sample vials and jars, provided by the laboratory, were filled from the bailer.

MW-1, which was installed in 1986, was not sampled at this time, however, upon opening the well cap and checking the water level, a strong odor was detected. A sheen was observed on the water purged from this well in August 1989.

WELL ABANDONMENT

A water well was located at the northeast corner of the building

#24 p5

01-444V

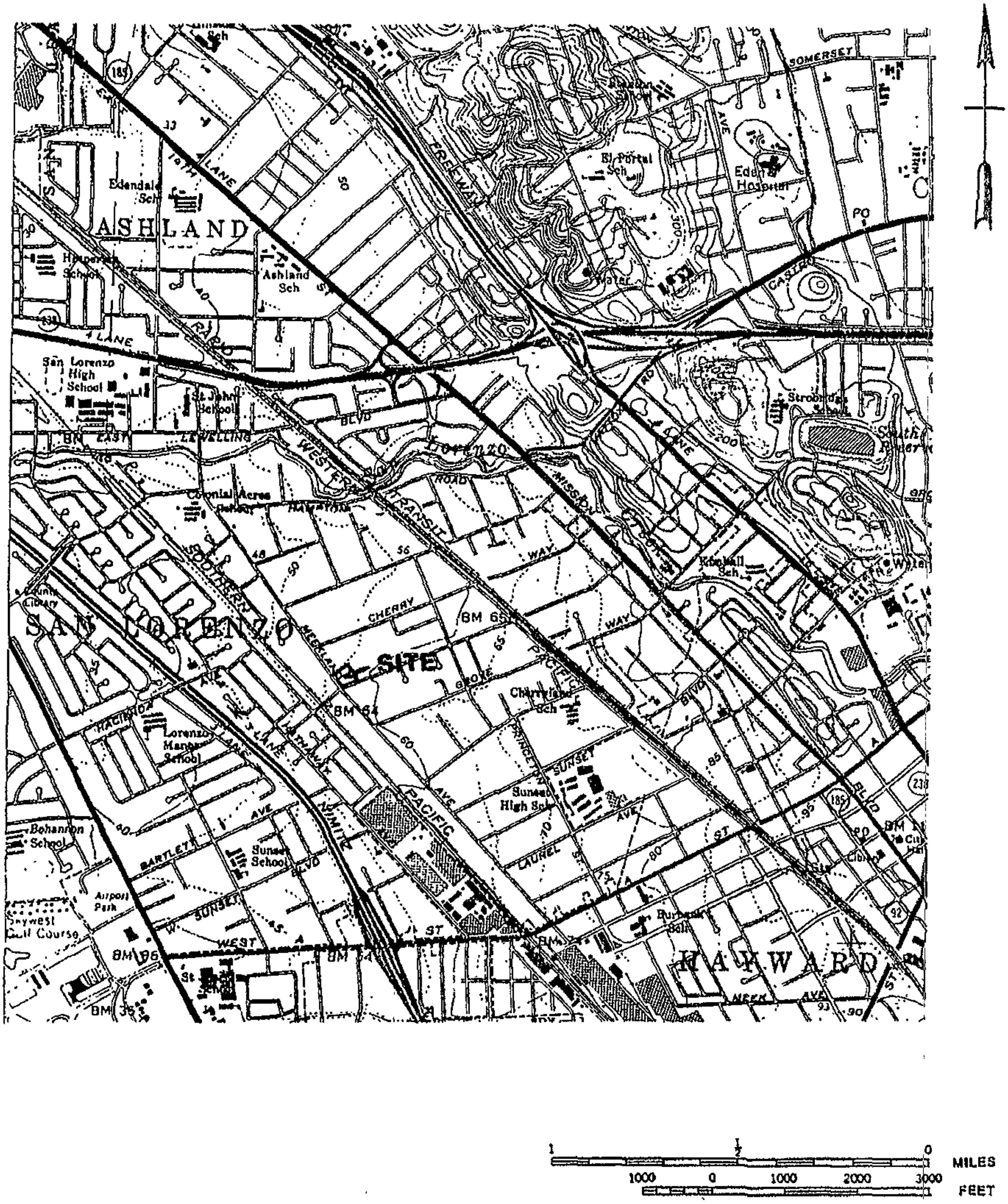
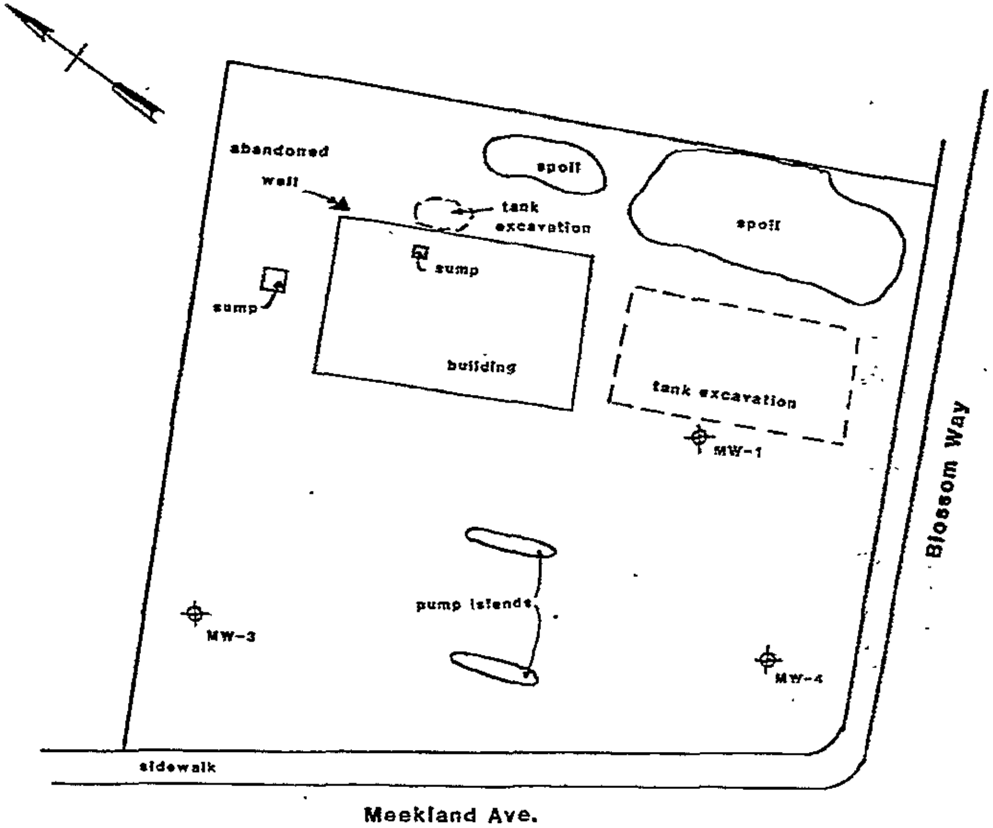


PLATE	**No. 1**

SITE LOCATION MAP

#24 D6

01-444 V



SITE PLAN - DURHAM TRANSPORTION

SCALE: 1" = 20'

DATE: JANUARY 1990

APPROVED BY:

DRAWN BY

REVISED

CTTS, Inc.

DRAWING NUMBER 3

#24 p7

3S/2W 17C7-8

01-444✓

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DIS

5997 PARKSIDE DRIVE ♦ PLEASANTON, CALIFORNIA 94566 ♦ (415) 4

GROUNDWATER PROTECTION ORDINANCE PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

(1) LOCATION OF PROJECT 19984 Meekland Road
Hayward, CA

(2) CLIENT
Name Durham Transportation (415)
Address 27577(A) Industrial Phone 887-6005
City Hayward, CA Zip 94545

(3) APPLICANT
Name Lisa Polos
GTTS, Inc. (415)
Address Po Box 515 Phone 799-1140
City Rodeo, CA Zip 94572

(4) DESCRIPTION OF PROJECT
Water Well Construction X Geotechnical Investigation
Cathodic Protection ___ General ___
Well Destruction ___ Contamination X

(5) PROPOSED WATER WELL USE
Domestic ___ Industrial ___ Irrigation ___
Municipal ___ Monitoring X Other ___

(6) PROPOSED CONSTRUCTION
Drilling Method:
Mud Rotary ___ Air Rotary ___ Auger ___
Cable ___ Other Hollow-Stem Auger

DRILLER'S LICENSE NO. 384167

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 40 ft.
Surface Seal Depth 19.0 ft. Number 2

GEOTECHNICAL PROJECTS
Number of Borings 2 Maximum
Hole Diameter 8 in. Depth 40 ft.

(7) ESTIMATED STARTING DATE Nov. 28, 1989
ESTIMATED COMPLETION DATE Nov. 29, 1989

(8) I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Lisa A. Polos Date 11-22-89

FOR OFFICE USE

PERMIT NUMBER 89690
LOCATION NUMBER ___

PERMIT CONDITIONS

Circled Permit Requirements Apply

Ⓐ GENERAL
1. A permit application should be submitted so as arrive at the Zone 7 office five days prior proposed starting date.
2. Submit to Zone 7 within 60 days after complet of permitted work the original Department Water Resources Water Well Drillers Report equivalent for well projects, or drilling l and location sketch for geotechnical projects.
3. Permit is void if project not begun within days of approval date.

Ⓑ WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal industrial wells or 20 feet for domestic, irri tion, and monitoring wells unless a lesser de is specially approved.

Ⓒ GEOTECHNICAL. Backfill bore hole with compacted c tings or heavy bentonite and upper two feet with c pacted material. In areas of known or suspec contamination, tremied cement grout shall be used place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concr placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Todd N. Wendler Date 22 Nov
Todd N. Wendler

01-4944 V #24 p8

BORING LOCATION Meekland and Blossom Ave
DRILLING CONTRACTOR HEW Drilling
DRILLER Jeff
DRILLING EQUIPMENT CME 55
DIAMETER OF BORING
PURPOSE OF BORING Monitoring Well
SAMPLING EQUIPMENT
COMMENTS

ELEVATION AND DATUM
DATE STARTED 11-28-89
DATE FINISHED 11-28-89
COMPLETION DEPTH (FT) 40
ROCK DEPTH (FT) -
NO. OF UNDIST. SAMPLES 7
CORE
WATER DEPTH (FT) FIRST 34
COMPL.
LOGGED BY: J. Alt
CHECKED BY:

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG LITHOLOGY	SAMPLES NO.	SAMPLES TYPE	SAMPLES BLOW COUNT	SAMPLES DRILLING RATE/TIME	REMARKS
	Fill						
	dark brown clay, dry, adobe						
5					6 8 10		
	reddish brown fine sandy silt with some clay, dry						
	Tan sandy silt to silty sand. Thin lens of coarse sand at 11 ft.; dry, becoming moist at 15 ft.						
10					3 5 8		
15					2 4 6		
20					2 4 5		
	Gray clay, moist, mottled brown, moderately plastic						
25					4 7 10		
30							

Project Durham Site
Project No.

LOG OF BORING B-3

#24 p9

01-444V

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG LITHOLOGY	SAMPLES				REMARKS
			NO.	TYPE	BLOW COUNT	DRILLING RATE/TIME	
30	Gray clay mottled brown, moist, moderately plastic.				4 4 5		
35	Brown clayey sand and gravel, grades downward to brown clayey silt.				5 7 11		
40	Bottom of boring No sample						
45							
50							
55							
60							
65							
70							

Project

Project No.

CONT. LOG OF BORING B-3

#25 17C

01-444W

toxic technology services inc.

~~1S/4W~~ 3S/2W 17C

(MW4)

RECEIVED
FEB 22 1990
ZONE 7, ACFC&WCD

February 16, 1990
File No. 89-12

Mr. Craig Mayfield
Zone 7
5997 Parkside Drive
Pleasanton, California 94566

Subject: Well Installation Report
19984 Meekland Road, Hayward

Dear Mr. Mayfield:

Enclosed is the groundwater monitoring well and well destruction report for 19984 Meekland Road in Hayward, California. The property is currently owned by Durham Transportation.

For your information, the permit numbers are as follows:

Well Construction	Permit Number 89690
Well Destruction	Permit Number 89691

Just to clear up any misconceptions, the well which was abandoned was an unregistered well that was used for on-site operations. A permitted monitoring well was installed on-site in 1986 by Applied Geosystems. CS This well is currently operational and is referred to in the attached report as MW-1.

For your convenience, the information which is of the most interest to you has been tagged with yellow markers.

Thank you for your time and help in this matter. If you have any questions, please call the undersigned at (415) 799-1140.

Sincerely,

Lisa A. Polos

Lisa A. Polos, REA
Senior Scientist
Toxic Technology Services
CTTS, Inc.

P.O. Box 515 ● Rodeo, California 94572 ● (415) 799-1140

#25 p2

01-444W

John Alt and witnessed by representatives of the Eden Fire District. Product lines to the gasoline dispensers were excavated and removed on August 15, 1989.

Soil samples from the tank and pipe excavation were collected for analysis. The existing groundwater monitoring well (MW-1) was purged and sampled.

Analytical data from the soil samples taken in the pit excavation show significant gasoline, benzene, toluene, ethylbenzene and xylene contamination, particularly around tanks 1 and 2. Soil from the waste oil excavation contained low levels of contaminants. The groundwater sample had detectable levels of toluene and xylene.

On November 28, 1989, two groundwater monitoring wells were installed (Plate 3). Prior to drilling, permits were obtained. On November 29, 1989, the wells were developed and sampled. On December 12, 1989. The existing water well behind the building was purged, sampled and then abandoned according to state and local regulations.

HYDROGEOLOGIC SETTING

The subject site is underlain by generally fine-grained alluvial fan and flood plain deposits derived from the hills located approximately two miles east of the site. The deposits are late Quaternary in age and overlie rock of the Franciscan Assemblage at an unknown but probably great depth.

Three to four feet of fill generally overlies the Quaternary deposits at the site. The fill consists primarily of a clayey to sandy gravel.

The native deposits underlying the fill consist primarily of silty clay to clayey silt with minor and varying amounts of sand and gravel. Lenses of silty sand and gravel, approximately 3 to 4 inches thick, were encountered in the two borings. No other significant bedding or stratification of the units was observed to the depth explored (40 feet) and the deposits are considered to be homogeneous for hydrologic considerations.

The groundwater gradient at the site is essentially flat. The elevation of the groundwater was measured in the three monitoring wells on-site by surveying the elevation of the top of the casing and measuring the depth to groundwater using an electronic probe. The elevations are based on Alameda County benchmark BLO-MEEK located in the middle of the intersection of Blossom Way and Meekland Ave. The depth to groundwater was measured on December 19, 1989 and again on January 29, 1990. The data are presented on Table 1. They indicate a very low westward to northwestward gradient. The elevations of groundwater in the three wells are within 0.1 foot and are about at the level of error in the

#25 p3

01-444W

measuring techniques. Therefore an exact gradient was not calculated.

TABLE 1
DEPTH TO GROUNDWATER

Monitoring Well	Elev. Top of Casing	12/19/89		1/29/90	
		Depth	Elev.	Depth	Elev.
MW-1	55.13	29.07	26.06	28.73	26.35
MW-3	54.34	28.35	25.99	28.00	26.34
MW-4	54.61	28.59	26.02	28.18	26.43

Note: All measurements are in feet.

GROUNDWATER MONITORING WELL INSTALLATION AND SAMPLING

On November 28, 1989, two groundwater monitoring wells, identified as MW-3 and MW-4, were installed at the subject site by HEW Drilling, Inc., using a CME 55 drill rig with hollow stem augers. Mr. John Alt, CEG and Ms. Lisa Polos supervised the installation. The locations of the wells are shown on Plate 2. Augers were steam cleaned prior to the drilling of the wells. A standard split barrel sampler with 2-5/8" OD and 2" ID was used for soil sampling. It had the capacity for obtaining an 18 inch sample using three six-inch long brass liners. Prior to obtaining each sample, the disassembled sampler and the brass liners were washed in a solution of TSP in water. Each piece was triple rinsed, with the final rinse being distilled water.

A boring log was prepared for each well. Copies of these logs are presented in Appendix B. Blow counts were recorded for each six inches of penetration of the sampler, and the time at which each sample was taken was noted on the field log. Soil samples were collected at five foot intervals during the drilling. The lower-most sample liner (next to the shoe) was retained for any required chemical analysis. The soil exposed in the ends of the tube was quickly noted, and the ends were then sealed with teflon tape and snug-fitting plastic caps. The edges of the caps were sealed with plastic tape. The cap was labeled with the sample number, depth, date, and project name. The soil samples were placed in a chilled ice chest as they were collected, and selected soil samples were marked to be sent to TMA/Norcal, a State certified hazardous waste laboratory for analysis. The second and third samples were inspected and used for the sample description.

Two-inch (ID) Schedule 40 PVC pipe was used for the well casings. Each well was screened with slotted (0.020 inch openings) casings in the lower 15 feet of the well and capped at the bottom with a slip on cap. The 8-inch diameter borings were filled in the annular space between the casing and bore wall with clean #3 sand to a depth of approximately 2 feet above the top of the slotted

#25 p4

01-444W

casing. Above the sand-pack, at least two feet of bentonite pellets was used as a seal, and the remainder of the annulus was filled with cement grout. Monitoring Well Installation Reports with more detailed information on each of the well installations were recorded and are in the files.

The units encountered in the borings for monitoring wells MW-3 and MW-4 are shown on the boring logs (Appendix B). The soil samples collected from MW-3 had no odor above a depth of 20 feet The sample at 20 feet had a slight solvent odor. The sample was moist and was probably within the capillary fringe of the groundwater table. The sample at a depth of 25 feet had a very strong odor of gasoline. Below 25 feet the samples were from the saturated zone and had a slight odor of gasoline. The sample at 25 feet is probably within the zone of groundwater fluctuation and the contamination in the soil was deposited during a period of a higher groundwater level.

The soil samples from MW-4 had a slight odor of gasoline from a depth of 20 feet to the bottom of the boring. A very slight odor was detected in the sample from a depth of 15 feet.

Photographs taken during the sampling and installation of MW-3 and MW-4 are enclosed with this report.

During the well installation, Mr. Tom Peacock of the Alameda County Health Agency, Hazardous Materials Division, visited the site. He requested that a water sample be taken from the well that was to be abandoned and submitted for chemical analysis. A copy of Mr. Peacock's Hazardous Materials Inspection Form is presented under Appendix C.

On November 29, 1989, Mr. John Alt and Ms. Lisa Polos developed the wells by evacuating 15 gallons of water from each well by bailing prior to sampling. After the wells were developed, groundwater samples were collected using separate three-foot disposable bailers.

The first sample from each well was retrieved from the surface of the water, and the contents of the bailer were inspected to assess whether or not there was any floating product present. Groundwater from both wells had odor and sheen, but both were more noticeable in MW-3. Sample vials and jars, provided by the laboratory, were filled from the bailer.

MW-1, which was installed in 1986, was not sampled at this time, however, upon opening the well cap and checking the water level, a strong odor was detected. A sheen was observed on the water purged from this well in August 1989.

WELL ABANDONMENT

A water well was located at the northeast corner of the building

#2505

01-444W

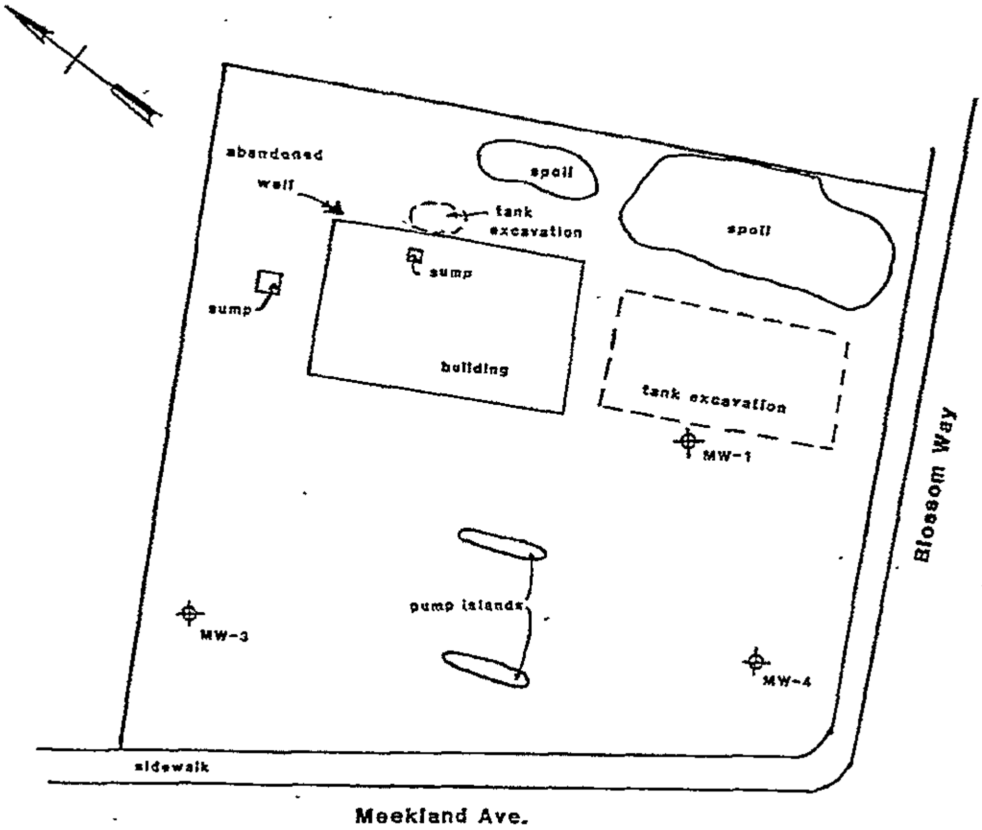
PLATE

No. 1

SITE LOCATION MAP

#2506

01-Aff-W



SITE PLAN - DURHAM TRANSPORTION

SCALE: 1" = 20'	APPROVED BY:	DRAWN BY
DATE: JANUARY 1990		REVISED
CETS, Inc.		DRAWING NUMBER 3

#25p7

3S/2W 17C8

0, - 444W

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DIS
5997 PARKSIDE DRIVE ♦ PLEASANTON, CALIFORNIA 94566 ♦ (415) 4

GROUNDWATER PROTECTION ORDINANCE PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

(1) LOCATION OF PROJECT 19984 Meekland Road
Hayward, CA

(2) CLIENT
Name Durham Transportation (415)
Address 27577(A) Industrial Phone 887-6005
City Hayward, CA Zip 94545

(3) APPLICANT
Name Lisa Polos
CTTS Inc. (415)
Address Po Box 515 Phone 799-1140
City Rodeo, CA Zip 94572

(4) DESCRIPTION OF PROJECT
Water Well Construction X Geotechnical Investigation
Cathodic Protection ___ General ___
Well Destruction ___ Contamination X

(5) PROPOSED WATER WELL USE
Domestic ___ Industrial ___ Irrigation ___
Municipal ___ Monitoring X Other ___

(6) PROPOSED CONSTRUCTION
Drilling Method:
Mud Rotary ___ Air Rotary ___ Auger ___
Cable ___ Other Hollow-Stem Auger

DRILLER'S LICENSE NO. 384167

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 40 ft.
Surface Seal Depth 19.0 ft. Number 2

GEOTECHNICAL PROJECTS
Number of Borings 2 Maximum
Hole Diameter [illegible] in. Depth 46 ft.

(7) ESTIMATED STARTING DATE Nov. 28, 1989
ESTIMATED COMPLETION DATE Nov. 29, 1989

(8) I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S
SIGNATURE Lisa A. Polos Date 11-22-89

FOR OFFICE USE

PERMIT NUMBER 89690
LOCATION NUMBER ___

PERMIT CONDITIONS

Circled Permit Requirements Apply

Ⓐ GENERAL
1. A permit application should be submitted so as arrive at the Zone 7 office five days prior proposed starting date.
2. Submit to Zone 7 within 60 days after complet of permitted work the original Department Water Resources Water Well Drillers Report equivalent for well projects, or drilling and location sketch for geotechnical projects.
3. Permit is void if project not begun within days of approval date.

Ⓑ WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal industrial wells or 20 feet for domestic, irri tion, and monitoring wells unless a lesser de is specially approved.

Ⓒ GEOTECHNICAL. Backfill bore hole with compacted c tings or heavy bentonite and upper two feet with c pacted material. In areas of known or suspec contamination, tremied cement grout shall be used place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concr placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Todd N. Wendler Date 22 Nov
Todd N. Wendler

21

#25 p8

01-444W

BORING LOCATION	Meekland and Blossom Ave	ELEVATION AND DATUM	
DRILLING CONTRACTOR	HEW Drilling DRILLER Jeff	DATE STARTED 11-28-89	DATE FINISHED 11-28-89
DRILLING EQUIPMENT	CME 55	COMPLETION DEPTH (FT) 40	ROCK DEPTH (FT) –
DIAMETER OF BORING		NO. OF SAMPLES UNDIST. 7	CORE
PURPOSE OF BORING	Monitoring Well	WATER DEPTH(FT) FIRST	COMPL.
SAMPLING EQUIPMENT		LOGGED BY: J. Alt	CHECKED BY:
COMMENTS			

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG LITHOLOGY	SAMPLES NO.	SAMPLES TYPE	SAMPLES BLOW COUNT	SAMPLES DRILLING RATE/TIME	REMARKS
	Fill - Sand and Gravel						
5	Dark brown clay, dry				8 6 4		
	Tan silty clay, dry						
10					5 6 9		
	brown sandy gravel						
15	Gray clayey silt to silty clay, locally sandy				2 4 4		
20	Same as above moist				1 4 4		
25	Same as above with brown mottlings				4 5 6		
30							

Project Durham Site

Project No.

LOG OF BORING B-4

#25 p9

01-444W

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG LITHOLOGY	SAMPLES NO.	TYPE	BLOW COUNT	DRILLING RATE/TIME	REMARKS
30	Gray clay, moist, mottled brown				4 7 13		
35	Brown silty clay, wet				6 7 9		
40	bottom of boring						
45							
50							
55							
60							
65							
70							

Project

Project No.

CONT. LOG OF BORING B-4

#26 17C

01-475H

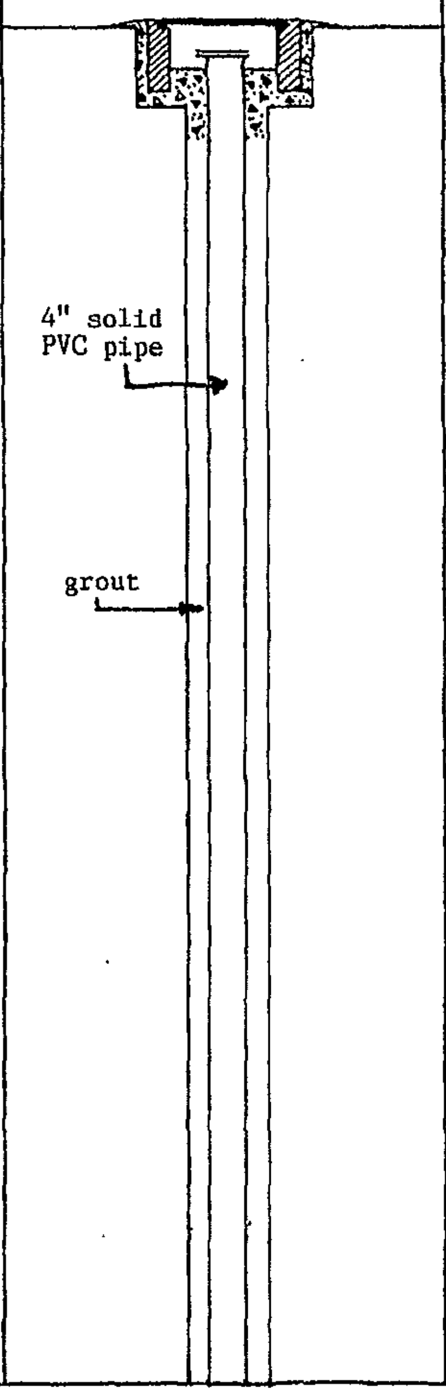
35/2W 17C9

BORING LOG

Project Durham Transportation
Location see location map
Job # 90-4
Geologist/Engineer L. Alr
Drill Agency HEW Drilling

Hole/Well # MW-5
Diameter of Drill Hole 8"
Total Depth of Hole 45 ft.
Date Started Aug. 31, 1990
Date Completed Aug. 31, 1990

WELL CONSTRUCTION DETAIL



DEPTH IN FEET	N-VALUE	SAMPLE	GRAPHIC SYMBOL	DESCRIPTION
0				gravelly sand-fill, dry dark brown clay-soil horizon
5	14	1		medium brown sandy clay, moist
10	7	2		blue gray sandy clay grading to a clayey sand, moist
15	12	3		grayish brown sandy clay, moist, scattered small gravel
				grayish brown fine to medium grained sand, moist
20	4	4		light brown clay, moist plastic, reddish brown mottling

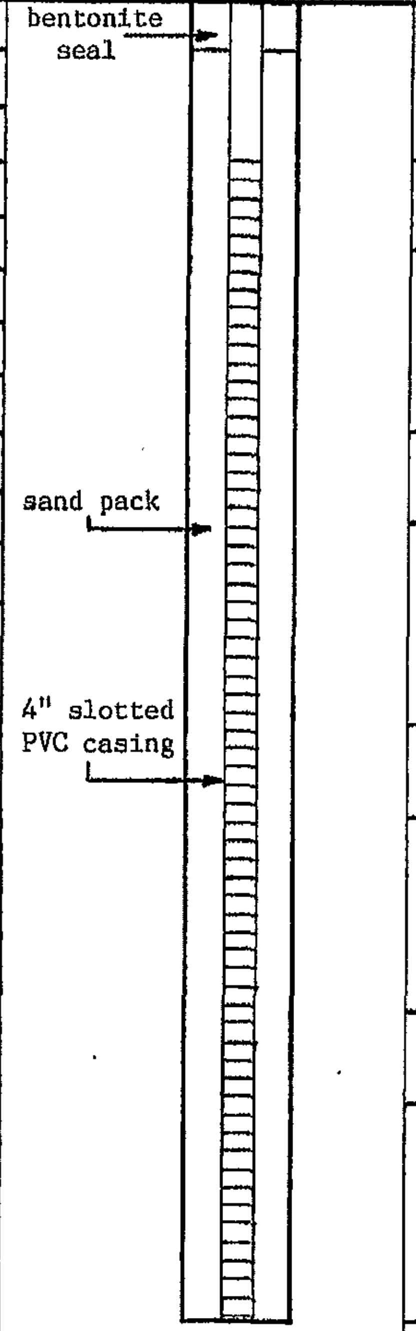
#26 p2

01-475H

BORING LOG

35/2W 17C 9

PROJECT: Durham Transportation
JOB NUMBER: 90-4
HOLE / WELL #: MW-5
PAGE: 2 OF 2



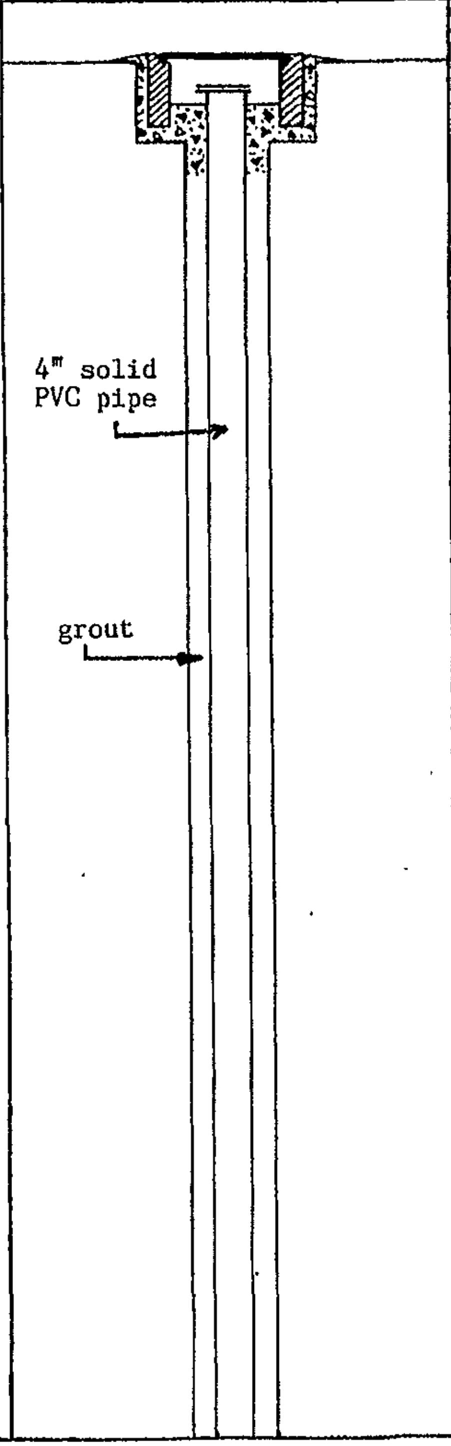
DEPTH (FEET)	SAMPLE #	BLOW COUNTS / FOOT	USCS SYMBOL	DESCRIPTION
25	5	18		gray motted brown clay, moist to damp, plastic gray clay; motted brown, moist, plastic
			▽	
30	6	6		
35	7	16		
40	8	15		brown clay, moist, silty, moderately plastic
45	9	8		tight brown, fine to medium grained sand, wet, dark brown

#27 17C
01-475I
35/2W 17C10

BORING LOG

Project Durham Transportation
Location see location map
Job # 90-4
Geologist/Engineer J. Alt
Drill Agency HEW Drilling

Hole/Well # MW-6
Diameter of Drill Hole 8 inches
Total Depth of Hole 45 ft.
Date Started Aug. 30,1990
Date Completed Aug. 30, 1990

DEPTH IN FEET	WELL CONSTRUCTION DETAIL	N-VALUE	SAMPLE	GRAPHIC SYMBOL	DESCRIPTION
0					3" asphalt
					sand and gravel
5		11	1		
10		12	2		medium brown silty to sandy clay, moist, locally scattered gravel up to 1/2" in size medium brown clay to clayey silt
15		7	3		
					brown fine-grained sand, loose, moist
20		NA	4		gray motted brown clay, moist to damp, plastic

#27 p

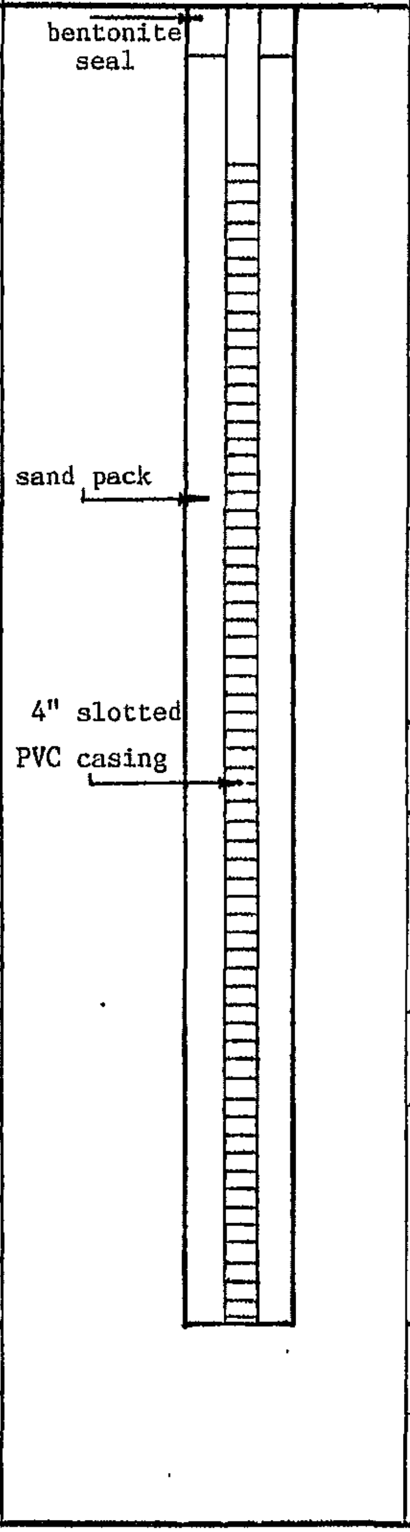
01-475I

3S/2W 17C10

BORING LOG

PROJECT: Durham Transportation
JOB NUMBER: 90-4
HOLE/WELL #: MW-6
PAGE: 2 OF 2

COMPLETION DETAIL



DEPTH (FEET)	SAMPLE #	BLOW COUNTS / FOOT	USCS SYMBOL	DESCRIPTION
25	5	20		light brown clay, moist plastic, reddish brown mottling same as above, except grading to gray in color gray clay, wet, plastic, locally sandy
30	6	11	∇	
35	7	17		
40	8	7		light brown clay, wet plastic light brown clay, wet plastic, locally silty to sandy light brown sandy clay, wet plastic
45	9	15		

17C11 (#28)

01-475 I-J

3S/2W 17C9-11

TABLE 3 (cont.)
GROUNDWATER ELEVATION

Date	MW-5	MW-6	MW-7
Elevation top of casing	54,95	54.92	54.57
9/28/90	25.27 (O,-)	25.21 (O,S)	Not Installed
10/12/90	25.16 (O,-)	25.07 (O,-)	24.11 (O,S)

Note: All measurements are in feet.
(O) = strong odor; (o) = slight odor; (S) = sheen;
(-) = non-detectable

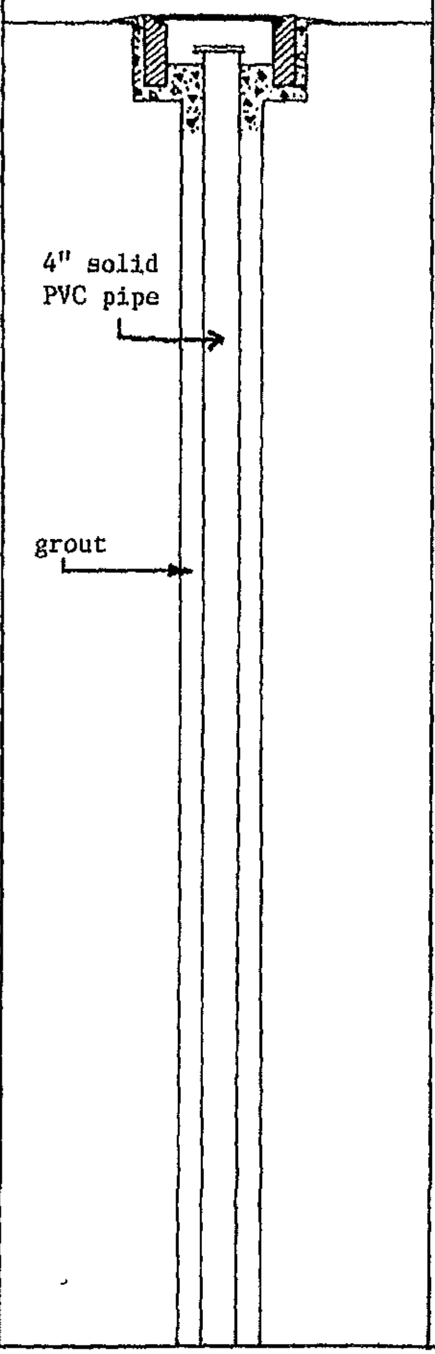
28p

01-475J
3S/2W 17C11

BORING LOG

Project Durham Transportation
Location see location map
Job # 90-4
Geologist/Engineer J. Alt
Drill Agency HEW Drilling

Hole/Well # M W - 7
Diameter of Drill Hole 8"
Total Depth of Hole 45 ft.
Date Started Oct. 1, 1990
Date Completed Oct. 1 , 1990

DEPTH IN FEET	WELL CONSTRUCTION DETAIL	N-VALUE	SAMPLE	GRAPHIC SYMBOL	DESCRIPTION
0					4" concrete
					fill - sand and gravel
					dark brown clay, damp grading to medium brown silty clay
5		17	1		medium brown clayey silt, damp
10		8	2		
15		9	3		
					gray sand, medium grained, damp
20		4	4		
					gray clay, moist with brown mottering

#28p3

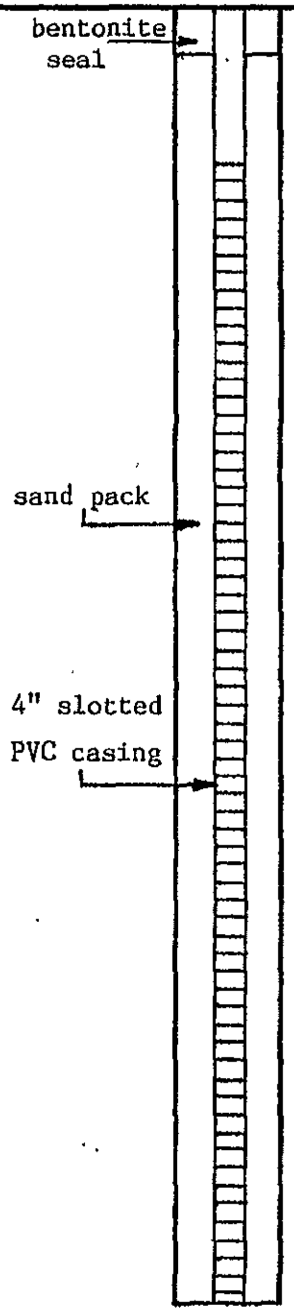
01-475J

3S/2W 17C11

BORING LOG

PROJECT: Durham Transportation HOLE / WELL #: MW-7

JOB NUMBER: 90-4 PAGE: 2 OF 2

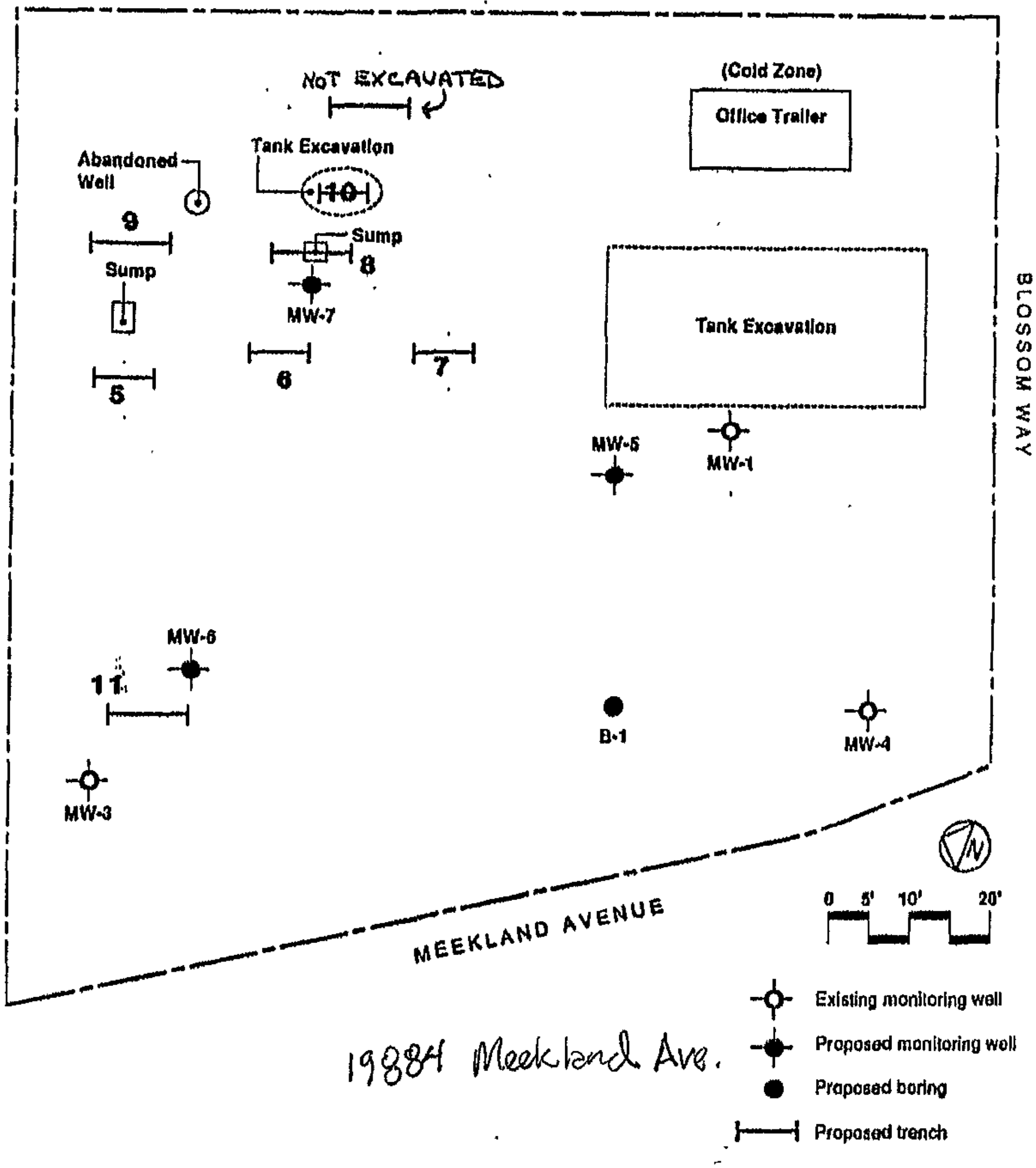


DEPTH (FEET)	COMPLETION DETAIL	SAMPLE #	BLOW COUNTS / FOOT	USCS SYMBOL	DESCRIPTION
					gray clay, moist with brown mottering
25					
		5	13		
					tan motteled gray silty clay, locally sandy
30		6	12	▽	
35		7	16		tan clay; very plastic
40		8	10		tan clay-motted brown; very plastic, some silt
45					
		9	11		fine grain tan-mottled brown silty sand; very wet, some plasticity

#28 p4

01-475H-J

35/2W 17C9-11



19884 Meekland Ave.

Durham Transportation - Work Plan Amendment

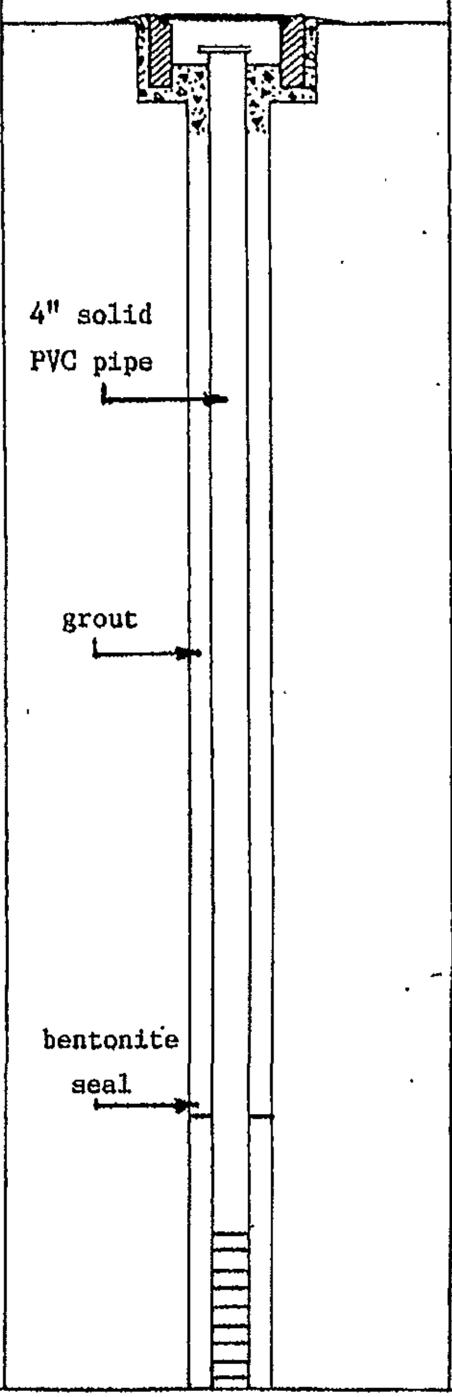
Plate No.: 6
Date: July 90
Scale: 1" = 20'-0"
CTTS, Inc. - Toxic Technology Services

17C11 #29
01-498G
3S/2W 17C11

BORING LOG

Project Durham Transportation
Location see location map
Job # 91-6
Geologist/Engineer J. Alt
Drill Agency HEW Drilling

Hole/Well # MW-8
Diameter of Drill Hole 10"
Total Depth of Hole 40'
Date Started Feb. 13, 1991
Date Completed Feb. 13, 1991



DEPTH IN FEET	WELL CONSTRUCTION DETAIL	N-VALUE	SAMPLE	GRAPHIC SYMBOL	DESCRIPTION
0					
5		15	1		Brown clay, somewhat plastic, dry
10		15	2		Brownish gray sandy clay
15		18	3		Brownish clay, somewhat plastic; clay lead to medium coarse sandy clay-had pebbles in it and was quite dry. This leads to brown sand
20		5	4		Brown clayey sand grading to gray clay, mottled brown, very plastic

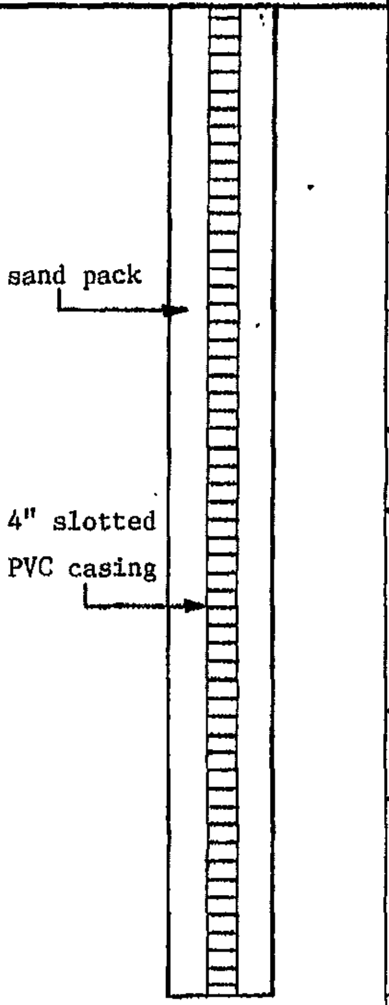
#29 p2

01-4986

3S/2W 17C11

BORING LOG

PROJECT: Durham Transportation
HOLE/WELL #: MW-8
JOB NUMBER: 91-6
PAGE: 2 OF 2



DEPTH (FEET)	COMPLETION DETAIL	SAMPLE #	BLOW COUNTS / FOOT	USCS SYMBOL	DESCRIPTION
25		5	11		Top: mottled brown mud with some sandy clay Bottom: brown mud with gray mottling
	sand pack				
30		6	5		Brown silty clay with gray mottling, becoming moist
	4" slotted PVC casing				
35		7	11		Tight brown clay, very plastic
40		8	7		Brown clay with dark brown mottling, moist, plastic

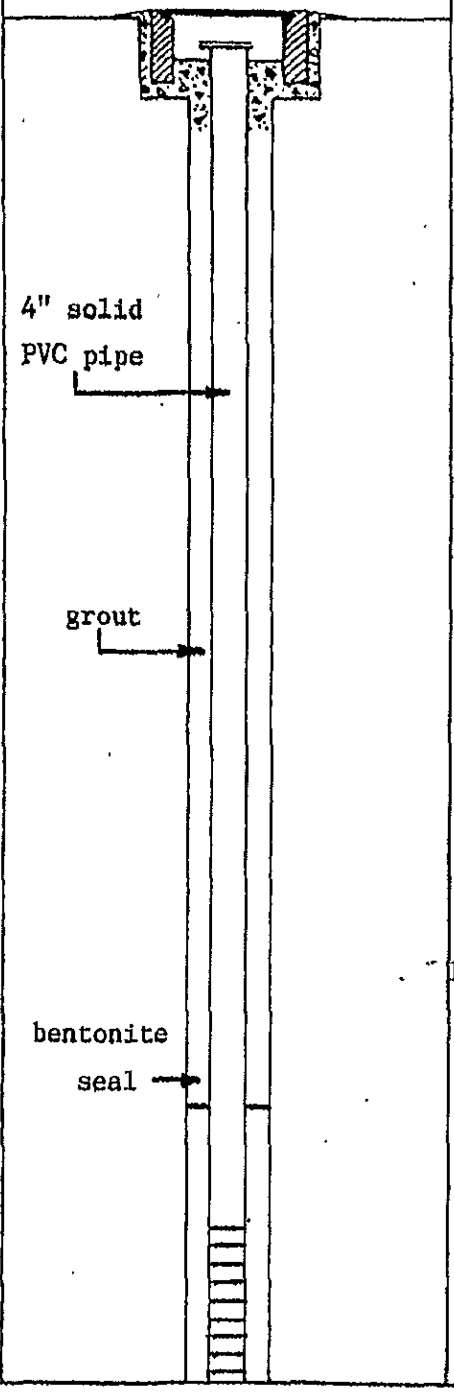
17C12 #30
01-498H
35/2W 17C12

BORING LOG

Project Durham Transportation
Location see location map
Job # 91-6
Geologist/Engineer J. Alt
Drill Agency HEW Drilling

Hole/Well # MW-9
Diameter of Drill Hole 10"
Total Depth of Hole 40'
Date Started Feb. 13, 1991
Date Completed Feb. 13, 1991

WELL CONSTRUCTION DETAIL



DEPTH IN FEET	N-VALUE	SAMPLE	GRAPHIC SYMBOL	DESCRIPTION
0				
5	15	1		Medium brown clayey silt, somewhat plastic, some small angular rock fragments, dry
10	8	2		Same as above
15	12	3		Brown clayey silt, locally sandy, moderated to low plasticity, grading to fine grain sand, loose, moist
20	6	4		Brown sandy clay, gray mottling

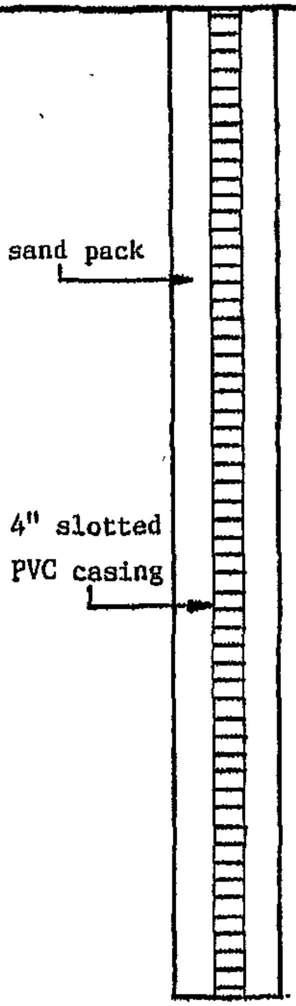
#30p

01-498 H

3S/2W 17C12

BORING LOG

PROJECT: Durham Transportation
JOB NUMBER: 91-6
HOLE / WELL #: MW-9
PAGE: 2 OF 2



DEPTH (FEET)	COMPLETION DETAIL	SAMPLE #	BLOW COUNTS / FOOT	USCS SYMBOL	DESCRIPTION
25		5	9		Greenish-gray clay
30		6	10		Brown clay with some silt greenish gray mottling
35		7	15		Medium brown clay, gray mottling, moist
40		8	7		Medium brown clay, very plastic, moist

#29-30

3S/2W 17C11-12

OL498G-H

CTTS, Inc.
toxic technology services

April 2, 1991
Project No. 91-6

Mr. Jack Worthington
Durham Transportation
P.O. Box 948
Rosemead, CA 91770

Subject: Report of Additional
Well Installations
19984 Meekland Avenue
Hayward, California

Dear Mr. Worthington:

Toxic Technology Services (CTTS, Inc) is pleased to present a report on the additional well installations requested by Alameda County for the property located at 19984 Meekland Avenue in the unincorporated area of Alameda County.

This report covers the following topics:

Introduction
Well Installations And Sampling
Groundwater Data
Conclusions and Recommendations

After your review of this document, it is recommended that a copy be sent to Ms. Pam Evans of the Alameda County health Care Services Department, Hazardous Materials Division. An extra copy of this report has been provided to you for this purpose.

Thank you for this opportunity to provide Durham Transportation with these environmental services.

Sincerely,

Lisa A. Polos

Lisa A Polos, REA, CHMM
Senior Scientist
Toxic Technology Services
CTTS, Inc.

John N. Alt

John N. Alt, CEG
Consulting Geologist
Toxic Technology Services
CTTS, Inc.

REGISTERED GEOLOGIST
JOHN N. ALT
Nº 1136
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

LAP/JNA/lap

Enclosure

P.O. Box 515 • Rodeo, California 94572 • (415) 799-1140

Lic # C57-384167 PERMIT 91073

#29/p2
30

3S/2W 17C11-12
01-498G-H

INTRODUCTION

On January 15, 1991, Lisa Polos and John Alt of Toxic Technology Services and Jack Worthington of Durham Transportation met with Pam Evans of the Alameda County Health Care Services Agency, Hazardous Materials Division. The topic of discussion was the phase II site characterization report dated November 27, 1990 for the subject site. The County and the Water Quality Control Board requires further investigation into the contaminant plume migration.

As a result of this meeting, and to further define the extent of the contaminant plume, two more wells, one up gradient and one down gradient will be installed.

The up gradient well, MW-8, is located at the southeast corner of the subject site (Plate 1). It was originally discussed that the down gradient well would be located off-site, preferably on Meekland Avenue at the site of Hank's Liquors (50 Blossom Way). Mr. Worthington discussed the installation of a well on this property with the property owner and was unable to obtain permission. The well, labeled MW-9, was instead installed on-site at the northwest quadrant of the property (Plate 1).

WELL INSTALLATIONS AND SAMPLING

On February 13, 1991, two groundwater monitoring wells, identified as MW-8 and MW-9, were installed at the subject site by HEW Drilling, Inc., using a CME 75 drill rig with hollow stem augers. Ms. Lisa Polos supervised the installation under the direction of Mr. John Alt, CEG. The locations of the wells are shown on Plate 1. Augers were steam cleaned prior to the drilling of the wells. A standard split barrel sampler with 2-5/8" OD and 2" ID was used for soil sampling. It had the capacity for obtaining an 18 inch sample using three six-inch long brass liners. Prior to obtaining each sample, the disassembled sampler and the brass liners were washed in a solution of TSP in water. Each piece was triple rinsed, with the final rinse being distilled water.

A boring log was prepared for each well. Copies of these logs are presented in Appendix A. Blow counts were recorded for each six inches of penetration of the sampler, and the time at which each sample was taken was noted on the field log. Soil samples were collected at five foot intervals during the drilling. One liner from each depth was retained for any required chemical analysis. The soil exposed in the ends of the tube was quickly noted, and the ends were then sealed with teflon tape and snug-filling plastic caps. The edges of the caps were sealed with

#29-30 p3
01-4986-H
3S/2W 17C11-12

plastic tape. The cap was labeled with the sample number, depth, date, and project name. The soil samples were placed in a chilled ice chest as they were collected, and selected soil samples were marked and sent under chain-of-custody to NET Pacific laboratory, a State certified hazardous waste laboratory for analysis. The second and third samples were inspected and used for the sample description.

Four-inch (ID) Schedule 40 PVC pipe was used for the well casings. Each well was screened with slotted (0.020 inch openings) casings in the lower 15 feet of the well and capped at the bottom with a slip on cap. The 10-inch diameter borings were filled in the annular space between the casing and bore wall with clean #3 sand to a depth of approximately 2 feet above the top of the slotted casing. Above the sand-pack, at least two feet of bentonite pellets was used as a seal, and the remainder of the annulus was filled with cement grout. Monitoring Well Installation Reports with more detailed information on each of the well installations were recorded and are in the files.

The units encountered in the borings for monitoring wells MW-8 and MW-9 are shown on the boring logs (Appendix A). The soil samples collected from MW-8 had no odor above 20 feet. Samples at 20 and 25 feet had an organic, "earthy" odor, but not that of petroleum hydrocarbons. The units encountered were unstained and indicated no obvious signs of contamination.

The soil samples collected from MW-9 had a definite petroleum odor starting at 20 feet. The odor was stronger at 30 feet. The samples collected at 35 and 40 feet had no petroleum odor.

It is our opinion that 20 feet is within the zone of groundwater fluctuation and the contamination in MW-9 was deposited during a period of a higher groundwater level rather than some undiscovered source of contamination.

On February 18, 1991, Mr. John Alt and Ms. Lisa Polos purged the wells by evacuating a minimum of 15 gallons from each well by using a trilock pump. After the wells were purged, groundwater samples were collected using separate three-foot disposable bailers.

The first sample from each well was retrieved from the surface of the water, and the contents of the bailer were inspected to assess whether or not there was any floating product present. Groundwater from neither well had odor nor sheen. Sample vials and jars, provided by the laboratory, were filled from the bailer and put into a chilled ice chest.

Chemical data from the soil and groundwater samples is presented in a separate section of this report.

#29-30 P4
OL-498G-H

3S/2W 17C11-12

Prior to well installation, a monitoring well installation permit was obtained from Alameda County Zone 7. A copy of this permit is presented under Appendix B.

GROUNDWATER DATA

The elevation of the groundwater has been measured in the newly installed monitoring wells by surveying the elevation of the top of the casing and measuring the depth to groundwater using an electronic probe. The elevations are based on Alameda County benchmark BLO-MEEK located in the middle of the intersection of Blossom Way and Meekland Avenue. The depth to groundwater was measured on February 18, 1991. Table 1 presents the groundwater elevations for MW-8 and MW-9.

TABLE 1
GROUNDWATER ELEVATION

Date	MW-8	MW-9
Elevation top of casing	55.07	54.12
2/18/91	25.48 (-,-)	25.40 (o,-)

Note: All measurements are in feet.
(O) = strong odor; (o) = slight odor; (S) = sheen;
(-) = non-detectable

Chemical data from samples collected from MW-8 and MW-9 indicate that MW-8 is clean and that MW-9 is contaminated, but not at as high a level of contamination as has been found in MW-1 and MW-3.

MW-8 represents the up gradient quadrant of the site. Data indicates some minor soil contamination by Toluene, but not at levels that would indicate an off-site source of petroleum hydrocarbon contamination.

MW-9 is in the down gradient direction and soil contains low levels of contamination and water contains moderate levels of contamination. The soil contamination is at the depth of the capillary fringe and is thought to be caused by migration of groundwater contamination.

Tables 2 and 3 present summaries of results. Appendix C presents full analytical reports from NET Pacific.

#29-30: P

0L-4985-H

3S/2W 17C11-12

TABLE 2
ANALYTICAL SUMMARY OF SOIL BORING SAMPLES

MW-8

25':	Toluene	3.3	ug/Kg
35':	Toluene	28	ug/Kg

MW-9

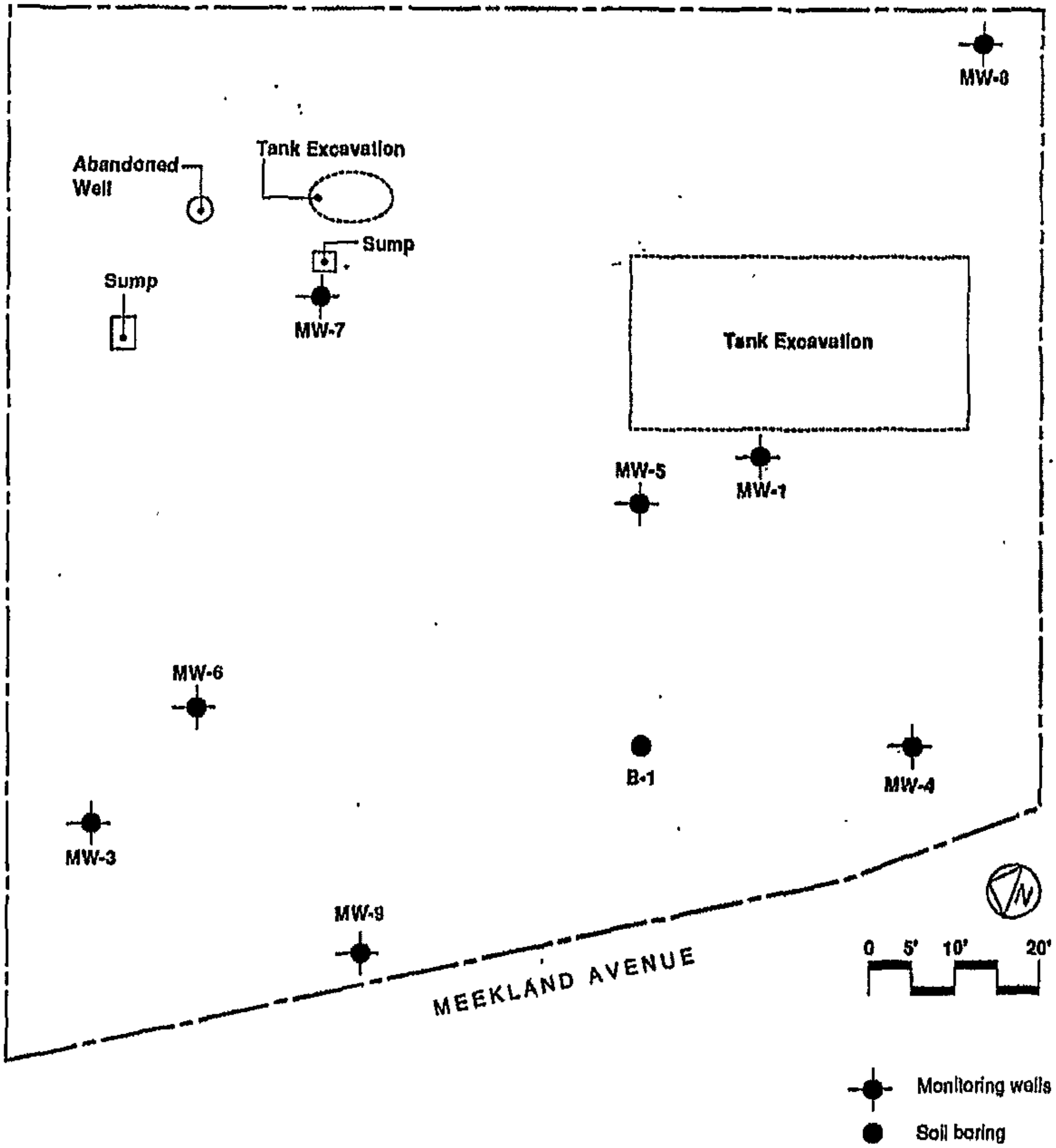
20':	1,2-Dichloroethane	7.9	ug/Kg
	Gasoline	2.2	mg/Kg
	Benzene	150	ug/Kg
	Ethylbenzene	29	ug/Kg
	Toluene	66	ug/Kg
	Xylenes	67	ug/Kg
30':	1,2-Dichloroethane	11	ug/Kg
	Gasoline	39	mg/Kg
	Benzene	180	ug/Kg
	Ethylbenzene	230	ug/Kg
	Toluene	340	ug/Kg
	Xylenes	1000	ug/Kg
	Diesel	6.0	mg/Kg
40':	Toluene	11	ug/Kg
	Xylenes	8.2	ug/Kg

TABLE 3
SUMMARY OF GROUNDWATER DATA

Constituent	MW-8	MW-9	
1,2-Dichloroethane	ND	13	ug/L
Gasoline	ND	6.0	mg/L
Benzene	ND	180	ug/L
Ethylbenzene	ND	19	ug/L
Toluene	ND	170	ug/L
Xylenes	ND	200	ug/L
Diesel	ND	1.6	mg/L

#29-30 P6
01-498 G-H

3S/2W 17C11-12



Durham Transportation - Site Plan

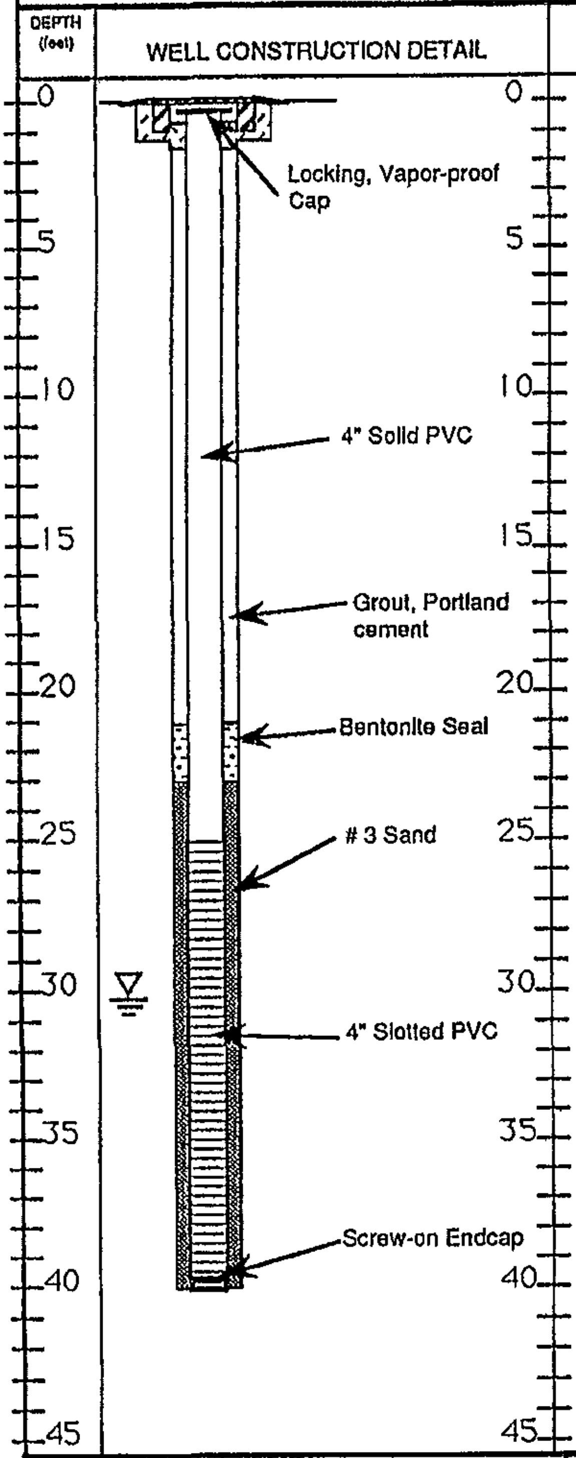
Plate No.: 1
Date: February 1991
Scale: 1" = 20'-0"
CTTS, Inc. - Toxic Technology Services

#31

01-516A 03S/2W17C13M

BORING LOG AND RECORD OF MONITORING WELL INSTALLATION

Figure 1
MW-10



N-VALUE	SAMPLE #	DESCRIPTION
		4" Asphalt over 1" Gravel Base, Sandy
		Dark brown clay, Organic Plastic, Moist
		Reddish brown clay, Moist, Moderately plastic
4/4/10		Light brown clayey silt, Moist, No odor Grades to silty clay
4/4/8		Light brown clayey sand, Scattered coarse sand to pebbles, Moist Grading to sandy gravel
3/3/5		Light brown sandy to silty clay Plastic, Moist Thin (~2" thick) lenses of coarse sand No hydrocarbon odor
4/5/7	1	Gray clay with brown mottling Moist, moderately plastic Abundant root holes No hydrocarbon odor
4/8/9	2	Gray clay, brown mottling Moist, Plastic
3/7/9	3	Light brown clayey fine sand, Grey mottling, Faint hydrocarbon odor (locally moderate), Scattered pebbles
5/10/12		Light brown clayey fine sand to fine sandy clay, Moist (not saturated), Very faint hydrocarbon odor, Grey mottling, Oxidized roots
		End of Boring

CTTS, Inc.
toxic technology services
P.O. Box 515 • Rodeo, California 94572
(510) 799-1140

Project	Durham Transportation	Hole/well #	10
Location	Apartment, 19875 Meekland Ave	Diameter of Drill Hole	10"
Job #	91-15	Total Depth of Hole	40'
Geologist/Engineer	J. N. Alt	Date Started	1/21/92
Driller	HEW	Date Completed	1/21/92

17C14 (#32)

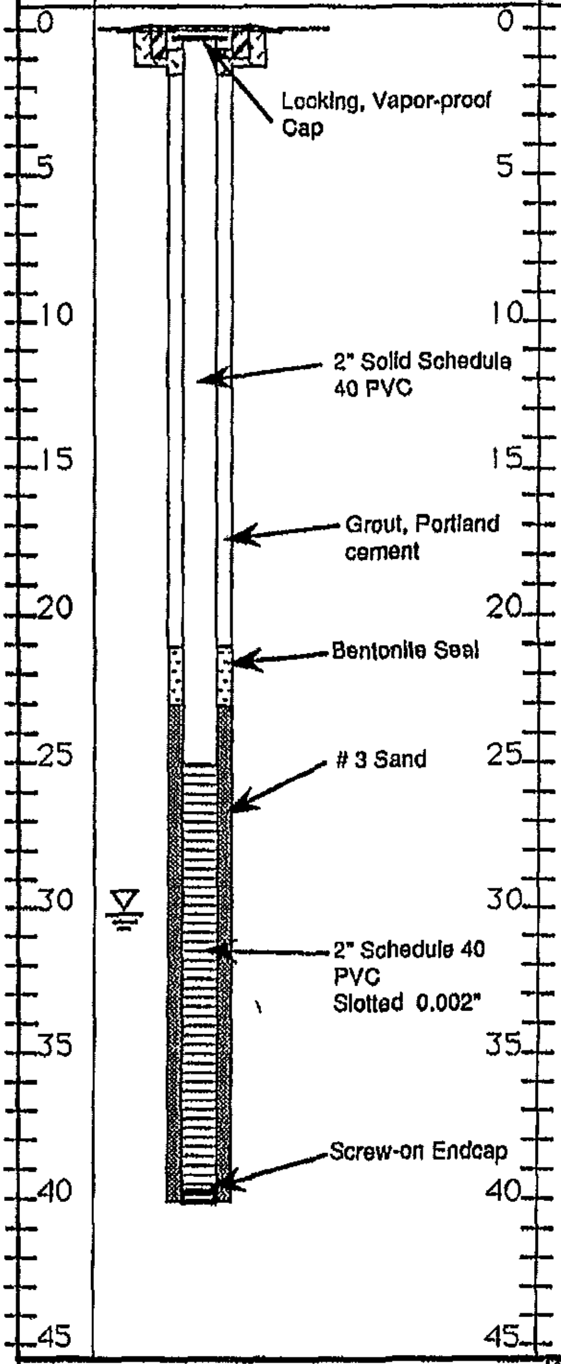
035 ocw 17c14

01-516 B

BORING LOG AND RECORD OF MONITORING WELL INSTALLATION

Figure 2
MW-11

DEPTH (feet) | WELL CONSTRUCTION DETAIL



N-VALUE	SAMPLE #	DESCRIPTION
		4" Concrete over 6" Base Dark brown clay, Moist, Plastic
10/10/11		Light brown silty fine sand, Moist
8/10/10		Light brown clayey silt with some fine sand, Moist, No hydrocarbon odor
4/6/8		Medium brown silty clay Moderately plastic, Moist, No hydrocarbon odor, Grades into clayey to silty sand
3/5/6	1	Gray clay, Moist, Plastic, No hydrocarbon odor
8/12/15		Lost most of sample-- Tan sandy clay with gray mottling, Very faint hydrocarbon odor
4/6/7	2	Tan sandy clay, Wet, Grey mottling, Moderate hydrocarbon odor
6/9/10	3	Medium brown silty to fine sandy clay, Grey mottling, Moist to wet, No hydrocarbon odor
		End of Boring

CTTS, Inc.
toxic technology services
P.O. Box 515 • Rodeo, California 94572
(510) 799-1140

Project	Durham Transportation	Hole/well #	11
Location	Residence, 19870 Meekland Ave.	Diameter of Drill Hole	8"
Job #	91-15	Total Depth of Hole	40'
Geologist/Engineer	J. N. Alt	Date Started	1/24/92
Driller	HEW	Date Completed	1/24/92

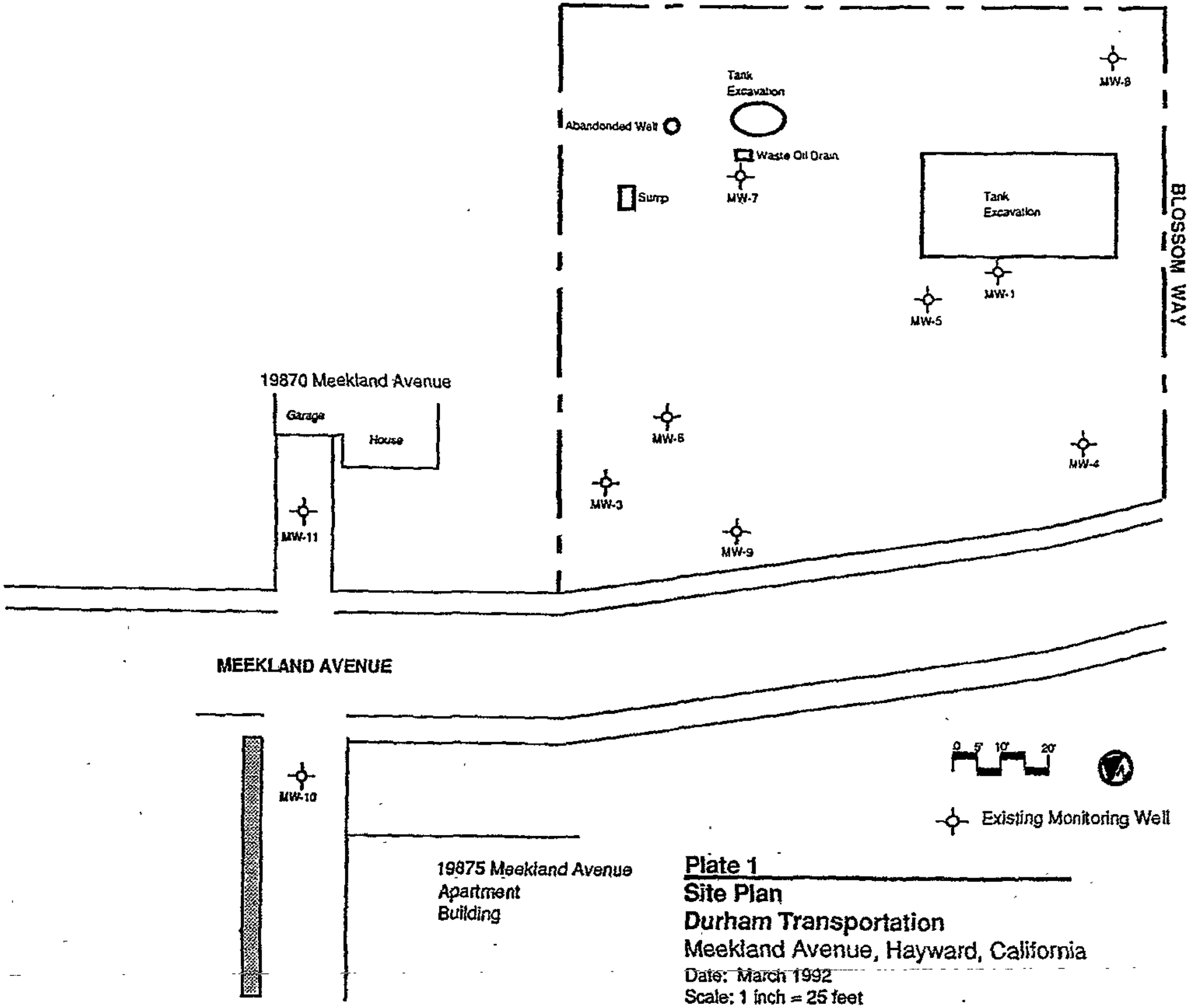


Plate 1

Site Plan

Durham Transportation

Meekland Avenue, Hayward, California

Date: March 1992

Scale: 1 inch = 25 feet

CTTS, Inc. - Toxic Technology Services

01-516A,B

03S02W12C13
12C14

#31&32

#39

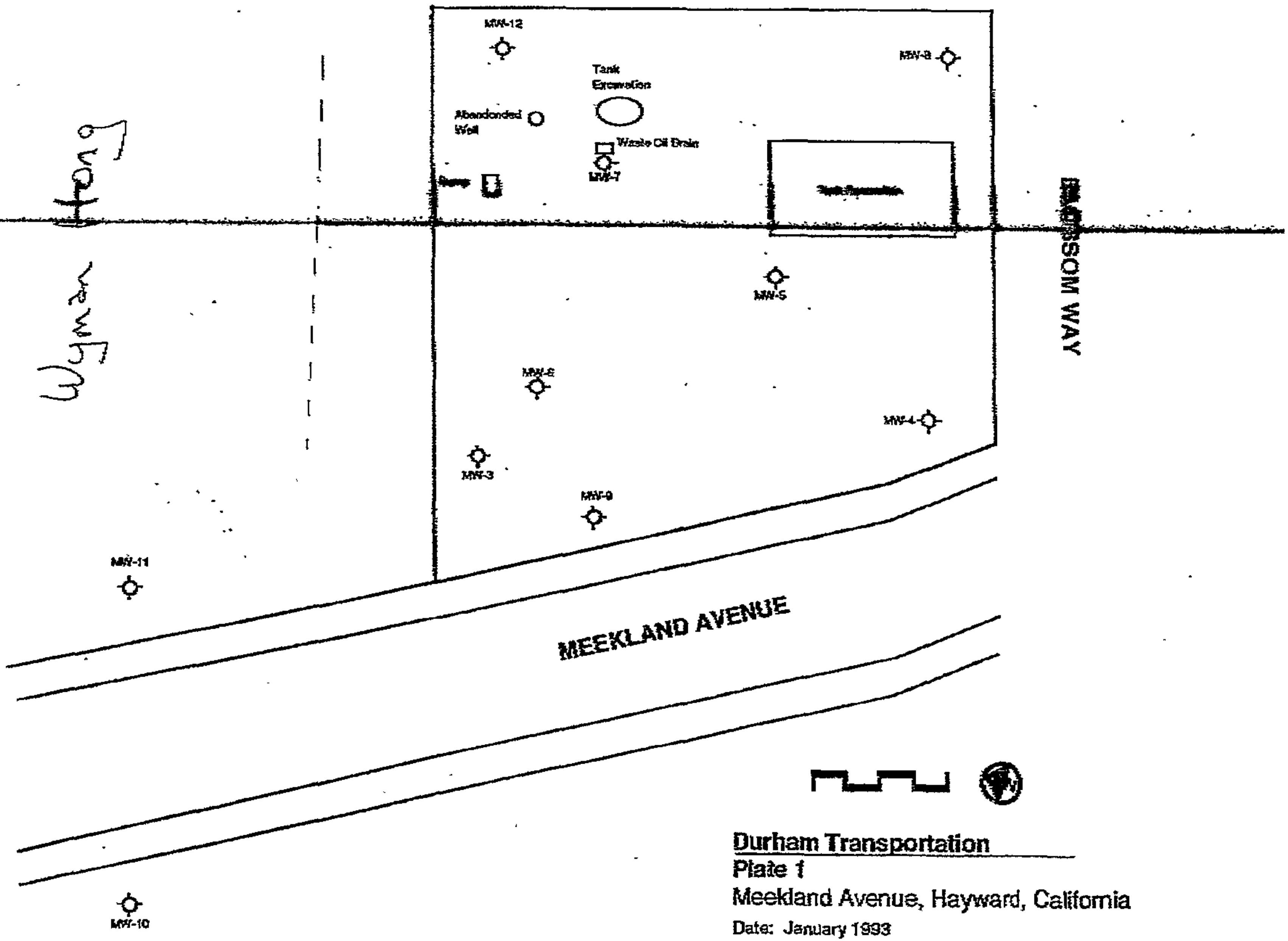
17C16

03S02W17C16

mw-5/10

'93-03-09 10:55 15107991140 CTTS INC. 003 P01

To: Wyman Hong



Durham Transportation

Plate 1

Meekland Avenue, Hayward, California

Date: January 1993

Scale: 1 inch = 30 feet

CTTS, Inc. - Toxic Technology Services

#34p

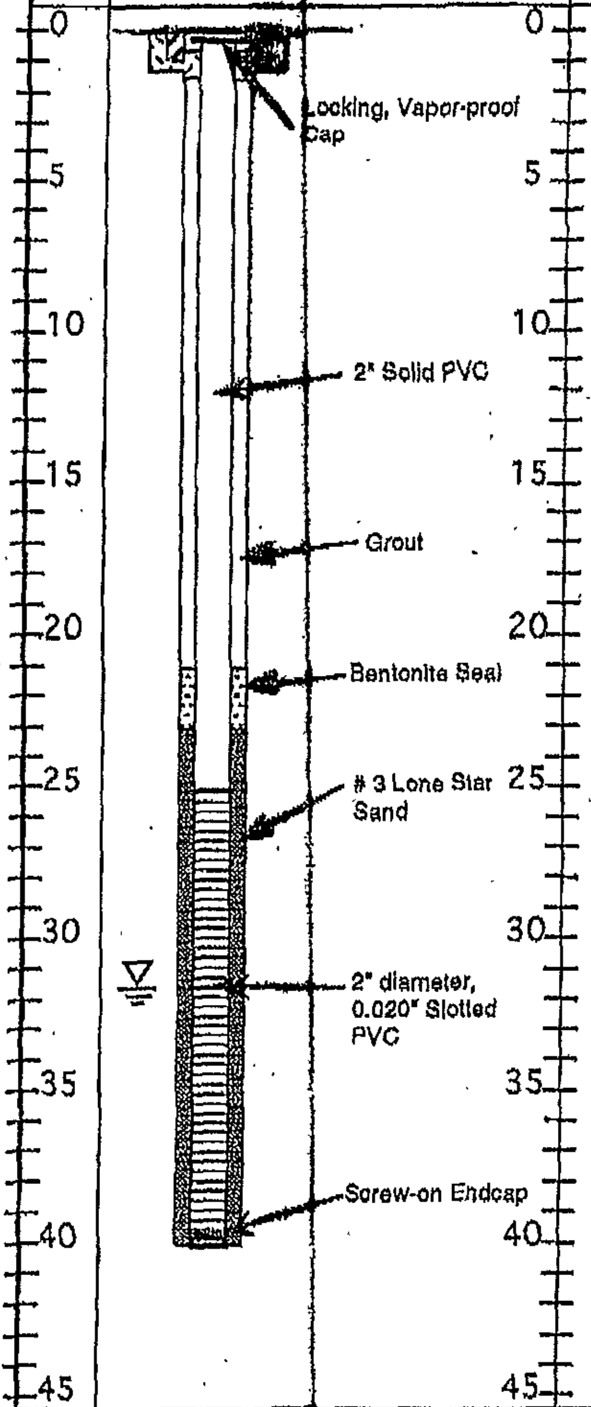
61-537W

03502WMC16

BORING LOG AND RECORD OF MONITORING WELL INSTALLATION

Plate 2
MW-12

DEPTH (feet) — WELL CONSTRUCTION DETAIL



N-VALUE	SAMPLE #	DESCRIPTION
		4" Asphalt
		Fill, Brown sand
		Dark brown clay, Organic, Dry, Locally silty
22/23/18	1	Reddish brown clayey silt, Dry, Grading to yellowish brown silt
6/7/8	2	Brown clayey silt, Dry
4/5/7	3	Brown clayey silt, Dry, Tan mottling, locally with very fine sand
3/3/4	4	Gray silty clay with reddish brown mottling, Moist, Plastic
5/8/9	5	Brownish gray clay with reddish brown mottling, Moist, Plastic Mottling is oxidation along small root zones
5/6/8	6	Brownish gray clay with blue green mottling, Moist to wet, Plastic
5/6/9	7	Brown clay with reddish brown oxidation, Wet, Plastic
4/6/8	8	Grayish brown silty to sandy clay with reddish brown mottling, Wet, Grading to clayey silt
		End of Boring

CTTS , Inc.
toxic technology services
P.O. Box [illegible] Rodeo, California 94572
(510) [illegible]

Project	Durham Transportation	Well/Boring #	10
Location	19984 Meekland Ave	Diameter of Drill Hole	10"
Job #		Total Depth of Hole	40'
Geologist/Engineer	J. N. Alt	Date Started	12/14/92
Driller	HEW	Date Completed	12/14/92

182

01-5270

#33

1-46-11

3S/2W 17C15

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRIC

5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94588 • (415) 484-2600

25 July 1991

Pellegrini Construction Company
P.O. Box 28
Hayward, CA 94543

Gentlemen:

Enclosed is Drilling permit 91404 for the destruction of well 3S/2W 17C80 at 19515 Meekland Avenue in Hayward for Jon Otteson.

Please note that permit condition A-2 requires that a well destruction report be submitted after completion of the work. The report should include a description of methods and materials used to destroy the well, location sketch, date of destruction, and permit number.

If you have any questions, please contact Wyman Hong or me at 484-2600.

Very truly yours,

Craig A. Mayfield

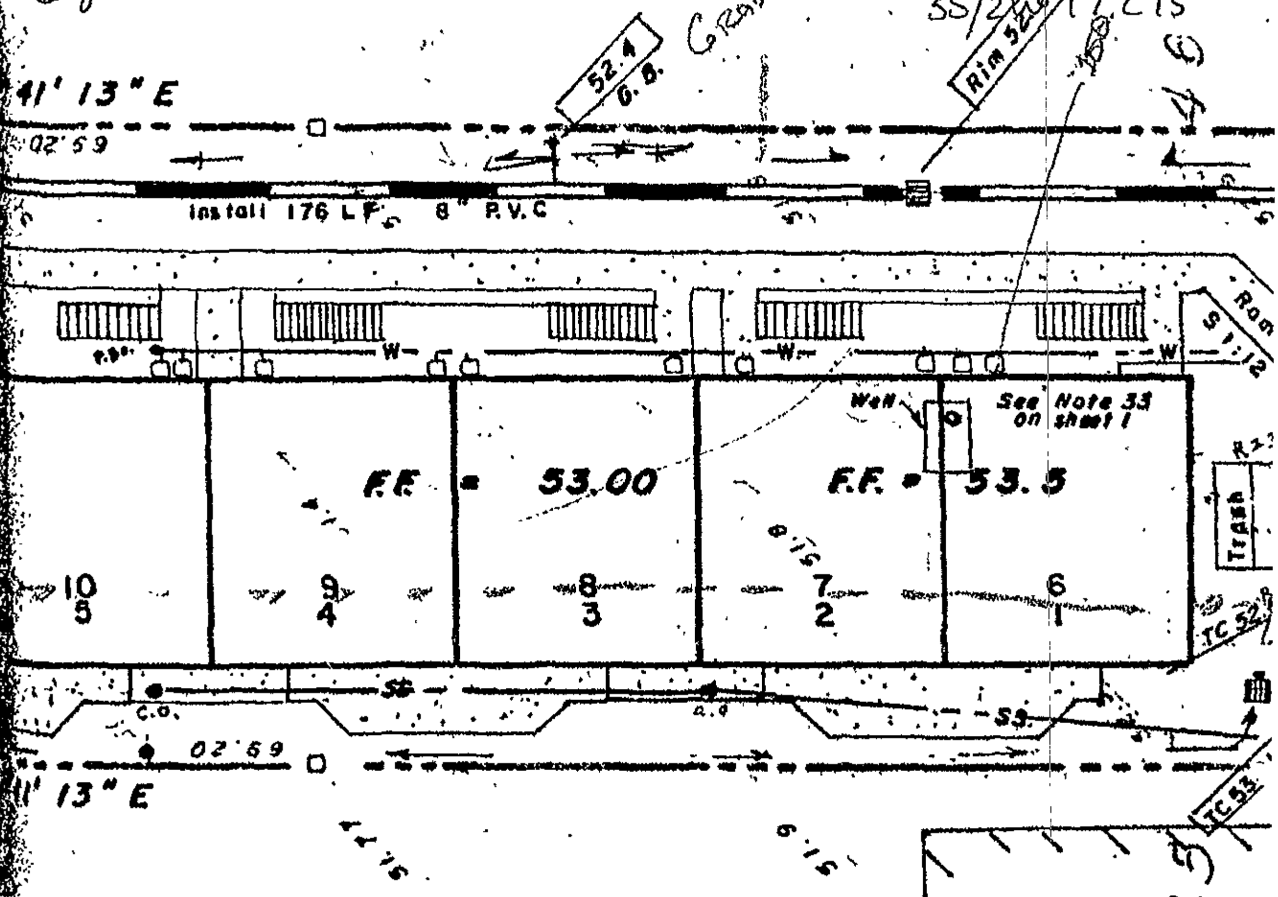
Craig A. Mayfield
Water Resources Engineer

WH:mm
Enc.

phone: 415-881-8943

2 of 2 01-5220 #33 p2

3S/2W 17C15



Location of Well

Permit # 91404. For well # 3S/2W 17C80.

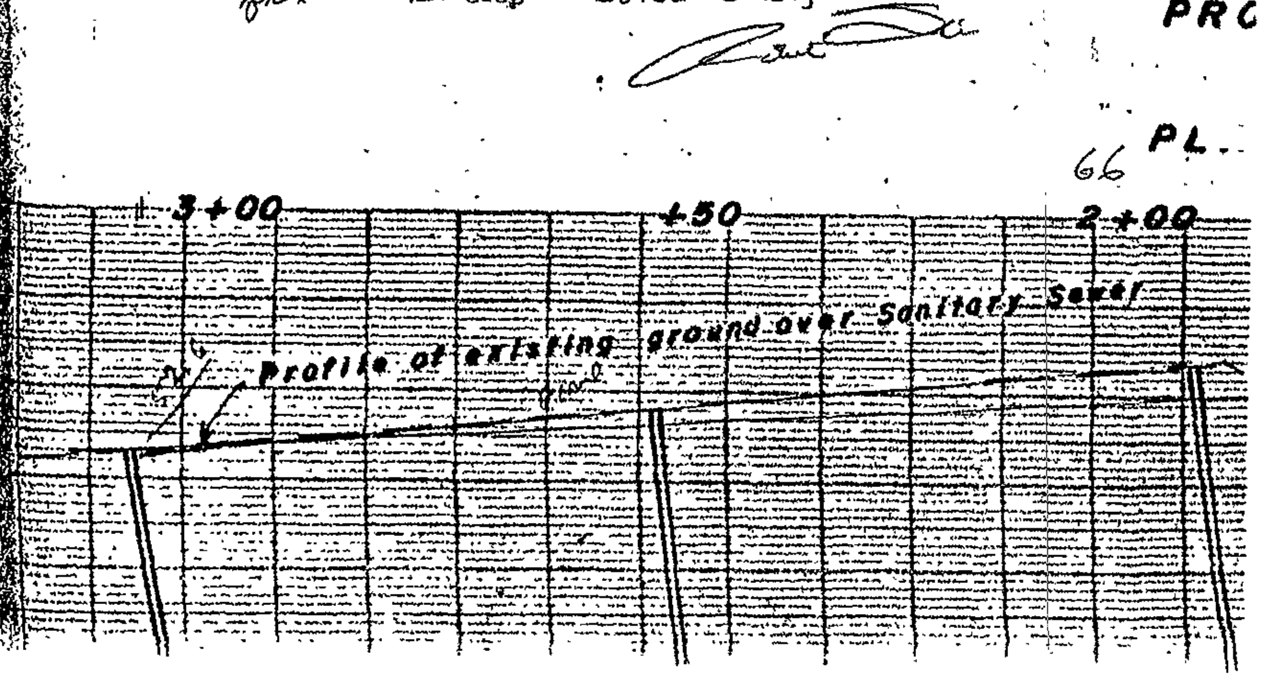
19515 Meekland

Peagravel to 22'± Balance of Casson

Filled w/ Mortar Concrete to 2' Below grade

aprox 27± feet deep? Below Grading

66



CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

#36 p2

497202 03S 02W 17F04

ALISTO ENGINEERING GROUP
EXPLORATORY BORING LOG

PROJECT NO. 10-011 DATE DRILLED 4/9/92

CLIENT Anderson Lift Truck Transport

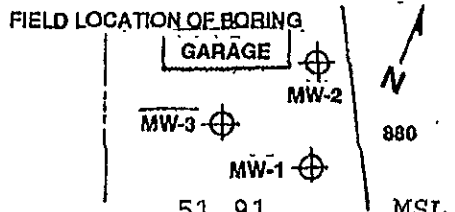
LOCATION 310 Bartlett, Hayward

LOGGED BY B. Nagle APPROVED BY A. Sevilla

BORING NO. MW-1

WELL NO. MW-1

FIELD LOCATION OF BORING



SURFACE ELE. 51.91 DATUM MSL

DRILLING METHOD Hollow Stem Auger HOLE DIAMETER 8"

SAMPLER TYPE Split-spoon sampler

CASING INSTALLATION DATA 2" sch 40 PVC w/ 0.020" slots

DRILLER West Hazmat Drilling

WATER LEVEL	22.82				
DATE	4-14-92				
TIME	1:51				

BLOW COUNTS	PID/OVA READING	WELL CONSTRUCTION	DEPTH	SAMPLE	USCS CLASSIFICATION	DESCRIPTION
			0			
					CL	Silty CLAY, dark brown, damp,
			2			medium plasticity, stiff
			4			
7-13-15	0					
			6			
			8			
						Clayey SAND, brown, damp,
			10			
6-9-16	2	NEAT CEMENT			SC	medium dense
			12			
						Color change to mottled brown/
			14			orange-brown; very moist at 15 feet
5-6-6	0					Silty CLAY, brown, very moist,
			16		CL	moderate plasticity, stiff
						Sandy CLAY, brown, very moist
			18		SC	to wet, low plasticity, stiff
			20			
5-8-12	0					
			22		▼	Silty CLAY, light brown, moist,
						low plasticity, very stiff; abundant
			24		CL	carbon granules, minor fine-grained
27-27-27	0					sand
			26			
			28			
			30		▽	Clayey SAND, light brown, moist to
14-19-25		NO. 3 LONESTAR SAND			SC	wet, dense
			32			
3-5-9					SM	

ph 510-298-8070

Page 1 of 2

497202 03S 02W 29F04 #36 p3

ALISTO ENGINEERING GROUP EXPLORATORY BORING LOG

PROJECT NO. 10-011 DATE DRILLED 4/9/92

CLIENT Anderson Lift Truck Transport

LOCATION 310 Bartlett, Hayward

LOGGED BY B. Nagle APPROVED BY Sevilla

BORING NO. MW-1

WELL NO. MW-1

FIELD LOCATION OF BORING

SURFACE ELE. ____ DATUM ____

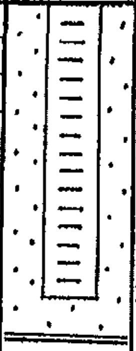
DRILLING METHOD Hollow-Stem Auger HOLE DIAMETER 8"

SAMPLER TYPE Split-spoon sampler

CASING INSTALLATION DATA 2" sch 40 PVC w/0.020" slots

DRILLER West Hazmat Drilling

WATER LEVEL					
DATE					
TIME					



BLOW COUNTS	PID/OVA READING	WELL CONSTRUCTION	DEPTH	SAMPLE	USCS CLASSIFICATION	DESCRIPTION
			30		∇	Clayey SAND, light brown, moist
14-19-25						to wet, dense
					SC	
3-5-9			32			
			34		SM	Silty SAND, light brown, wet, medium dense
4-12-17						
			36		CL	Silty CLAY, brown, moist, very stiff
			38			
			40			Boring terminated at 37 feet below grade. Free groundwater encountered at approximately 30 feet below grade

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

492204 03S 02W 17F05 #37 p2

ALISTO ENGINEERING GROUP
EXPLORATORY BORING LOG

PROJECT NO. 10-011 DATE DRILLED 4/9/92

CLIENT Anderson Lift Truck Transport

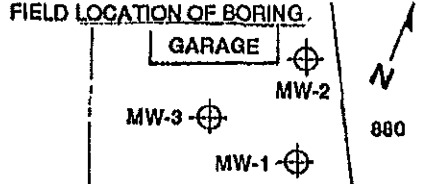
LOCATION 310 Bartlett, Hayward

LOGGED BY B. Nagle APPROVED BY A. Sevilla

BORING NO. MW-2

WELL NO. MW-2

FIELD LOCATION OF BORING



SURFACE ELE. 51.62 DATUM MSL

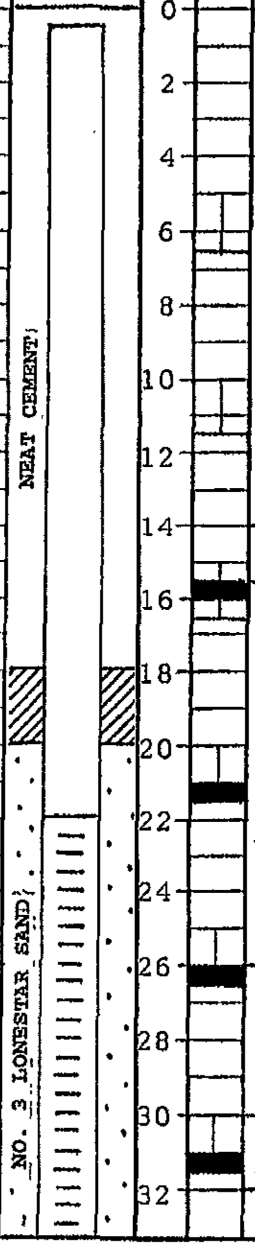
DRILLING METHOD Hollow Stem Auger HOLE DIAMETER 8"

SAMPLER TYPE Split-spoon sampler

CASING INSTALLATION DATA 2" sch 40 PVC w/0.020" slots

DRILLER West Hazmat Drilling

WATER LEVEL	22.48				
DATE	4-14-92				
TIME	1:55				



BLOW COUNTS	PID/OVA READING	DEPTH	USCS CLASSIFICATION	DESCRIPTION
		0		4" Concrete
		2	CL	Silty CLAY, dark brown, damp, medium plasticity, stiff
		4		
6-9-12	0			
		6		
		8	SC	Sandy CLAY, brown, damp, low plasticity, stiff; occasional course-grained sand
		10		
4-7-9	0			
		12		
		14	ML	Clayey SILT, mottled light brown/ orange-brown, very moist to wet, low plasticity, firm
7-9-13	0			
		16		
		18		Sandy CLAY, mottled brown/ orange-brown, moist, low plasticity, stiff
5-10-12	0	20	CL	
		22	▼	
		24		
7-13-20	0			
		26		Clayey SAND, light brown, very moist to wet, medium dense
		28	SC	
		30		Silty CLAY, light brown, moist, moderate plasticity, stiff
4-7-10			CL ▽	
		32	SC	

497204

035 02W 27P05

#37p

ALISTO ENGINEERING GROUP EXPLORATORY BORING LOG

PROJECT NO. 10-011 DATE DRILLED 4/9/92

CLIENT Anderson Lift Truck Transport

LOCATION 310 Bartlett, Hayward

LOGGED BY B. Nagle APPROVED BY Sevilla

BORING NO. MW-2

WELL NO. MW-2

FIELD LOCATION OF BORING

SURFACE ELE. ______ DATUM ______

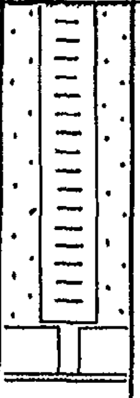
DRILLING METHOD Hollow-Stem Auger HOLE DIAMETER 8"

SAMPLER TYPE Split spoon sampler

CASING INSTALLATION DATA 2" sch 40 PVC w/0.020" slots

DRILLER West Hazmat Drilling

WATER LEVEL					
DATE					
TIME					

BLOW COUNTS	PID/OVA READING	WELL CONSTRUCTION	DEPTH	SAMPLE	USCS CLASSIFICATION	DESCRIPTION
					SC	Clayey SAND, light brown, very moist to wet, medium dense
4-7-10			30		CL	Silty CLAY, light brown, moist, moderate plasticity, stiff
			32		▽	Driller felt softer drilling at 32 feet
			34		SC	Clayey SAND, brown, wet, medium dense
7-20-25	0		36		CL	Silty CLAY, brown, moist, medium plasticity, very stiff
			38			Boring terminated at 38 feet below grade. Free groundwater encountered at approximately 32 feet below grade.
			40			

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

497203 03S 02W 17F06 #38p

ALISTO ENGINEERING GROUP
EXPLORATORY BORING LOG

PROJECT NO. 10-011 DATE DRILLED 4/9/92

CLIENT Anderson Lift Truck Transport

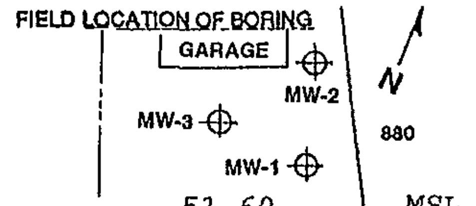
LOCATION 310 Bartlett, Hayward

LOGGED BY B. Nagle APPROVED BY Sevilla

BORING NO. MW-3

WELL NO. MW-3

FIELD LOCATION OF BORING



SURFACE ELE. 51.60 DATUM MSL

DRILLING METHOD Hollow Stem Auger HOLE DIAMETER 8"

SAMPLER TYPE Split-spoon sampler

CASING INSTALLATION DATA 2" sch 40 PVC w/0.020" slots

DRILLER West Hazmat Drilling

WATER LEVEL	22.48				
DATE	4-14-92				
TIME	1:58				

BLOW COUNTS	PID/OVA READING	WELL CONSTRUCTION	DEPTH	SAMPLE	USCS CLASSIFICATION	DESCRIPTION
			0			4" concrete
		NEAT CEMENT	2			Silty CLAY, dark brown, damp, medium plasticity, stiff
			4		CL	
5-9-10	0		6			Color change to brown, abundant sand, low plasticity
			8			
5-9-14	0		10		CL	Sandy CLAY, brown, damp, low plasticity, stiff
			12			
			14			
3-9-11	0		16		SC	Clayey SAND, brown, damp, medium dense
			18			
3-4-7	0	NO. 3 LONESTAR SAND	20			Silty CLAY, mottled brown/orange-brown, moist, medium plasticity, firm
			22		▼ CL	
			24			
8-12-20	0		26		SC	Clayey SAND, brown, moist to wet, medium dense
			28		▽	
4-9-9			30		ML	Clayey SILT, light brown, wet, low plasticity, stiff
			32			

#38p3

497203 03S02W17F06

ALISTO ENGINEERING GROUP EXPLORATORY BORING LOG

PROJECT NO. 10-011 DATE DRILLED 4/9/92

CLIENT Anderson Lift Truck Transport

LOCATION 310 Bartlett, Hayward

LOGGED BY B. Nagle APPROVED BY Sevilla

BORING NO. MW-3

WELL NO. MW-3

FIELD LOCATION OF BORING

SURFACE ELE. ______ DATUM ______

DRILLING METHOD Hollow-Stem Auger HOLE DIAMETER 8"

SAMPLER TYPE Split-spoon sampler

CASING INSTALLATION DATA 2" sch 40 PVC w/ 0.020" slots

DRILLER West Hazmat Drilling

WATER LEVEL					
DATE					
TIME					

BLOW COUNTS	PID/OVA READING	WELL CONSTRUCTION	DEPTH	SAMPLE	USCS CLASSIFICATION	DESCRIPTION
					▽	
			30			
4-9-9					ML	Clayey SILT, light brown, wet, low plasticity, stiff
			32			
			34			
4-8-9					SC	Clayey SAND, light brown, wet, medium dense; occasional sand stringers
			36			
9-12-16					CL	Silty CLAY, light brown, moist, low plasticity, very stiff
			38			
			40			Boring terminated at 38 feet below grade. Free groundwater encountered at approximately 29 feet below grade.

Page 2 of 2

01-528Q-U

17G7-10 (#39) zip
sup #48
2 BORINGS #47
3S02W 17G #48
MW 1 03S02W 17G08 #49
MW 2 17G09
MW 3 17G07 #50
#39

LW Environmental Services, Inc.
2111 Jennings Street, San Francisco, CA 94124-3224, Phone (415) 822-4555, FAX (415) 822-5290

PROGRESS REPORT
QUARTER ENDING DECEMBER 31, 1991

BECK ROOFING
21123 Meekland Avenue
Hayward, California

Prepared for:
Charlie and Mary Beck
21123 Meekland Avenue
Hayward, CA 94541

L&W Project 2116
January 7, 1992

REGISTERED PROFESSIONAL ENGINEER
JOHN CARVER
C 23772
CIVIL
STATE OF CALIFORNIA

George Wilson
Vice President

John Carver
Civil Engineer 23772

Michael J. Killoran
Geologist

General Engineering Contractors License No. 507442
Certified for Hazardous Substances Removal and Remedial Actions

PERMIT 91611

01-528 Q-0

#' 39 p2
= 5'4/3

sand layer is approximately 5 feet thick and is underlain by more clay down to approximately 45 feet, and is followed by another sand layer of unknown thickness.

On November 4, 1991, the three wells were surveyed, observed and monitored for depth to groundwater, and the presence of oil sheen or free product. The observations and measurements are presented below:

Location	Date Measured	Top of Casing Elevation	Sheen or Free Product (feet)	Depth to Groundwater (feet)	Piezometric Surface Elevation
MW1	10/18/91	100.01	None	32.32	67.69
MW2	10/18/91	100.13	None	32.44	67.69
MW3	10/18/91	100.00	None	32.40	67.60

Groundwater Hydrology

Based on the results of the exploration program, the groundwater below the site appears to be an aquifer located near the interface of the clay and sand in all three wells. Groundwater was initially encountered at about 33 feet below ground surface in all three wells, and has apparently stabilized at about 33 feet below ground surface.

The groundwater gradient was calculated based on the measurements taken November 4, 1991. The gradient is about 0.1 foot per 80 feet to the northeast. Figure 13 of Appendix A is a graphic representation of the calculated groundwater gradient.

Analytical Results

The following table summarizes the analytical results of the soil samples taken by Blaine Technical Services during the tank removal and the 16 confirmation soil samples taken by L&W Environmental Services, Inc. during the overexcavation.

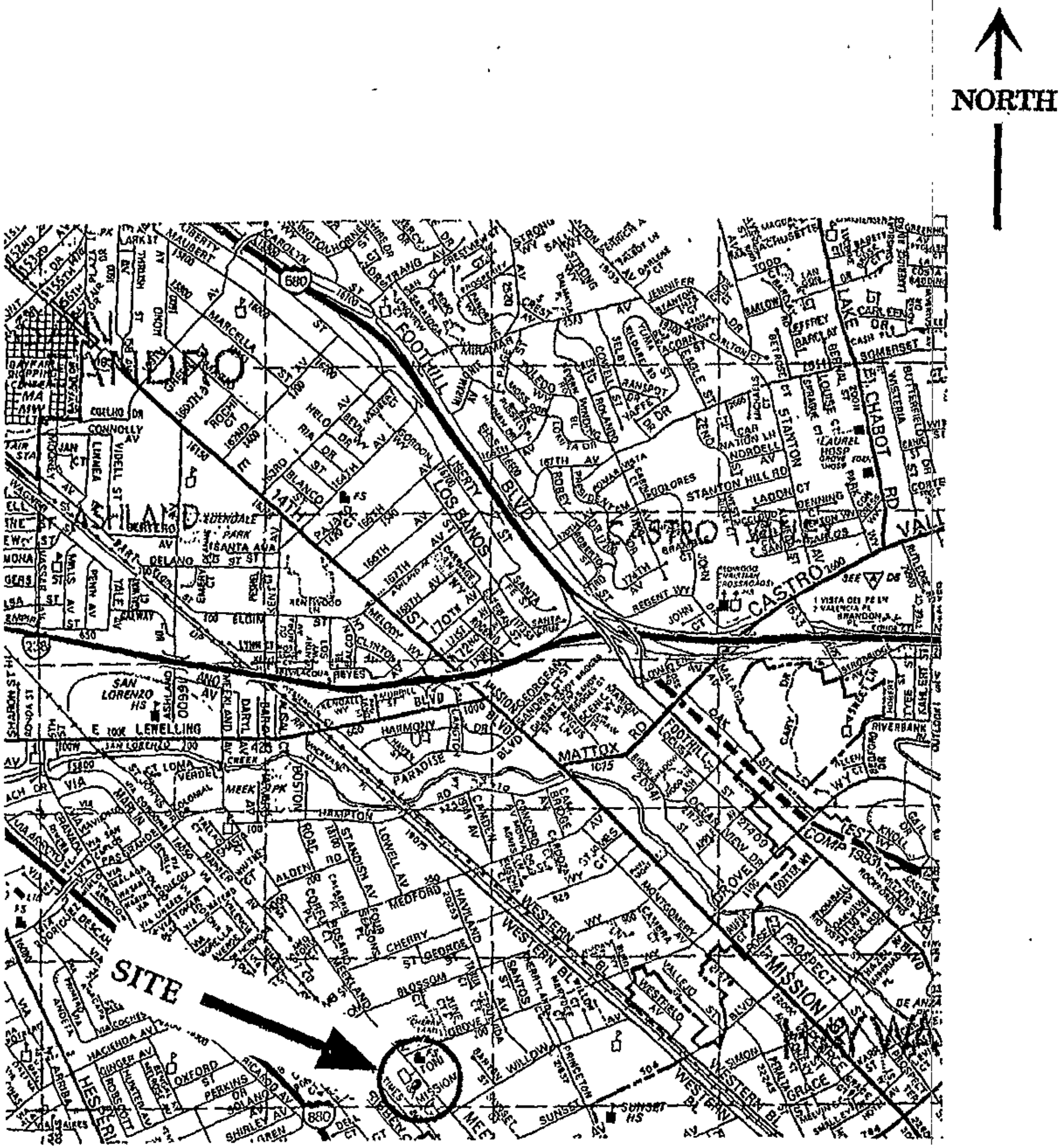
Blaine Technical Services
(sample results during tank removal)

Sample ID	Date Sampled	TPH-G (ppm)	BTEX (ppm)	TOG (ppm)	LEAD (ppm)
#1	6/91	1,300	64/77/28/230	NT	0.22
#2	6/91	1,800	5.8/75/33/2107	NT	0.66
#3 A-D	6/91	11	ND/ND/ND/ND	NT	ND

#391 p3
sp

01-528Q-U

035 02W L76



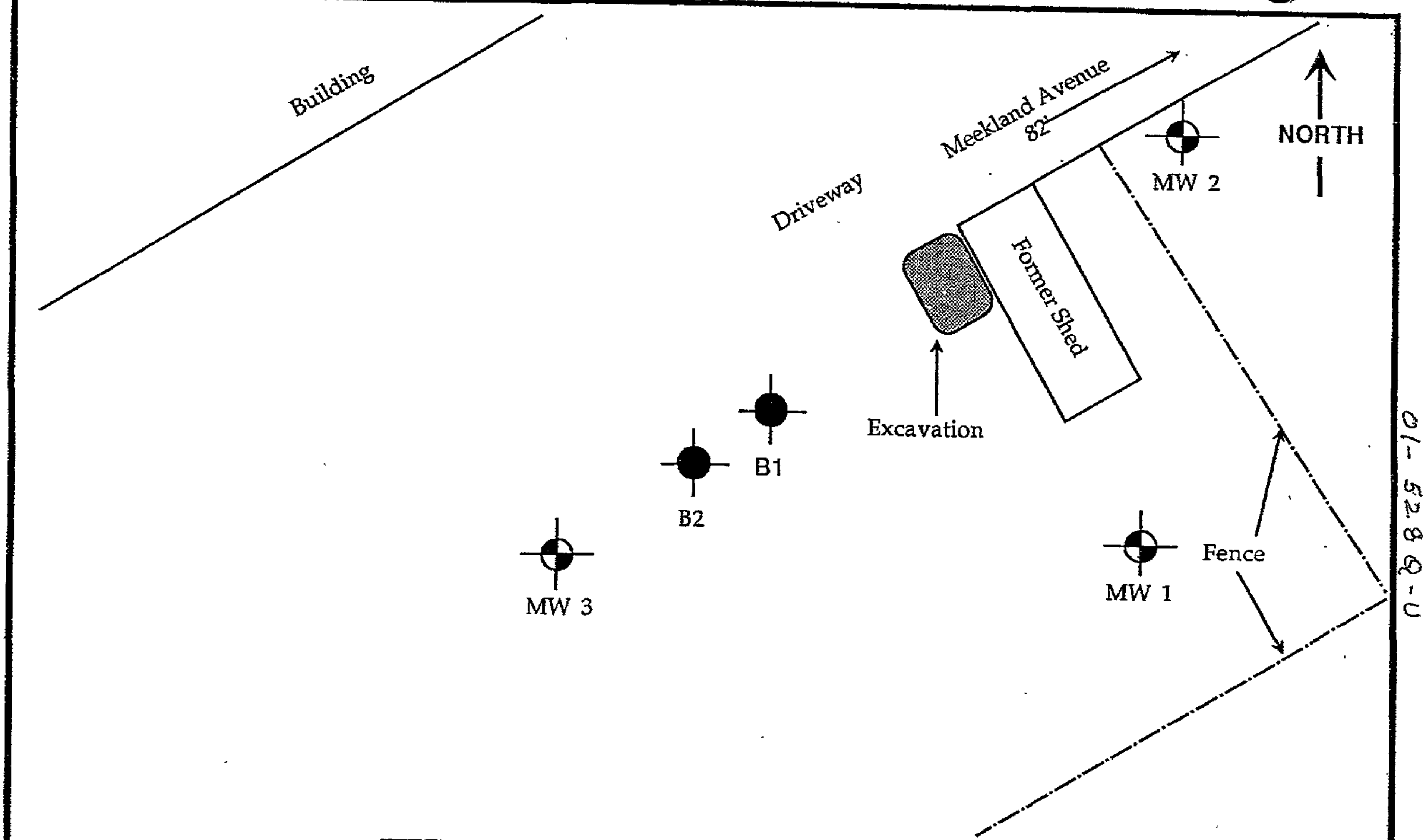
L & W Environmental Services, Inc.

2111 Jennings Street
San Francisco, California

Vicinity Map

Beck Roofing
21123 Meekland Avenue
Hayward, California

Project Number: 2116	Drawn by: MJK	Date: November, 1991	Figure Number: 1



⊕ Approximate boring location

Scale 1"=20"

L & W Environmental Services, Inc.

2111 Jennings Street
San Francisco, California

Boring Location Plan

Beck Roofing
Hayward, California

Project Number: 2116	Drawn by: MJK	Date: December, 1991	Figure Number: 4

01-5288-U

035020175

#39P

17G #39

01-528T

035 02W 17G

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
					0	
						Brown sandy silty clay, moist, no odor, medium plasticity.
2116-5-B1	12	CL	910	■	5	Brown sandy silty clay, stiff, moist, no odor, low plasticity.
		SC				Brown clayey sand, fine-grained, moist, no odor, grades downward to a silty clay.
2116-10-B1	10	CL	915	■	10	Brown sandy silty clay, stiff, moist, no odor, low plasticity.
2116-15-B1	12	SP	927	■	15	Brown sand, fine-grained, medium dense, moist, no odor.
2116-20-B1	8	CL	940	■	20	Brown sandy silty clay, medium stiff, moist, odor.

L & W Environmental Services, Inc.

2111 Jennings Street
San Francisco, California

Log of Boring Number: B1
Sheet 1 of 2
Beck Roofing
21123 Meekland Avenue
Hayward, California

Project Number: 2116

Date: December, 1991

Figure Number: 7

07-528T 03S02W17G #39 P2

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
2116-25-B1	10	CL	950	▨	25	Brown sandy silty clay, stiff, *moist, strong odor, medium plasticity.*

Boring terminated at 25.5 feet.
Groundwater not encountered.
Boring drilled 10/31/91 with CME 75 rig.

L & W Environmental Services, Inc.

2111 Jennings Street
San Francisco, California

Log of Boring Number: B1
Sheet 2 of 2
Beck Roofing
21123 Meekland Avenue
Hayward, California

Project Number: 2116

Date: December, 1991

Figure Number: 7

01-5280

#40

03502W179

~~[illegible]~~

17

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
					0	
2116-5-B2	16	CL	1050	■	5	Brown silty sandy clay, very stiff, moist, no odor, medium plasticity.
2116-10-B2	10	SM	1112	■	10	Brown silty sand, fine-grained, loose to medium dense, moist, no odor.
2116-15-B2	9	SP	1120	■	15	Brown sand, fine-grained, loose, moist, no odor.
2116-20-B2	7	CL	1130	■	20	Brown silty clay, medium stiff, moist, no odor, medium plasticity.

L & W Environmental Services, Inc. 2111 Jennings Street San Francisco, California	**Log of Boring Number: B2** **Sheet 1 of 2** Beck Roofing 21123 Meekland Avenue Hayward, California

Project Number: 2116	Date: December, 1991	Figure Number: 8

01-5284

03S 02W 17G

#40 P3

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
2116-25-B2	9	CL	1136	■▨	25	Brown sandy silty clay, stiff, moist, strong odor, medium plasticity.
2116-30-B2	8	CL	1145	■▨	30	Same.

Boring terminated at 30.5 feet.
Groundwater not encountered.
Boring drilled 10/31/91 with CME 75 rig.

L & W Environmental Services, Inc.

2111 Jennings Street
San Francisco, California

Log of Boring Number: B2
Sheet 2 of 2
Beck Roofing
21123 Meekland Avenue
Hayward, California

Project Number: 2116

Date: December, 1991

Figure Number: 8

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

1767 #47

01-528 Q

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	03S 02W 17G07 DESCRIPTION
					0	
						Brown sandy silty clay, moist, no odor, medium plasticity.
2116-5-MW1	20	CL	911	■	5	Brown sandy silty clay, very stiff, moist, no odor, low plasticity.
2116-10-MW1	15	SM	917	■	10	Brown silty sand, fine-grained, medium dense, moist, no odor.
2116-15-MW1	12	SP	925	■	15	Brown sand with subangular gravel, fine-grained, medium dense, moist, no odor.
2116-20-MW1	5	CL	935	■		Brown silty clay, medium stiff, moist, no odor, low plasticity.

L & W Environmental Services, Inc.

2111 Jennings Street
San Francisco, California

Log of Boring Number: MW 1
Sheet 1 of 3
Beck Roofing
21123 Meekland Avenue
Hayward, California

Project Number: 2116

Date: November, 1991

Figure Number: 5

(#47 p2)

01-5280 03S02W17G07

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
				▨		
2116-25-MW1	13	CL	944	■ ▨	25	Same, with medium plasticity.
2116-30-MW1	9	CL/ SP	959	■ ▨	30 ▼	Same, but stiff.
				⁘		Brown sand, fine-grained, medium loose, moist, no odor.
2116-35-MW1	9	SP/ CL	1008	■ ▨	35	Brown silty clay, stiff, moist to wet near top of sample, no odor, medium plasticity.
2116-40-MW1	11	CL	1025	■ ▨	40	Same.

L & W Environmental Services, Inc.

2111 Jennings Street
San Francisco, California

Log of Boring Number: MW 1
Sheet 2 of 3
Beck Roofing
21123 Meekland Avenue
Hayward, California

Project Number: 2116

Date: November, 1991

Figure Number: 5

#47p

01-528Q   03S02W17G07

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
		CL		▨		Same.
2116-45-MW1	13	CL/SP	1035	■ ▨	45	Brown sand, fine-grained, medium dense, wet, no odor.

Boring terminated at 45.5 feet.
Groundwater encountered at 30.5 feet.
Boring drilled 10/30/91 with CME 75 rig.
Boring grouted from 45.5 to 39 feet and converted
into Monitoring Well 1 on 10/30/91

L & W Environmental Services, Inc.

2111 Jennings Street
San Francisco, California

Log of Boring Number: MW 1
Sheet 3 of 3
Beck Roofing
21123 Meekland Avenue
Hayward, California

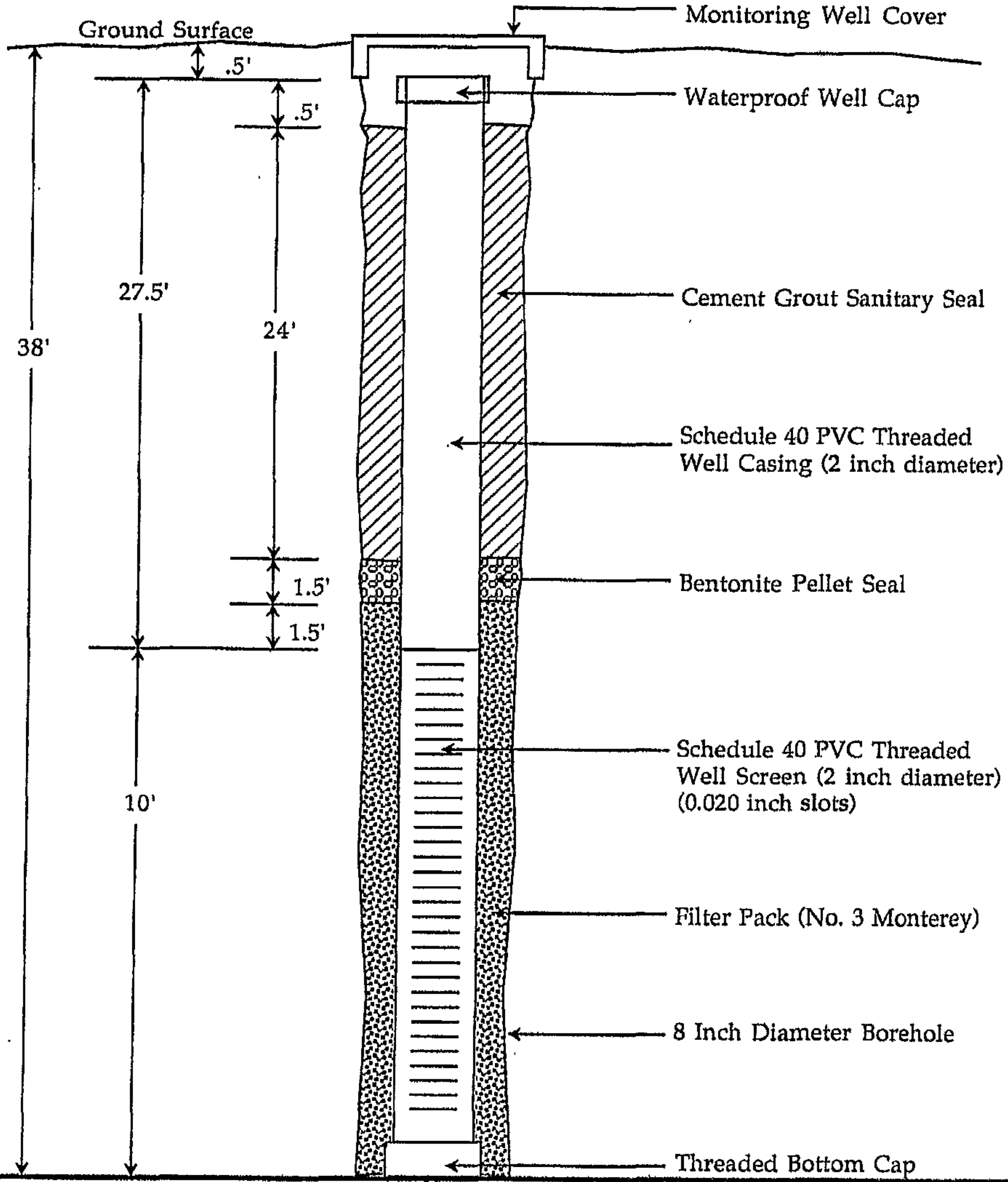
Project Number: 2116

December, 1991

Figure Number: 5

#47pg

01-528Q 03S02W17G07

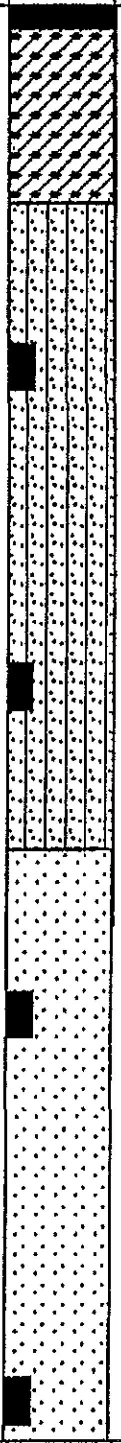


L & W Environmental Services, Inc. 2111 Jennings Street San Francisco, California	**Beck Roofing** 21123 Meekland Avenue Hayward, California	**Monitoring Well MW-1 Installation Detail**
Project Number: 2116	Date: December, 1991	Figure Number: 10

17G8 #48

01-538R

03S02W 17G00

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
					0	3" asphalt cover.
		GC				Brown gravel-sand-clay mixture, moist, no odor.
2116-5-MW2	18	SM	145		5	Brown silty sand, fine-grained, medium dense, moist, no odor.
2116-10-MW2	10	SM	150		10	Brown silty sand, fine-grained, loose to medium dense, moist, no odor.
2116-15-MW2	12	SP	200		15	Brown sand, fine-grained, medium dense, moist, no odor.
2116-20-MW2	6	SP			20	Same, but loose.

L & W Environmental Services, Inc.

2111 Jennings Street
San Francisco, California

Log of Boring Number: MW 2
Sheet 1 of 2
Beck Roofing
21123 Meekland Avenue
Hayward, California

Project Number: 2116

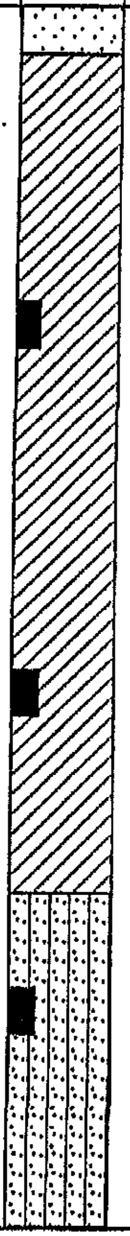
Date: December, 1991

Figure Number: 6

#48 p2

01-528 R

035 02W 17608



Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
2116-25-MW2	19	CL	235		25	Brown sandy silty clay, very stiff, moist, no odor, medium plasticity.
2116-30-MW2	18	CL	245		30	Same.
2116-35-MW2	12	SM	255		35	Brown sand, fine-grained, medium stiff, wet, no odor.

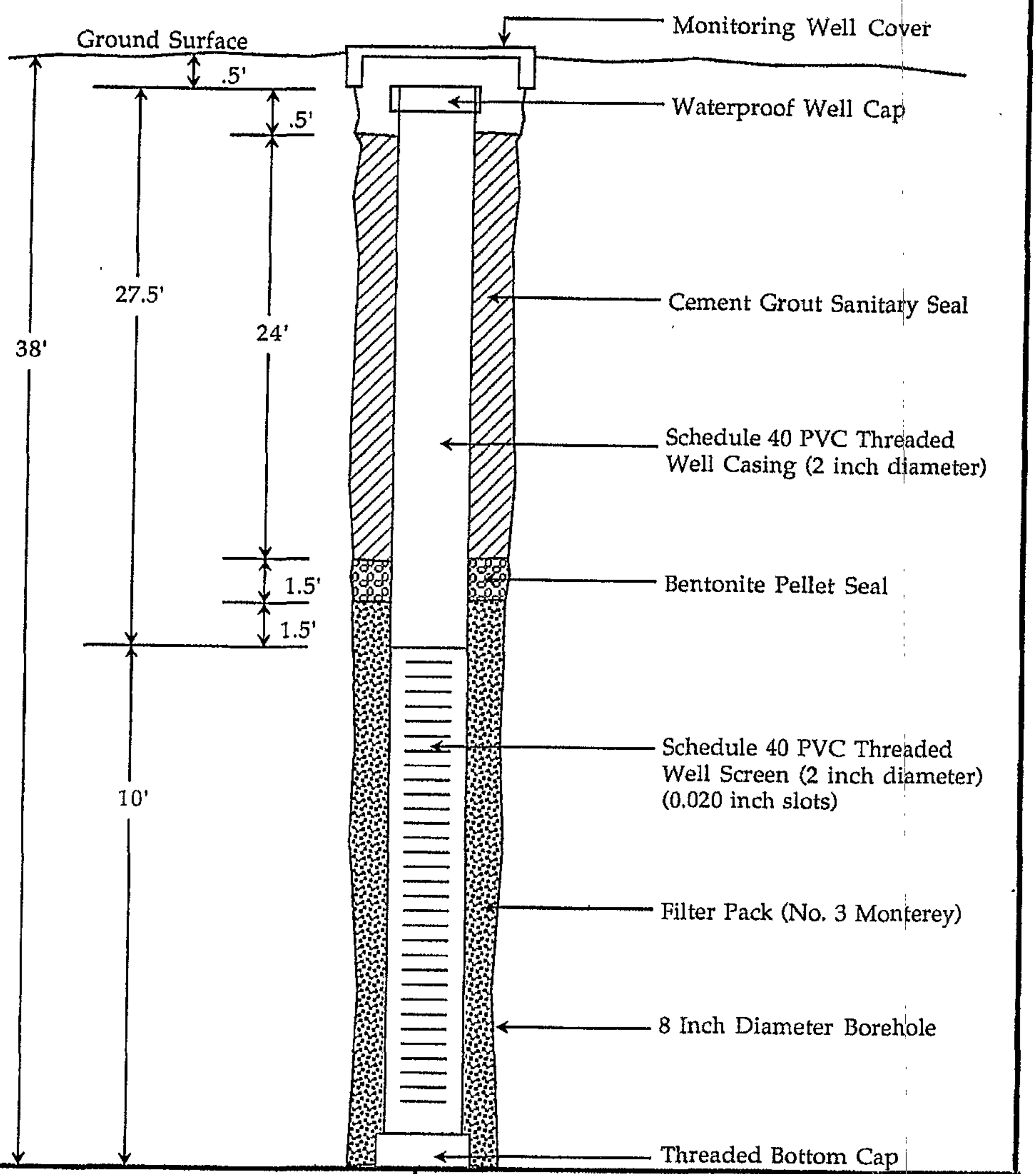
Boring terminated at 38 feet.
Groundwater encountered at 33 feet.
Boring drilled 10/30/91 with CME 75 rig.
Boring converted into Monitoring Well 2 on
10/30/91

L & W Environmental Services, Inc. 2111 Jennings Street San Francisco, California	**Log of Boring Number: MW 2** **Sheet 2 of 2** Beck Roofing 21123 Meekland Avenue Hayward, California
Project Number: 2116	Date: December, 1991 | Figure Number: 6

#48
P3

01-528 R

03S02W #G08

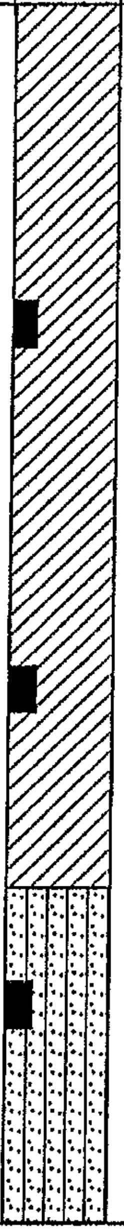


L & W Environmental Services, Inc. 2111 Jennings Street San Francisco, California	**Beck Roofing** 21123 Meekland Avenue Hayward, California	**Monitoring Well MW-2 Installation Detail**
Project Number: 2116	Date: December, 1991	Figure Number: 11

1769 #49

01-5285

03S02W 27G09

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
2116-25-MW3	14	CL	207		25	Same.
2116-30-MW3	13	CL	225		30	Same.
					▼	
2116-35-MW3	13	SM	230		35	Brown silty sand, fine-grained, medium dense, wet.

Boring terminated at 38 feet.
Groundwater encountered at 33 feet.
Boring drilled 10/31/91 with CME 75 rig.
Boring converted into Monitoring Well 3 on
10/31/91

L & W Environmental Services, Inc.

2111 Jennings Street
San Francisco, California

Log of Boring Number: MW 3
Sheet 2 of 2
Beck Roofing
21123 Meekland Avenue
Hayward, California

Project Number: 2116

Date: December, 1991

Figure Number: 9

#49
P2

01-5285 03S02W 07G09

Sample Number	Blows per Foot	Soil Type	Time	Log	Depth in Feet	DESCRIPTION
				▨	0	
				▨		Brown silty clay with sand and gravel, moist, no odor.
2116-5-MW3	9	CL	115	■▨	5	Brown silty clay, stiff, moist, no odor medium plasticity.
2116-10-MW3	12	SM	125	■░	10	Brown silty sand, fine-grained, medium dense, moist, no odor.
2116-15-MW3	12	SM	135	■░	15	Same.
				▨		Brown silty clay, stiff, moist, slight odor, medium plasticity.
2116-20-MW3	5	CL		■▨	20	Brown silty clay, medium stiff, moist, odor, medium plasticity.

L & W Environmental Services, Inc.

2111 Jennings Street
San Francisco, California

Log of Boring Number: MW 3
Sheet 1 of 2
Beck Roofing
21123 Meekland Avenue
Hayward, California

Project Number: 2116

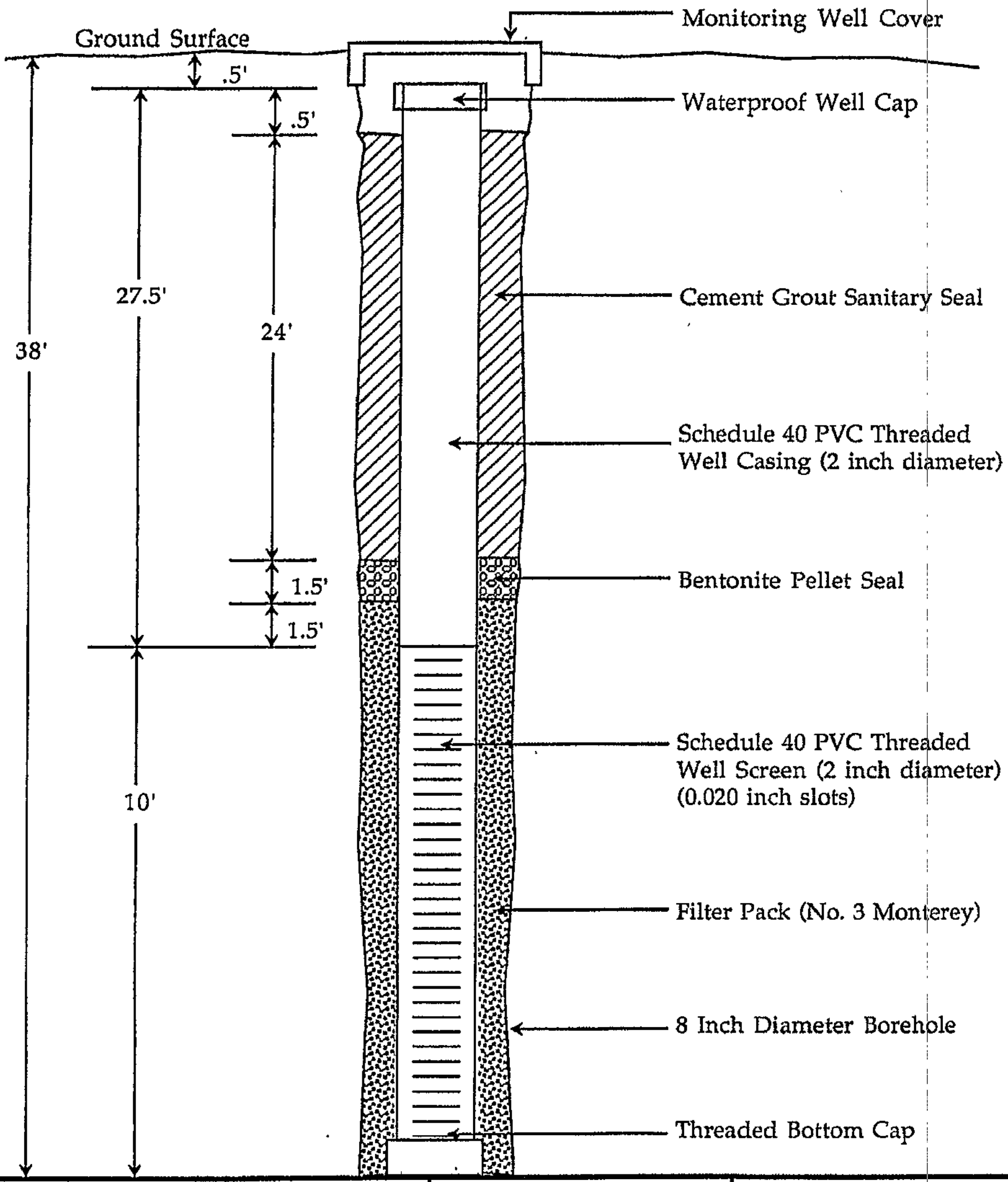
Date: December, 1991

Figure Number: 9

#49
P3

01-6285

03S 02W 17G07



L & W Environmental Services, Inc. 2111 Jennings Street San Francisco, California	**Beck Roofing** 21123 Meekland Avenue Hayward, California	Monitoring Well MW-3 Installation Detail
Project Number: 2116	Date: December, 1991	Figure Number: 12

#50p2

LB2

01-527V

17G10 #50

3S/2W 17G10

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94588 • (415) 484-2600

1 August 1991

Pellegrini Construction Company
P.O. Box 28
Hayward, CA 94543

Gentlemen:

Enclosed is Drilling permit 91428 for the destruction of well 3S/2W 17G80 at 21454 Meekland Avenue in Hayward for Jon Otteson.

Please note that permit condition A-2 requires that a well destruction report be submitted after completion of the work. The report should include a description of methods and materials used to destroy the well, location sketch, date of destruction, and permit number.

If you have any questions, please contact me at 484-2600.

Very truly yours,

Wyman Hong

Wyman Hong
Water Resources Technician

WH:mm
Enc.

phone: 415-881 8943

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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(WELL LOGS)

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

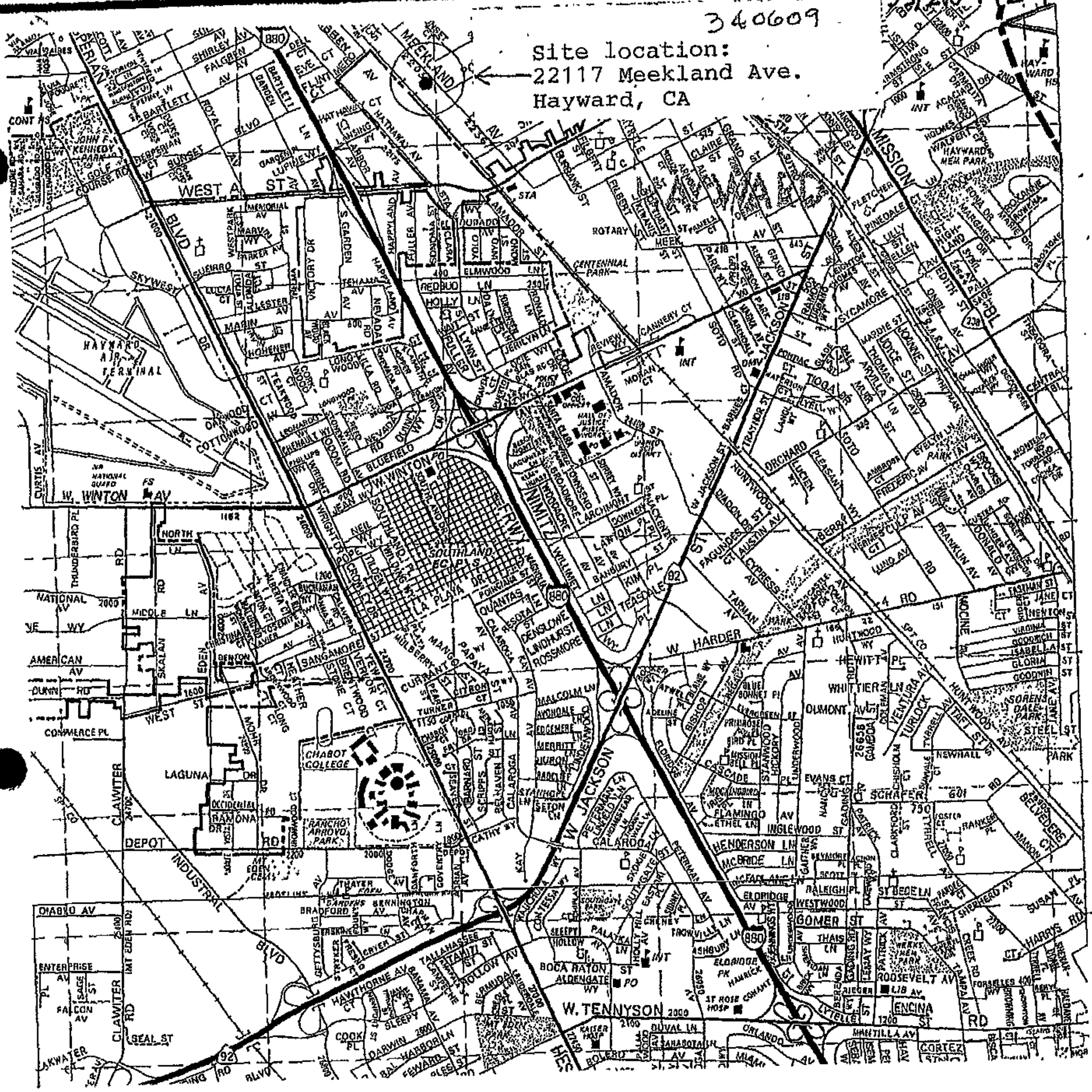
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

#57 p2

3S/2W 17J4

340609



Site location:
22117 Meekland Ave.
Hayward, CA

Emergency routes: Map attached. Route: Proceed South-East on Meekland to West A st. Turn Right on to West A st. Get on to Hwy. 880 south bound. Exit at W. Tennyson. Turn Right from Exit on to W. Tennyson. Turn Right on Calaroga Av. Enter the Emergency entrance.

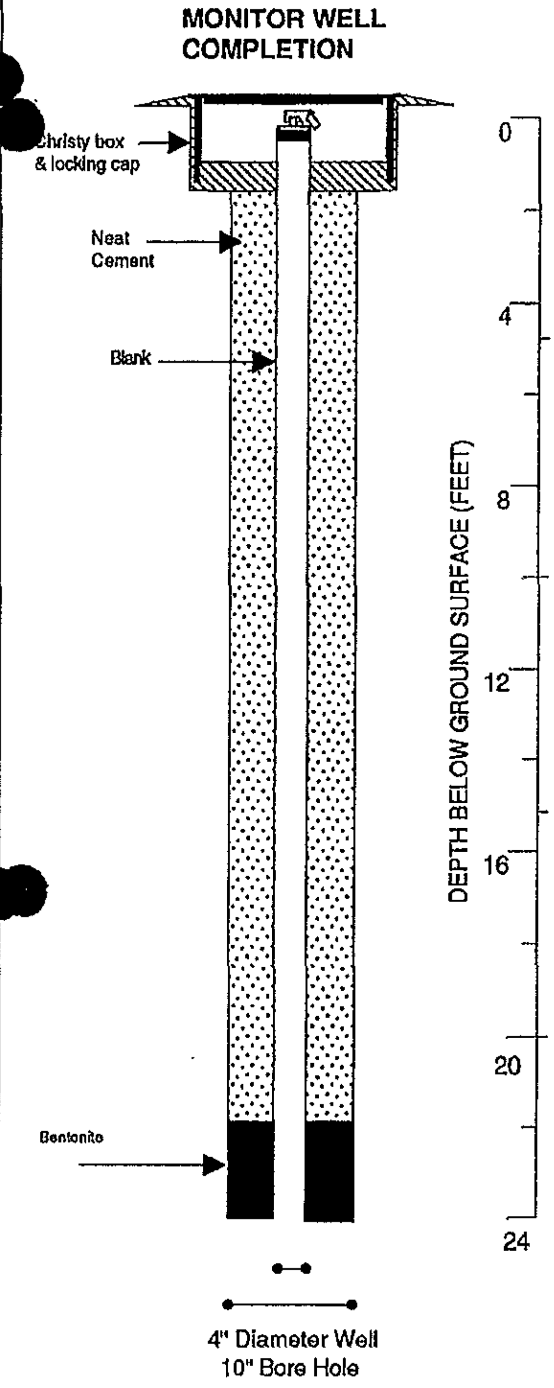
CROSBY & OVERTON, INC.
Environmental Management

222117 Meekland Ave.
Hayward, CA

DATE: 2/20/91 JOB NUMBER: 8205-S DRAWN BY: MARK AYALA

#57 p

340609   3S/2W 17J4



SAMPLES				LITHOLOGIC DESCRIPTION
NO.	TYPE	BLOW	SOIL BORING GRAPHIC LOG	
				8" of Concrete
				6" of Aggregate Base
S-1	Grab	5 7 7 ■	CL	Silty Clay
			OL	Dark Brown-, Black Clay; MediumPlasticity.No Odor
S-2	Grab	7 8 8 ■	CL	Brown Clay; Medium Plasticity No Odor
S-3	Grab	5 5 7 ■	CL	Heterogenous, interbedded very fine sands-silts-brown clays. Medium Plasticity when homogenized. No odor.
S-4	Grab	8 7 8 ■	CL	Heterogenous,interbedded very fine sands-silts-brown clays. Medium Plasticity when homogenized. No odor.
			CL	Heterogenous,interbedded very fine sands-silts-brown clays. Medium Plasticity when homogenized. No odor.

Continues

Logged by: Dave Sadoff

Dates Drilled: 3-21-91

Drilling Company: Layne Environmental

Drilling Method: CF HSA

Driller: Jim

Well Head Completion: Christy box & locking cap

Type of Sampler: CA Split Spoon

TD (Total Depth): 53.0 ft.

EXPLANATION

▽	Water level during drilling
▼	Water level in completed well
▯	Location of recovered drill sample
■	Location of sample sealed for chemical analysis
⊞	Sieve sample
☒	Grab sample
———	Contacts Solid where certain
········	Dotted where approximate
– – –	Dashed where uncertain
//////	Hachured where gradational
est K	Estimated permeability (hydraulic conductivity) 1K = primary 2K = secondary
NR	No recovery

NO	DATE	DESCRIPTION	APP'D

REVISIONS

CROSBY & OVERTON, INC.

WELL MW-1, PAGE 1

22117 Meekland Avenue, Hayward, CA
Owner, Hoyt/Buettner
Job No. 8205-S

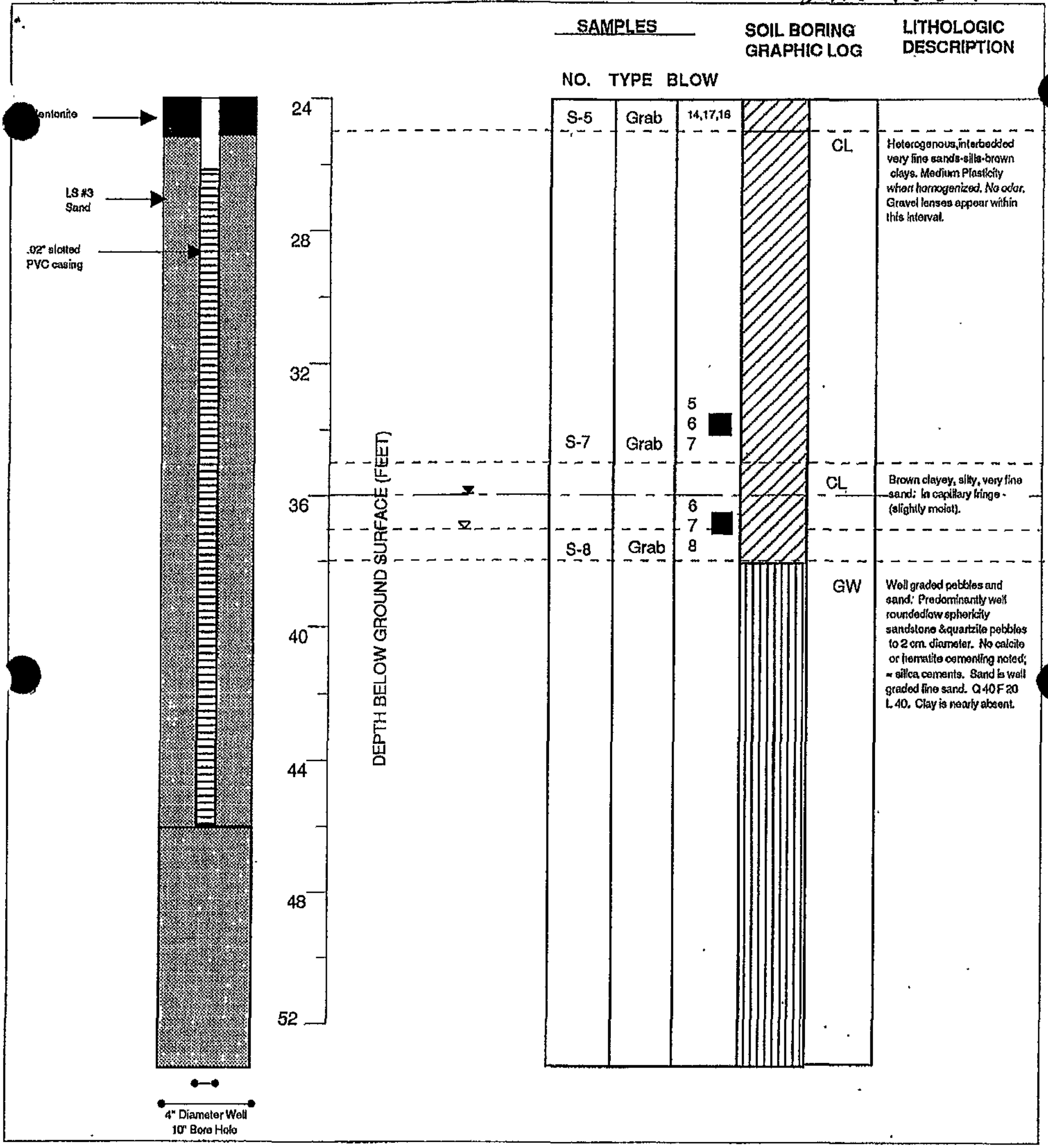
DATE 5-8-91
APP'D

SCALE

SHEET

340609   3S/2W 17J4

#57
P4



Heterogenous,interbedded very fine sands-silts-brown clays. Medium Plasticity when homogenized. No odor. Gravel lenses appear within this interval.

Brown clayey, silty, very fine sand: In capillary fringe - (slightly moist).

Well graded pebbles and sand; Predominantly well roundedlow sphericity sandstone &quartzite pebbles to 2 cm. diameter. No calcite or hematite cementing noted; ≈ silica cements. Sand is well graded fine sand. Q 40 F 20 L 40. Clay is nearly absent.

EXPLANATION

▽	Water level during drilling	———	Contacts Solid where certain
▼	Water level in completed well	········	Dotted where approximate
▩	Location of recovered drill sample	– – –	Dashed where uncertain
■	Location of sample sealed for chemical analysis	//////	Hachured where gradational
⊞	Sieve sample	est K	Estimated permeability (hydraulic conductivity) 1K = primary 2K = secondary
☒	Grab sample	NR	No recovery

NO	DATE	DESCRIPTION	APP'D

REVISIONS

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CROSBY & OVERTON, INC.

WELL MW-1, PAGE 2

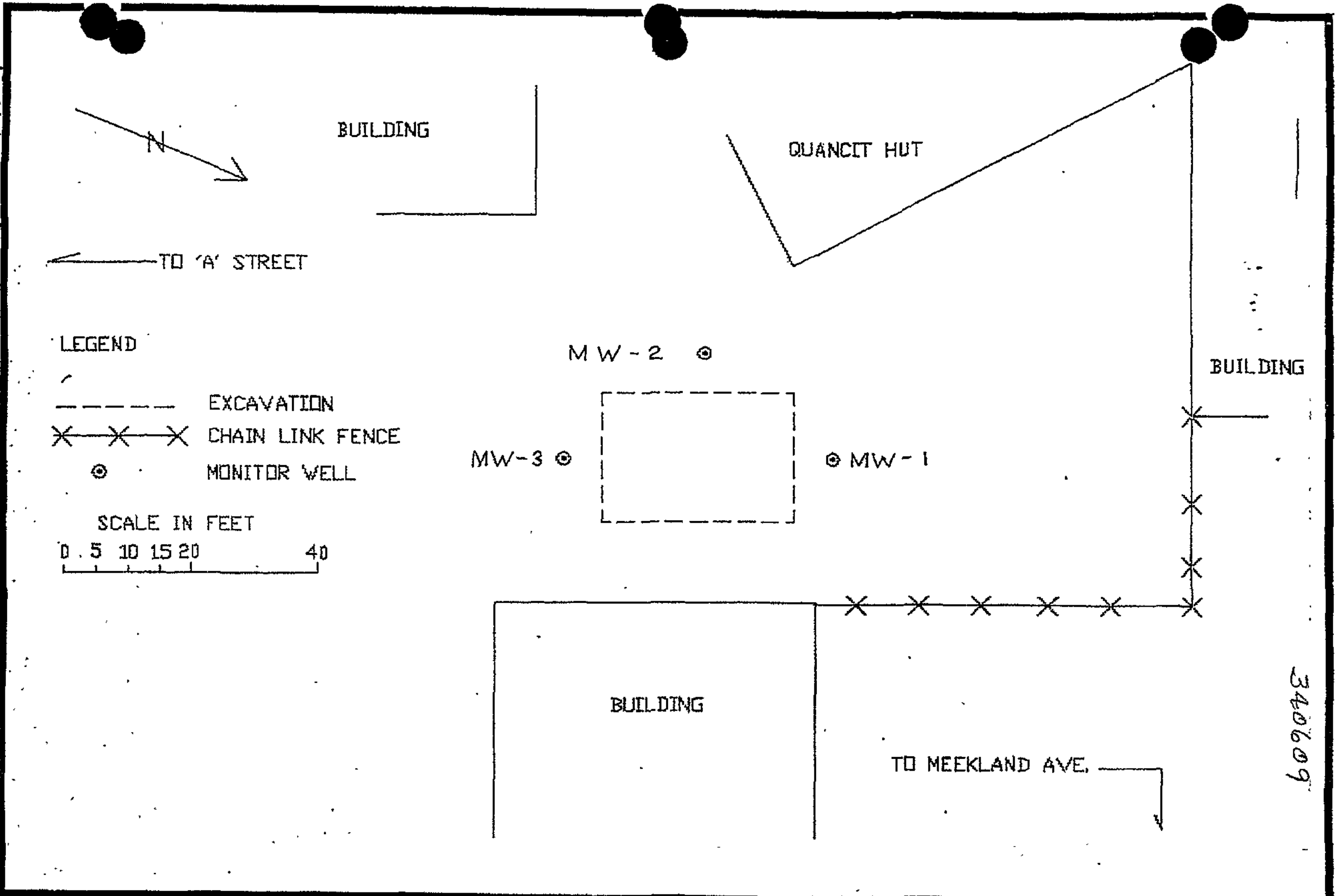
22117 Meekland Avenue, Hayward, CA
Owner, Hoyt/Buettner
Job No. 8205-S

DATE 5-8-91
APP'D

SCALE

SHEET

3S/2W 17J4



340609

CROSBY & OVERTON, INC.
Environmental Management

Figure 2

VINCE HOYTT
22117 Meekland Ave.
Hayward, CA

DATE: 3/5/91 JOB NUMBER: 8205-S DRAWN BY: M.S.A.

3S/2W-17J4

#57

340609

3S/2W17J4

#57
P6

DUPLICATE
RETAIN THIS COPY

No. 252705

NOTICE OF INTENT

DEPARTMENT OF WATER RESOURCES: MARCH 5, 1991

On or about MARCH 20, 1991, I plan to commence drilling ☒ deepening ☐ reconditioning ☐, or destruction of ☐ a cable ☐ rotary ☐, or other HSA type well, for GROUNDWATER MONITORING purposes. The work will be done for
(Proposed use of well)

V. HOYT, 11433 CULL CANYON RD., CASTRO VALLEY, CA 94552
(Name of client and address)

Approximate location of well is 22117 MEEKLAND AVE., HAYWARD, CA 94541
(Legal subdivision or by reference to some landmark)

, in ALAMEDA County.

LAYNE ENVIRONMENTAL Lic. No. C57-600469
(Well driller)

4300 EVORA RD., PITTSBURG, CA
(Address)

Need log forms ☐ Need notice cards ☐

STATE OF CALIFORNIA
THE RESOURCES AGENCY

DEPARTMENT OF WATER RESOURCES
INFORMATION ON NOTICE OF INTENT

LEGISLATION

The Notice of Intent form has been prepared by the Department of Water Resources in accordance with legislative direction given by Chapter 1088, Statutes of 1965, amended in 1967 as follows:

> "13750 Every person who hereafter intends to dig, bore, or drill a water well, or who intends to deepen or reperforate any such well, or to abandon or destroy a water well, shall file with the department a notice of intent to engage in such construction or repair prior to commencing such construction or repair; provided, that when such construction or repair must be accomplished immediately in order to prevent damage to persons or property due to the loss of an existing water supply, such notice shall be filed with the department as soon as possible thereafter, but in any event not more than five days after commencement of such construction or repair.
>
> "The report shall be made on forms furnished by the department and shall contain such information as the department may require, including, but not limited to: (a) description of the well site sufficiently exact to permit location and identification of the well; (b) proposed date of construction of well; (c) the use for which the water well is intended; (d) the work to be done and a description of type of construction; and (e) in event of late filing, the reasons therefor."

INSTRUCTIONS

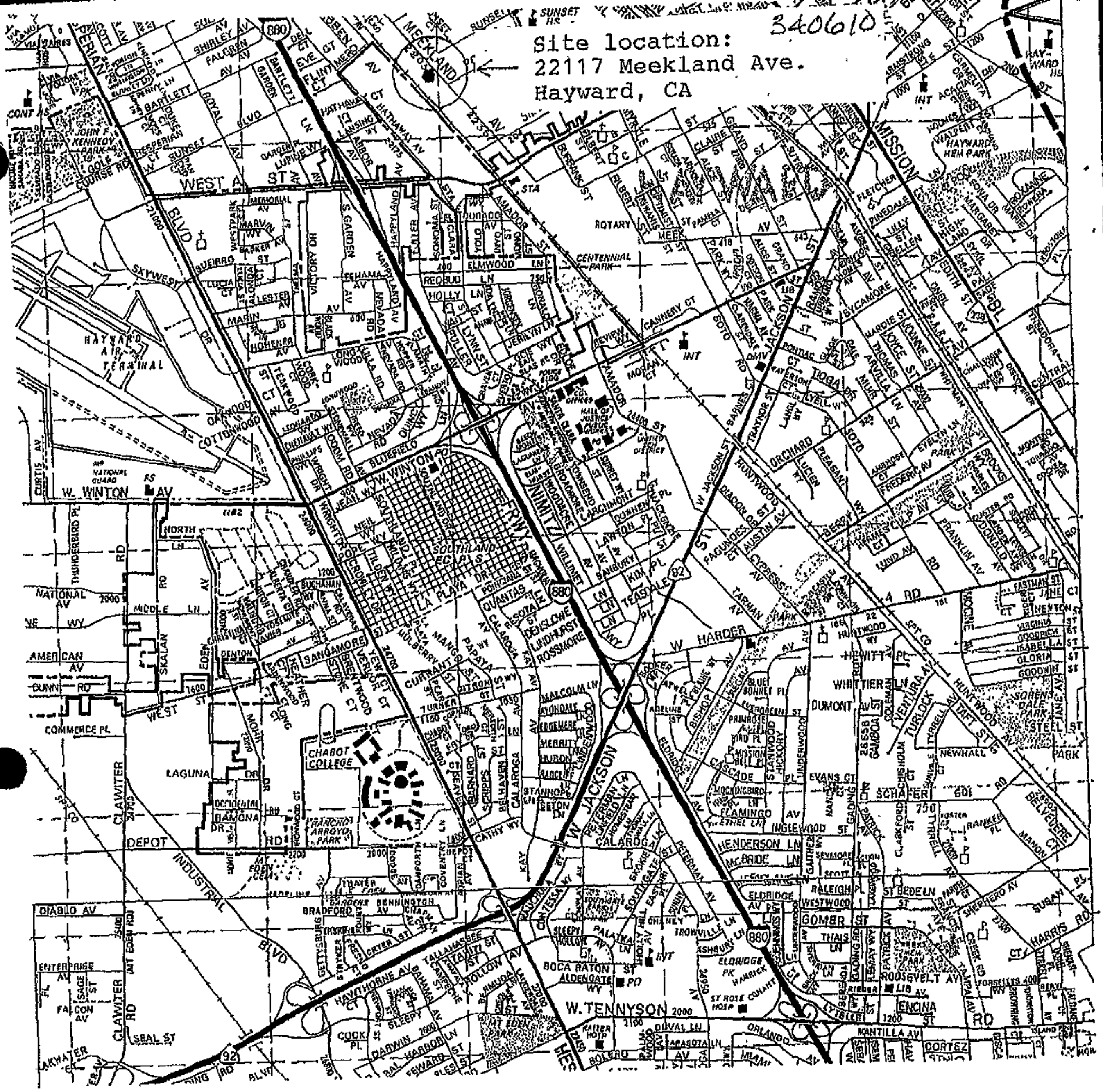
Complete original and mail to Department of Water Resources district office in whose area the well was drilled. This is a preaddressed form and no postage stamp is necessary. Retain duplicate for your records. Should you drill wells in more than one area, preaddressed forms for these areas will be sent on request.

88 47217

#58
P2

3S/2W 17J5

340610



Site location:
22117 Meekland Ave.
Hayward, CA

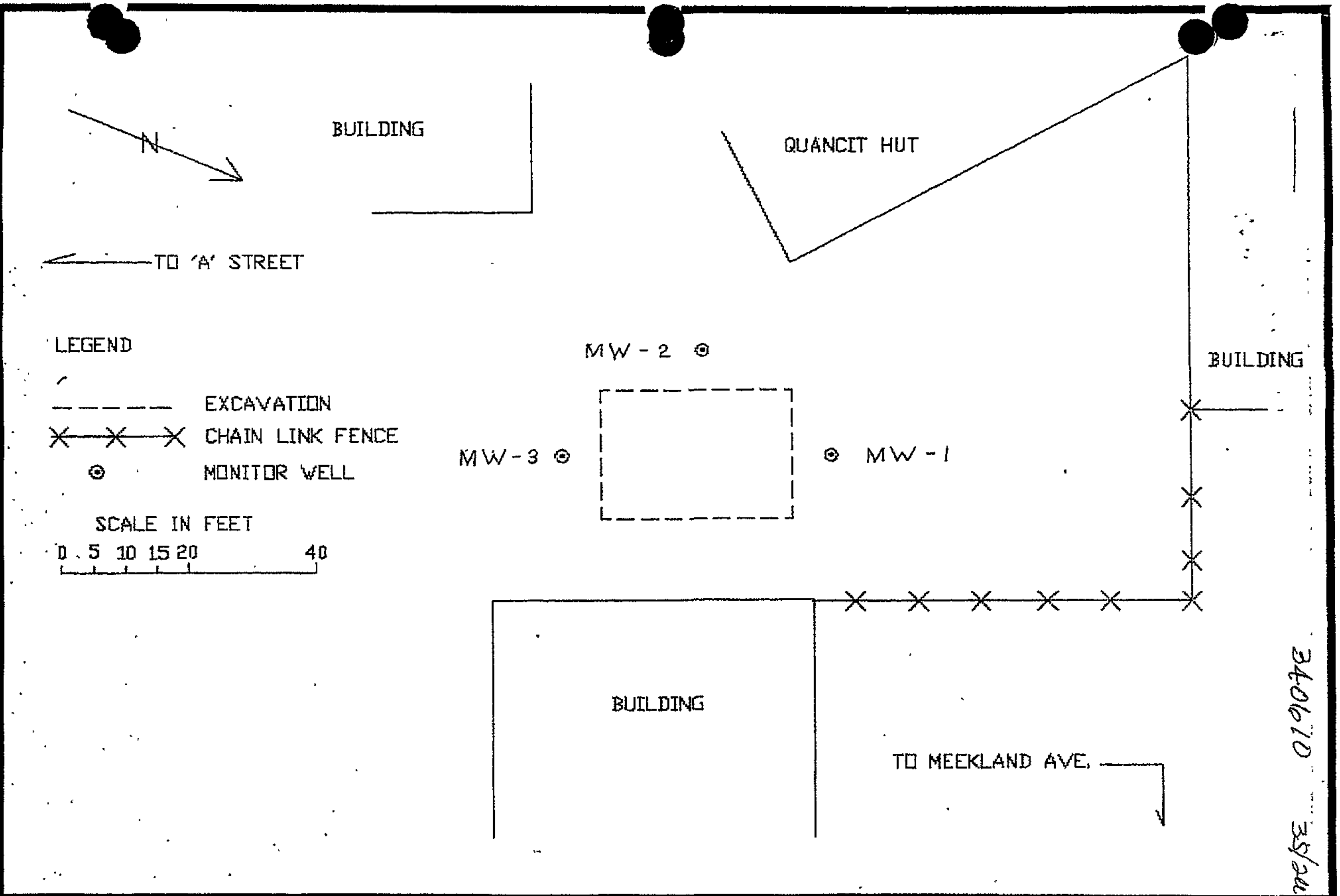
Emergency routes: Map attached. Route: Proceed South-East on Meekland to West A st. Turn Right on to West A st. Get on to Hwy. 880 south bound. Exit at W. Tennyson. Turn Right from Exit on to W. Tennyson. Turn Right on Calaroga Av. Enter the Emergency entrance.

CROSBY & OVERTON, INC.
Environmental Management

222117 Meekland Ave.
Hayward, CA

DATE: 2/20/91 **JOB NUMBER:** 8205-S **DRAWN BY: MARK AYALA**

3S/2W 17J5



340610

3S/2W-17J5

CROSBY & OVERTON, INC.
Environmental Management

Figure 2

VINCE HOYTT
22117 Meekland Ave.
Hayward, CA

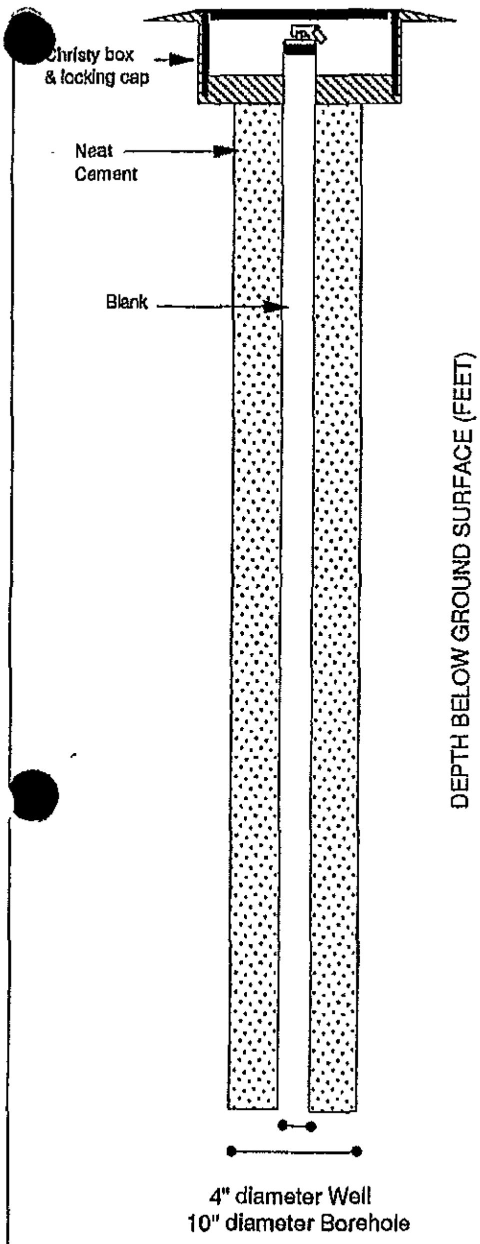
DATE: 3/5/91 JOB NUMBER: 8205-S DRAWN BY: M.S.A.

#5803

340610 3S/2W 17S5

#58 P4

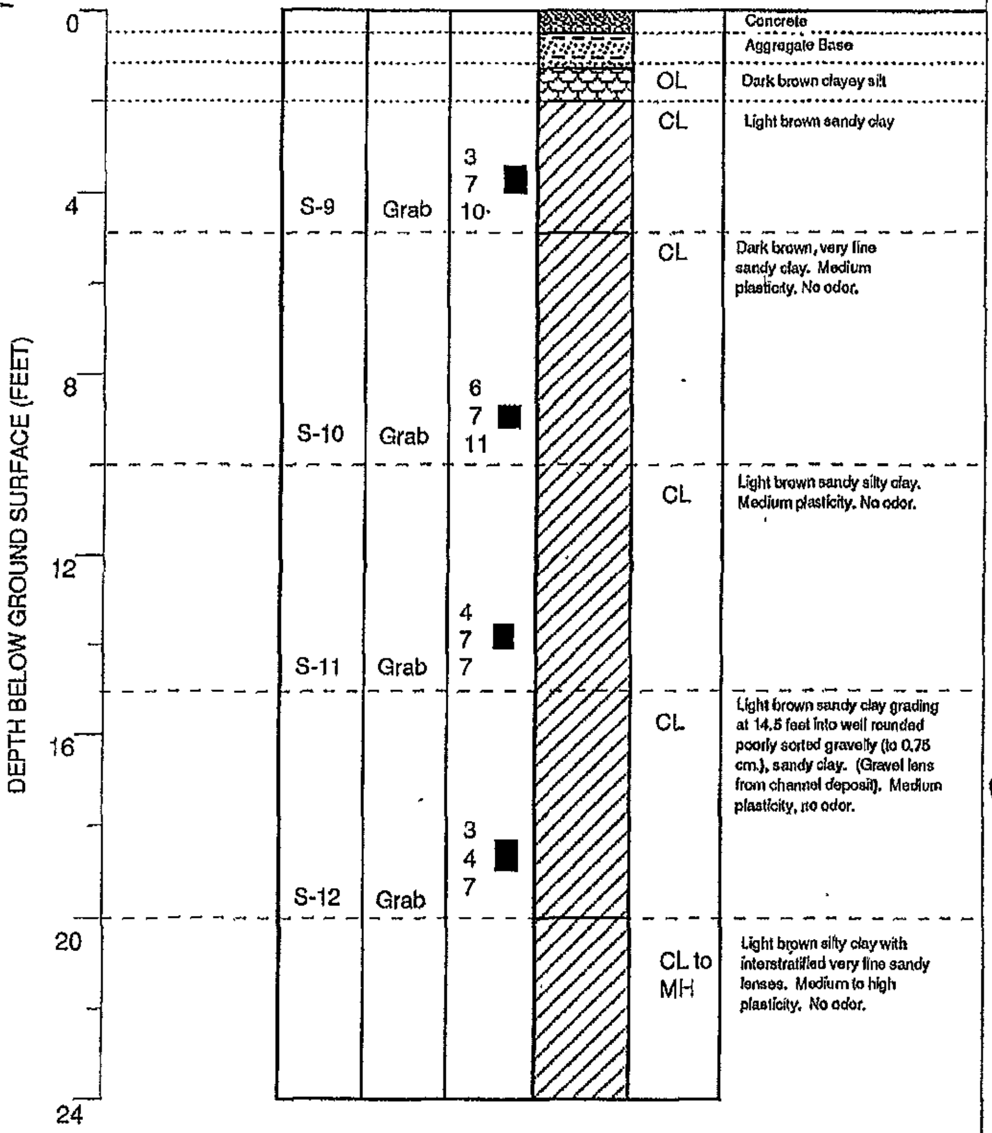
MONITOR WELL COMPLETION



SAMPLES

SOIL BORING GRAPHIC LOG

LITHOLOGIC DESCRIPTION



NO.	TYPE	BLOW	SOIL BORING GRAPHIC LOG	LITHOLOGIC DESCRIPTION
				Concrete
				Aggregate Base
			OL	Dark brown clayey silt
S-9	Grab	3 7 10	CL	Light brown sandy clay
S-10	Grab	6 7 11	CL	Dark brown, very fine sandy clay. Medium plasticity. No odor.
S-11	Grab	4 7 7	CL	Light brown sandy silty clay. Medium plasticity. No odor.
S-12	Grab	3 4 7	CL	Light brown sandy clay grading at 14.5 feet into well rounded poorly sorted gravelly (to 0.75 cm.), sandy clay. (Gravel lens from channel deposit). Medium plasticity, no odor.
			CL to MH	Light brown silty clay with interstratified very fine sandy lenses. Medium to high plasticity. No odor.

Continues

Logged by:	Matt Walraven	Drilling Company:	Layne Environmental	Well Head Completion:	Christy box & locking cap
		Drilling Method:	CF HSA	Type of Sampler:	CA Split Spoon
Date Drilled:	3-22-91	Driller:	Jim	TD (Total Depth):	53.5 ft.

EXPLANATION

▽	Water level during drilling	———	Contacts, Solid where certain
▼	Water level in completed well	....	Dotted where approximate
▨	Location of recovered drill sample	— — —	Dashed where uncertain
■	Location of sample sealed for chemical analysis	//////	Hachured where gradational
⊞	Sieve sample	est K	Estimated permeability (hydraulic conductivity) 1K = primary 2K = secondary
☒	Grab sample	NR	No recovery

NO	DATE	DESCRIPTION	APP'D

REVISIONS

This Drawing, including the information it contains is the property of CROSBY & OVERTON, INC. This drawing is to be used only in connection with the project to which it pertains and must not be used in any manner detrimental to the interests of CROSBY & OVERTON, INC. This drawing is not to be copied and must be returned upon request.

CROSBY & OVERTON, INC.

WELL MW-2, PAGE 1

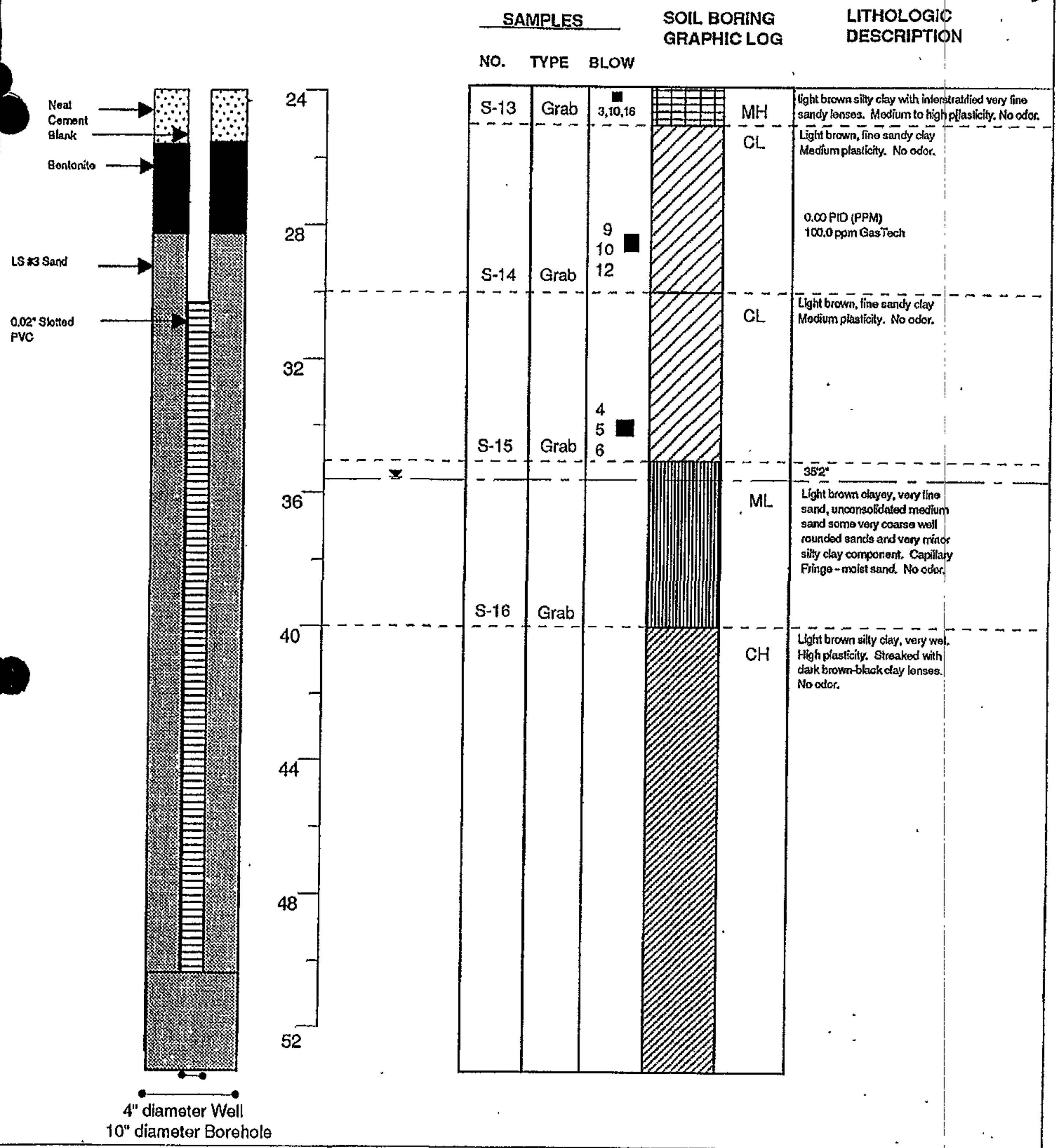
22117 Meekland Avenue, Hayward, CA
Owner, Hoyt/Buettner
Job No. 8205-S

DATE 5-8-91
APP'D

SCALE

SHEET

340610 3S/2W 17J5 #S PS



SAMPLES NO.	TYPE	BLOW	SOIL BORING GRAPHIC LOG	LITHOLOGIC DESCRIPTION
S-13	Grab	■ 3,10,16	MH	light brown silty clay with interstratified very fine sandy lenses. Medium to high plasticity. No odor.
S-14	Grab	9 10 ■ 12	CL	Light brown, fine sandy clay Medium plasticity. No odor. 0.00 PID (PPM) 100.0 ppm GasTech
S-15	Grab	4 5 ■ 6	CL	Light brown, fine sandy clay Medium plasticity. No odor.
S-16	Grab		ML	35'2" Light brown clayey, very fine sand, unconsolidated medium sand some very coarse well rounded sands and very minor silty clay component. Capillary Fringe - moist sand. No odor.
			CH	Light brown silty clay, very wet. High plasticity. Streaked with dark brown-black clay lenses. No odor.

EXPLANATION

⊻	Water level during drilling	———	Contacts, Solid where certain
▼	Water level in completed well	········	Dotted where approximate
☐	Location of recovered drill sample	— — —	Dashed where uncertain
■	Location of sample sealed for chemical analysis	//////	Hachured where gradational
⊞	Sieve sample	est K	Estimated permeability (hydraulic conductivity) 1K = primary 2K = secondary
☒	Grab sample	NR	No recovery

NO	DATE	DESCRIPTION	APP'D

REVISIONS

CROSBY & OVERTON, INC.

WELL MW-2, PAGE 2

22117 Meekland Avenue, Hayward, CA
Owner, Hoyt/Buettner
Job No. 8205-S

DATE 5-8-91
APP'D

SCALE

SHEET

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

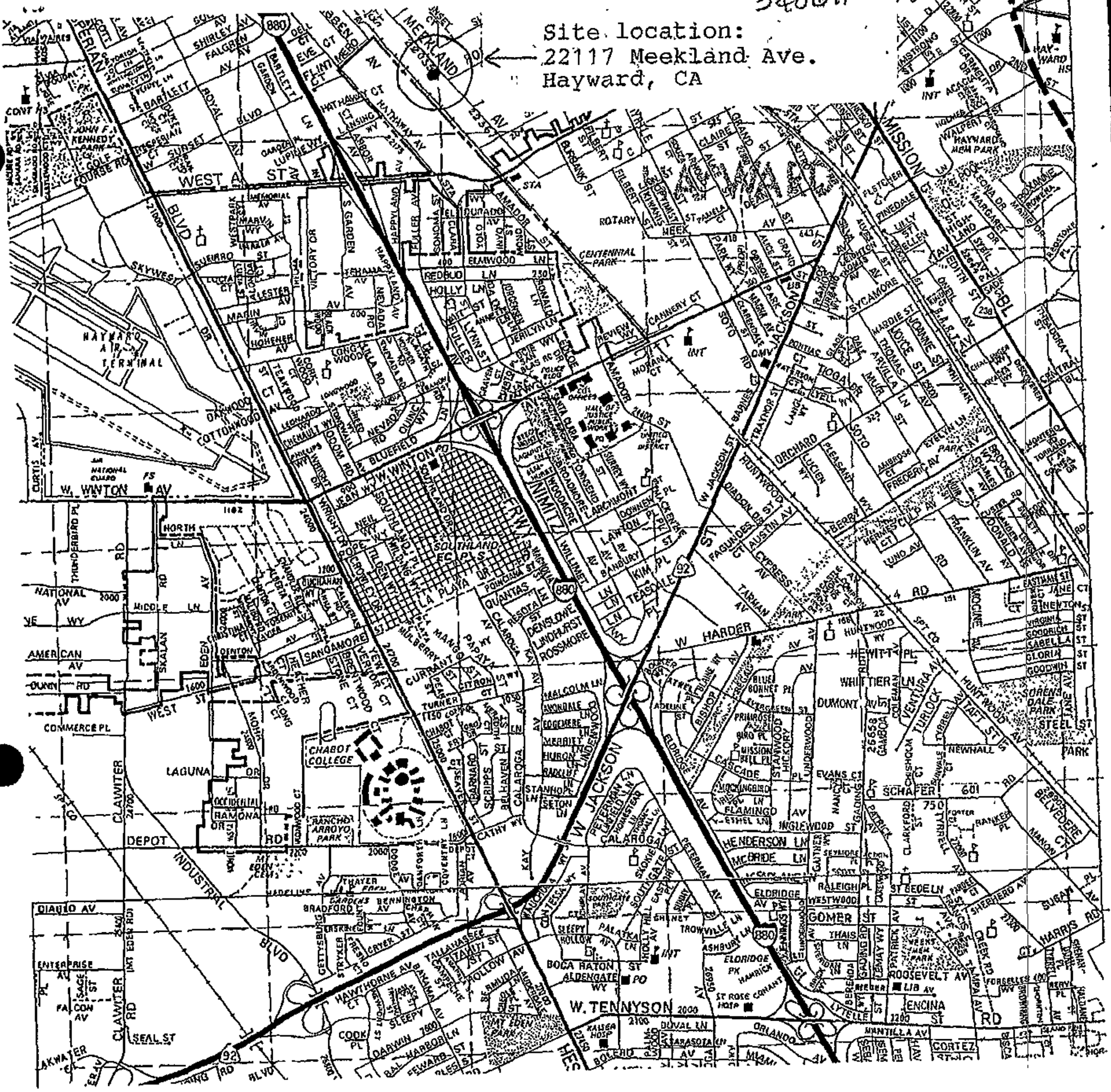
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

#59
P2

340611

3S/2W 17J6



Site location:
22117 Meekland Ave.
Hayward, CA

Emergency routes: Map attached. Route: Proceed South-East on Meekland to West A st. Turn Right on to West A st. Get on to Hwy. 880 south bound. Exit at W. Tennyson. Turn Right from Exit on to W. Tennyson. Turn Right on Calaroga Av. Enter the Emergency entrance.

CROSBY & OVERTON, INC.
Environmental Management

222117 Meekland Ave.
Hayward, CA

DATE: 2/20/91 **JOB NUMBER:** 8205-S **DRAWN BY: MARK AYALA**

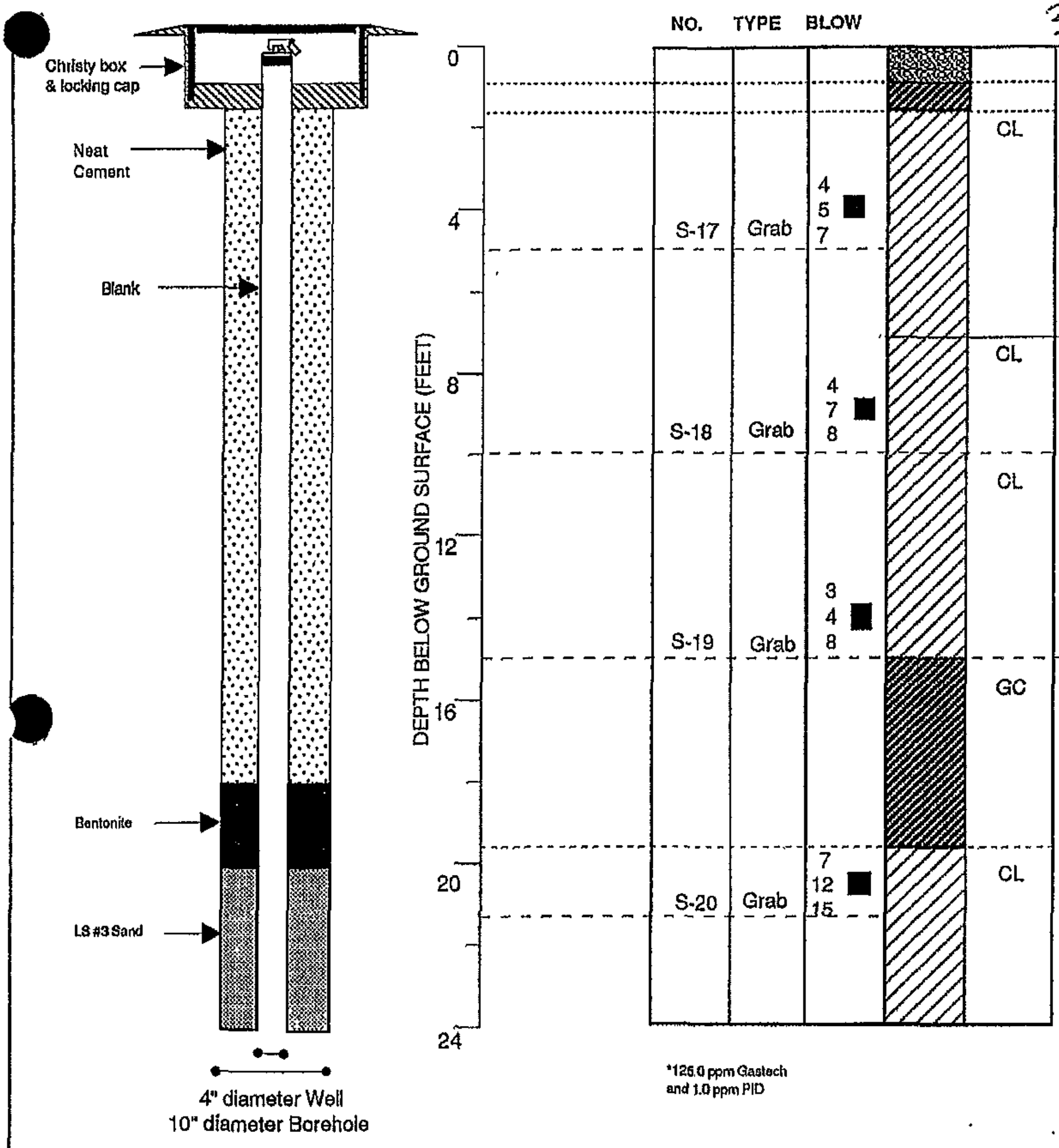
340611

#59
P3

SAMPLES **SOIL BORING GRAPHIC LOG** **LITHOLOGIC DESCRIPTION**

MONITOR WELL COMPLETION

3S/2W 17J56



NO.	TYPE	BLOW	SOIL BORING GRAPHIC LOG	LITHOLOGIC DESCRIPTION
				Concrete & Aggregate Base
				Turquoise clay & aggregate Strong hydrocarbon odor.*
S-17	Grab	4 5 ■ 7	CL	Dark brown silty clay, 5% coarse to very coarse sand. Medium plasticity. No odor.
S-18	Grab	4 7 ■ 8	CL	Brown fine sandy clay.
S-19	Grab	3 4 ■ 8	CL	Light brown, very fine,sandy clay. Occasional very coarse lithic sand. Medium Plasticity. No odor
			GC	*Light brown clayey poorly sorted* sandy gravel. Well rounded, low sphericity, to 1.5 cm. diameter, chert, quartzite and lithic gravel. Low plasticity. No odor.
S-20	Grab	7 12 ■ 15	CL	Light and dark streaked heterogenous very fine sand and clay mixture., (sandy, silty, clay when *homogenous), unconsolidated,* fractured. Fractures contain precipitate (FeO(x)) - dissolution from chert or sandstone cements. Low -medium plasticity. No odor.

*125.0 ppm Gastech and 1.0 ppm PID

Continues

Logged by: Matt Walraven
Dates Drilled: 3-22-91
3-23-91

Drilling Company: Layne Environmental
Drilling Method: CF HSA
Driller: Jim/Bob

Well Head Completion: Christy box & locking cap
Type of Sampler: CA Split Spoon
TD (Total Depth): 51.0 ft.

EXPLANATION

▽	Water level during drilling		Contacts'
▼	Water level in completed well	———	Solid where certain
▨	Location of recovered drill sample	········	Dotted where approximate
■	Location of sample sealed for chemical analysis	— — —	Dashed where uncertain
⊞	Sieve sample	//////	Hachured where gradational
☒	Grab sample	est K	Estimated permeability (hydraulic conductivity) 1K = primary 2K = secondary
		NR	No recovery

NO	DATE	DESCRIPTION	APP'D

REVISIONS

CROSBY & OVERTON, INC.

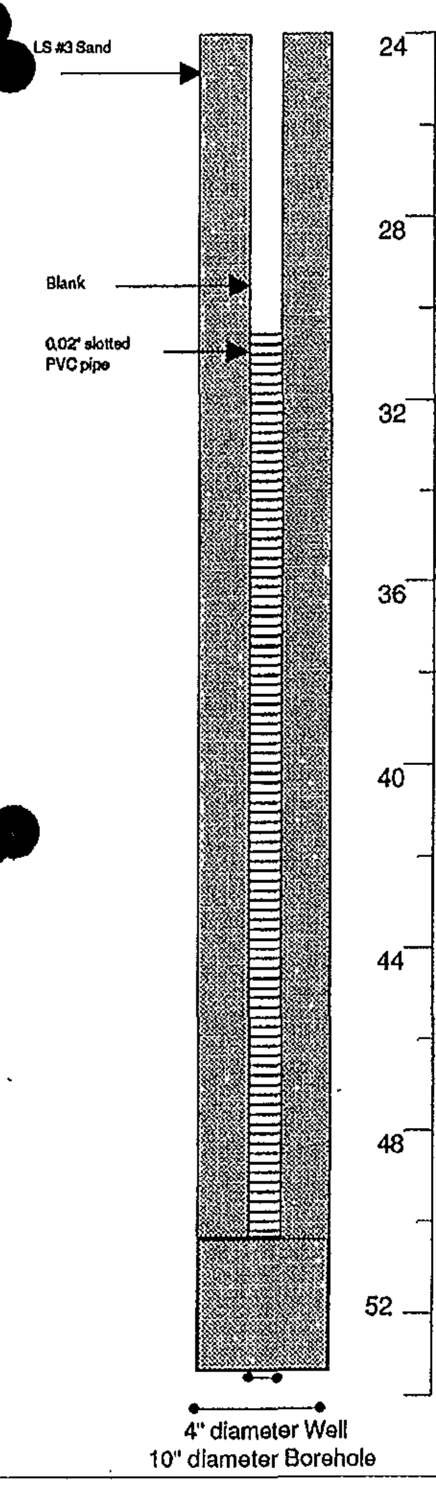
WELL MW-3, PAGE 1

22117 Meekland Avenue, Hayward, CA
Owner, Hoyt/Buettner
Job No. 8205-S

DATE 5-8-91
APP'D
SCALE
SHEET

#59
P4

340611



3S/2W 17J56

SAMPLES			SOIL BORING GRAPHIC LOG	LITHOLOGIC DESCRIPTION
NO.	TYPE	BLOW		
S-21	Grab	5,8,13 ■	CL	See above
S-22	Grab	5 8 ■ 11	CL	Brown silty clay. Hetergenous black and light brown/tan streaks. Medium plasticity. No odor. Gravel lens at 26.5 feet.
S-23	Grab	8 12 ■ 13	ML	Brown sandy silty clay.. Turquoise discoloration(?) in a clayey sand lens, odor of turpentine (old gasoline?). Lens is <1 foot thick.. PID 0.00 ppm. Gastech 100.0 ppm.
S-24	Grab	8 12 ■ 14	SC	Medium sand fining upward to silty clay. Quartz, feldspar and lithic pebbles interbedded in matrix. No odor. Moist. Low plastcity.
			GW	Saturated zone interface. Poorly sorted, subrounded pebbles in a sandy silty matrix. Occasional angular, finely laminated, chert pebbles. No odor. Low plasticity.

EXPLANATION

∇ Water level during drilling
Water level in completed well
Location of recovered drill sample
■ Location of sample sealed for chemical analysis
⊞ Sieve sample
☒ Grab sample

Contacts
——— Solid where certain
········· Dotted where approximate
— — — Dashed where uncertain
////// Hachured where gradational

est K Estimated permeability (hydraulic conductivity) 1K = primary 2K = secondary
NR No recovery

NO	DATE	DESCRIPTION	APP'D

REVISIONS

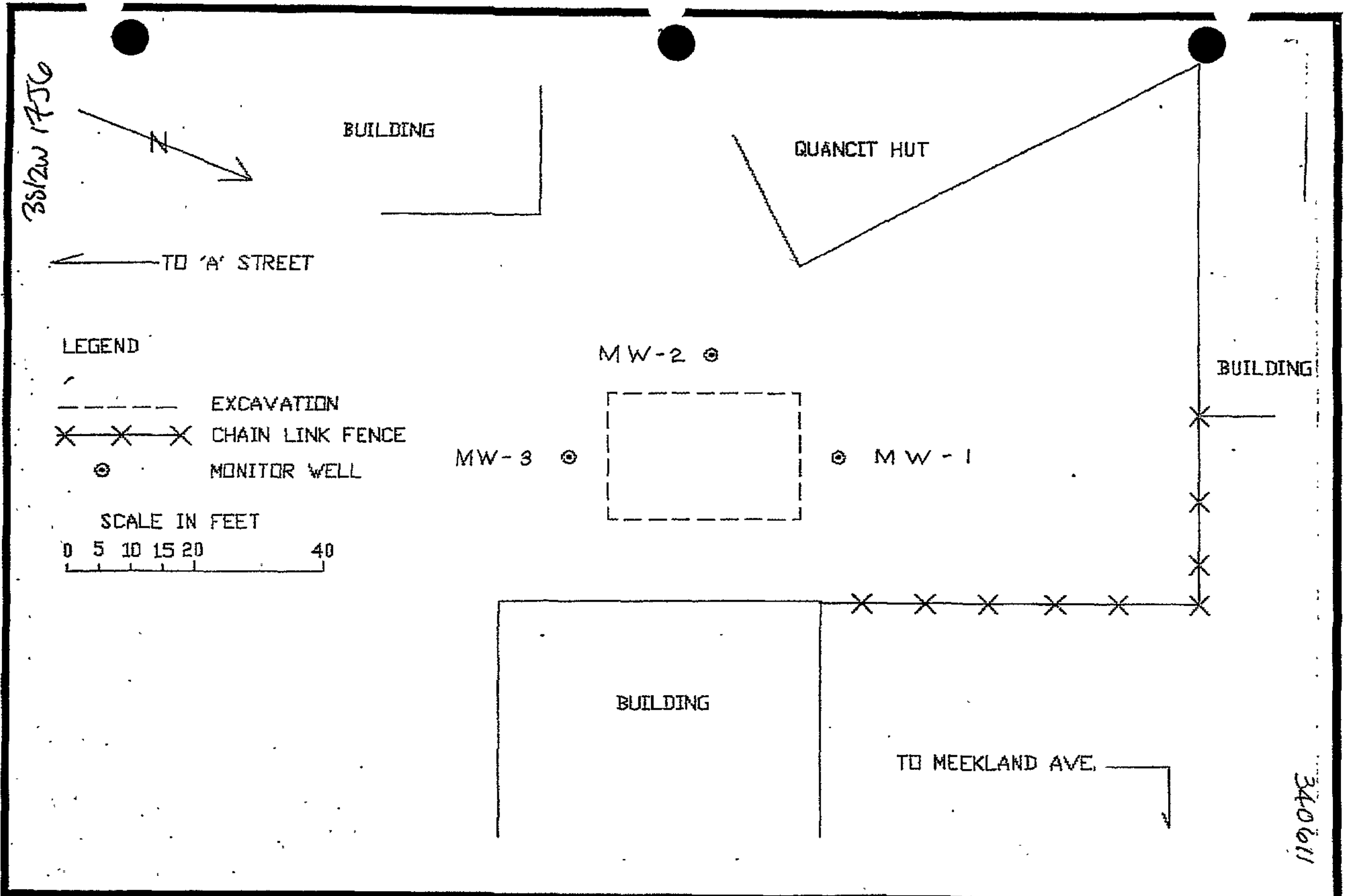
CROSBY & OVERTON, INC.

WELL MW-3, PAGE 2

22117 Meekland Avenue, Hayward, CA
Owner, Hoyt/Buettner
Job No. 8205-S

DATE 5-8-91
APP'D

SCALE
SHEET



3S/2W 17J6

340611

CROSBY & OVERTON, INC.
Environmental Management

Figure 2

VINCE HOYTT
22117 Meekland Ave.
Hayward, CA

DATE: 3/5/91 JOB NUMBER: 8205-S DRAWN BY: M.S.A.

3S/2W-17J6

#59
05

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

#60
P2

2W6/7 403243-403251 03S02W012E07-

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94588 • (415) 484-2600

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 22300 HATHAWAY AVENUE
HAYWARD, CALIFORNIA

CLIENT
Name TRICE COMPANY
Address 4649 MORENA BLVD Phone (619) 581-4702
City SAN DIEGO, CA Zip 92117

APPLICANT
Name RIEDEL ENVIRONMENTAL SERVICES
Address 4138 LAKESIDE DR Phone (510) 222-7810
City RICHMOND, CA Zip 94806

T[illegible] OF PROJECT
[illegible] Construction
Cathodic Protection ___
Water Supply ___
Monitoring *
Geotechnical Investigation
General ___
Contamination *
Well Destruction ___

PROPOSED WATER SUPPLY WELL USE N/A
Domestic ___ Industrial ___ Other ___
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger *
Cable ___ Other ___

DRILLER'S LICENSE NO. Bayland C-57-374152

WELL PROJECTS
Drill Hole Diameter 8 in.
Casing Diameter 4 in.
Surface Seal Depth 20 ft.
Maximum Depth 50 ft.
Number 9

GEOTECHNICAL PROJECTS N/A
Number of Borings ___
Hole Diameter ___ in.
Maximum Depth ___ ft.

ES[illegible]ATED STARTING DATE August 10th, 1992
[illegible]TED COMPLETION DATE August 21, 1992

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Date 07/30/92

FOR OFFICE USE

PERMIT NUMBER 92379
LOCATION NUMBER ___

PERMIT CONDITIONS

Circled Permit Requirements Apply

[✓ A.] GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department [illegible] Water Resources Water Well Drillers Report [illegible] equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

[✓ B.] WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 6 Aug
Wyman Hong

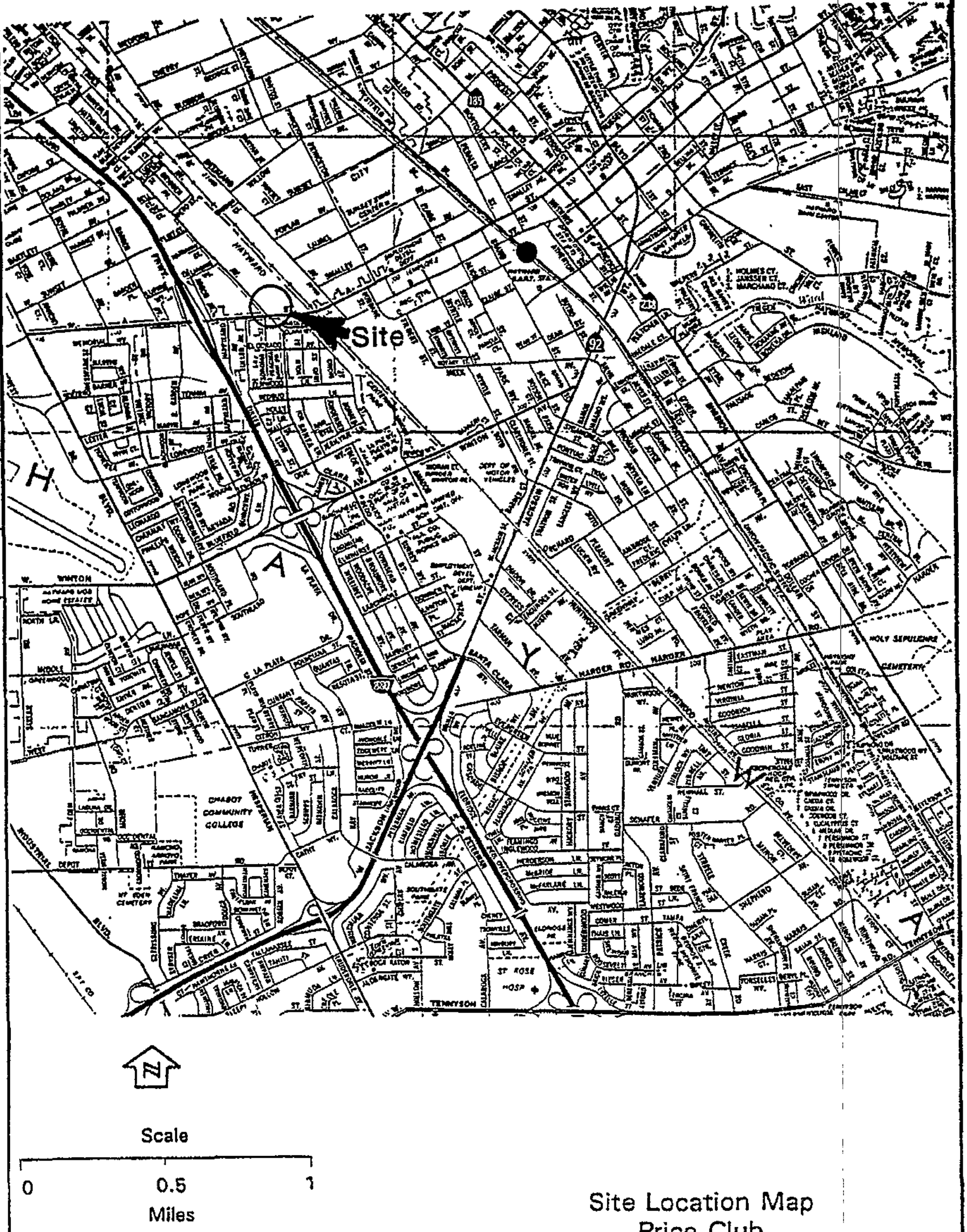
3 of 6/7 403243–403251 DJS02@17J07– #60 P3

DRAWING NUMBER

CHECKED BY

APPROVED BY

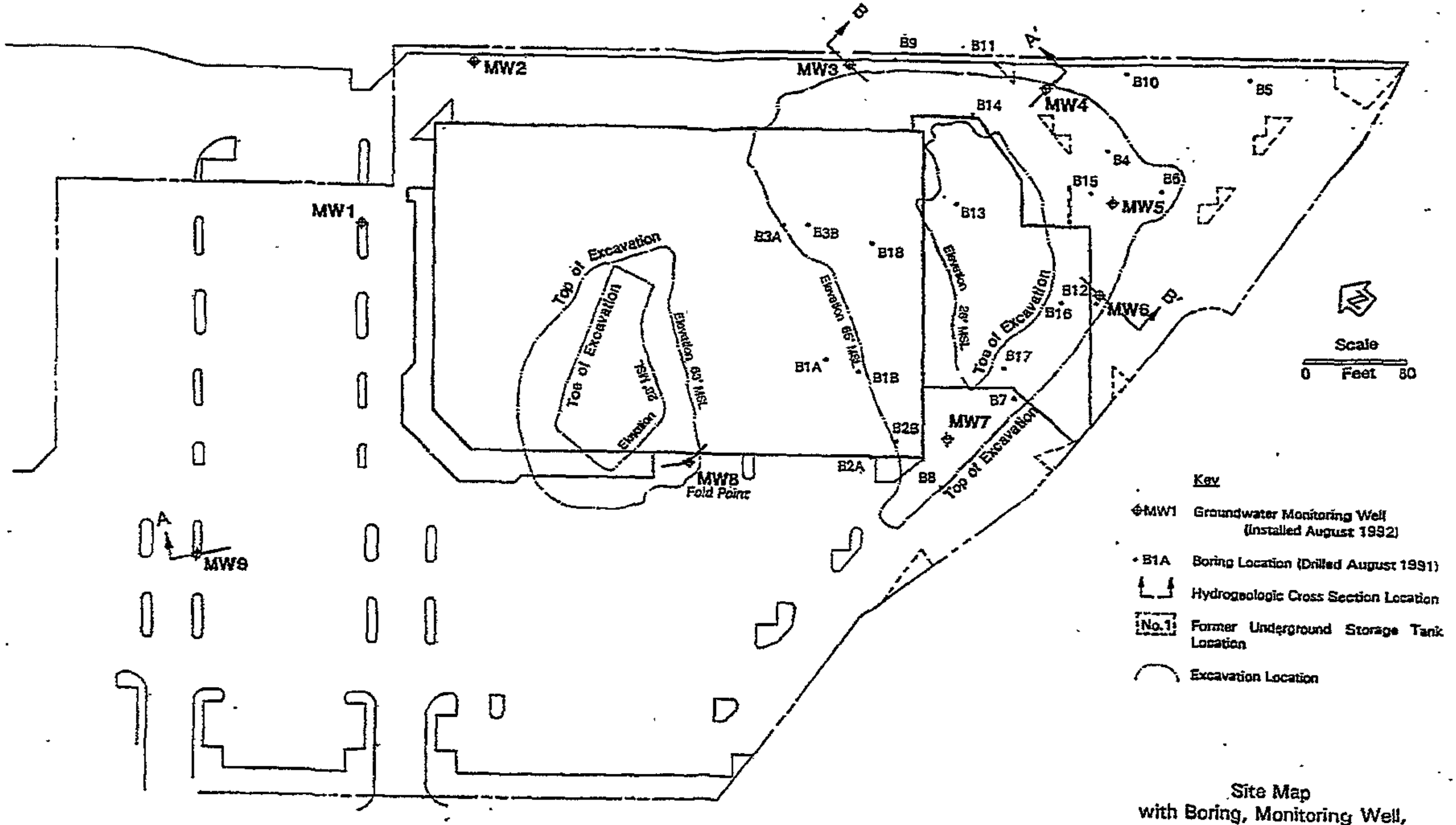
DRAWN BY



Site Location Map
Price Club
22300 Hathaway Avenue
Hayward, CA
RES Project 4014-9008

FIGURE 1

RIEDEL ENVIRONMENTAL SERVICES, INC. Richmond, California



Site Map
with Boring, Monitoring Well,
and Excavation Locations
Price Club
22300 Hathaway Avenue
Hayward, California
RES Project No. 4014-9008

FIGURE 2

RIEDEL ENVIRONMENTAL
SERVICES, INC. Richmond, California

4/26/7

403243-403251

03S02W 17J07-

#60
P4

RIEDEL ENVIRONMENTAL SERVICES, INC.
4138 LAKESIDE DRIVE
RICHMOND, CALIFORNIA 94806
(510) 222-7810

403243
5-7-6

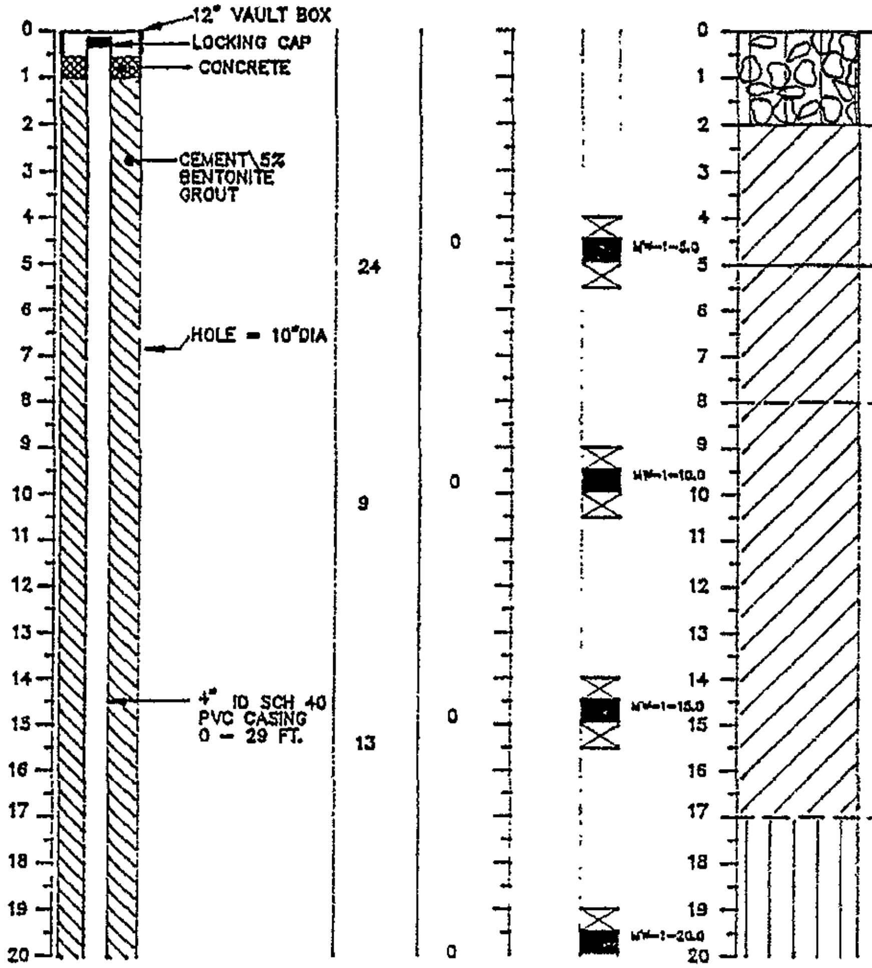
03S02W11J07
#260

SHEET 1
OF 2

FILE NAME PRICE\CLUB1-2

LOG OF BORING\MONITORING WELL B-1\MW-1

PROJECT NO 4014-9008
PROJECT NAME PRICE CLUB-HAYWARD
LOCATION HAYWARD, CA
DATE 8/10/92
LOGGED BY LEN NILES
DRILLING CO. BAYLAND
DRILLING METHOD HOLLOW STEM AUGER
DRILL RIG MODEL CME-75
BORING TOTAL DEPTH (FT.) 38
TOP OF CASING ELEV. (FT.MSL) 62.61
SCREENED INTERVAL (FT.) 29' - 36.5'
TOP OF VAULT BOX ELEV. (FT. MSL) 63.29



DEPTH IN FT.	BLOWS/FOOT	PID (PPM)	SAMPLES		LITHOGRAPHIC DESCRIPTION
0				GM	SILTY GRAVEL (GM): DRY; DARK GRAY BROWN (2.5Y4/2); 15-20% FINES; 30-40% FINE TO COARSE SAND; 50-60% FINE TO COARSE GRAVEL (BACKFILL)
2				CL	SILTY CLAY (CL): VERY DARK GRAY (10YR3/1); VERY STIFF; DRY; 0-10% FINE TO COARSE SAND
5	24	0	MW-1-5.0		
5				CL	SANDY CLAY (CL): DARK YELLOW BROWN (10YR4/4); VERY STIFF; DAMP; 10-20% FINE TO COARSE SAND
8				CL	SILTY CLAY (CL): DARK YELLOW BROWN (10YR4/4); MEDIUM STIFF; DAMP; 0-10% FINE SAND
10	9	0	MW-1-10.0		
15	13	0	MW-1-15.0		SAME AS ABOVE
17				ML	SANDY SILT (ML): DARK YELLOW BROWN (10YR4/4); VERY STIFF; DRY; 30-50% FINE SAND
20		0	MW-1-20.0		

#60 P6

RIEDEL ENVIRONMENTAL SERVICES, INC. 403243
4138 LAKESIDE DRIVE
RICHMOND, CALIFORNIA 94806 5 of 6
(510) 222-7810

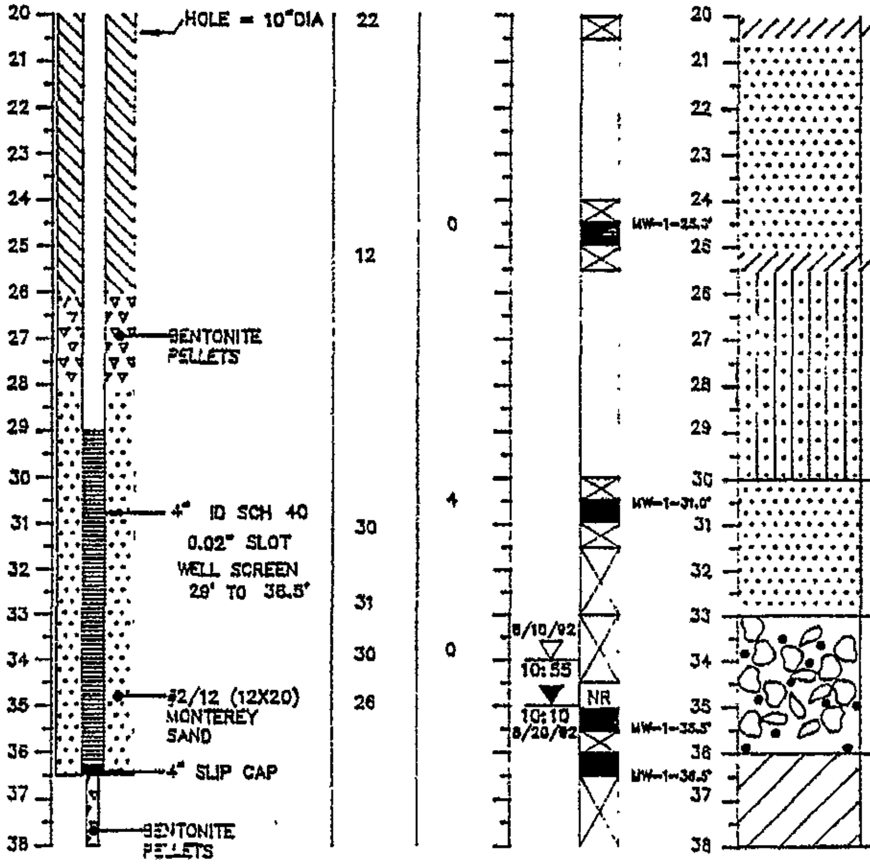
0350 2W17J07
SHEET 2
OF 2

FILE NAME PRICE\CLUB1-2

LOG OF BORING\MONITORING WELL B-1\MW-1

PROJECT NO	4014-9008	LOGGED BY	LEN NILES	BORING TOTAL DEPTH (FT.)	38
PROJECT NAME	PRICE CLUB-HAYWARD	DRILLING CO.	BAYLAND	TOP OF CASING ELEV. (FT.MSL)	62.61
LOCATION	HAYWARD, CA	DRILLING METHOD	HOLLOW STEM AUGER	SCREENED INTERVAL (FT.)	29' - 36.5'
DATE	8/10/92	DRILL RIG MODEL	CME-75	TOP OF VAULT BOX ELEV. (FT. MSL)	63.29

DEPTH IN FT.	WELL CONSTRUCTION DIAGRAM	BLOWS/FOOT	PID (PPM)	GROUNDWATER LEVELS	SAMPLES	DEPTH IN FT.	LITHOGRAPHIC COLUMN	LITHOGRAPHIC DESCRIPTION



GRADING TO SAND

SP SAND (SP): YELLOW BROWN (10YR5/4); MEDIUM DENSE; DAMP; 0-10% FINES; VERY FINE TO FINE SAND.

SM SILTY SAND (SM): YELLOW BROWN (10YR 5/4); MEDIUM DENSE; DAMP; 30-40% FINES; VERY FINE TO FINE SAND

SM SILTY SAND AS ABOVE EXCEPT DARK YELLOW BROWN (10YR4/4); FINE TO MEDIUM SAND

SP SAND (SP): LIGHT OLIVE BROWN (2.5Y5/3); MEDIUM DENSE; DAMP TO DRY; 0-10% FINES; FINE SAND; 10-20% MEDIUM SAND

SP AS ABOVE

GW SANDY GRAVEL (GW): GRAY BROWN (2.5Y4/2) MOTTLED WITH ORANGE; MEDIUM DENSE; 0-10% FINES; 30-40% FINE TO COARSE SAND; FINE TO COARSE GRAVEL; DRY 33'-34'; WET 34' - 35.8'

GW AS ABOVE, WET

CL SILTY CLAY (CL): DARK YELLOW BROWN (10YR4/4); DAMP; 0-10% FINE SAND

TOTAL DEPTH = 38 FEET

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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RIEDEL ENVIRONMENTAL SERVICES, INC.
4138 LAKESIDE DRIVE
RICHMOND, CALIFORNIA 94806
(510) 222-7810

4032244
5 of 7

03S02W 17J88

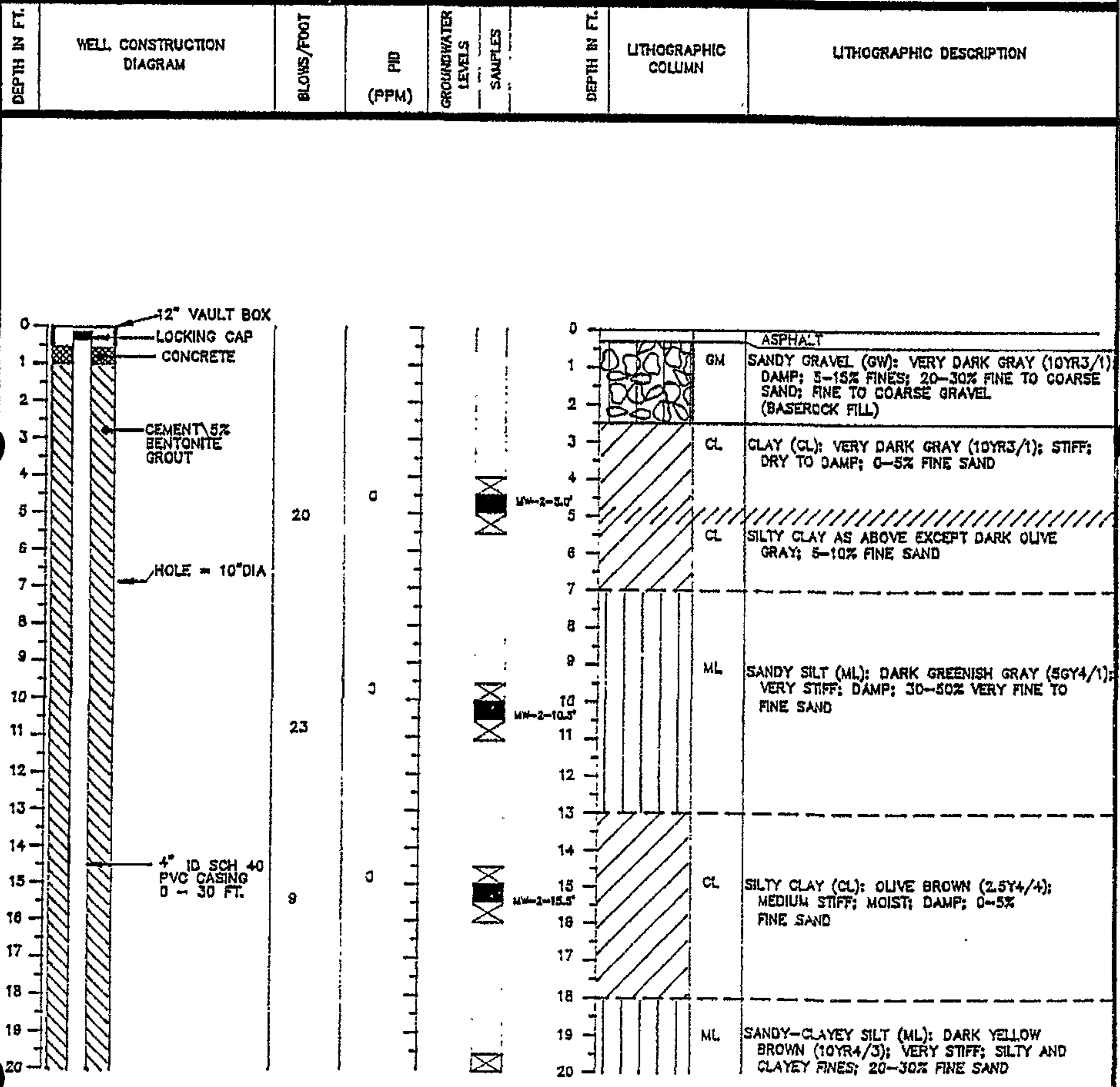
#61 p2

SHEET 1
OF 3

FILE NAME PRICE\CLUB1-2

LOG OF BORING\MONITORING WELL B-2\MW-2

PROJECT NO	4014-9008	LOGGED BY	LEN NILES	BORING TOTAL DEPTH (FT.)	50
PROJECT NAME	PRICE CLUB- HAYWARD	DRILLING CO.	BAYLAND	TOP OF CASING ELEV. (FT.MSL)	63.79
LOCATION	HAYWARD, CA	DRILLING METHOD	HOLLOW STEM AUGER	SCREENED INTERVAL (FT.)	30' - 50'
DATE	8/11/92	DRILL RIG MODEL	CME-75	TOP OF VAULT BOX ELEV. (FT. MSL)	64.40



LITHOGRAPHIC COLUMN	LITHOGRAPHIC DESCRIPTION
	ASPHALT
GM	SANDY GRAVEL (GW): VERY DARK GRAY (10YR3/1); DAMP; 5-15% FINES; 20-30% FINE TO COARSE SAND; FINE TO COARSE GRAVEL (BASEROCK FILL)
CL	CLAY (CL): VERY DARK GRAY (10YR3/1); STIFF; DRY TO DAMP; 0-5% FINE SAND
CL	SILTY CLAY AS ABOVE EXCEPT DARK OLIVE GRAY; 5-10% FINE SAND
ML	SANDY SILT (ML): DARK GREENISH GRAY (5GY4/1); VERY STIFF; DAMP; 30-50% VERY FINE TO FINE SAND
CL	SILTY CLAY (CL): OLIVE BROWN (2.5Y4/4); MEDIUM STIFF; MOIST; DAMP; 0-5% FINE SAND
ML	SANDY-CLAYEY SILT (ML): DARK YELLOW BROWN (10YR4/3); VERY STIFF; SILTY AND CLAYEY FINES; 20-30% FINE SAND

RIEDEL ENVIRONMENTAL SERVICES, INC.
4138 LAKESIDE DRIVE
RICHMOND, CALIFORNIA 94806
(510) 222-7810

403244
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03S02W 17J08

#61p3

SHEET 2
OF 3

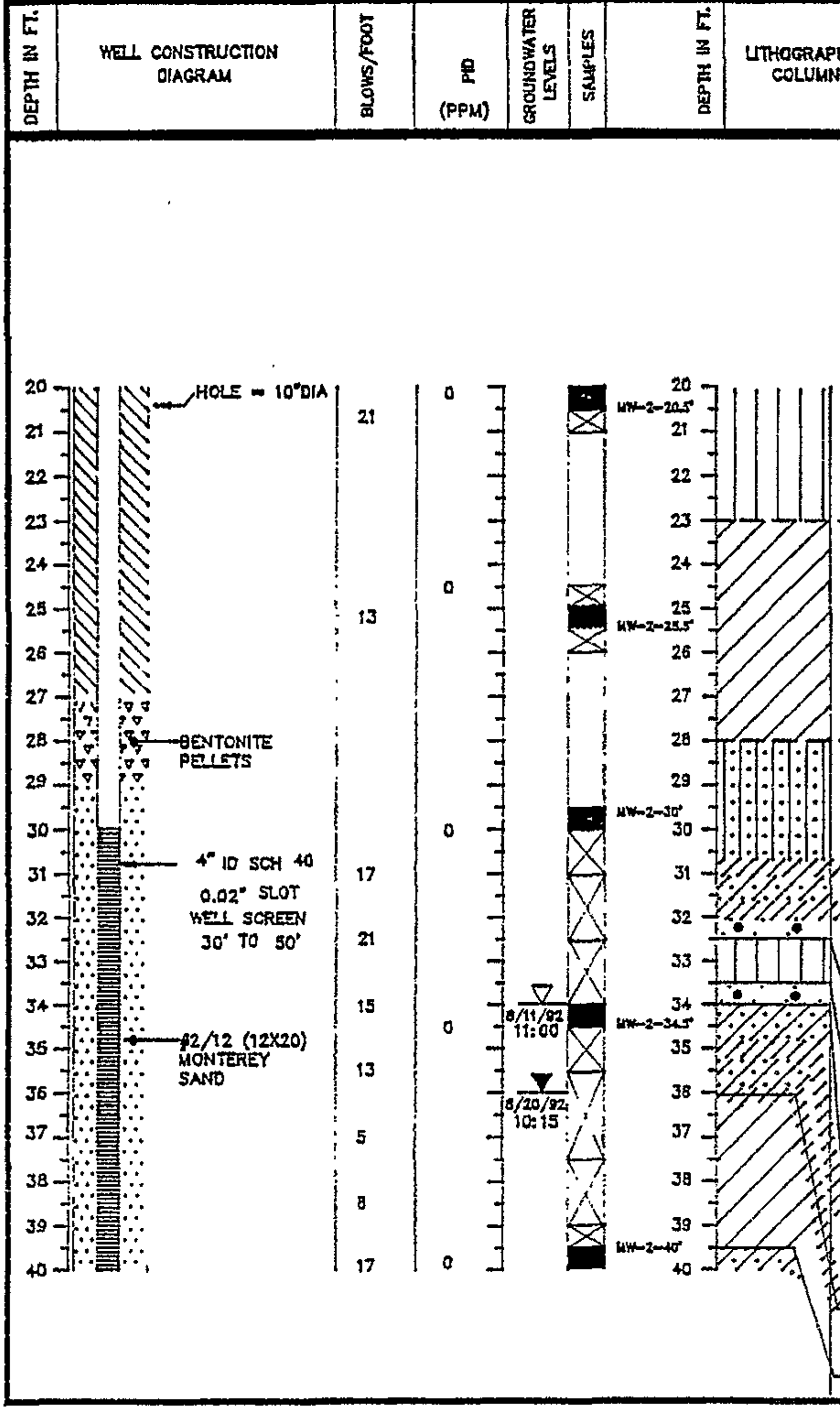
FILE NAME PRICE\CLUB1-2

LOG OF BORING\MONITORING WELL B-2\MW-2

PROJECT NO 4014-9008
PROJECT NAME PRICE CLUB-HAYWARD
LOCATION HAYWARD, CA
DATE 8/11/92

LOGGED BY LEN NILES
DRILLING CO. BAYLAND
DRILLING METHOD HOLLOW STEM AUGER
DRILL RIG MODEL CME-75

BORING TOTAL DEPTH (FT.) 50
TOP OF CASING ELEV. (FT.MSL) 63.79
SCREENED INTERVAL (FT.) 30' - 50'
TOP OF VAULT BOX ELEV. (FT. MSL) 64.40



	LITHOGRAPHIC DESCRIPTION
ML	SANDY-CLAYEY SILT (ML): AS ABOVE
CL	SILTY CLAY (CL): DARK YELLOW BROWN (10YR4/3); STIFF; DAMP; 0-5% FINE SAND
SM	SILTY SAND (SM): DARK YELLOW BROWN (10YR4/4) MEDIUM DENSE; DAMP; 10-20% FINES; FINE SAND
SC	CLAYEY SAND (SC): DARK YELLOW BROWN (10YR4/3); MEDIUM DENSE; DAMP; 30-50% FINES FINE SAND
SW	GRAVELLY SAND (SW): OLIVE BROWN (2.5Y4/4) DRY TO DAMP; 0-10% FINES; FINE TO COARSE SAND; 10-20% FINE GRAVEL
ML	SANDY SILT (ML): OLIVE BROWN (2.5Y4/3); STIFF; DAMP; 30-50% FINE SAND; CLAYEY AND SILTY FINES
SW	GRAVELLY SAND (SW): OLIVE BROWN (2.5Y4/4); DAMP; 0-10% FINES; FINE TO COARSE SAND; 20-30% FINE GRAVEL
SC	CLAYEY SAND: OLIVE BROWN (2.5Y4/4); MEDIUM DENSE; WET 34'-35.8'; 20-40% FINES; FINE SAND
CL/ SC	SANDY CLAY: OLIVE BROWN; MEDIUM STIFF; MOIST; 20-30% FINE SAND; INTERBEDDED WITH CLAYEY SAND FROM 35.5' TO 36.0'; OLIVE BROWN; LOOSE; MOIST TO WET; 30-50% FINES; FINE SAND
CL	SILTY CLAY (CL): DARK YELLOW BROWN (10YR4/3); STIFF; DAMP; 0-10% FINE SAND
SC	

#61 p4

RIEDEL ENVIRONMENTAL SERVICES, INC.
4138 LAKESIDE DRIVE
RICHMOND, CALIFORNIA 94806
(510) 222-7810

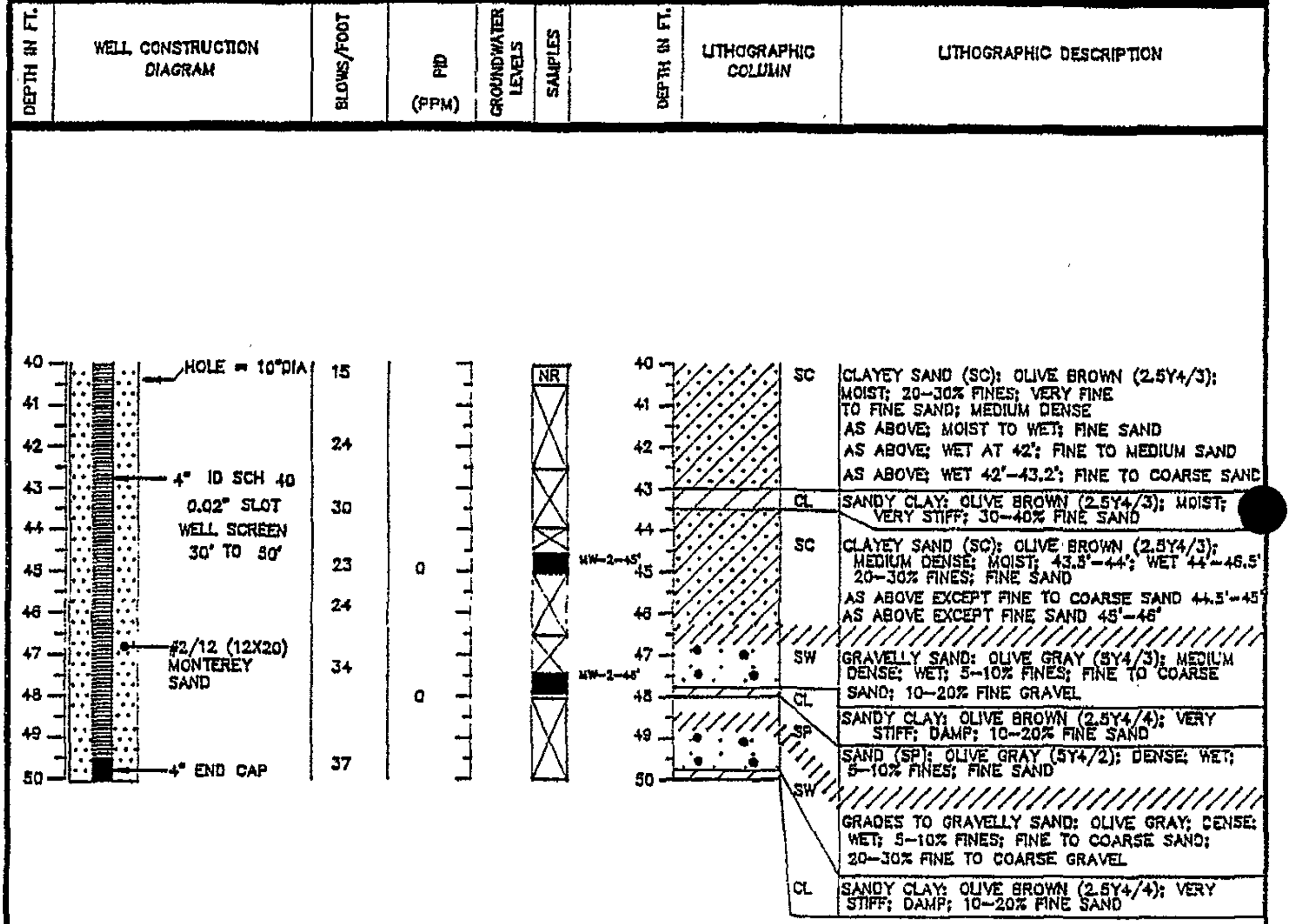
403244
737

03S02W17J08
SHEET 3
OF 3

FILE NAME PRICE\CLUB1-2

LOG OF BORING\MONITORING WELL B-2\MW-2

PROJECT NO	4014-9008	LOGGED BY	LEN NILES	BORING TOTAL DEPTH (FT.)	50
PROJECT NAME	PRICE CLUB-HAYWARD	DRILLING CO.	BAYLAND	TOP OF CASING ELEV. (FT.MSL)	63.79
LOCATION	HAYWARD, CA	DRILLING METHOD	HOLLOW STEM AUGER	SCREENED INTERVAL (FT.)	30' - 50'
DATE	8/11/92	DRILL RIG MODEL	CME-75	TOP OF VAULT BOX ELEV. (FT. MSL)	64.40



SC — CLAYEY SAND (SC): OLIVE BROWN (2.5Y4/3): MOIST; 20-30% FINES; VERY FINE TO FINE SAND; MEDIUM DENSE

AS ABOVE; MOIST TO WET; FINE SAND

AS ABOVE; WET AT 42'; FINE TO MEDIUM SAND

AS ABOVE; WET 42'-43.2'; FINE TO COARSE SAND

CL — SANDY CLAY: OLIVE BROWN (2.5Y4/3); MOIST; VERY STIFF; 30-40% FINE SAND

SC — CLAYEY SAND (SC): OLIVE BROWN (2.5Y4/3); MEDIUM DENSE; MOIST; 43.5'-44'; WET 44'-46.5' 20-30% FINES; FINE SAND

AS ABOVE EXCEPT FINE TO COARSE SAND 44.5'-45'

AS ABOVE EXCEPT FINE SAND 45'-46'

SW — GRAVELLY SAND: OLIVE GRAY (5Y4/3); MEDIUM DENSE; WET; 5-10% FINES; FINE TO COARSE SAND; 10-20% FINE GRAVEL

CL — SANDY CLAY: OLIVE BROWN (2.5Y4/4); VERY STIFF; DAMP; 10-20% FINE SAND

SP — SAND (SP): OLIVE GRAY (5Y4/2); DENSE; WET; 5-10% FINES; FINE SAND

SW — GRADES TO GRAVELLY SAND: OLIVE GRAY; DENSE; WET; 5-10% FINES; FINE TO COARSE SAND; 20-30% FINE TO COARSE GRAVEL

CL — SANDY CLAY: OLIVE BROWN (2.5Y4/4); VERY STIFF; DAMP; 10-20% FINE SAND

TOTAL DEPTH = 50 FEET

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

RIEDEL ENVIRONMENTAL SERVICES, INC. 403245
4138 LAKESIDE DRIVE 6 of 7
RICHMOND, CALIFORNIA 94806
(510) 222-7810

03S02W 12J09 #62 p2
SHEET 2
OF 3

FILE NAME PRICE\CLUB3-4

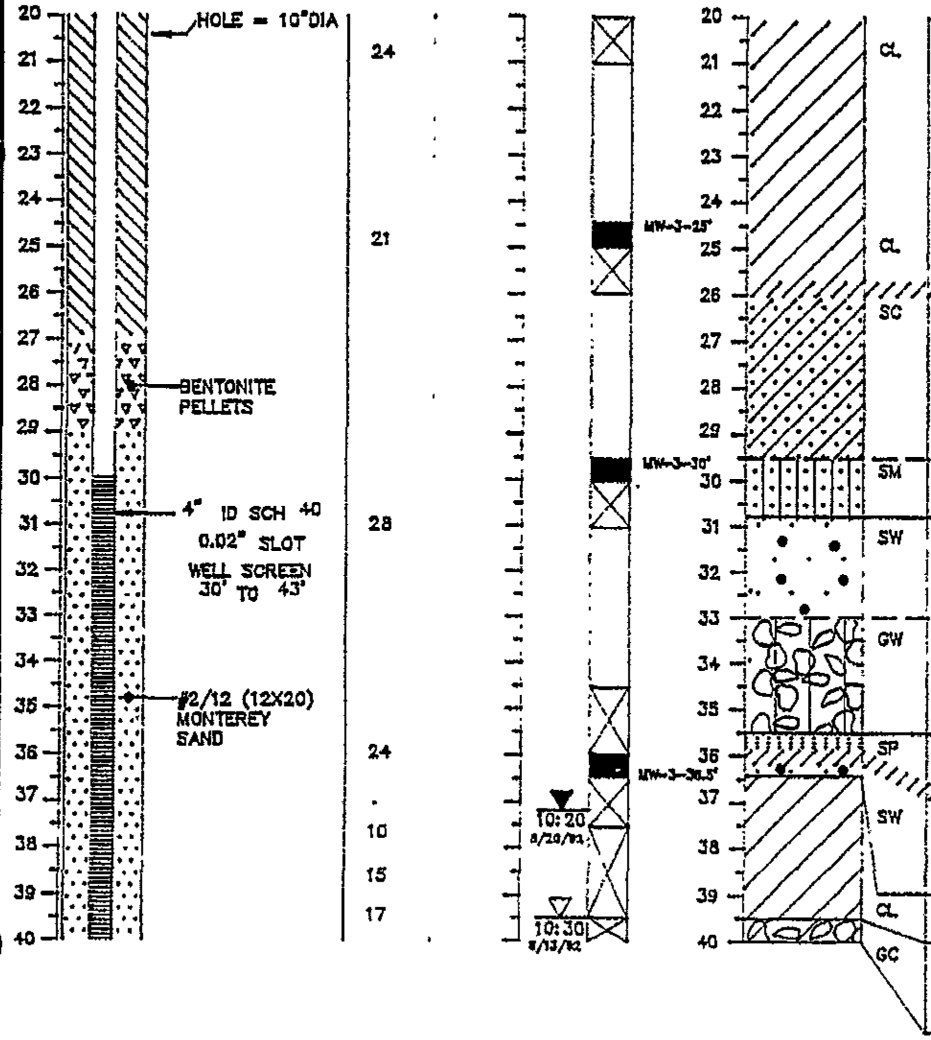
LOG OF BORING\MONITORING WELL B-3\MW-3

PROJECT NO 4014-9008
PROJECT NAME PRICE CLUB-HAYWARD
LOCATION HAYWARD, CA
DATE 8/13/92

LOGGED BY LEN NILES
DRILLING CO. BAYLAND
DRILLING METHOD HOLLOW STEM AUGER
DRILL RIG MODEL CME-75

BORING TOTAL DEPTH (FT.) 47.5
TOP OF CASING ELEV. (FT.MSL) 65.51
SCREENED INTERVAL (FT.) 30' - 43'
TOP OF VAULT BOX ELEV. (FT. MSL) 65.88

DEPTH IN FT. | WELL CONSTRUCTION DIAGRAM | BLOWS/FOOT | PID (PPM) | GROUNDWATER LEVELS | SAMPLES | DEPTH IN FT. | LITHOGRAPHIC COLUMN | LITHOGRAPHIC DESCRIPTION



LITHOGRAPHIC COLUMN	LITHOGRAPHIC DESCRIPTION
CL	SANDY CLAY (CL): DARK YELLOWISH BROWN (10YR4/4): VERY STIFF; DAMP: 10-25% FINE SAND
CL	SANDY CLAY AS ABOVE
SC	CLAYEY SAND (SC): DARK YELLOWISH BROWN (10YR4/6); MEDIUM DENSE; DAMP; 30-50% FINES; FINE SAND
SM	SILTY SAND (SM): OLIVE BROWN (2.5Y4/4); MEDIUM DENSE; DAMP; 5-15% FINES; VERY FINE TO FINE SAND
SW	GRAVELLY SAND (SW): OLIVE BROWN (2.5Y4/3); MEDIUM DENSE; DAMP; 5-10% FINES; FINE TO COARSE SAND
GW	SANDY GRAVEL (GW): DARK GRAYISH BROWN (2.5Y4/2); MEDIUM DENSE; DRY TO DAMP; 0-10% FINES: 20-30% FINE TO COARSE SAND; FINE TO COURSE GRAVEL
SP	SAND (SP): OLIVE BROWN (2.5Y4/4); MEDIUM DENSE; DAMP; FINE SAND
SW	GRAVELLY SAND (SW): DARK GRAYISH BROWN (2.5Y4/2); LOOSE; DAMP; 0-10% FINES: FINE TO COARSE SAND; 10-20% FINE TO COARSE GRAVEL
CL	SILTY CLAY (CL): DARK BROWN (10YR4/3); STIFF; DAMP; 0-10% FINE SAND
GC	CLAYEY GRAVEL (GC): OLIVE BROWN (2.5Y4/3): MEDIUM DENSE; WET 39.5'-40'; 20-30% FINES; 30-40% FINE TO COARSE SAND; FINE TO COARSE GRAVEL

EDLL ENV ONMENTAL SERVICES, INC.
4138 LAKESIDE DRIVE
RICHMOND, CALIFORNIA 94806
(510) 222-7810

403245
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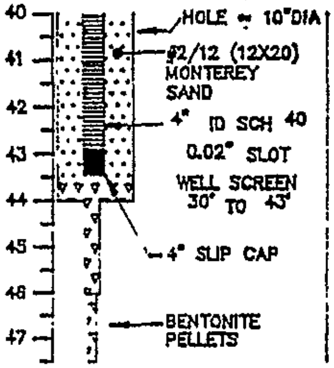
SHEET 3
OF 3

FILE NAME PRICE\CLUB3-4

LOG OF BORING\MONITORING WELL B-3\MW-3

PROJECT NO	4014-9008	LOGGED BY	LEN NILES	BORING TOTAL DEPTH (FT.)	47.5
PROJECT NAME	PRICE CLUB-HAYWARD	DRILLING CO.	BAYLAND	TOP OF CASING ELEV. (FT.MSL)	65.51
LOCATION	HAYWARD, CA	DRILLING METHOD	HOLLOW STEM AUGER	SCREENED INTERVAL (FT.)	30' - 43'
DATE	8/13/92	DRILL RIG MODEL	CME-75	TOP OF VAULT BOX ELEV. (FT. MSL)	65.88



DEPTH IN FT.	WELL CONSTRUCTION DIAGRAM	BLOWS/FOOT	PID (PPM)	GROUNDWATER LEVELS	SAMPLES	DEPTH IN FT.	LITHOGRAPHIC COLUMN	LITHOGRAPHIC DESCRIPTION
40		16			☒	40	CL	SILTY CLAY (CL): OLIVE BROWN (2.5Y4/4); STIFF; MOIST; 5-10% FINE SAND
41		10			■ MW-3-41.5'	41	SC	CLAYEY SAND: OLIVE BROWN (2.5Y4/3); LOOSE; WET AT 41'-42.4'; 30-50% VERY FINE TO FINE SAND
43		14			☒	43	CL	SILTY CLAY (CL): OLIVE BROWN (2.5Y4/4); STIFF; DAMP; 0-10% FINE SAND
45		12			☒	45	CL	AS ABOVE; OLIVE BROWN (2.5Y4/3)
47		12			■ MW-3-47.5'	47	CL	SILTY CLAY AS ABOVE

TOTAL DEPTH = 47.5 FEET

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WELL COMPLETION REPORT
(WELL LOGS)

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#63 P2

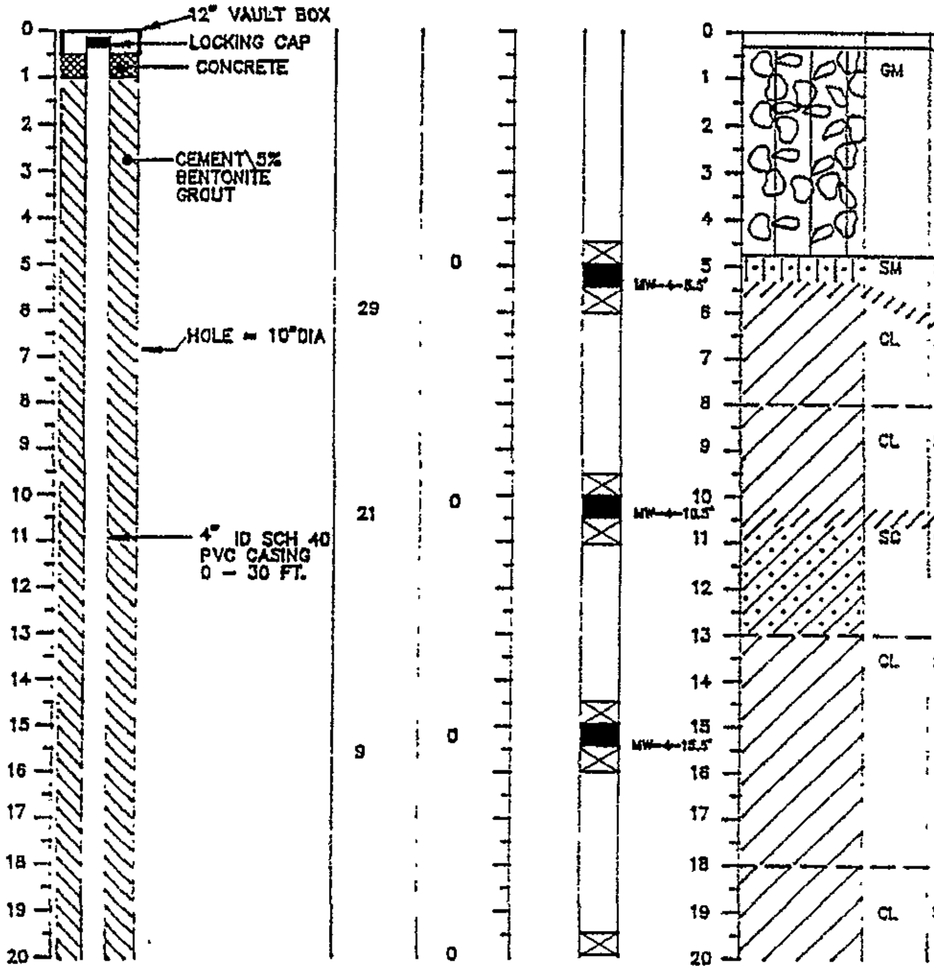
SHEET 1
OF 3

FILE NAME PRICE\CLUB3-4

LOG OF BORING\MONITORING WELL B-4\MW-4

PROJECT NO 4014-9008
PROJECT NAME PRICE CLUB-HAYWARD
LOCATION HAYWARD, CA
DATE 8/13/92
LOGGED BY LEN NILES
DRILLING CO. BAYLAND
DRILLING METHOD HOLLOW STEM AUGER
DRILL RIG MODEL CME-75
BORING TOTAL DEPTH (FT.) 48
TOP OF CASING ELEV. (FT.MSL) 65.06
SCREENED INTERVAL (FT.) 30' - 43.5'
TOP OF VAULT BOX ELEV. (FT. MSL) 65.72

DEPTH IN FT.	WELL CONSTRUCTION DIAGRAM	BLOWS/FOOT	PID (PPM)	GROUNDWATER LEVELS	SAMPLES	DEPTH IN FT.	LITHOGRAPHIC COLUMN	LITHOGRAPHIC DESCRIPTION



ASPHALT

GM SILTY GRAVEL: VERY DARK GRAYISH BROWN (2.5Y3/2); 10-20% FINES; 20-30% FINE TO COARSE SAND; FINE TO COARSE GRAVEL BASEROCK FILL

SM SILTY SAND: DARK GREENISH GRAY (5GY4/1); MEDIUM DENSE; DAMP; 30-40% FINES; VERY FINE TO FINE SAND

CL SANDY CLAY: OLIVE BROWN (2.5Y4/3); VERY STIFF; DRY; 20-30% FINE SAND

CL SILTY CLAY (CL): OLIVE BROWN (2.5Y4/3); VERY STIFF; DAMP; 0-5% FINE SAND

SC CLAYEY SAND (SC): OLIVE BROWN (2.5Y4/3); MEDIUM DENSE; 30-40% FINES; FINE SAND

CL SILTY CLAY (CL): DARK BROWN (10YR3/3); MEDIUM STIFF; DAMP; 5-10% FINE SAND

CL SANDY CLAY (CL): DARK BROWN (10YR3/3); STIFF; DAMP; 10-20% FINE SAND; 0-5% COARSE SAND TO FINE GRAVEL

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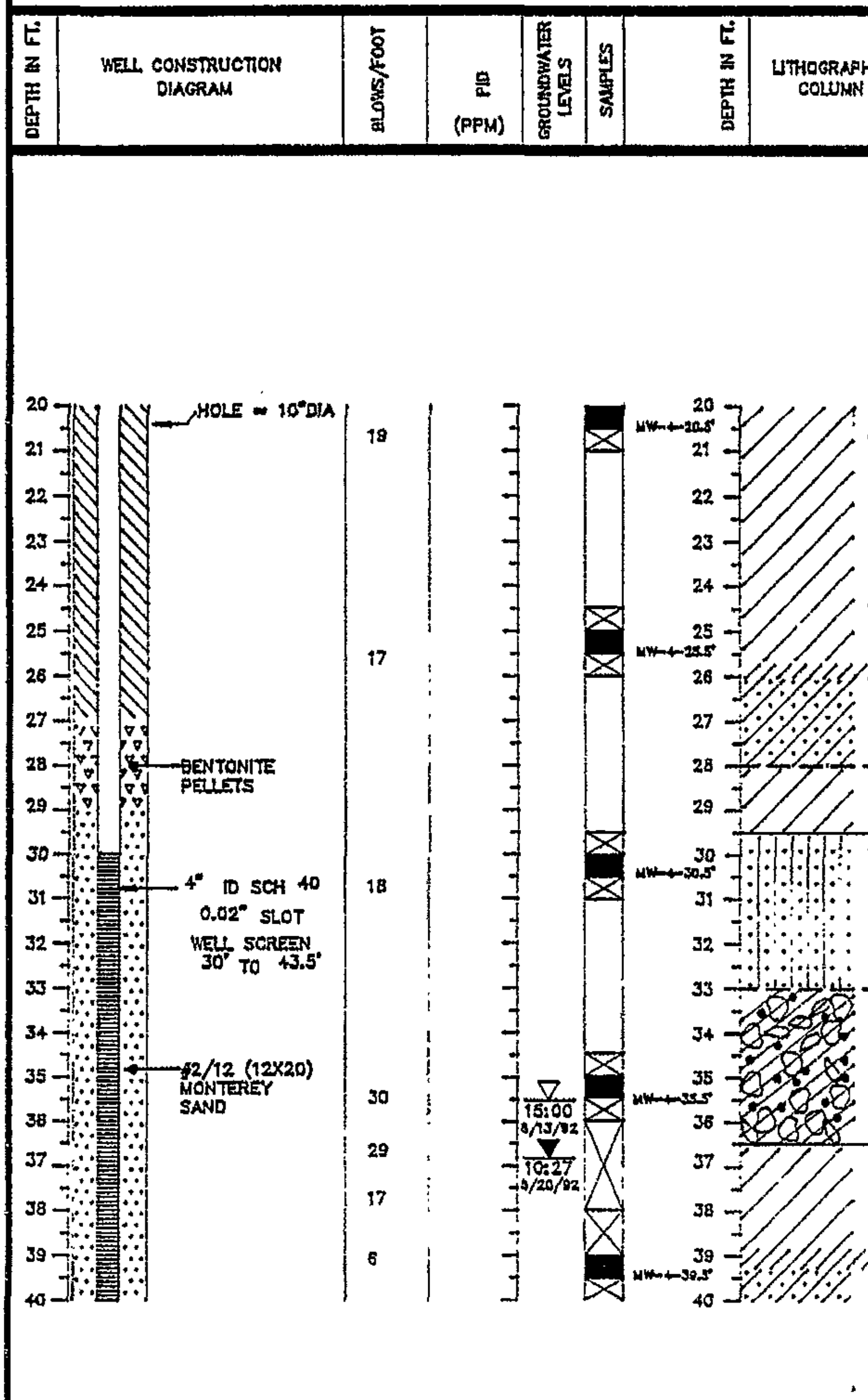
SHEET 2
OF 3

FILE NAME PRICE\CLUB3-4

LOG OF BORING\MONITORING WELL B-4\MW-4

PROJECT NO 4014-9008
LOGGED BY LEN NILES
BORING TOTAL DEPTH (FT.) 48
PROJECT NAME PRICE CLUB-HAYWARD
DRILLING CO. BAYLAND
TOP OF CASING ELEV. (FT.MSL) 65.08
LOCATION HAYWARD, CA
DRILLING METHOD HOLLOW STEM AUGER
SCREENED INTERVAL (FT.) 30' - 43.5'
DATE 8/13/92
DRILL RIG MODEL CME-75
TOP OF VAULT BOX ELEV. (FT. MSL) 85.72



LITHOGRAPHIC DESCRIPTION

SANDY CLAY (CL) DARK BROWN (10YR3/3); STIFF; DAMP; 10-20% FINE SAND; 0-5% COARSE SAND TO FINE GRAVEL

SANDY CLAY AS ABOVE; COLOR CHANGE TO DARK YELLOWISH BROWN (10YR4/4) INCREASE IN FINE SAND TO 20-30%

GRADING TO CLAYEY SAND (SC): DARK YELLOWISH BROWN; MEDIUM DENSE; DAMP; 30-50% FINES; FINE SAND

SANDY CLAY (CL): DARK BROWN (10YR3/3); STIFF; DAMP; 10-20% FINE SAND

SILTY SAND (SM): OLIVE BROWN (2.5Y4/4); MEDIUM DENSE; DAMP; 30-40% FINES; VERY FINE TO FINE SAND

SANDY GRAVEL (GW): VERY DARK GRAYISH BROWN (2.5Y3/2); MEDIUM DENSE; MOIST 34.5'-35.5'; WET 35.5'-36'; 5-15% FINES; 30-40% FINE TO COARSE SAND; FINE TO COARSE GRAVEL; LARGE SANDSTONE CLAST

SANDY CLAY (CL): OLIVE BROWN (2.5Y3/3); VERY STIFF; DAMP; 20-30% FINE SAND

AS ABOVE EXCEPT INCREASING SAND; MOIST

CLAYEY SAND (SC): OLIVE BROWN (2.5Y4/4); LOOSE; WET; 30-40% FINES; VERY FINE TO FINE SAND; LENS OF FINE TO COARSE GRAVEL FROM 39.8'-40'

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SHEET 3
OF 3
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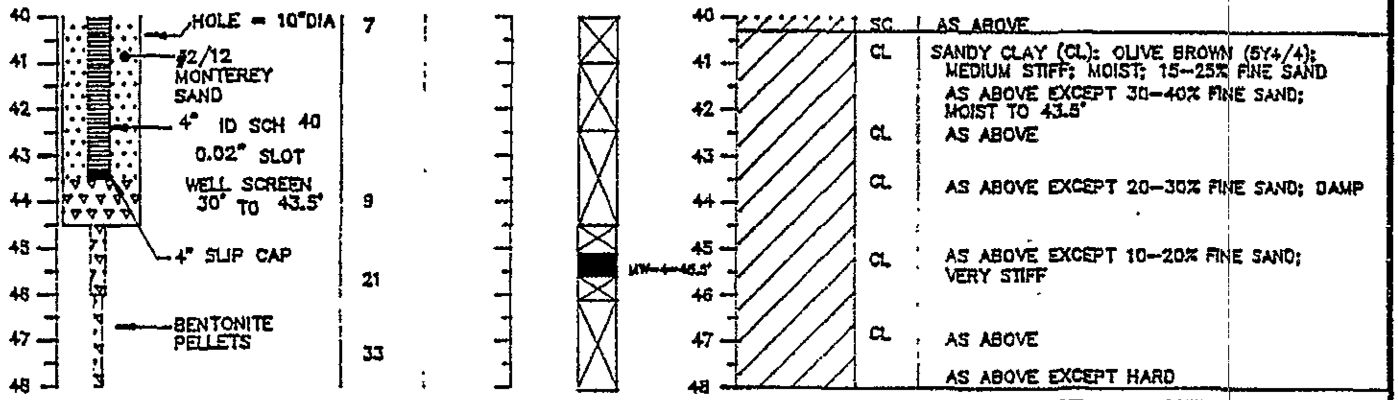
FILE NAME PRICE\CLUB3-4

LOG OF BORING\MONITORING WELL B-4\MW-4

PROJECT NO 4014-9008
LOGGED BY LEN NILES
BORING TOTAL DEPTH (FT.) 48
PROJECT NAME PRICE CLUB-HAYWARD
DRILLING CO. BAYLAND
TOP OF CASING ELEV. (FT.MSL) 65.08
LOCATION HAYWARD, CA
DRILLING METHOD HOLLOW STEM AUGER
SCREENED INTERVAL (FT.) 30' - 43.5'
DATE 8/13/92
DRILL RIG MODEL CME-75
TOP OF VAULT BOX ELEV. (FT. MSL) 65.72

DEPTH IN FT.	WELL CONSTRUCTION DIAGRAM	BLOWS/FOOT	PID (PPM)	GROUNDWATER LEVELS	SAMPLES	DEPTH IN FT.	LITHOGRAPHIC COLUMN	LITHOGRAPHIC DESCRIPTION



SC	AS ABOVE
CL	SANDY CLAY (CL): OLIVE BROWN (5Y4/4); MEDIUM STIFF; MOIST; 15-25% FINE SAND
	AS ABOVE EXCEPT 30-40% FINE SAND; MOIST TO 43.5'
CL	AS ABOVE
CL	AS ABOVE EXCEPT 20-30% FINE SAND; DAMP
CL	AS ABOVE EXCEPT 10-20% FINE SAND; VERY STIFF
CL	AS ABOVE
	AS ABOVE EXCEPT HARD

TOTAL DEPTH = 48 FEET

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WELL COMPLETION REPORT
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#64 P2

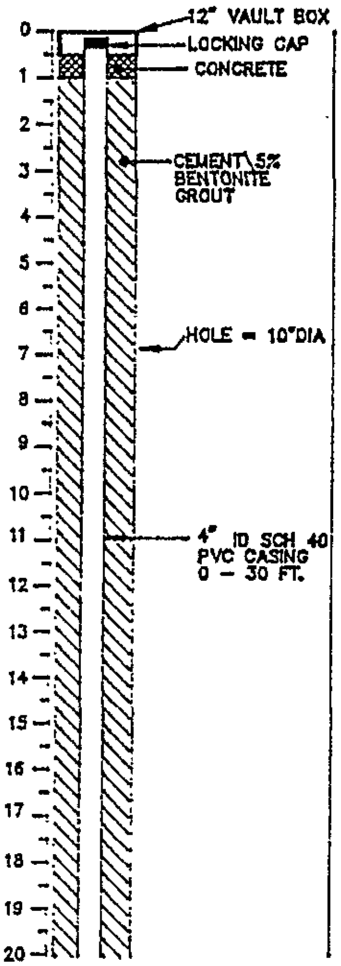
SHEET 1
OF 3

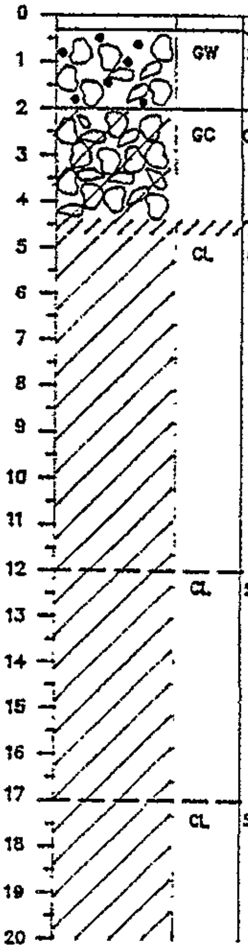
FILE NAME PRICE\CLUB5-6

LOG OF BORING\MONITORING WELL B-5\MW-5

PROJECT NO	4014-9008	LOGGED BY	LEN NILES	BORING TOTAL DEPTH (FT.)	50
PROJECT NAME	PRICE CLUB-HAYWARD	DRILLING CO.	BAYLAND	TOP OF CASING ELEV. (FT.MSL)	64.44
LOCATION	HAYWARD, CA	DRILLING METHOD	HOLLOW STEM AUGER	SCREENED INTERVAL (FT.)	30' - 45'
DATE	8/18/92	DRILL RIG MODEL	CME-75	TOP OF VAULT BOX ELEV. (FT.MSL)	64.88

DEPTH IN FT.	WELL CONSTRUCTION DIAGRAM	BLOWS/FOOT	PID (PPM)	GROUNDWATER LEVELS	SAMPLES	DEPTH IN FT.	LITHOGRAPHIC COLUMN	LITHOGRAPHIC DESCRIPTION
6			0					
19			0					





0	ASPHALT
GW	SANDY GRAVEL (GW): GREENISH GRAY (5GY5/1); 20-30% FINE TO COARSE SAND; FINE TO COARSE GRAVEL; 0-10% FINES; BASEROCK FILL
GC	CLAYEY GRAVEL (GC): VERY DARK GRAYISH BROWN (2.5Y3/2); DAMP; 20-30% FINES; 20-30% FINE TO COARSE SAND; FINE TO COARSE GRAVEL; WOOD CHIPS AND DEBRIS FILL; FROM CUTTINGS
CL	GRAVELLY CLAY (CL): VERY DARK GRAYISH (2.5Y3/2); DAMP; 10-20% FINE TO COARSE SAND; 20-30% FINE TO COARSE GRAVEL; FILL; FROM CUTTINGS
CL	SANDY CLAY (CL): DARK OLIVE GRAY (5Y3/2); DAMP; 10-20% FINE TO MEDIUM SAND; FILL; FROM CUTTINGS
CL	SILTY CLAY (CL): DARK GRAYISH BROWN (2.5Y3/2); DAMP; 0-5% FINE SAND.

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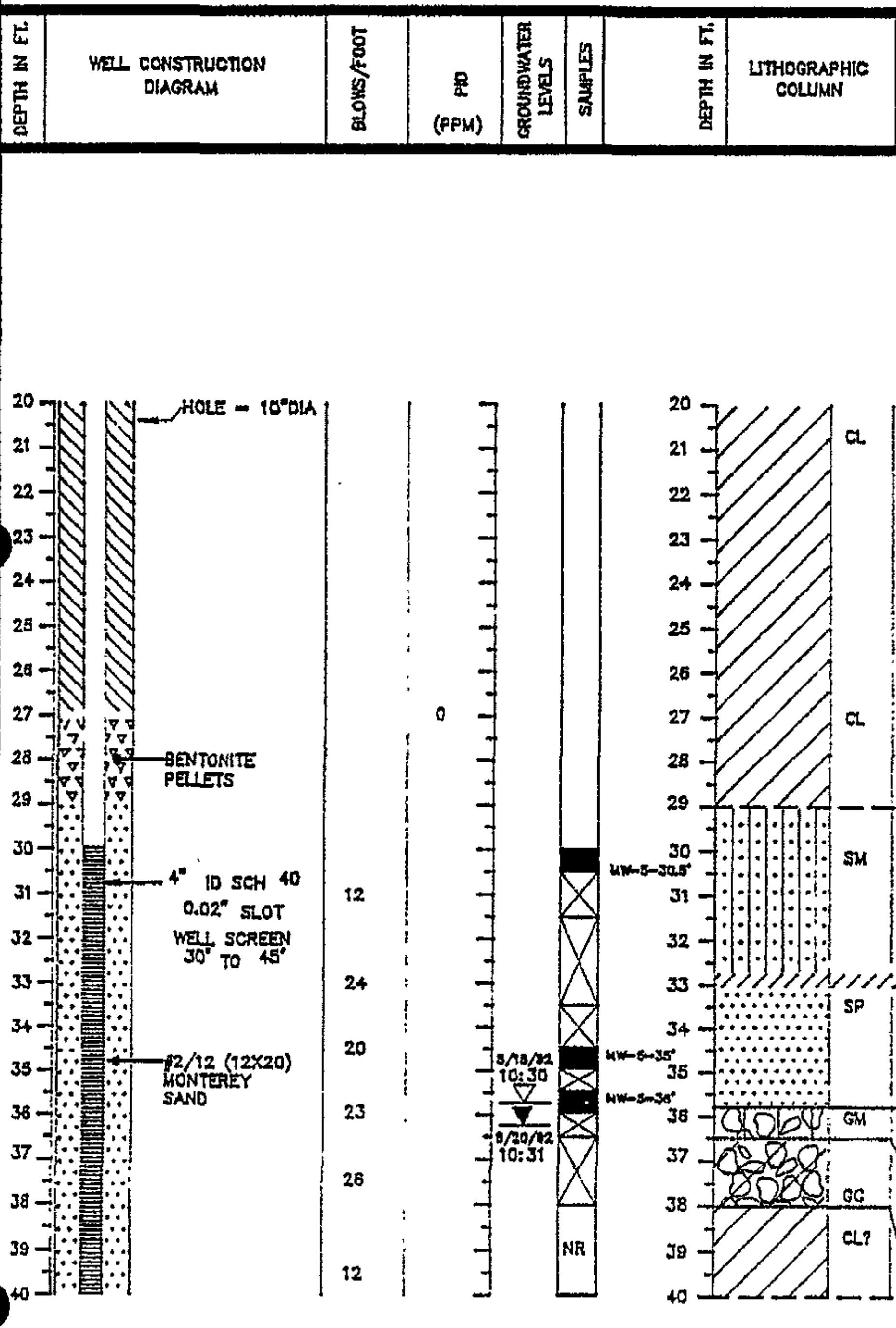
SHEET 2
OF 3

FILE NAME PRICE\CLUB5-6

LOG OF BORING\MONITORING WELL B-5\MW-5

PROJECT NO 4014-9008
LOGGED BY LEN NILES
BORING TOTAL DEPTH (FT.) 50
PROJECT NAME PRICE CLUB-HAYWARD
DRILLING CO. BAYLAND
TOP OF CASING ELEV. (FT.MSL) 64.44
LOCATION HAYWARD, CA
DRILLING METHOD HOLLOW STEM AUGER
SCREENED INTERVAL (FT.) 30' - 45'
DATE 8/18/92
DRILL RIG MODEL CME-75
TOP OF VAULT BOX ELEV. (FT.MSL) 64.88



LITHOGRAPHIC DESCRIPTION

SILTY CLAY: AS ABOVE

SILTY CLAY AS ABOVE EXCEPT: COLOR CHANGE TO VERY DARK GRAY (2.5YN3/0); NATIVE? (FROM CUTTINGS)

CONTACT UNCERTAIN: PROBABLY GRADATIONAL

SILTY SAND (SM): DARK GREENISH GRAY (5GY4/1); 30-50% SILTY FINES; VERY FINE TO FINE SAND; STIFF; DAMP

AS ABOVE EXCEPT VERY DARK GRAY (2.5YN3/0) MOTTLED WITH BLACK (2.5YN3/0)

SAND (SP): VERY DARK GRAY (2.5YN3/0); MEDIUM DENSE; DAMP; 5-10% FINES; FINE SAND

AS ABOVE EXCEPT BLACK (2.5YN2/0); MOIST

SILTY GRAVEL (GM): (2.5YN2/0); WET; MEDIUM DENSE; 10-20% FINES; 30-40% FINE TO COARSE SAND; FINE TO COARSE GRAVEL

CLAYEY GRAVEL (GC): DARK GREENISH GRAY (5GY4/1); MEDIUM DENSE; WET; 10-20% FINES; 20-30% FINE TO COARSE SAND; FINE TO COARSE GRAVEL; SANDSTONE CLASTS

NO RECOVERY; FELT LIKE CLAY TO DRILLERS

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SHEET 3
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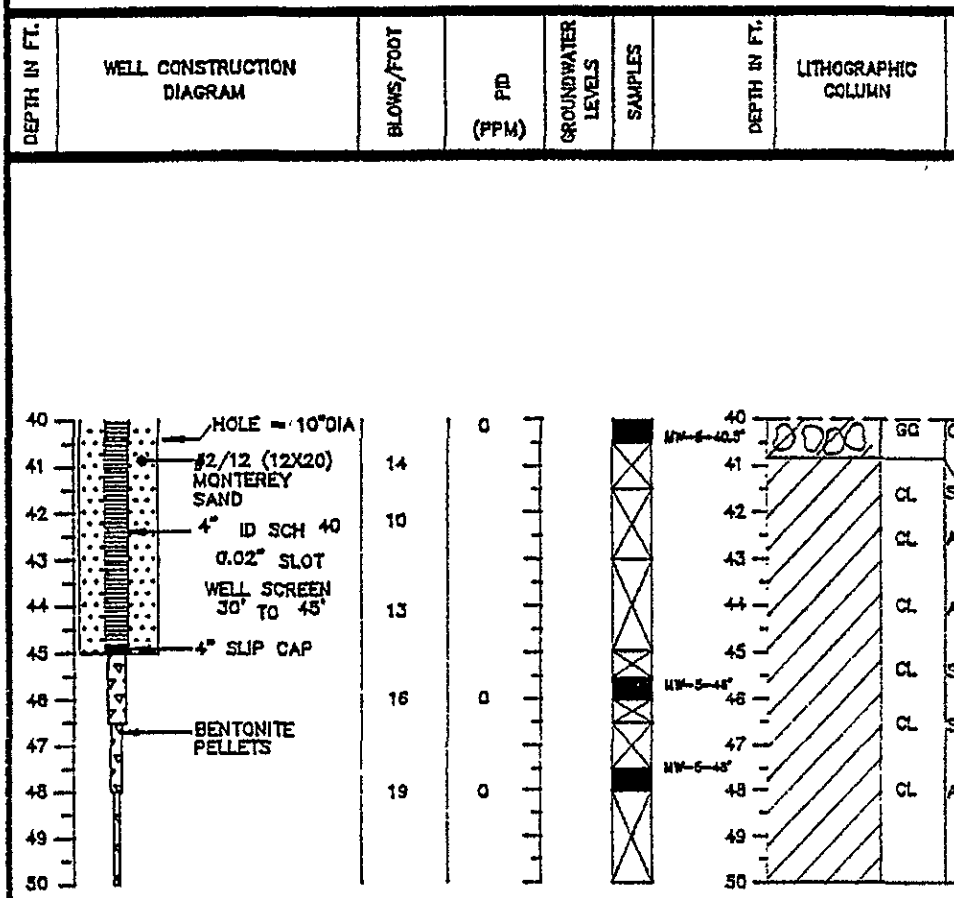
P4

FILE NAME PRICE\CLUBS-6

LOG OF BORING\MONITORING WELL B-5\MW-5

PROJECT NO	4014-9008	LOGGED BY	LEN NILES	BORING TOTAL DEPTH (FT.)	50
PROJECT NAME	PRICE CLUB-HAYWARD	DRILLING CO.	BAYLAND	TOP OF CASING ELEV. (FT.MSL)	64.44
LOCATION	HAYWARD, CA	DRILLING METHOD	HOLLOW STEM AUGER	SCREENED INTERVAL (FT.)	30' - 45'
DATE	8/18/92	DRILL RIG MODEL	CME-75	TOP OF VAULT BOX ELEV. (FT.MSL)	64.88



DEPTH IN FT.	BLOWS/FOOT	PID (PPM)
40		0
41	14	
42	10	
44	13	
46	16	0
48	19	0

	LITHOGRAPHIC DESCRIPTION
GC	CLAYEY GRAVEL (GC): DARK GREENISH GRAY; WET; 10-20% FINES; 20-30% FINE TO COARSE SAND; FINE TO COARSE GRAVEL
CL	SANDY CLAY (CL): DARK GREENISH GRAY (5G4/1); STIFF; DAMP; 20-30% FINE SAND
CL	AS ABOVE EXCEPT 30-50% FINE SAND; MOIST TO WET 41.5' - 45'
CL	AS ABOVE; MOIST TO WET
CL	SANDY CLAY: DARK GREENISH GRAY (5GY4/1); MEDIUM STIFF; MOIST; 20-30% FINE SAND
CL	SANDY CLAY AS ABOVE EXCEPT 10-20% FINE SAND; MOIST
CL	AS ABOVE EXCEPT COLOR CHANGE TO DARK OLIVE GRAY (5Y3/2); DAMP

TOTAL DEPTH = 50 FEET

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

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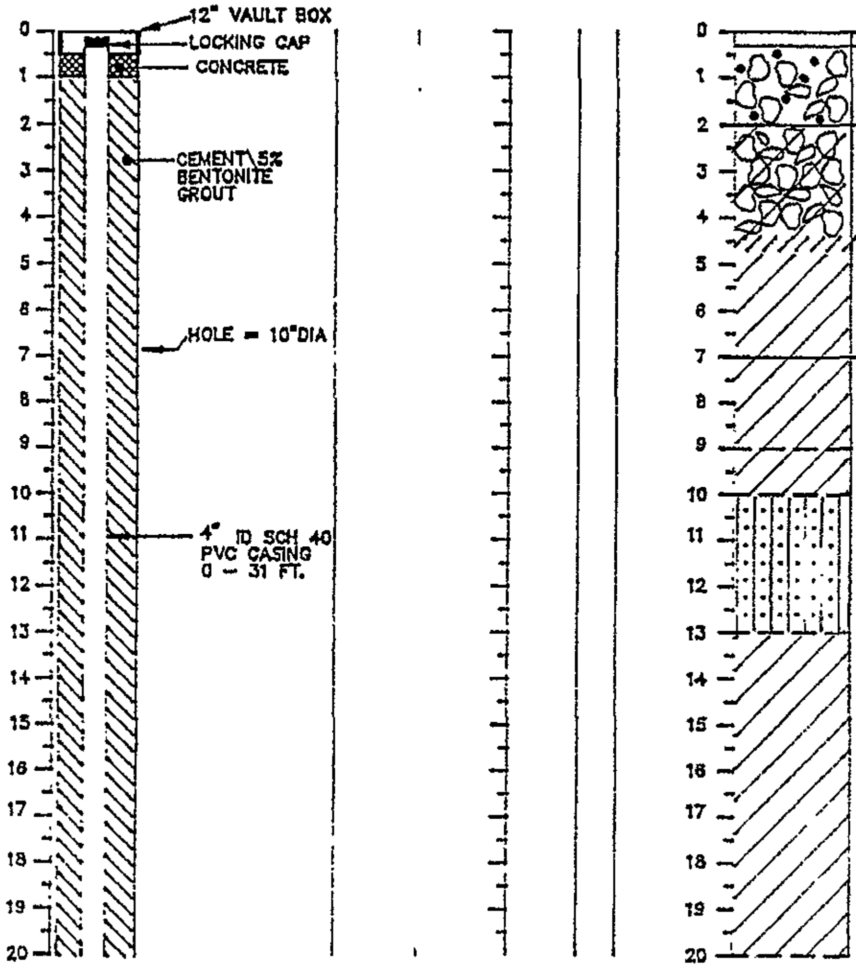
SHEET 1
OF 3

FILE NAME PRICE\CLUB5-6

LOG OF BORING\MONITORING WELL B-6\MW-6

PROJECT NO 4014-9006
LOGGED BY LEN NILES
BORING TOTAL DEPTH (FT.) 46.5
PROJECT NAME PRICE CLUB-HAYWARD
DRILLING CO. BAYLAND
TOP OF CASING ELEV. (FT.MSL) 66.51
LOCATION HAYWARD, CA
DRILLING METHOD HOLLOW STEM AUGER
SCREENED INTERVAL (FT.) 31' - 41'
DATE 8\17\92
DRILL RIG MODEL CME-75
TOP OF VAULT BOX ELEV. (FT.MSL) 66.92

DEPTH IN FT.	WELL CONSTRUCTION DIAGRAM	BLOWS/FOOT	PID (PPM)	GROUNDWATER LEVELS	SAMPLES	DEPTH IN FT.	LITHOGRAPHIC COLUMN		LITHOGRAPHIC DESCRIPTION



	ASPHALT
GW	SANDY GRAVEL (GW): GREENISH GRAY (5GY5/1); 20-30% FINE TO COARSE SAND; FINE TO COARSE GRAVEL; 0-10% FINES; BASEROCK FILL
GC	CLAYEY GRAVEL (GC): VERY DARK GRAYISH BROWN (2.5Y3/2); DAMP; 15-25% FINES; 20-30% FINE TO COARSE SAND; FINE TO COARSE GRAVEL; WOOD CHIPS FILL; FROM CUTTINGS
CL	GRAVELLY CLAY (CL): VERY DARK GRAYISH BROWN (2.5Y3/2); 20-30% FINE TO COARSE SAND; 20-30% FINE TO COARSE GRAVEL; (FILL; FROM CUTTINGS)
CL	SILTY CLAY: DARK BROWN (10YR4/3); DAMP; 0-10% FINE TO COARSE SAND;
CL	SANDY CLAY (CL): OLIVE GRAY (2.5Y4/1); DAMP; MOIST; 30-40% FINE SAND
SM	SILTY SAND: YELLOWISH BROWN (10YR6/4); DAMP; 10-20% FINES; FINE TO COARSE SAND; 20-30% FINE TO COARSE GRAVEL;
CL	SANDY CLAY (CL): DARK BROWN (10YR2/3); DAMP; MOIST; 5-15% FINE SAND; 0-10% FINE GRAVEL;

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SHEET 2
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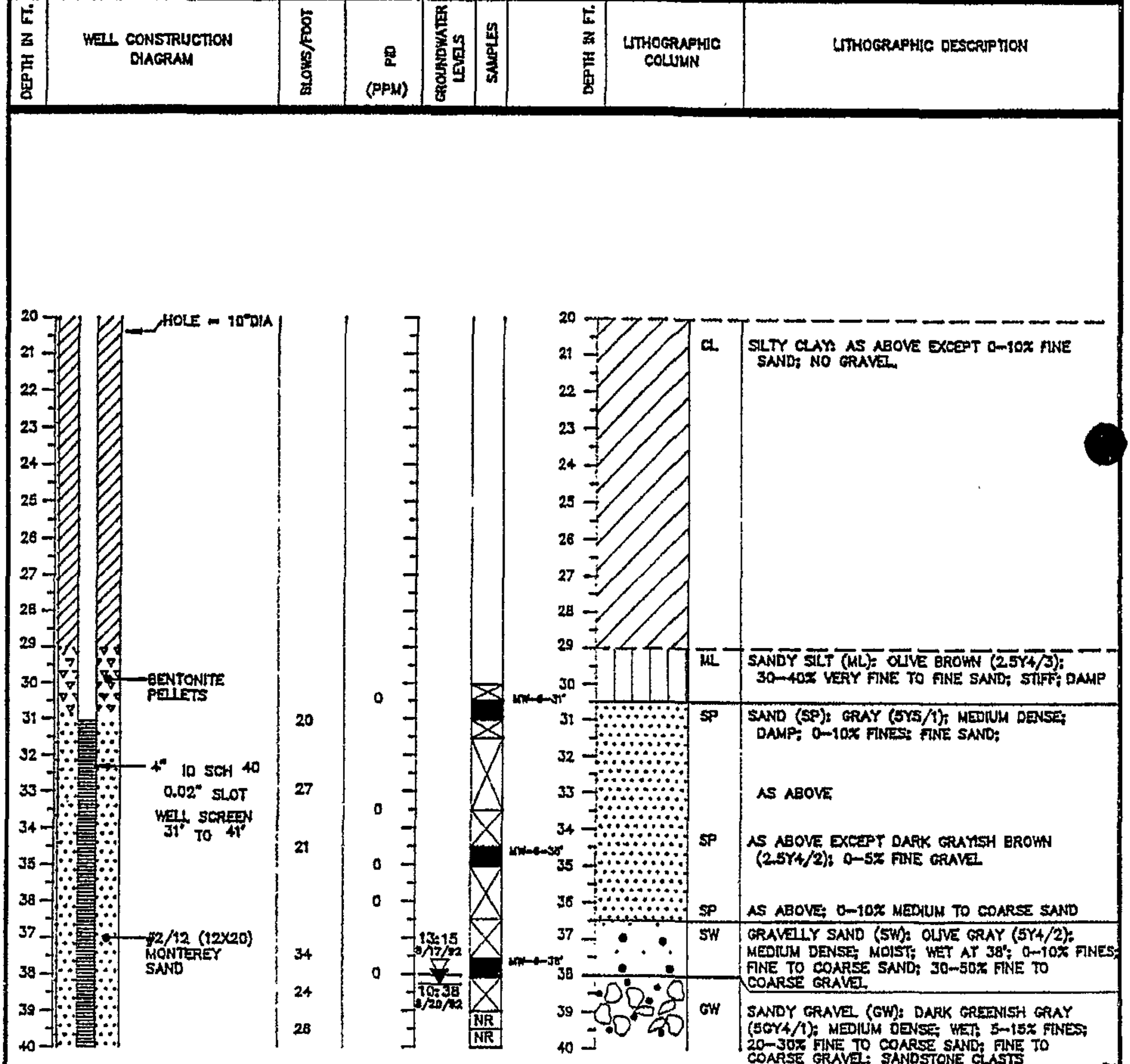
FILE NAME PRICE\CLUBS-6

LOG OF BORING\MONITORING WELL B-6\MW-6

PROJECT NO 4014-9008
LOGGED BY LEN NILES
BORING TOTAL DEPTH (FT.) 48.5
PROJECT NAME PRICE CLUB-HAYWARD
DRILLING CO. BAYLAND
TOP OF CASING ELEV. (FT.MSL) 65.51
LOCATION HAYWARD, CA
DRILLING METHOD HOLLOW STEM AUGER
SCREENED INTERVAL (FT.) 31' - 41'
DATE 8\17\92
DRILL RIG MODEL CME-75
TOP OF VAULT BOX ELEV. (FT.MSL) 66.92



20–29	CL	SILTY CLAY: AS ABOVE EXCEPT 0-10% FINE SAND; NO GRAVEL.
29–30.5	ML	SANDY SILT (ML): OLIVE BROWN (2.5Y4/3); 30-40% VERY FINE TO FINE SAND; STIFF; DAMP
30.5	SP	SAND (SP): GRAY (5Y5/1); MEDIUM DENSE; DAMP; 0-10% FINES: FINE SAND;
33		AS ABOVE
34.5	SP	AS ABOVE EXCEPT DARK GRAYISH BROWN (2.5Y4/2); 0-5% FINE GRAVEL
36	SP	AS ABOVE; 0-10% MEDIUM TO COARSE SAND
36.5–38	SW	GRAVELLY SAND (SW): OLIVE GRAY (5Y4/2); MEDIUM DENSE; MOIST; WET AT 38'; 0-10% FINES; FINE TO COARSE SAND; 30-50% FINE TO COARSE GRAVEL
38–40	GW	SANDY GRAVEL (GW): DARK GREENISH GRAY (5GY4/1); MEDIUM DENSE; WET; 5-15% FINES; 20-30% FINE TO COARSE SAND; FINE TO COARSE GRAVEL; SANDSTONE CLASTS WET 38' - 40.5'

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SHEET 3
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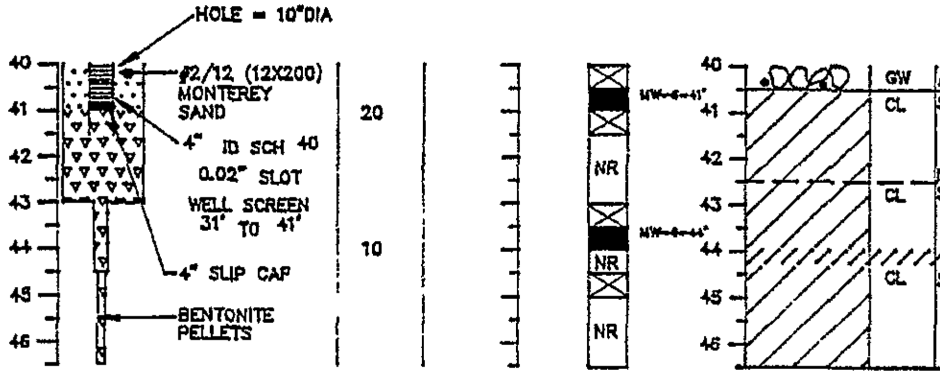
FILE NAME PRICE\CLUBS-6

LOG OF BORING\MONITORING WELL B-6\MW-6

PROJECT NO	4014-9008	LOGGED BY	LEN NILES	BORING TOTAL DEPTH (FT.)	46.5
PROJECT NAME	PRICE CLUB-HAYWARD	DRILLING CO.	BAYLAND	TOP OF CASING ELEV. (FT.MSL)	66.51
LOCATION	HAYWARD, CA	DRILLING METHOD	HOLLOW STEM AUGER	SCREENED INTERVAL (FT.)	31' - 41'
DATE	8\17\92	DRILL RIG MODEL	CME-75	TOP OF VAULT BOX ELEV. (FT.MSL)	66.92

DEPTH IN FT.	WELL CONSTRUCTION DIAGRAM	BLOWS/FOOT	PID (PPM)	GROUNDWATER LEVELS	SAMPLES	DEPTH IN FT.	LITHOGRAPHIC COLUMN	LITHOGRAPHIC DESCRIPTION



GW AS ABOVE

CL SANDY CLAY (CL): OLIVE (5Y5/3); STIFF MOIST TO DAMP; 10-20% FINE SAND; DARK REDDISH BROWN (2.5YR3/4); ROOT TRACES (IRON OXIDE STAINING)

NO RECOVERY (CLAY)

CL SILTY CLAY (CL): DARK GREENISH GRAY (5GY4/1); STIFF; DAMP; 0-10% FINE SAND TO MEDIUM SAND

CL SANDY CLAY (CL): AS ABOVE EXCEPT 10-20% FINE SAND

NO RECOVERY

TOTAL DEPTH = 46.5 FEET

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WELL COMPLETION REPORT
(WELL LOGS)

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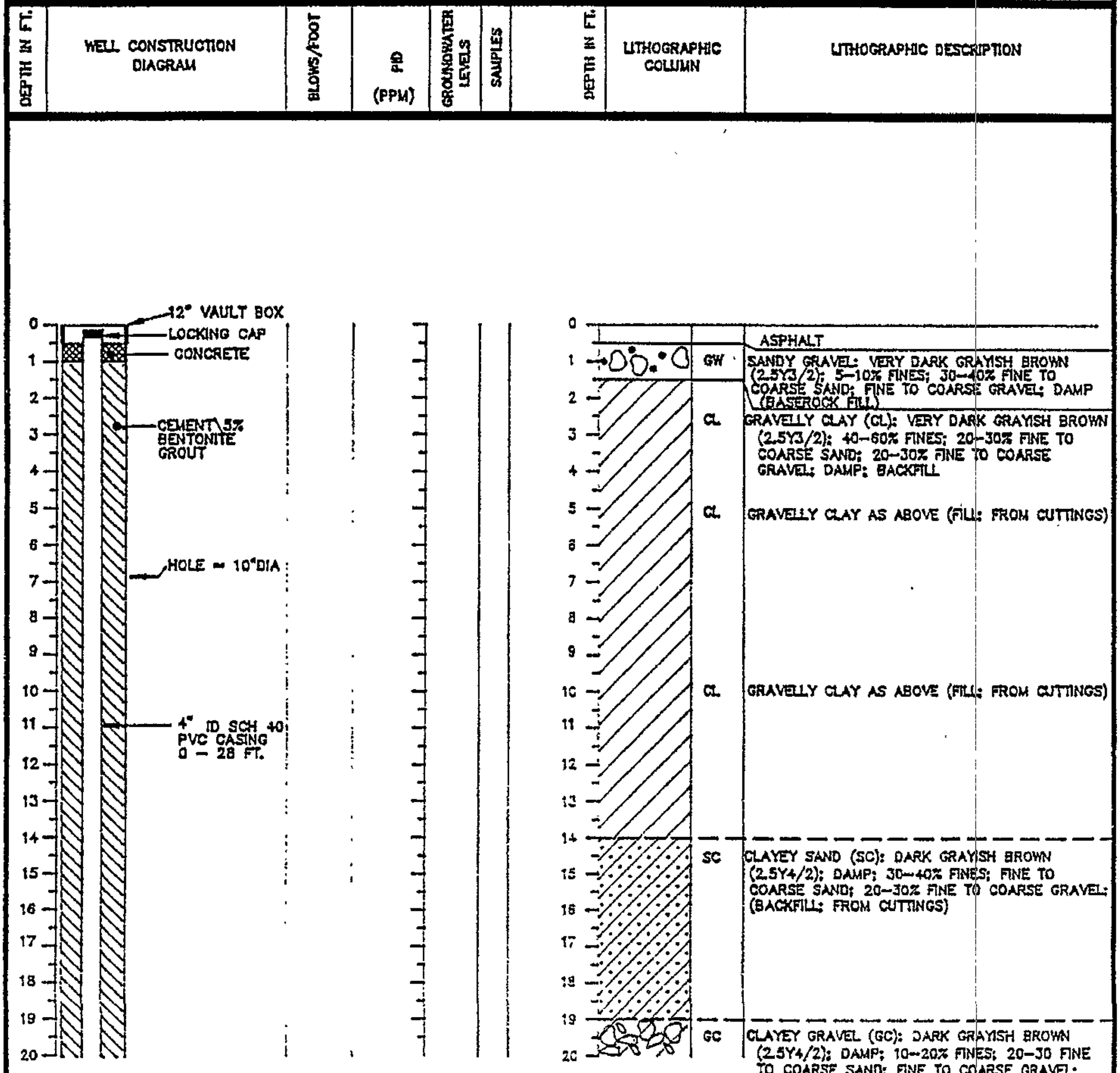
FILE NAME PRICE\CLUB7-8

LOG OF BORING\MONITORING WELL B-7\MW-7

PROJECT NO 4014-9008
PROJECT NAME PRICE CLUB-HAYWARD
LOCATION HAYWARD, CA
DATE 8/25/92

LOGGED BY LEN NILES
DRILLING CO. BAYLAND
DRILLING METHOD HOLLOW STEM AUGER
DRILL RIG MODEL CME-75

BORING TOTAL DEPTH (FT.) 50
TOP OF CASING ELEV. (FT.MSL) 62.98
SCREENED INTERVAL (FT.) 28' - 48'
TOP OF VAULT BOX ELEV. (FT.MSL) 63.89



DEPTH IN FT.	LITHOGRAPHIC COLUMN	LITHOGRAPHIC DESCRIPTION
0		ASPHALT
1	GW	SANDY GRAVEL: VERY DARK GRAYISH BROWN (2.5Y3/2); 5-10% FINES; 30-40% FINE TO COARSE SAND; FINE TO COARSE GRAVEL; DAMP (BASEROCK FILL)
3	CL	GRAVELLY CLAY (CL): VERY DARK GRAYISH BROWN (2.5Y3/2); 40-60% FINES; 20-30% FINE TO COARSE SAND; 20-30% FINE TO COARSE GRAVEL; DAMP; BACKFILL
5	CL	GRAVELLY CLAY AS ABOVE (FILL: FROM CUTTINGS)
10	CL	GRAVELLY CLAY AS ABOVE (FILL: FROM CUTTINGS)
15	SC	CLAYEY SAND (SC): DARK GRAYISH BROWN (2.5Y4/2); DAMP; 30-40% FINES; FINE TO COARSE SAND; 20-30% FINE TO COARSE GRAVEL; (BACKFILL: FROM CUTTINGS)
20	GC	CLAYEY GRAVEL (GC): DARK GRAYISH BROWN (2.5Y4/2); DAMP; 10-20% FINES; 20-30 FINE TO COARSE SAND; FINE TO COARSE GRAVEL;

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SHEET 2
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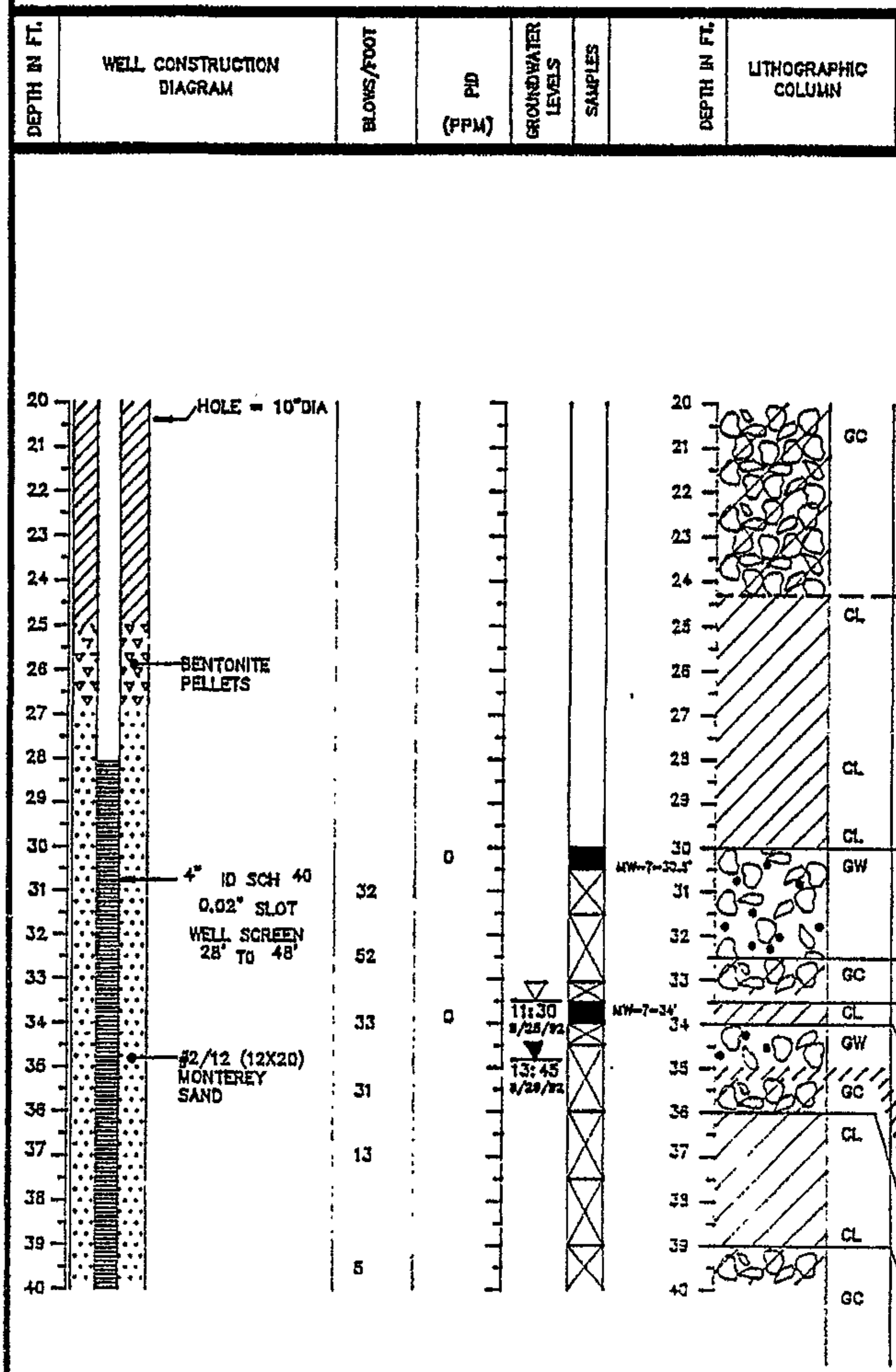
FILE NAME PRICE\CLUB7-8

LOG OF BORING\MONITORING WELL B-7\MW-7

PROJECT NO 4014-9008
PROJECT NAME PRICE CLUB-HAYWARD
LOCATION HAYWARD, CA
DATE 8/25/92

LOGGED BY LEN NILES
DRILLING CO. BAYLAND
DRILLING METHOD HOLLOW STEM AUGER
DRILL RIG MODEL CME-75

BORING TOTAL DEPTH (FT.) 50
TOP OF CASING ELEV. (FT.MSL) 82.98
SCREENED INTERVAL (FT.) 28' - 48'
TOP OF VAULT BOX ELEV. (FT.MSL) 83.69



	LITHOGRAPHIC DESCRIPTION
GC	AS ABOVE CONTACT FROM CUTTINGS
CL	SANDY CLAY (CL); DARK YELLOWISH BROWN (10YR3/4); DAMP; 5-15% FINE SAND
CL	AS ABOVE EXCEPT DARK BROWN (10YR4/3); 20-30% FINE SAND
CL	AS ABOVE
GW	SANDY GRAVEL: DARK GRAYISH BROWN (2.5Y4/2); 0-10% FINES; 20-30% FINE TO COARSE SAND; FINE TO COARSE GRAVEL; DRY TO DAMP; MEDIUM DENSE; SANDSTONE CLASTS
GC	CLAYEY GRAVEL: AS ABOVE EXCEPT 10-20% FINES; MOIST
CL	GRAVELLY CLAY: DARK BROWN (10YR3/3); VERY STIFF; WET; 20-30% FINE TO COARSE SAND; 30-40% FINE TO COARSE GRAVEL
GW	SANDY GRAVEL (GW): DARK GRAYISH BROWN (2.5Y4/2); MEDIUM DENSE; MOIST; 5-15% FINES; 20-40% FINE TO COARSE SAND; FINE TO COARSE GRAVEL
GC	CLAYEY GRAVEL (GC) AS ABOVE EXCEPT WET; 20-30% FINES; 20-30% FINE TO COARSE SAND; FINE TO COARSE GRAVEL
CL	SANDY CLAY (CL): OLIVE BROWN (2.5Y4/3); STIFF; DAMP; 10-20% VERY FINE TO FINE SAND
CL	AS ABOVE EXCEPT 20-30% FINE SAND; INCREASING SAND AT 38'
GC	CLAYEY GRAVEL (GC): DARK OLIVE BROWN; MEDIUM STIFF; MOIST 39'-39.5'; WET 39.5'-40.5'; 15-30% FINES; 20-30% FINE TO CO SAND; FINE TO COARSE GRAVEL

4133 LAKESIDE DRIVE
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FILE NAME PRICE\CLUB7-8

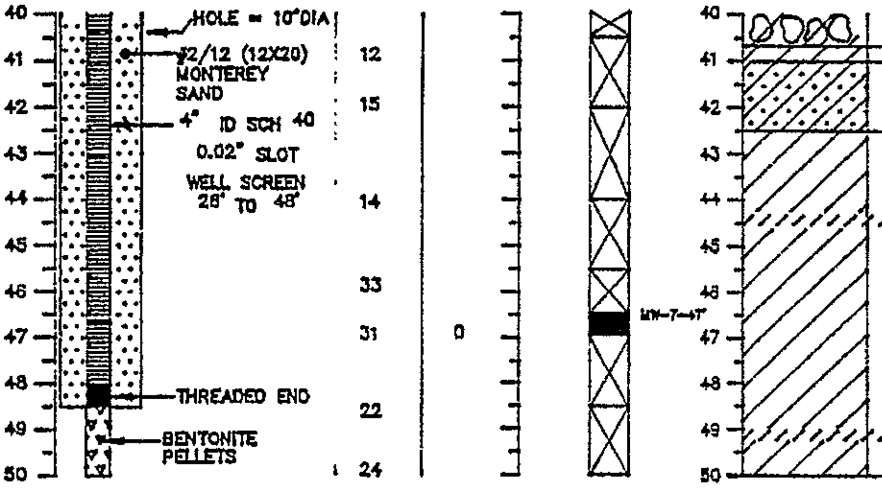
LOG OF BORING\MONITORING WELL B-7\MW-7

PROJECT NO 4014-9008
PROJECT NAME PRICE CLUB-HAYWARD
LOCATION HAYWARD, CA
DATE 8/25/92

LOGGED BY LEN NILES
DRILLING CO. BAYLAND
DRILLING METHOD HOLLOW STEM AUGER
DRILL RIG MODEL CME-75

BORING TOTAL DEPTH (FT.) 50
TOP OF CASING ELEV. (FT.MSL) 62.96
SCREENED INTERVAL (FT.) 28' - 48'
TOP OF VAULT BOX ELEV. (FT.MSL) 63.69

DEPTH IN FT.	WELL CONSTRUCTION DIAGRAM	BLOWS/FOOT	PID (PPM)	GROUNDWATER LEVELS	SAMPLES	DEPTH IN FT.	LITHOGRAPHIC COLUMN		LITHOGRAPHIC DESCRIPTION
40						40		GC	CLAYEY GRAVEL AS ABOVE
41		12				41		CL	GRAVELLY CLAY: OLIVE BROWN (2.5YR4/3); MOIST TO WET
42		15				42		SC	CLAYEY SAND (SM): OLIVE BROWN (2.5Y4/3); MEDIUM DENSE; WET; 20-40% FINES; FINE SAND
43						43		CL	SILTY CLAY: OLIVE BROWN BROWN (2.5Y4/3); STIFF; DAMP; 0-10% FINE SAND
44		14				44			
45						45		CL	SANDY CLAY: OLIVE BROWN (2.5Y4/3); VERY STIFF; MOIST TO WET; 30-50% FINE SAND; 0-10% COARSE GRAVEL
46		33				46		CL	SANDY CLAY AS ABOVE; MOIST TO WET
47		31	0		MW-7-47'	47			
48						48		CL	SANDY CLAY AS ABOVE; 30-40% FINE TO COARSE SAND; MOIST
		22						CL	SANDY CLAY AS ABOVE; 10-20% FINE TO COARSE SAND; DAMP
49						49			
50		24				50		CL	SILTY CLAY: OLIVE BROWN (2.5Y4/3); VERY STIFF; DAMP; 0-10% FINE SAND



TOTAL DEPTH = 50 FEET

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SHEET 1
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FILE NAME PRICE\CLUB7-8

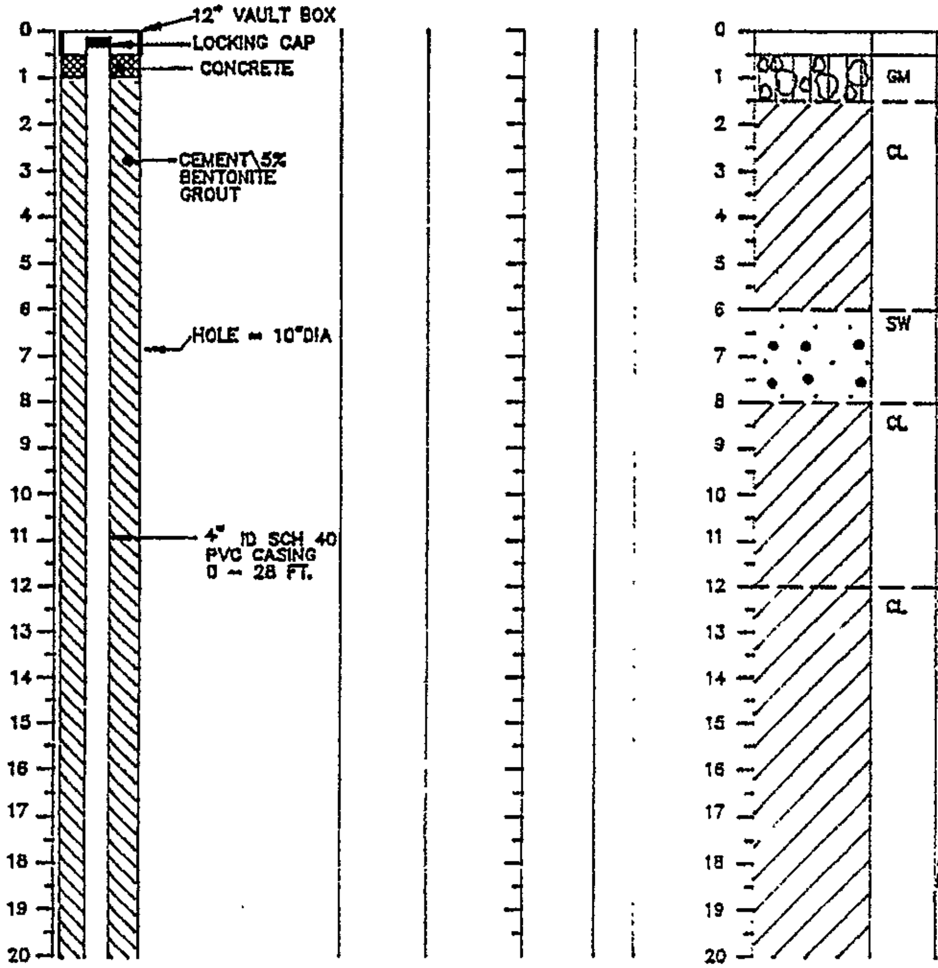
LOG OF BORING\MONITORING WELL B-8\MW-8

PROJECT NO 4014-9008
PROJECT NAME PRICE CLUB-HAYWARD
LOCATION HAYWARD, CA
DATE 8\24\92

LOGGED BY LEN NILES
DRILLING CO. BAYLAND
DRILLING METHOD HOLLOW STEM AUGER
DRILL RIG MODEL CME-75

BORING TOTAL DEPTH (FT.) 48.5
TOP OF CASING ELEV. (FT.MSL) 63.32
SCREENED INTERVAL (FT.) 28' - 45.5'
TOP OF VAULT BOX ELEV. (FT.MSL) 63.86

DEPTH IN FT.	WELL CONSTRUCTION DIAGRAM	BLOWS/FOOT	PID (PPM)	GROUNDWATER LEVELS	SAMPLES	DEPTH IN FT.	LITHOGRAPHIC COLUMN		LITHOGRAPHIC DESCRIPTION



0		ASPHALT
1	GM	SILTY GRAVEL (GM): VERY DARK GRAY BROWN (2.5Y3/2); 10-15% FINES; 20-30% FINE TO COARSE SAND; FINE TO COARSE GRAVEL \BASE/ROCK FILL); DAMP
2	CL	SANDY CLAY: VERY DARK GRAY BROWN (10YR3/2); 20-30% FINE TO COARSE SAND; 10-20% FINE TO COARSE GRAVEL; (BACKFILL) (CUTTINGS); DAMP
6	SW	GRAVELLY SAND (SW): LIGHT YELLOWISH BROWN (2.5Y6/3); DRY; 5-10% FINES; FINE TO COARSE SAND; 30-40% FINE TO COARSE GRAVEL; DAMP
8	CL	SANDY CLAY (CL): DARK BROWN (10YR4/3); DAMP; 10-20% FINE TO COARSE SAND;
12	CL	SILTY CLAY: DARK YELLOWISH BROWN (10YR4/4); MOIST; 0-5% FINE SAND;
18		AS ABOVE EXCEPT DARK BROWN (10YR3/3); 0-10% FINE SAND

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4138 LAKESIDE DRIVE
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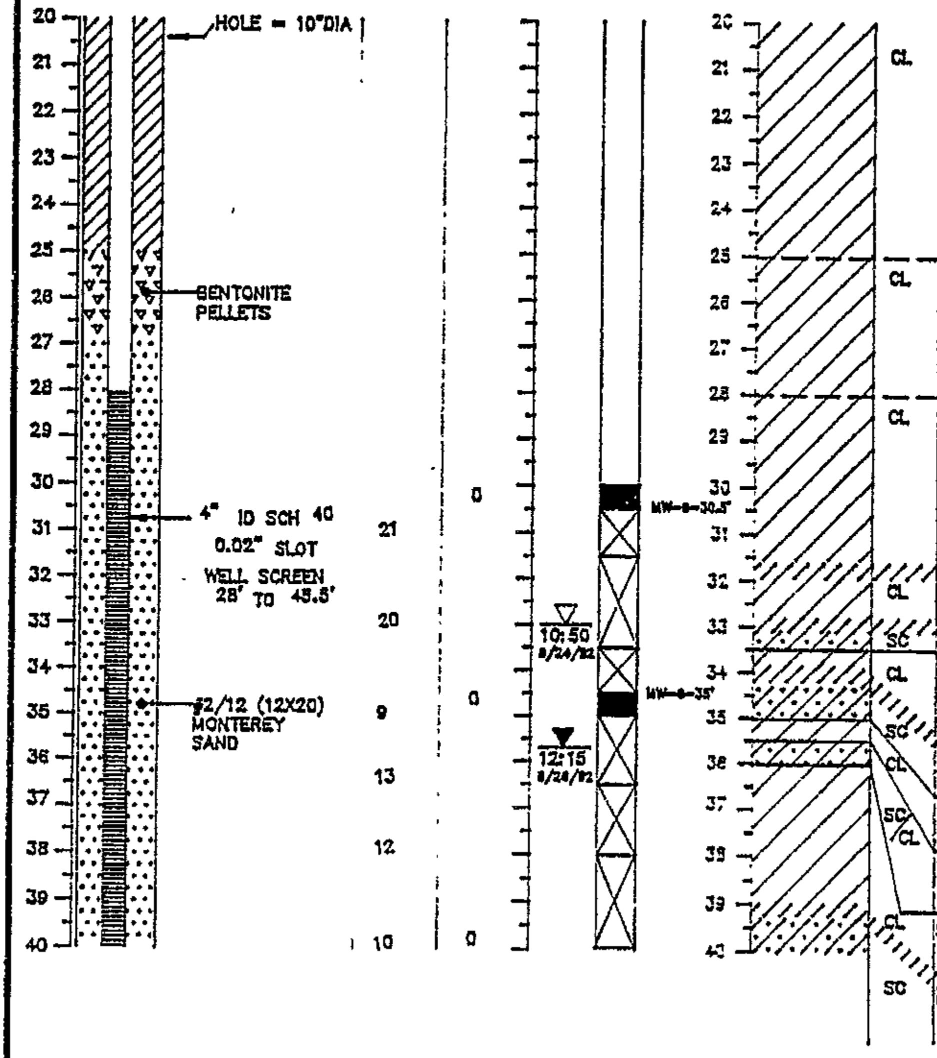
SHEET 2
OF 3

FILE NAME PRICE\CLUB7-8

LOG OF BORING\MONITORING WELL B-8\MW-8

PROJECT NO 4014-9008
PROJECT NAME PRICE CLUB-HAYWARD
LOCATION HAYWARD, CA
DATE 8\24\92
LOGGED BY LEN NILES
DRILLING CO. BAYLAND
DRILLING METHOD HOLLOW STEM AUGER
DRILL RIG MODEL CME-75
BORING TOTAL DEPTH (FT.) 45.5
TOP OF CASING ELEV. (FT.MSL) 63.32
SCREENED INTERVAL (FT.) 28' - 45.5'
TOP OF VAULT BOX ELEV. (FT.MSL) 63.86

DEPTH IN FT.	WELL CONSTRUCTION DIAGRAM	BLOWS/FOOT	PID (PPM)	GROUNDWATER LEVELS	SAMPLES	DEPTH IN FT.	LITHOGRAPHIC COLUMN	LITHOGRAPHIC DESCRIPTION



CL AS ABOVE

CL SANDY CLAY: BROWN (10YR4/3); DAMP; 10-20% FINE SAND; 0-10% FINE GRAVEL (FROM CUTTINGS)

CL SILTY CLAY: OLIVE BROWN (2.5Y4/4); DAMP; VERY STIFF; 0-10% FINE SAND

CL SANDY CLAY (CL): LIGHT OLIVE BROWN (2.5Y5/4); MOIST; 30-50% FINE SAND; STIFF

SC CLAYEY SAND (SC): LIGHT OLIVE BROWN (2.5Y4/4); MOIST TO WET; 30-50% FINES; FINE SAND MEDIUM DENSE

CL SILTY CLAY (CL): DARK BROWN (10YR4/3); MEDIUM STIFF; DAMP; 5-10% FINE SAND

SC CLAYEY SAND (SC): OLIVE BROWN (2.5Y4/4); LOOSE; MOIST TO WET; 30-50% FINES; FINE SAND

CL SILTY CLAY (CL): LIGHT OLIVE BROWN (2.5Y5/3); STIFF; DAMP; 0-5% FINE SAND

SC/CL CLAYEY SAND (SC) CROSS-BEDDED WITH SANDY CLAY (CL): OLIVE BROWN (2.5Y4/3); MOIST TO WET; 30-60% FINES; FINE SAND

CL SILTY CLAY (CL): OLIVE BROWN (2.5Y4/3); STIFF; MOIST ALONG CRACKS; FRACTURES AND VOIDS; 0-10% FINE SAND

SC CLAYEY SAND (SC): OLIVE BROWN (2.5Y4/3); LOOSE; MOIST TO WET; 30-50% FINES; FINE SAND

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SHEET 3 OF 3

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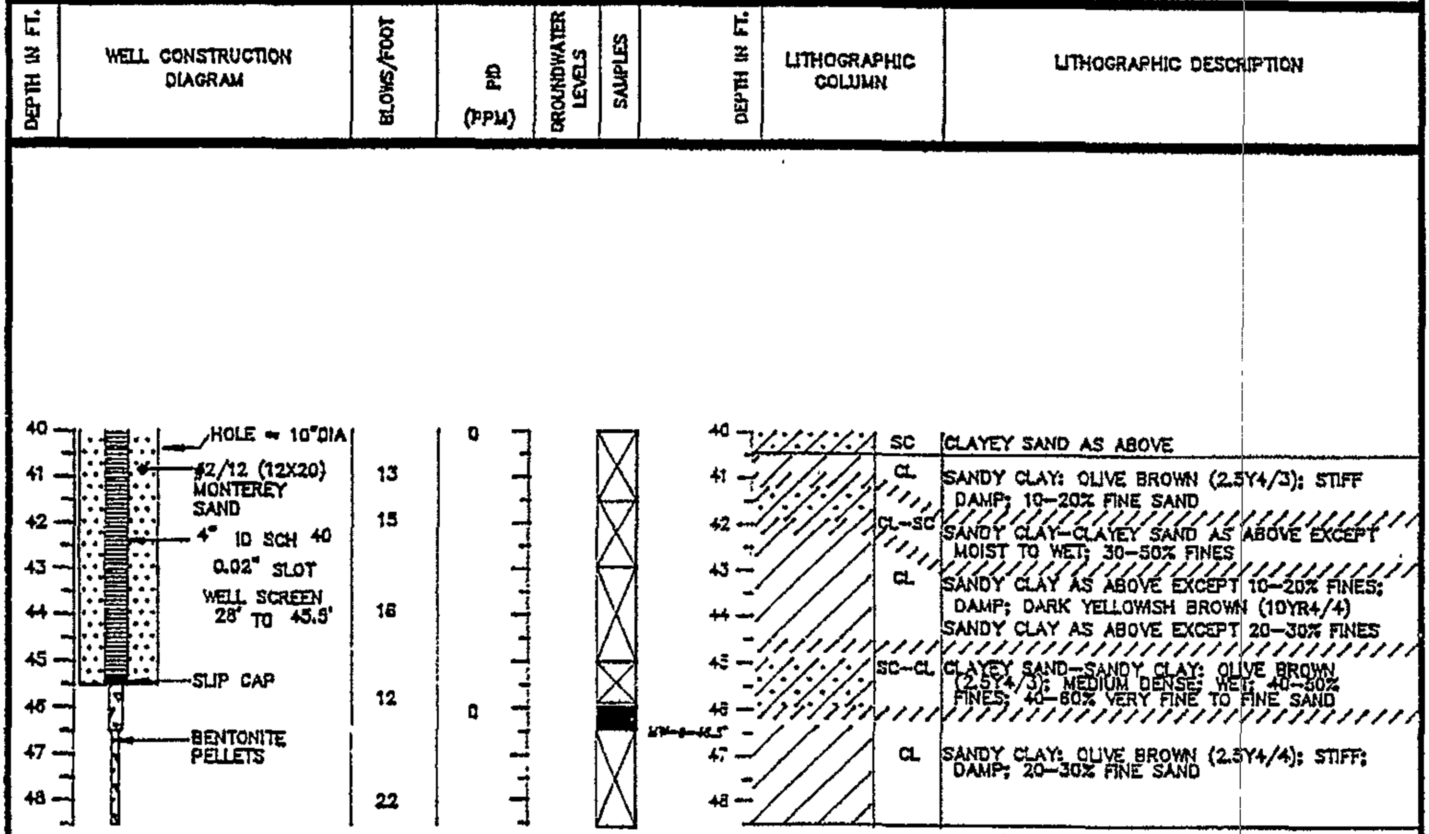
FILE NAME PRICE\CLUB7-8

LOG OF BORING\MONITORING WELL B-8\MW-8

PROJECT NO	4014-9008	LOGGED BY	LEN NILES	BORING TOTAL DEPTH (FT.)	48.5
PROJECT NAME	PRICE CLUB-- HAYWARD	DRILLING CO.	BAYLAND	TOP OF CASING ELEV. (FT.MSL)	63.32
LOCATION	HAYWARD, CA	DRILLING METHOD	HOLLOW STEM AUGER	SCREENED INTERVAL (FT.)	28' - 45.5'
DATE	8\24\92	DRILL RIG MODEL	CME-75	TOP OF VAULT BOX ELEV. (FT.MSL)	63.88



SC	CLAYEY SAND AS ABOVE
CL	SANDY CLAY: OLIVE BROWN (2.5Y4/3); STIFF DAMP; 10-20% FINE SAND
CL-SC	SANDY CLAY-CLAYEY SAND AS ABOVE EXCEPT MOIST TO WET; 30-50% FINES
CL	SANDY CLAY AS ABOVE EXCEPT 10-20% FINES; DAMP; DARK YELLOWISH BROWN (10YR4/4) SANDY CLAY AS ABOVE EXCEPT 20-30% FINES
SC-CL	CLAYEY SAND-SANDY CLAY: OLIVE BROWN (2.5Y4/3); MEDIUM DENSE; WET; 40-50% FINES; 40-60% VERY FINE TO FINE SAND
CL	SANDY CLAY: OLIVE BROWN (2.5Y4/4); STIFF; DAMP; 20-30% FINE SAND

TOTAL DEPTH = 48.5 FEET

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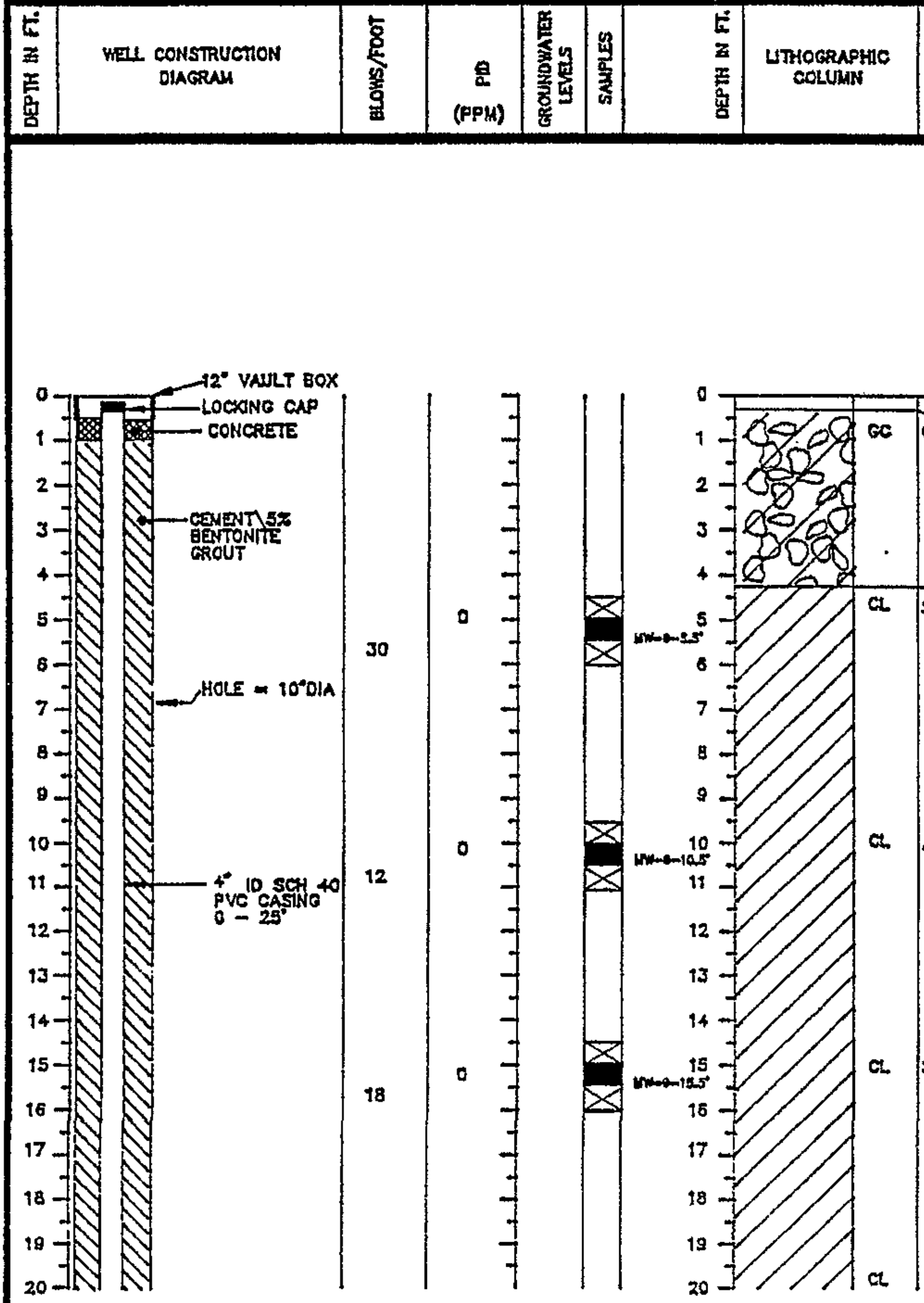
OF 3

#6
P2

FILE NAME PRICE\CLUB9

LOG OF BORING\MONITORING WELL B-9\MW-9

PROJECT NO 4014-9008
LOGGED BY LEN NILES
BORING TOTAL DEPTH (FT.) 46.5
PROJECT NAME PRICE CLUB-HAYWARD
DRILLING CO. BAYLAND
TOP OF CASING ELEV. (FT.MSL) 60.39
LOCATION HAYWARD, CA
DRILLING METHOD HOLLOW STEM AUGER
SCREENED INTERVAL (FT.) 25' - 45'
DATE 8/14/92
DRILL RIG MODEL CME-75
TOP OF VAULT BOX ELEV. (FT. MSL) 60.79



LITHOGRAPHIC DESCRIPTION

TOP SOIL: ROOT MATERIAL

GC CLAYEY GRAVEL (GC): DARK GREENISH GRAY (5GY4/1); 10-20% FINES; 20-30% FINE TO COARSE SAND; FINE TO COARSE GRAVEL BASEROCK FILL.

CL SILTY CLAY: VERY DARK GRAYISH BROWN (10YR3/2); VERY STIFF; DAMP TO DRY; 0-10% FINE SAND

CL AS ABOVE EXCEPT STIFF; DARK BROWN (10YR4/3)

CL SANDY CLAY (CL): DARK BROWN (10YR3/3); STIFF; DAMP TO DRY; 10-15% FINE SAND

CL AS ABOVE; 20-30% FINE SAND; DARK BROWN (10YR4/3)

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OF 3

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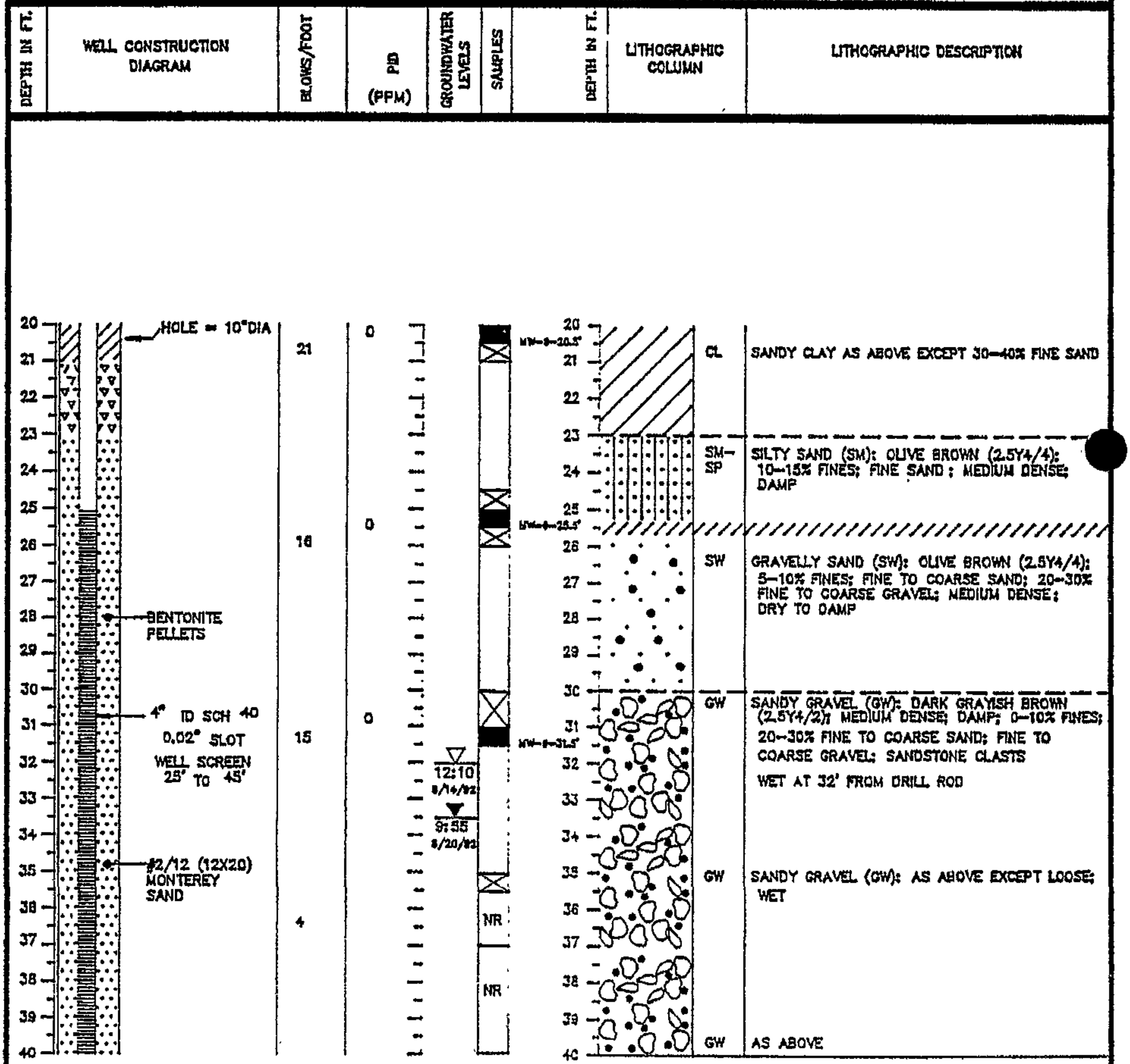
FILE NAME PRICE\CLUB9

LOG OF BORING\MONITORING WELL B-9\MW-9

PROJECT NO 4014-9008
PROJECT NAME PRICE CLUB-HAYWARD
LOCATION HAYWARD, CA
DATE 8/14/92
LOGGED BY LEN NILES
DRILLING CO. BAYLAND
DRILLING METHOD HOLLOW STEM AUGER
DRILL RIG MODEL CME-75
BORING TOTAL DEPTH (FT.) 46.5
TOP OF CASING ELEV. (FT.MSL) 60.39
SCREENED INTERVAL (FT.) 25' - 45'
TOP OF VAULT BOX ELEV. (FT. MSL) 60.79



CL	SANDY CLAY AS ABOVE EXCEPT 30-40% FINE SAND
SM-SP	SILTY SAND (SM): OLIVE BROWN (2.5Y4/4): 10-15% FINES; FINE SAND ; MEDIUM DENSE; DAMP
SW	GRAVELLY SAND (SW): OLIVE BROWN (2.5Y4/4); 5-10% FINES; FINE TO COARSE SAND; 20-30% FINE TO COARSE GRAVEL; MEDIUM DENSE; DRY TO DAMP
GW	SANDY GRAVEL (GW): DARK GRAYISH BROWN (2.5Y4/2); MEDIUM DENSE; DAMP; 0-10% FINES; 20-30% FINE TO COARSE SAND; FINE TO COARSE GRAVEL; SANDSTONE CLASTS WET AT 32' FROM DRILL ROD
GW	SANDY GRAVEL (GW): AS ABOVE EXCEPT LOOSE; WET
GW	AS ABOVE

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OF 3

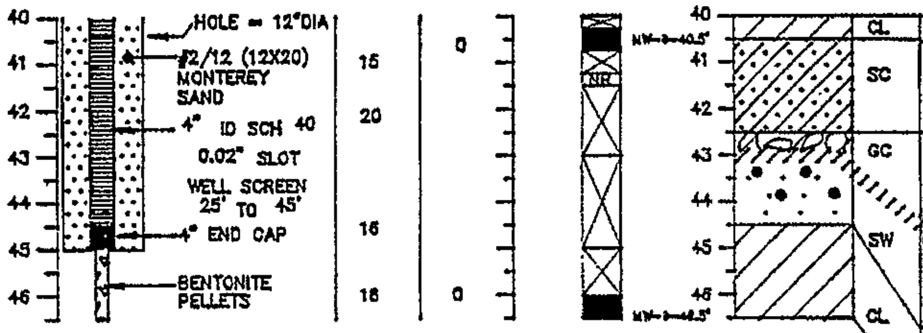
#6
P4

FILE NAME PRICE\CLUB9

LOG OF BORING\MONITORING WELL B-9\MW-9

PROJECT NO 4014-9008
PROJECT NAME PRICE CLUB-HAYWARD
LOCATION HAYWARD, CA
DATE 8/14/92
LOGGED BY LEN NILES
DRILLING CO. BAYLAND
DRILLING METHOD HOLLOW STEM AUGER
DRILL RIG MODEL CME-75
BORING TOTAL DEPTH (FT.) 46.5
TOP OF CASING ELEV. (FT.MSL) 60.39
SCREENED INTERVAL (FT.) 25' - 45'
TOP OF VAULT BOX ELEV. (FT. MSL) 60.79

DEPTH IN FT.	WELL CONSTRUCTION DIAGRAM	BLOWS/FOOT	PID (PPM)	GROUNDWATER LEVELS	SAMPLES	DEPTH IN FT.	LITHOGRAPHIC COLUMN	LITHOGRAPHIC DESCRIPTION



SILTY CLAY (CL): OLIVE BROWN (2.5Y4/3): STIFF; DAMP; 0-10% FINE SAND

CLAYEY SAND: OLIVE BROWN (2.5Y4/4): MEDIUM DENSE; WET; 20-30% FINES; FINE SAND

CLAYEY GRAVEL (GC): DARK GRAYISH BROWN (2.5Y4/2); MEDIUM DENSE; WET; 10-20% FINES; 20-40% FINE TO COARSE SAND; FINE TO COARSE GRAVEL

GRAVELLY SAND (SW): VERY DARK GRAYISH BROWN (2.5Y3/2): 5-10% FINES; FINE TO COARSE SAND; 20-40% FINE TO COARSE GRAVEL; MEDIUM DENSE; WET

SANDY CLAY (CL): OLIVE BROWN (2.5Y4/3): STIFF; DAMP; 20-30% FINE SAND

SANDY CLAY: AS ABOVE EXCEPT 5-15% SAND

TOTAL DEPTH = 46.5 FEET

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(WELL LOGS)

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17D1 #a

SOUTH ALAMEDA
COUNTY INVESTIGATION

WELL LOG

NUMBER: 3217D1

LOCAL DESIGNATION: Y

LOCATION: San Lorenzo

01-1529

OWNER: Robert King

DATE COMPLETED: 5-21-30

DIAMETER OF CASING:

DRILLED BY:

SOURCE OF INFORMATION: Poland

INSPECTED WHILE DRILLING:
SEE FILE NO: Williams

SURFACE ELEVATION: 47

SKETCH

Depth	Elevation of Bottom of Stratum	Material	Thick-ness Feet	% Voids	Absolute Voids Feet	Total Voids Feet
0-3		soil				
7		c.				
17		sd.				
46		c.				
47		sd.				
52		c.				
53		gr.				
100		c.				
102		sdy. c.				
110		b.c.				
140		y.c.				
152		b.c.				
153		b. sd.				
156		gr.				
175		y.c.				
180		b.c.				
183		y.c.				
184		sd.				
190		y.c.				
200		b.c.				
202		y. sdy. c.				
205		rx. & c.				
220		c.				
221		y. sd.				
224		sd. & rx.				
225		sdy. c.				
229		gr.				
242		y.c.				
247		gr.				

Log obtained by: R.G.T.

Date: 9/11/50

273 y.c.

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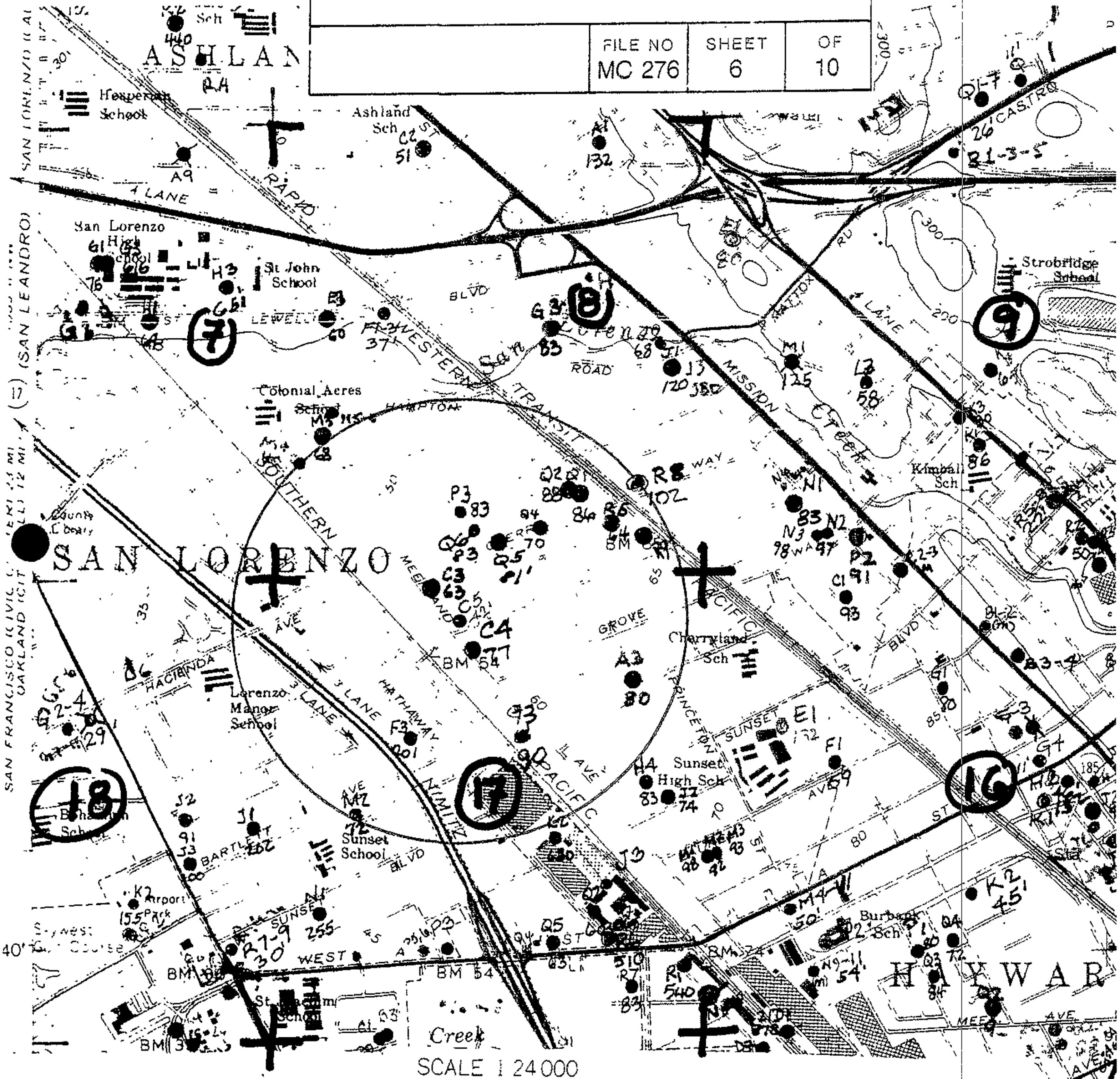
QUADRANGLE LOCATION

ALAMEDA COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT

EAST BAY PLAIN WELL LOCATION BASE MAP

HAYWARD QUADRANGLE

FILE NO	SHEET	OF
MC 276	6	10



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1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET
DOTTED LINES REPRESENT 5-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

Tr	Section	Address	Longcity	Owner	Update	Xcoord	Ycoord	Mat	Tsrqq	Rec_co	Phone	City	Drilldate	Elevation	Totaldept	Waterdept	Diameter	Use	Log
3S/2W	1.70E+81	1330 SOLANO ST	San Lorenzo	DONALD H. RUDE	8/3/1984	122114102	37672550	9	3S/2W 17E	4606	0	SLZ	4/53	0	61	18	0	DOM	D
3S/2W	1.70E+82	1338 SOLANO ST	San Leandro	ALEX FARKAS	8/3/1984	122114102	37672550	9	3S/2W 17E	4607	0	SLE	4/53	40	61	11	4	DOM	D
3S/2W	8K 1 off	654 HAMPTON RD	San Leandro	G. FREITAS	8/3/1984	122105820	37683565	9	3S/2W 8K	4409	0	SLE	/55	60	60	0	6	IRR	?
3S/2W	8L 1 off	451 HAMPTON RD	San Leandro	GREENFIELD	8/3/1984	122110265	37683565	9	3S/2W 8L	4410	0	SLE	?	0	75	25	8	IRR	?
3S/2W	8L 2 off	18381 HAVEN ST	San Leandro	KINSEY	8/3/1984	122110265	37683565	9	3S/2W 8L	4411	0	SLE	/50	60	50	0	0	IRR	?
3S/2W	8L 3 off	988 LEWELLING BLVD	San Leandro	KNAPP'S NURSERY	8/3/1984	122142582	37684263	0	3S/2W 8L	4412	0	SLE	/42	57	211	0	10	IRR+	?
3S/2W	8M	17771 Meekland Ave.	Hayward	Jocson Auto Electric	7/27/1993	122113980	37682126	1	3S/2W 8M	0	0	HAY	6/92	0	22	18	0	BOR	G
3S/2W	8M 1 off	477 E. LEWELLING BLVD	San Leandro	SCHRAGL	8/3/1984	122114173	37683565	9	3S/2W 8M	4413	0	SLE	/41	42	70	0	10	IRR	?
3S/2W	8M 2 off	16980 HARVARD AVE	San Leandro	SHIMAMURA	8/3/1984	122114173	37683565	9	3S/2W 8M	4414	0	SLE	?	50	58	0	8	IRR	?
Mobile 2 3S/2W	8M 3	17662 MEEKLAND AV	Hayward	BURTON BUSK	12/12/1984	122114173	37683565	9	3S/2W 8M	4415	0	HAY	/68	48	85	22	8	DOM+	D
3S/2W	8M 4	29517 SHASTA RD	Hayward	CHARLES A. TAYLOR	8/3/1984	122114173	37683565	9	3S/2W 8M	4416	0	HAY	5/56	0	40	6	6	DOM	D
3S/2W	8M 5	171 Hampton Road	Hayward	Cherryland Homes	7/3/1990	122113177	37683545	3	3S/2W 8M	417	0	HAY	Oct-89	0	40	0	0	DES	D
3S/2W	8M 6	171 Hampton Road	Hayward	Cherryland Homes	7/3/1990	122113177	37683545	3	3S/2W 8M	418	0	HAY	Oct-89	0	0	0	0	DES	D
3S/2W	8M 7	17771 Meekland Ave.	Hayward	Jocson Auto Electric MW-1	7/27/1993	122113980	37682126	1	3S/2W 8M	0	0	HAY	6/92	0	31	20	2	MON	G
3S/2W	8M 8	17771 Meekland Ave.	Hayward	Jocson Auto Electric MW-2	7/27/1993	122113980	37682126	1	3S/2W 8M	0	0	HAY	6/92	0	31	18	2	MON	G
3S/2W	8M 9	17771 Meekland Ave.	Hayward	Jocson Auto Electric MW-3	7/27/1993	122113980	37682126	1	3S/2W 8M	0	0	HAY	6/92	0	31	22	2	MON	G
3S/2W	8N 1	18286 MEEKLAND AVE	Hayward	BITTNER	8/3/1984	122114151	37679990	9	3S/2W 8N	4417	0	HAY	/40	47	85	0	0	IRR	?
3S/2W	8N 2	17754 MEEKLAND AVE	Hayward	HOFFMAN	8/3/1984	122114151	37679990	9	3S/2W 8N	4418	0	HAY	/45	48	156	0	8	DES	?
3S/2W	8P 1	19231 LOWELL AVE	Hayward	VANDERBURG	8/3/1984	122110265	37680011	9	3S/2W 8P	4419	0	HAY	/55	56	50	0	0	IRR	?
3S/2W	8P 2	203 MEDFORD AVE	Hayward	R.A. PACE	8/3/1984	122110265	37680011	9	3S/2W 8P	4420	0	HAY	/36	56	64	0	0	IRR	?
3S/2W	8P 3	219 MEDFORD AVE	Hayward	NANCY SMITH	8/3/1984	122110265	37680011	9	3S/2W 8P	4421	0	HAY	1/78	0	80	26	6	IRR	D
3S/2W	8Q 1	546 CHERRY WAY	Hayward	ART CROWE	8/3/1984	122105820	37680039	9	3S/2W 8Q	4422	0	HAY	1/43	58	86	24	10	IRR	D
3S/2W	8Q 2	19751 WESTERN BLVD	Hayward	DEXTER'S HATCHERY	8/3/1984	122105820	37680039	9	3S/2W 8Q	4423	0	HAY	9/42	57	88	0	8	IRR	D
3S/2W	8Q 3	361 SAINT GEORGE AVE	Hayward	R.J. CHASTAIN	8/3/1984	122105820	37680039	9	3S/2W 8Q	4424	0	HAY	6/77	0	50	0	0	?	?
3S/2W	8Q 4	326 CHERRY WAY	Hayward	WILLIAM MATHEWS	8/3/1984	122105820	37680039	9	3S/2W 8Q	4425	0	HAY	6/79	0	83	25	6	IRR	D
3S/2W	8Q 5	310 CHERRY WAY	Hayward	WILLIE DEDEK	8/3/1984	122105820	37680039	9	3S/2W 8Q	4426	0	HAY	4/80	0	81	23	6	IRR	D
3S/2W	8Q 6	268 CHERRY WAY	Hayward	GUENTER MAHLER	4/1/1987	122105820	37680039	9	3S/2W 8Q	4427	0	HAY	Mar-81	0	83	27	6	IRR	D
3S/2W	8R 1	839 CHERRY WAY	Hayward	HEITMAN	8/3/1984	122101375	37680067	9	3S/2W 8R	4428	0	HAY	/24	68	100	0	0	IRR	?
3S/2W	8R 2	823 BLOSSOM WAY	Hayward	BURROWES	12/18/1984	122101375	37680067	9	3S/2W 8R	4429	0	HAY	/08	69	90	0	6	IRR	?
3S/2W	8R 3	859 MEDFORD RD	Hayward	O. HIGGINS	8/3/1984	122101375	37680067	9	3S/2W 8R	4430	0	HAY	/39	68	85	0	10	IRR	?
3S/2W	8R 4 off	20987 MONTGOMERY AVE	Hayward	JOHN VARNI	8/3/1984	122101375	37680067	9	3S/2W 8R	4431	0	HAY	/52	70	100	0	10	IRR	?
3S/2W	8R 5	21070 WESTERN BLVD	Hayward	M. VIERRA	8/3/1984	122101375	37680067	9	3S/2W 8R	4432	0	HAY	?	64	85	0	12	DOM+	?
3S/2W	8R 6	559 CHERRY WAY	Hayward	MANUEL GONSALVES	8/3/1984	122101375	37680067	9	3S/2W 8R	4433	0	HAY	4/77	0	64	31	5	IRR	D
3S/2W	8R 7 off	22733 SANTA CLARA ST.	Hayward	H.A. NOTZAN	12/12/1984	122101200	37663900	0	3S/2W 8R	4434	0	HAY	6/53	0	83	0	6	IND	D
3S/2W	8R 8	850 CHERRY WAY	Hayward	LELAND DE QUADROS	8/3/1984	122101375	37680067	9	3S/2W 8R	4435	0	HAY	Oct-77	0	100	41	6	IRR	D
3S/2W	8R 9	21065 WESTERN	Hayward	RON BAXTER	8/3/1984	122101375	37680067	9	3S/2W 8R	4436	0	HAY	Oct-78	0	100	33	0	IRR	D
3S/2W	8R10	21031 Western Blvd	Hayward	William and Kathy Florenc	3/12/1998	122101920	37680135	1	3S/2W 8R	0	0	HAY	Dec-95	0	35	25	2	MON	D
3S/2W	8R11	21031 Western Blvd	Hayward	William and Kathy Florenc	3/12/1998	122101920	37680135	1	3S/2W 8R	0	0	HAY	Dec-95	0	35	25	2	MON	D
3S/2W	8R12	21031 Western Blvd	Hayward	William and Kathy Florenc	3/12/1998	122101920	37680135	1	3S/2W 8R	0	0	HAY	Dec-95	0	35	25	2	MON	D
3S/2W	17A 1	448 GROVE WAY	Hayward	NEVES	8/3/1984	122101347	37676322	9	3S/2W 17A	4590	0	HAY	/28	68	108	0	0	IRR	?
3S/2W	17A 2	854 BLOSSOM WAY	Hayward	SOUSA	8/3/1984	122101347	37676322	9	3S/2W 17A	4591	0	HAY	/28	67	76	0	0	IRR	?
3S/2W	17A 3	21671 HAVILAND AVE	Hayward	DAVID PEARSON	8/3/1984	122101347	37676322	9	3S/2W 17A	4592	0	HAY	5/77	0	72	40	5	IRR	D
3S/2W	17B 1	204 GROVE WAY	Hayward	COATES	12/19/1984	122105776	37676295	9	3S/2W 17B	4593	0	HAY	/48	62	88	0	8	IRR	?
3S/2W	17B 2	294 GROVE WY	Hayward	WILDE	7/30/1984	122105776	37676295	9	3S/2W 17B	4594	0	HAY	/33	61	100	0	0	IRR	?
3S/2W	17C	19884 Meekland Ave.	Hayward	Durham Transportation	3/14/1991	122110221	37676267	9	3S/2W 17C	1268	0	HAY	8/90	55	45	30	4	MON	G
3S/2W	17C	19984 MEEKLAND AVE	Hayward	HARBERT TRANSPORTATION	10/3/1986	122110221	37676267	9	3S/2W 17C	4595	0	HAY	Jun-86	0	23	0	0	BOR	G

Tr	Section	Address	Longcity	Owner	Update	Xcoord	Ycoord	Mat	Tsrqq	Rec_co	Phone	City	Drilldate	Elevation	Totaldept	Waterdept	Diameter	Use	Log
3S/2W	17C 1	162 CHERRY LN	Hayward	DEASON	7/30/1984	122110221	37676267	9	3S/2W 17C	4596	0	HAY	/40	53	72	0	6	IRR	?
3S/2W	17C 2	19126 MEEKLAND AV	Hayward	HARTWELL	1/29/1985	122110221	37676267	9	3S/2W 17C	4597	0	HAY	/31	52	91	0	8	IRR	?
3S/2W	17C 3	163 CHERRY WAY	Hayward	FRED DEADMAN	8/3/1984	122110221	37676267	9	3S/2W 17C	4598	0	HAY	5/77	0	56	28	6	IRR	D
3S/2W	17C 4	21005 MEEKLAND AVE	Hayward	ABREV EGG CO.	8/3/1984	122110221	37676267	9	3S/2W 17C	4599	0	HAY	7/77	0	77	37	6	IRR	D
3S/2W	17C 5	19984 MEEKLAND AVE	Hayward	HARBERT TRANSPORTATION	10/3/1986	122110221	37676267	9	3S/2W 17C	4600	0	HAY	Jun-86	0	42	24	2	MON	G
3S/2W	17C 5	19984 Meekland Ave.	Hayward	Durham Transp. MW1	7/21/1993	122108883	37676740	1	3S/2W 17C	0	0	HAY	Dec-92	0	42	24	2	ABN	E
3S/2W	17C 6	19984 Meekland Road	Hayward	Durham Transportation	6/7/1990	122108883	37676740	3	3S/2W 17C	233	0	HAY	Nov-89	0	68	0	4	ABN	?
3S/2W	17C 7	19984 Meekland Road	Hayward	Durham Transportation	6/7/1990	122108883	37676740	3	3S/2W 17C	234	0	HAY	Nov-89	54	40	28	2	MON	?
3S/2W	17C 8	19984 Meekland Road	Hayward	Durham Transportation	6/7/1990	122108883	37676740	3	3S/2W 17C	235	0	HAY	Nov-89	55	40	28	2	MON	?
3S/2W	17C 9	19884 Meekland Ave.	Hayward	Durham Transportation	3/14/1991	122110221	37676267	9	3S/2W 17C	1265	0	HAY	4/90	0	65	0	0	BOR	G
3S/2W	17C10	19884 Meekland Ave.	Hayward	Durham Transportation	3/14/1991	122110221	37676267	9	3S/2W 17C	1267	0	HAY	Oct-90	55	45	31	4	MON	G
3S/2W	17C11	19884 Meekland Ave.	Hayward	Durham Transportation	3/14/1991	122110221	37676267	9	3S/2W 17C	1266	0	HAY	8/90	55	45	30	4	MON	G
3S/2W	17C11	19984 Meekland Ave	Hayward	Durham Transportation	8/2/1991	122110221	37676267	9	3S/2W 17C	1905	0	HAY	2/91	14	14	9	2	MON	G
3S/2W	17C12	19984 Meekland Ave	Hayward	Durham Transportation	8/2/1991	122110221	37676267	9	3S/2W 17C	1906	0	HAY	2/91	14	0	9	0	MON	G
3S/2W	17C13	19984 Meekland Ave	Hayward	Durham TransportationMW10	9/23/1992	122108831	37676184	1	3S/2W 17C	7979	0	HAY	1/92	0	40	30	4	MON	G
3S/2W	17C14	19984 Meekland Ave	Hayward	Durham TransportationMW11	9/23/1992	122108831	37676184	1	3S/2W 17C	7980	0	HAY	1/92	0	40	30	2	MON	G
3S/2W	17C15	19515 Meekland Ave.	Hayward	Jon Otteson	6/17/1993	122110032	37677684	1	3S/2W 17C	0	0	HAY	7/91	0	27	0	2	DES	E
3S/2W	17C16	19984 Meekland Ave.	Hayward	Durham Trans. MW12	7/15/1993	122108883	37676740	1	3S/2W 17C	0	0	HAY	Dec-92	0	40	32	2	MON	G
3S/2W	17D 1	24 VIA HERMOSA	Hayward	GHIGLIONE	7/30/1984	122114105	37676239	9	3S/2W 17D	4601	0	HAY	/53	45	50	0	10	IRR	?
3S/2W	17D 2	19288 MEDFORD CT	Hayward	LEDBETTER	7/30/1984	122114105	37676239	9	3S/2W 17D	4602	0	HAY	/55	52	45	0	6	IRR	?
3S/2W	17D 3	? off	Hayward	R.P. KING	8/3/1984	122114105	37676239	9	3S/2W 17D	4603	0	HAY	Oct-47	46	180	0	12	IRR	D
3S/2W	17D 4	? off	San Lorenzo	R.P. KING	8/3/1984	122160250	37666800	2	3S/2W 17D	4604	0	SLZ	5/30	0	273	0	0	?	D
3S/2W	17E 3	? off	Hayward	TOM CAWATA	8/3/1984	122114102	37672550	9	3S/2W 17E	4605	0	HAY	4/49	0	104	0	0	?	D
3S/2W	17F 1	20161 TIMES AV	Hayward	URBANSKI	7/30/1984	122110221	37672550	9	3S/2W 17F	4608	0	HAY	/52	54	55	0	8	IRR	?
3S/2W	17F 2	20987 MEEKLAND AV	Hayward	SHIMAMURA	7/30/1984	122110221	37672550	9	3S/2W 17F	4609	0	HAY	/52	58	75	0	8	IRR	?
3S/2W	17F 3	20165 HATHAWAY	Hayward	PERKINS	7/30/1984	122110221	37672550	9	3S/2W 17F	4610	0	HAY	6/31	55	200	0	0	IRR	D
3S/2W	17F 4 off	310 Bartlett	Hayward	Anderson Lift Truck MW1	9/23/1992	122110849	37671869	1	3S/2W 17F	7950	0	HAY	4/92	52	37	23	2	MON	D
3S/2W	17F 5 off	310 Bartlett Ave	Hayward	Anderson Lift Truck MW-2	9/23/1992	122110784	37671875	1	3S/2W 17F	7951	0	HAY	4/92	52	38	22	2	MON	G
3S/2W	17F 6 off	*310 Bartlett Ave*	*Hayward*	*Anderson Lift Truck MW-3*	9/23/1992	122110784	37671875	1	3S/2W 17F	7952	0	HAY	4/92	52	38	22	2	MON	G
3S/2W	17G	21123 Meekland Blvd	Hayward	Beck Roofing B-1	9/30/1992	122106054	37674033	1	3S/2W 17G	8155	0	HAY	Oct-91	0	26	0	0	BOR*	G
3S/2W	17G	21560 MEEKLAND AVE	Hayward	JACA CONSTRUCTION	12/14/1988	122105776	37672550	9	3S/2W 17G	4611	5380604	HAY	Jun-88	0	25	0	0	DES	D
3S/2W	17G 1 off	21559 WEST ST	Hayward	DENNIS	7/30/1984	122105776	37672550	9	3S/2W 17G	4612	0	HAY	/54	65	76	0	8	IRR	?
3S/2W	17G 2	21568 MEEKLAND AV	Hayward	FUENTES	7/30/1984	122105776	37672550	9	3S/2W 17G	4613	0	HAY	5/34	60	92	0	8	IRR	D
3S/2W	17G 3	21455 MEEKLAND	Hayward	JOHN DE NOBRIGA	8/3/1984	122105776	37672550	9	3S/2W 17G	4614	0	HAY	Oct-77	0	80	37	6	IRR	D
3S/2W	17G 4	21123 Meekland Avenue	Hayward	Beck Roofing	3/9/1992	122106054	37674033	1	3S/2W 17G	7354	0	HAY	Oct-91	0	39	32	2	MON	D
3S/2W	17G 5	21123 Meekland Avenue	Hayward	Beck Roofing	3/9/1992	122106054	37674033	1	3S/2W 17G	7355	0	HAY	Oct-91	0	38	32	2	MON	D
3S/2W	17G 6	21123 Meekland Avenue	Hayward	Beck Roofing	3/9/1992	122106054	37674033	1	3S/2W 17G	7356	0	HAY	Oct-91	0	38	32	2	MON	D
3S/2W	17G 7	21123 Meekland Ave	Hayward	Beck Roofing MW-1	10/3/1992	122106054	37674033	1	3S/2W 17G	8354	0	HAY	Oct-91	0	46	31	2	MON	G
3S/2W	17G 8	21123 Meekland Ave	Hayward	Beck Roofing MW-2	10/3/1992	122106054	37674033	1	3S/2W 17G	8355	0	HAY	Oct-91	0	38	33	2	MON	G
3S/2W	17G 9	21123 Meekland Ave	Hayward	Beck Roofing MW-3	10/3/1992	122106054	37674033	1	3S/2W 17G	8356	0	HAY	Oct-91	0	38	33	2	MON	G
3S/2W	17G10	21454 Meekland Ave.	Hayward	Jon Otteson	6/17/1993	122105071	37673400	1	3S/2W 17G	0	0	HAY	8/91	0	36	0	2	DES	E
3S/2W	17G11	21123 Meekland Ave	Hayward	Beck Roofing MW-4	4/17/1995	122106179	37674193	1	3S/2W 17G	0	0	HAY	7/94	0	40	28	2	MON	D
3S/2W	17H 1	308 SUNSET BLVD	Hayward	CRITES	7/30/1984	122101342	37672550	9	3S/2W 17H	4615	0	HAY	/56	71	75	0	6	IRR	?
3S/2W	17H 2	447 WILLOW AV	Hayward	KANE	7/30/1984	122101342	37672550	9	3S/2W 17H	4616	0	HAY	/52	72	62	0	8	IRR	?
3S/2W	17H 3 off	815 POPLAR ST	Hayward	J.F. TAWNEY	12/19/1984	122101342	37672550	9	3S/2W 17H	4617	0	HAY	?	75	100	0	8	STO	?
3S/2W	17H 4	231 SUNSET	Hayward	E. BILLENGER	8/3/1984	122101342	37672550	9	3S/2W 17H	4618	0	HAY	9/54	0	83	0	6	DOM	D

Tr	Section	Address	Longcity	Owner	Update	Xcoord	Ycoord	Mat	Tsrqq	Rec_cc	Phone	City	Drilldate	Elevation	Totaldept	Waterdept	Diameter	Use	Log
3S/2W	17H 5	22008 Meekland Ave	Hayward	Kid Cedar MW-1	9/18/1992	122103509	37672203	1	3S/2W 17H	7840	0	HAY	7/91	0	49	36	2	MON	D
3S/2W	17H 6	22008 Meekland	Hayward	Kid Cedar MW2	9/18/1992	122103509	37672203	1	3S/2W 17H	7841	0	HAY	7/91	0	49	36	2	MON	D
3S/2W	17H 7	22008 Meekland	Hayward	Kid Cedar MW-3'	9/18/1992	122103509	37672203	1	3S/2W 17H	7842	0	HAY	7/91	0	49	36	2	MON	D
3S/2W	17K 2	W. A ST & HATHAWAY ST	Hayward	HUNT FOOD PRODUCTS INC.	8/3/1984	122105776	37669080	9	3S/2W 17K	4622	0	HAY	7/65	0	680	0	0	TES	D
3S/2W	17L 1	21335 HATHAWAY AV	Hayward	BRANELLA	7/30/1984	122108007	37671485	0	3S/2W 17L	4623	0	HAY	/51	55	70	0	8	IRR	?
3S/2W	17L 2	442 SUNSET BLVD	Hayward	SILVERA	7/30/1984	122110221	37669080	9	3S/2W 17L	4624	0	HAY	/51	52	80	0	8	DOM	?
3S/2W	17M	21134 ROYAL AVE.	Hayward	STAN FELSON	2/2/1988	122112429	37666823	0	3S/2W 17M	4625	0	HAY	6/82	0	65	0	8	DES	D
3S/2W	17M 1	421 BARTLETT ST	Hayward	LEYMURA	8/8/1984	122114099	37669080	9	3S/2W 17M	4626	0	HAY	/48	46	60	0	8	DOM	?
3S/2W	17M 2	20555 GARDEN AV 234 ? Sunset	Hayward	FERNANDES	8/8/1984	122111789	37670689	0	3S/2W 17M	4627	0	HAY	/53	49	72	30	6	IRR	D

Although named IRR actually small Domestic

Well Legend

DOM=Domestic well

IRR=Irrigation well

MUN= Municipal well

IND=Industrial well

CAT=Cathodic well

DES=well destroyed (through permit)

ABN=Abandoned and not being used (but has not been destroyed through permit process)

TES=Test well

BOR= Geotechnical investigation

MON= Monitoring well

EXT=Extraction/ Vapor wells

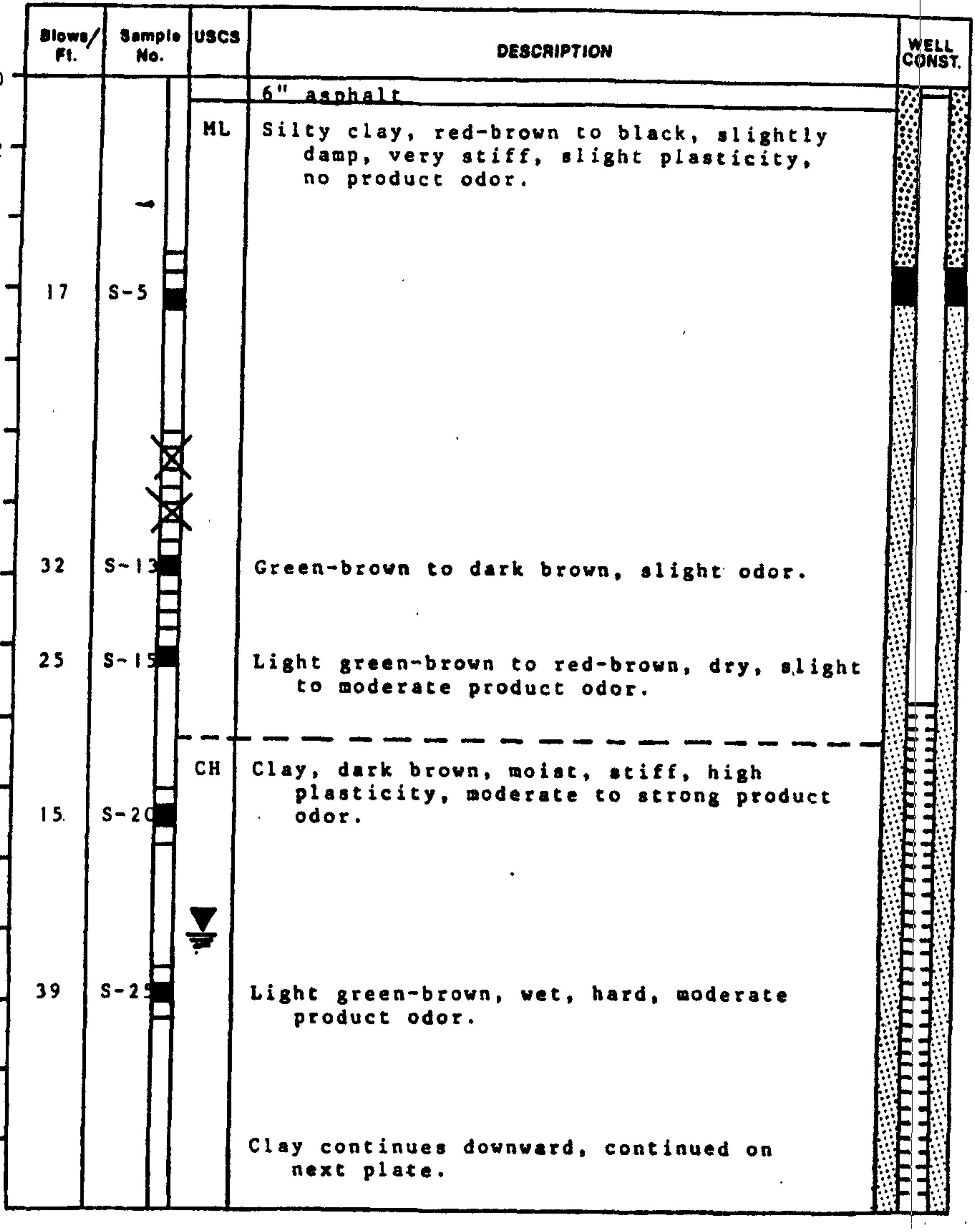
PIE=Piezometers

REC=Recovery well (extraction/ vapor)

? = Unknown or no information found or given

APPENDIX B

Geologic Logs of On-Site Investigation Drilling
including
Monitoring Wells
Driven Probe Borings
and
Landfill Acceptance Borings



Blows/ Ft.	Sample No.	USCS	DESCRIPTION
			6" asphalt
		ML	Silty clay, red-brown to black, slightly damp, very stiff, slight plasticity, no product odor.
17	S-5		
32	S-13		Green-brown to dark brown, slight odor.
25	S-15		Light green-brown to red-brown, dry, slight to moderate product odor.
		CH	Clay, dark brown, moist, stiff, high plasticity, moderate to strong product odor.
15	S-20		
39	S-25		Light green-brown, wet, hard, moderate product odor.
			Clay continues downward, continued on next plate.

Applied GeoSystems

LOG OF BORING B1/MW-1

Harbert Transportation
Hayward, California

PLATE
P-4

ROJECT NO. 8660-1

	Blows/ Ft.	Sample No.	USCS	DESCRIPTION	WELL CONST.
30					
			CH	Clay, light green-brown, wet, hard, high plasticity, moderate product odor.	
32	18	S-30		Dark green-brown, very stiff.	
34					
36	38	S-35		Red-brown, hard, slight product odor.	
38					CAVED
40					
42				Total depth = 41.5 feet.	

Applied GeoSystems

LOG OF BORING B-1/MW-1

Harbert Transportation
Hayward, California

PLATE

P-5

ROJECT NO. 8660-1

BORING LOCATION Meekland and Blo' 'm Ave
DRILLING CONTRACTOR HEW Drilling
DRILLER Jeff
DRILLING EQUIPMENT CME 55
DIAMETER OF BORING
PURPOSE OF BORING Monitoring Well
SAMPLING EQUIPMENT
COMMENTS

ELEVAT' 'N AND D
DATE STARTED 11-28-89
DATE FINISHED 11-28-89
COMPLETION DEPTH (FT) 40
ROCK DEPTH (FT) -
NO. OF UNDIST. SAMPLES 7
CORE
WATER FIRST DEPTH(FT) 34
COMPL.
LOGGED BY: J. Alt
CHECKED BY:

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG LITHOLOGY	SAMPLES NO.	SAMPLES TYPE	SAMPLES BLOW COUNT	SAMPLES DRILLING RATE/TIME	REMARKS
	Fill						
	dark brown clay, dry, adobe						
5					6 8 10		
	reddish brown fine sandy silt with some clay, dry						
	Tan sandy silt to silty sand. Thin lens of coarse sand at 11 ft.; dry, becoming moist at 15 ft.						
10					3 5 8		
15					2 4 6		
20					2 4 5		
	Gray clay, moist, mottled brown, moderately plastic						
25					4 7 10		
30							

Project Durham Site
Project No.

LOG OF BORING B-3 /MW3

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG LITHOLOGY	SAMPLES				REMARKS
			NO.	TYPE	BLOW COUNT	DRILLING RATE/ TIME	
30	Gray clay mottled brown, moist, moderately plastic.				4 4 5		
35	Brown clayey sand and gravel, grades downward to brown clayey silt.				5 7 11		
40	Bottom of boring No sample						
45							
50							
55							
60							
65							
70							

Project

Project No.

CONT. LOG OF BORING B-3

BORING LOCATION Meekland and Blossom Ave
ELEVATION AND DATUM
DRILLING CONTRACTOR HEW Drilling
DRILLER Jeff
DATE STARTED 11-28-89
DATE FINISHED 11-28-89
DRILLING EQUIPMENT CME 55
COMPLETION DEPTH (FT) 40
ROCK DEPTH (FT) -
DIAMETER OF BORING
NO. OF SAMPLES 7
UNDIST.
CORE
PURPOSE OF BORING Monitoring Well
WATER DEPTH(FT) FIRST
COMPL.
SAMPLING EQUIPMENT
LOGGED BY: J. Alt
CHECKED BY:
COMMENTS

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG LITHOLOGY	SAMPLES				REMARKS
			NO.	TYPE	BLOW COUNT	DRILLING RATE/ TIME	
	Fill - Sand and Gravel						
5	Dark brown clay, dry				8 6 4		
	Tan silty clay, dry						
10					5 6 9		
	brown sandy gravel						
15	Gray clayey silt to silty clay, locally sandy				2 4 4		
20	Same as above moist				1 4 4		
25	Same as above with brown mottlings				4 5 6		
30							

Project Durham Site
Project No.

LOG OF BORING B-4 /mw4

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG LITHOLOGY	SAMPLES				REMARKS
			NO.	TYPE	BLOW COUNT	DRILLING RATE/ TIME	
30	Gray clay, moist, mottled brown				4 7 13		
35	Brown silty clay, wet				6 7 9		
40	bottom of boring						
45							
50							
55							
60							
65							
70							

Project

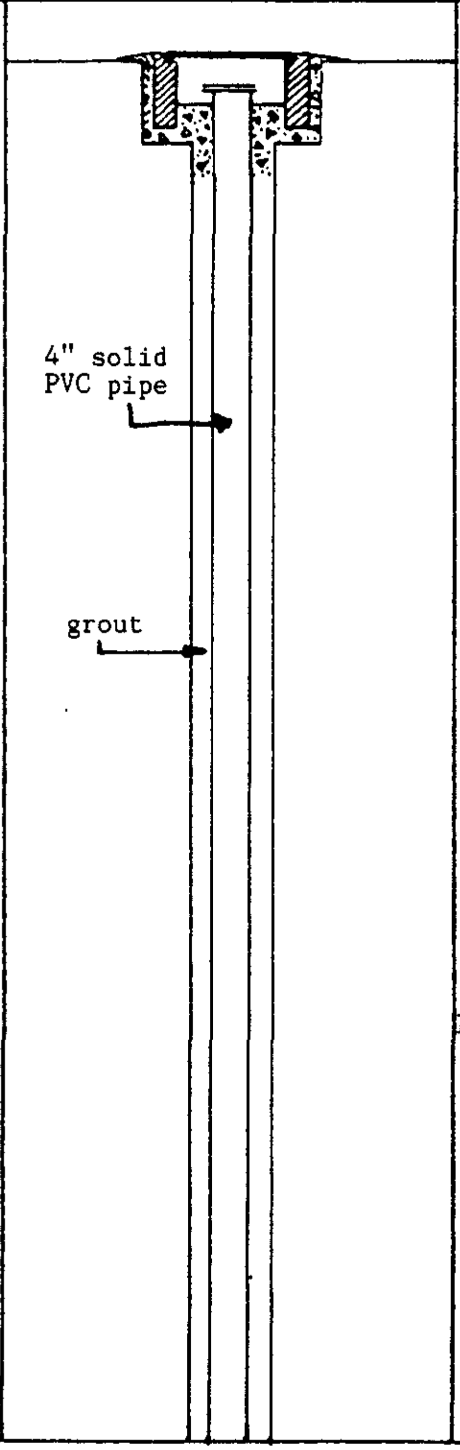
Project No.

CONT. LOG OF BORING B-4

BORING LOG

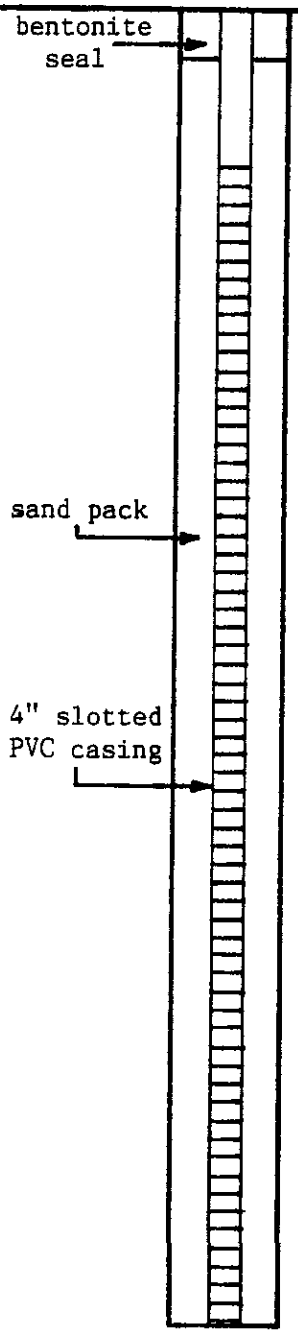
Project Durham Transportation
Location see location map
Job # 90-4
Geologist/Engineer J. Alt
Drill Agency HEW Drilling

Hole/Well # MW-5
Diameter of Drill Hole 8"
Total Depth of Hole 45 ft.
Date Started Aug. 31, 1990
Date Completed Aug. 31, 1990

DEPTH IN FEET	WELL CONSTRUCTION DETAIL	N-VALUE	SAMPLE	GRAPHIC SYMBOL	DESCRIPTION
0					gravelly sand-fill, dry dark brown clay-soil horizon
5		14	1		medium brown sandy clay, moist
10		7	2		blue gray sandy clay grading to a clayey sand, moist
15		12	3		grayish brown sandy clay, moist, scattered small gravel
					grayish brown fine to medium grained sand, moist
20		4	4		light brown clay, moist plastic, reddish brown mottling

BORING LOG

PROJECT: Durham Transportation
JOB NUMBER: 90-4
HOLE / WELL #: MW-5
PAGE: 2 OF 2

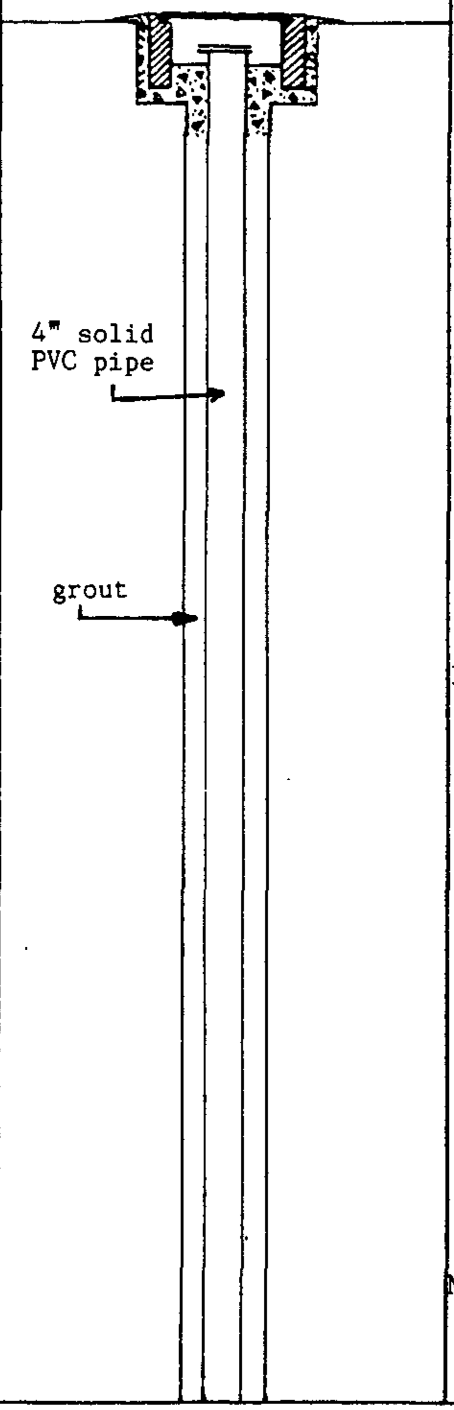
DEPTH (FEET)	COMPLETION DETAIL	SAMPLE #	BLOW COUNTS / FOOT	USCS SYMBOL	DESCRIPTION
					
25		5	18		gray motted brown clay, moist to damp, plastic gray clay; motted brown, moist, plastic
30		6	6		
35		7	16		
40		8	15		brown clay, moist, silty, moderately plastic
45		9	8		tight brown, fine to medium grained sand, wet, dark brown

BORING LOG

Project Durham Transportation
Location see location map
Job # 90-4
Geologist/Engineer J. Alt
Drill Agency HEW Drilling

Hole/Well # MW-6
Diameter of Drill Hole 8 inches
Total Depth of Hole 45 ft.
Date Started Aug. 30,1990
Date Completed Aug. 30, 1990

WELL CONSTRUCTION DETAIL

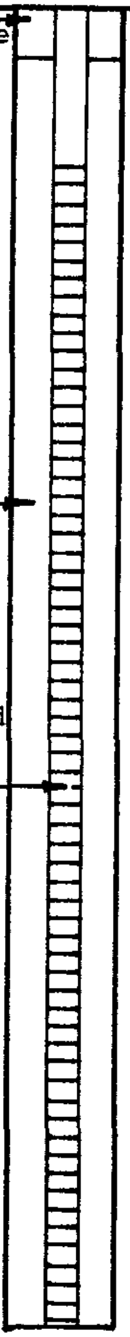


DEPTH IN FEET	N-VALUE	SAMPLE	GRAPHIC SYMBOL	DESCRIPTION
0				3" asphalt
				sand and gravel
5	11	1		medium brown silty to sandy clay, moist, locally scattered gravel up to 1/2" in size medium brown clay to clayey silt
10	12	2		
15	7	3		
				brown fine-grained sand, loose, moist
20	NA	4		gray motted brown clay, moist to damp, plastic

BORING LOG

PROJECT: Durham Transportation
JOB NUMBER: 90-4

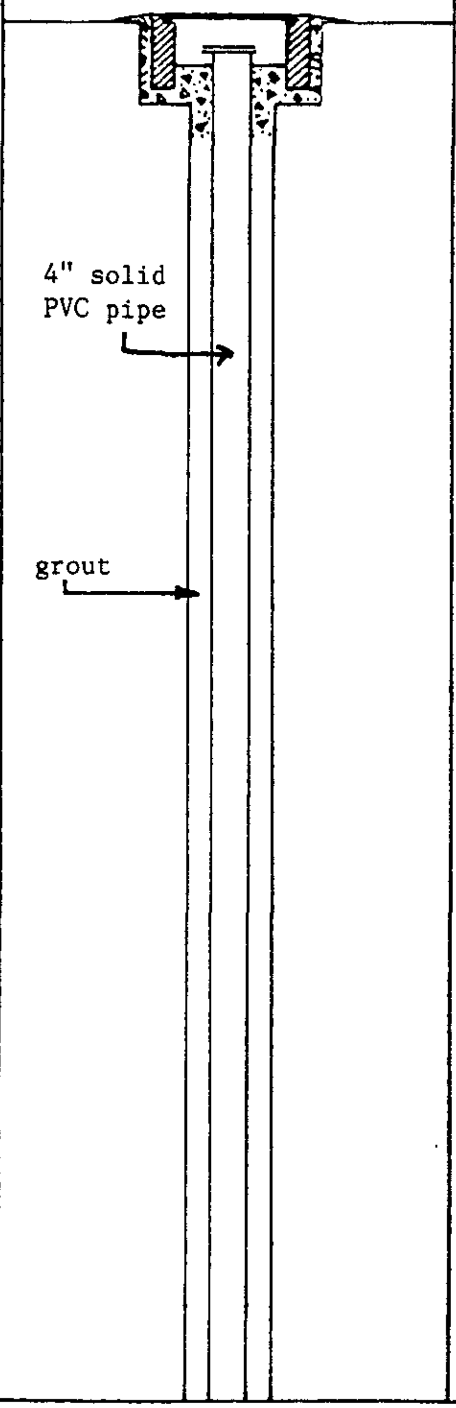
HOLE / WELL #: MW-6
PAGE: 2 OF 2

DEPTH (FEET)	COMPLETION DETAIL	SAMPLE #	BLOW COUNTS / FOOT	USCS SYMBOL	DESCRIPTION
	 bentonite seal				
25		5	20		light brown clay, moist plastic, reddish brown mottling
					same as above, except grading to gray in color
30	sand pack	6	11		gray clay, wet, plastic, locally sandy
35	4" slotted PVC casing	7	17		
					light brown clay, wet plastic
40		8	7		light brown clay, wet plastic, locally silty to sandy
					light brown sandy clay, wet plastic
45		9	15		

BORING LOG

Project Durham Transportation
Location see location map
Job # 90-4
Geologist/Engineer J. Alt
Drill Agency HEW Drilling

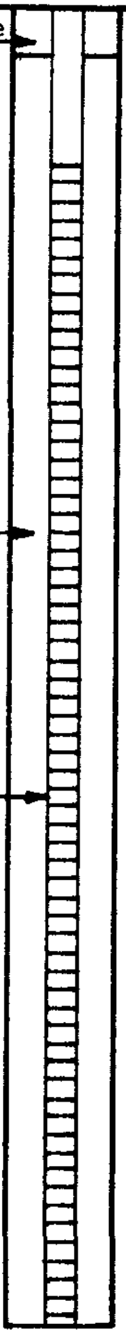
Hole/Well # M W - 7
Diameter of Drill Hole 8"
Total Depth of Hole 45 ft.
Date Started Oct. 1, 1990
Date Completed Oct. 1 , 1990

DEPTH IN FEET	WELL CONSTRUCTION DETAIL	N-VALUE	SAMPLE	GRAPHIC SYMBOL	DESCRIPTION
0					4" concrete
					fill - sand and gravel
					dark brown clay, damp grading to medium brown silty clay
5		17	1		medium brown clayey silt, damp
10		8	2		
15		9	3		
					gray sand, medium grained, damp
20		4	4		
					gray clay, moist with brown mottering

BORING LOG

PROJECT: Durham Transportation HOLE / WELL #: MW-7

JOB NUMBER: 90-4 PAGE: 2 OF 2

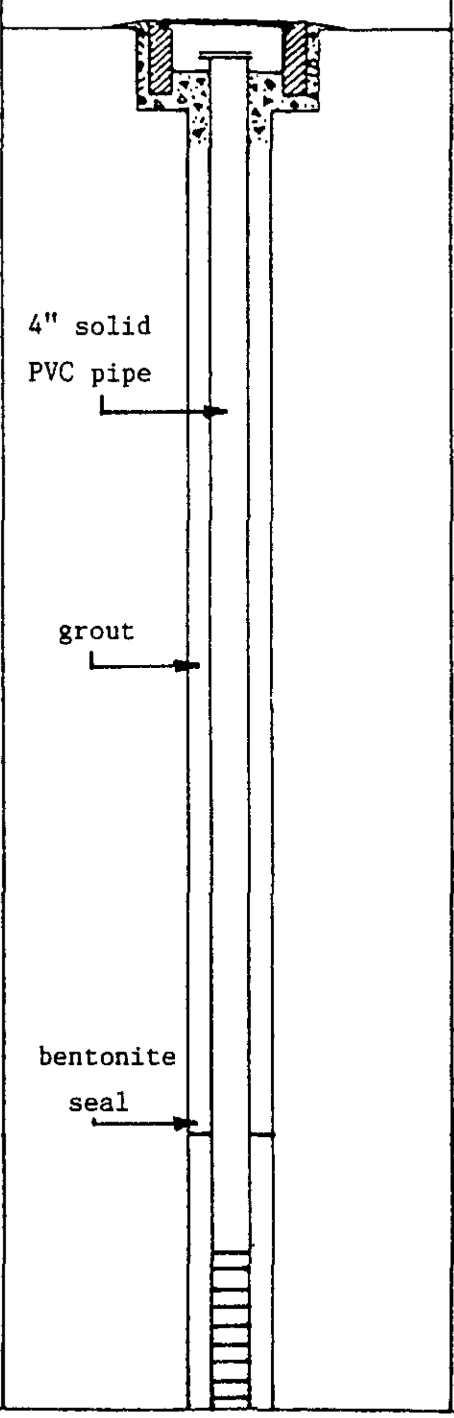
DEPTH (FEET)	COMPLETION DETAIL	SAMPLE #	BLOW COUNTS / FOOT	USCS SYMBOL	DESCRIPTION
	 bentonite seal				gray clay, moist with brown mottering
25		5	13		
30	sand pack	6	12		tan motteled gray silty clay, locally sandy
35	4" slotted PVC casing	7	16		tan clay; very plastic
40		8	10		tan clay-motted brown; very plastic, some silt
45		9	11		fine grain tan-mottled brown silty sand; very wet, some plasticity

BORING LOG

Project Durham Transportation
Location see location map
Job # 91-6
Geologist/Engineer J. Alt
Drill Agency HEW Drilling

Hole/Well # MW-8
Diameter of Drill Hole 10"
Total Depth of Hole 40'
Date Started Feb. 13, 1991
Date Completed Feb. 13, 1991

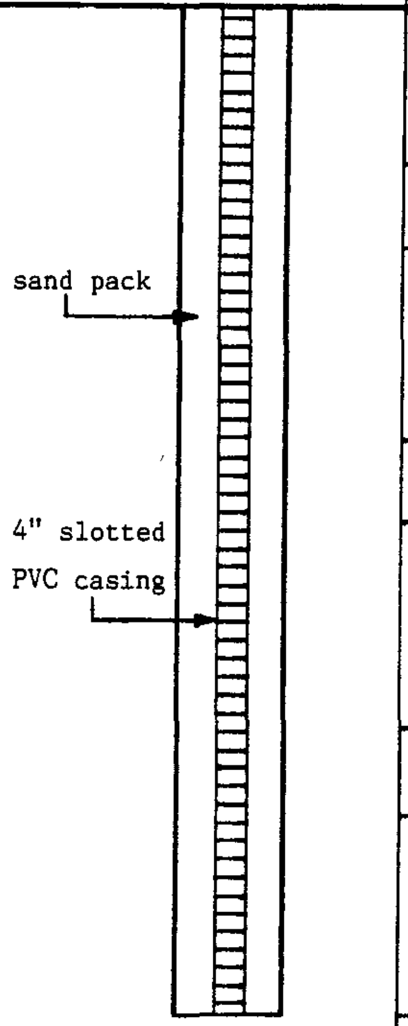
WELL CONSTRUCTION DETAIL



DEPTH IN FEET	N-VALUE	SAMPLE	GRAPHIC SYMBOL	DESCRIPTION
0				
5	15	1		Brown clay, somewhat plastic, dry
10	15	2		Brownish gray sandy clay
15	18	3		Brownish clay, somewhat plastic; clay lead to medium coarse sandy clay-had pebbles in it and was quite dry. This leads to brown sand
20	5	4		Brown clayey sand grading to gray clay, mottled brown, very plastic

BORING LOG

PROJECT: Durham Transportation
JOB NUMBER: 91-6
HOLE / WELL #: MW-8
PAGE: 2 **OF** 2



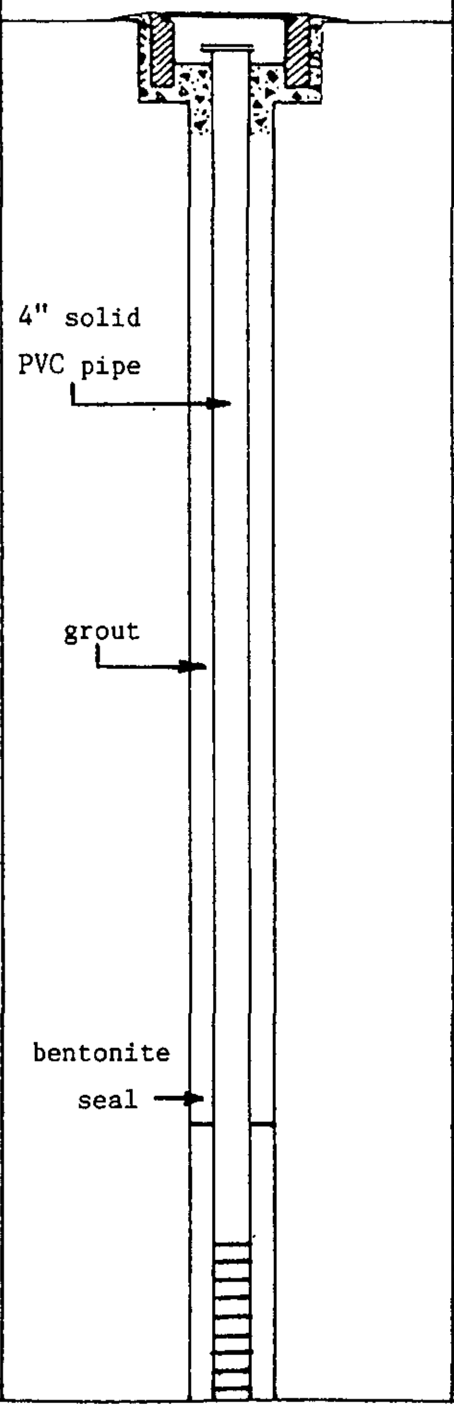
DEPTH (FEET)	COMPLETION DETAIL	SAMPLE #	BLOW COUNTS / FOOT	USCS SYMBOL	DESCRIPTION
25		5	11		Top: mottled brown mud with some sandy clay Bottom: brown mud with gray mottling
30		6	5		Brown silty clay with gray mottling, becoming moist
35		7	11		Tight brown clay, very plastic
40		8	7		Brown clay with dark brown mottling, moist, plastic

BORING LOG

Project Durham Transportation
Location see location map
Job # 91-6
Geologist/Engineer J. Alt
Drill Agency HEW Drilling

Hole/Well # MW-9
Diameter of Drill Hole 10"
Total Depth of Hole 40'
Date Started Feb. 13, 1991
Date Completed Feb. 13, 1991

WELL CONSTRUCTION DETAIL

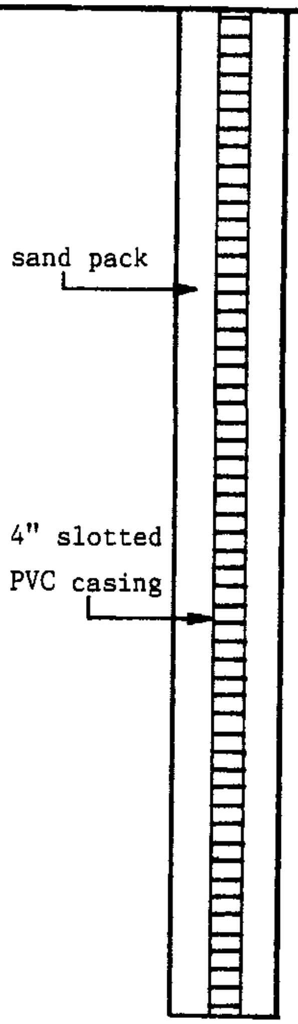


DEPTH IN FEET	N-VALUE	SAMPLE	GRAPHIC SYMBOL	DESCRIPTION
0				
5	15	1		Medium brown clayey silt, somewhat plastic, some small angular rock fragments, dry
10	8	2		Same as above
15	12	3		Brown clayey silt, locally sandy, moderated to low plasticity, grading to fine grain sand, loose, moist
20	6	4		Brown sandy clay, gray mottling

BORING LOG

PROJECT: Durham Transportation
JOB NUMBER: 91-6

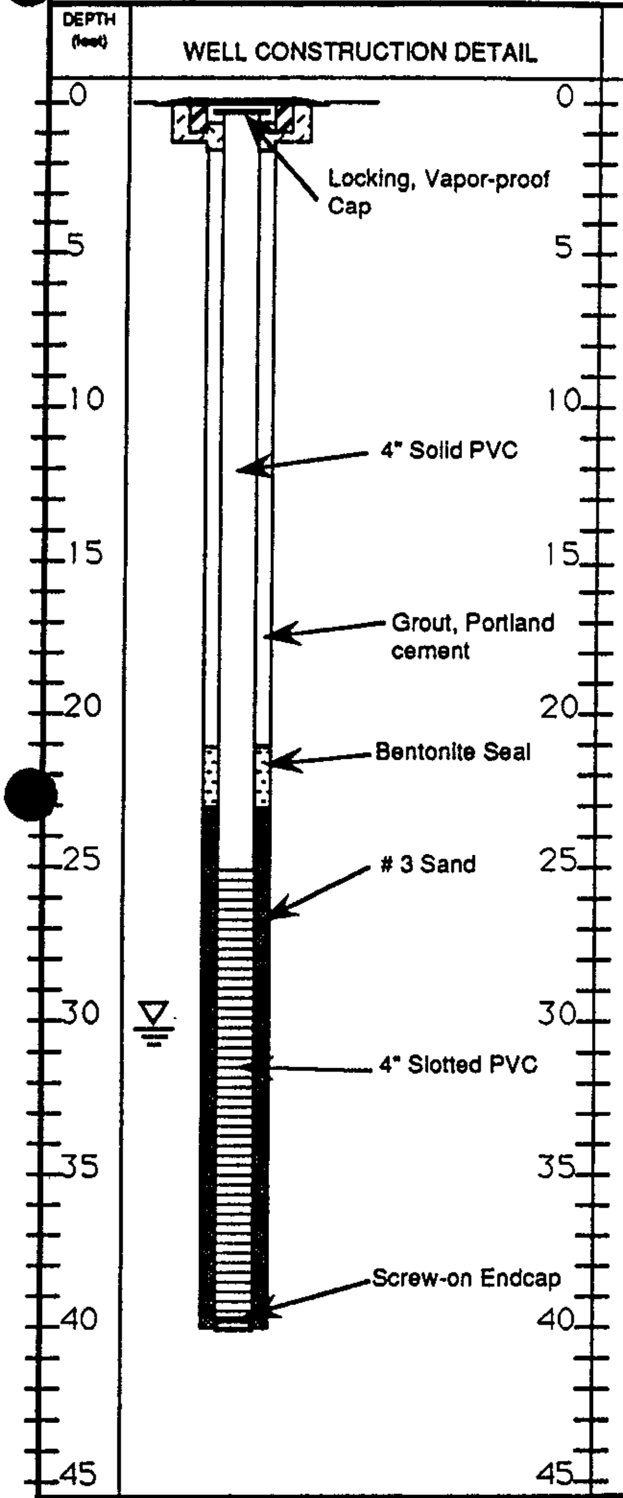
HOLE / WELL #: MW-9
PAGE: 2 OF 2



DEPTH (FEET)	COMPLETION DETAIL	SAMPLE #	BLOW COUNTS / FOOT	USCS SYMBOL	DESCRIPTION
25		5	9		Greenish-gray clay
30		6	10		Brown clay with some silt greenish gray mottling
35		7	15		Medium brown clay, gray mottling, moist
40		8	7		Medium brown clay, very plastic, moist

BORING LOG AND RECORD OF MONITORING WELL INSTALLATION

Figure 1
MW-10



N-VALUE	SAMPLE #	DESCRIPTION
		4" Asphalt over 1" Gravel Base, Sandy
		Dark brown clay, Organic Plastic, Moist
		Reddish brown clay, Moist, Moderately plastic
4/4/10		Light brown clayey silt, Moist, No odor Grades to silty clay
4/4/8		Light brown clayey sand, Scattered coarse sand to pebbles, Moist Grading to sandy gravel
3/3/5		Light brown sandy to silty clay Plastic, Moist Thin (~2" thick) lenses of coarse sand No hydrocarbon odor
4/5/7	1	Gray clay with brown mottling Moist, moderately plastic Abundant root holes No hydrocarbon odor
4/8/9	2	Gray clay, brown mottling Moist, Plastic
3/7/9	3	Light brown clayey fine sand, Grey mottling, Faint hydrocarbon odor (locally moderate), Scattered pebbles
5/10/12		Light brown clayey fine sand to fine sandy clay, Moist (not saturated), Very faint hydrocarbon odor, Grey mottling, Oxidized roots
		End of Boring

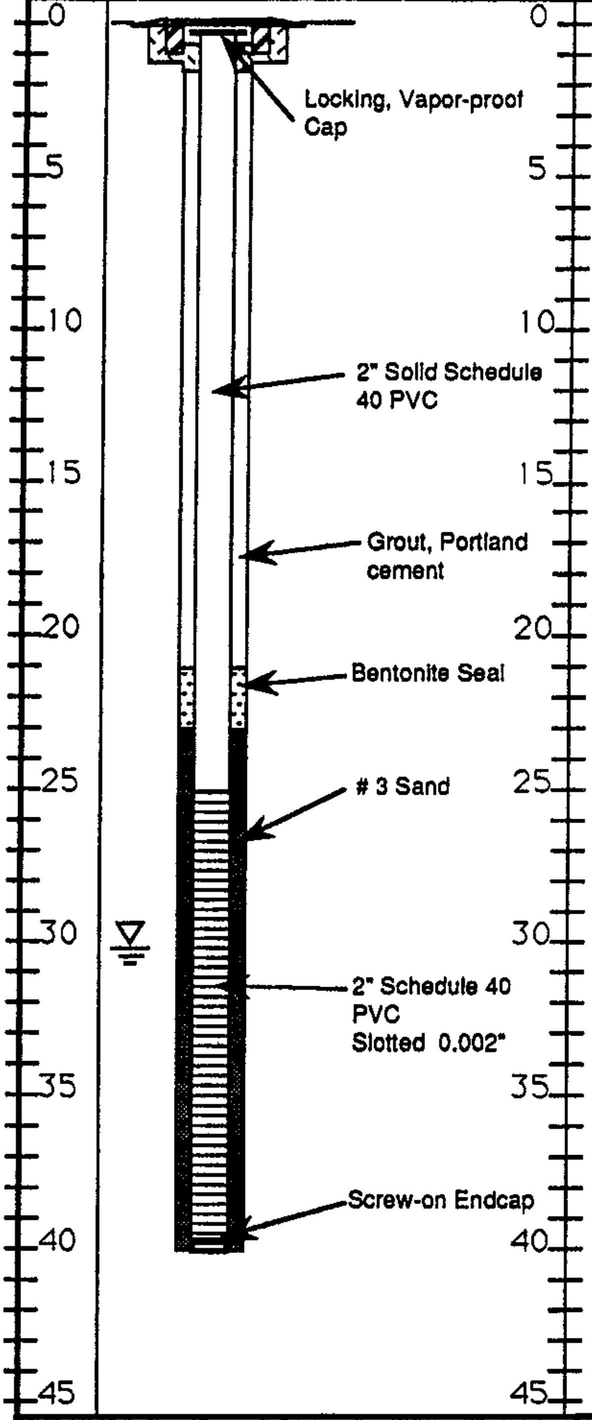
CTTS, Inc.
toxic technology services
P.O. Box 515 • Rodeo, California 94572
(510) 799-1140

Project	Durham Transportation	Hole/well #	10
Location	Apartment, 19875 Meekland Ave	Diameter of Drill Hole	10"
Job #	91-15	Total Depth of Hole	40'
Geologist/Engineer	J. N. Alt	Date Started	1/21/92
Driller	HEW	Date Completed	1/21/92

BORING LOG AND RECORD OF MONITORING WELL INSTALLATION

Figure 2
MW-11

WELL CONSTRUCTION DETAIL



DEPTH (feet)	N-VALUE	SAMPLE #	DESCRIPTION
0			4" Concrete over 6" Base Dark brown clay, Moist, Plastic
5	10/10/11		Light brown silty fine sand, Moist
10	8/10/10		Light brown clayey silt with some fine sand, Moist, No hydrocarbon odor
15	4/6/8		Medium brown silty clay Moderately plastic, Moist, No hydrocarbon odor, Grades into clayey to silty sand
20	3/5/5	1	Gray clay, Moist, Plastic, No hydrocarbon odor
25	8/12/15		Lost most of sample-- Tan sandy clay with gray mottling, Very faint hydrocarbon odor
30	4/6/7	2	Tan sandy clay, Wet, Grey mottling, Moderate hydrocarbon odor
35	8/9/10	3	Medium brown silty to fine sandy clay, Grey mottling, Moist to wet, No hydrocarbon odor
40			**End of Boring**
45			

CTTS, Inc.
toxic technology services
P.O. Box 515 • Rodeo, California 94572
(510) 799-1140

Project: Durham Transportation
Location: Residence, 19870 Meekland Ave.
Job #: 91-15
Geologist/Engineer: J. N. Alt
Driller: HEW
Hole/Well #: 11
Diameter of Drill Hole: 8"
Total Depth of Hole: 40'
Date Started: 1/24/92
Date Completed: 1/24/92

BORING LOG

Project Durham Transportation

Hole/Well # B-1

Location see location map

Diameter of Drill Hole 8 inches

Job # 90-4

Total Depth of Hole 25 ft.

Geologist/Engineer J. Alt

Date Started Oct. 1,1990

Drill Agency HEW Drilling

Date Completed Oct. 1,1990

DEPTH IN FEET	WELL CONSTRUCTION DETAIL	N-VALUE	SAMPLE	GRAPHIC SYMBOL	DESCRIPTION
0					backfill gravel, etc.
5		15	1		
10	boring log only; no well was installed	13	2		fine grain sand green with hydrocarbons; slightly silty the first foot, brown clay with black streaks
15		10	3		gravel fill in first foot, next comes green soil (silty, sandy clay), odor of old petroleum, last foot sandy clay gray (slight green tinge), some plastcity
20		8	4		dark gray silty clay; very plastic mottled brown down to approximately 21'; has greenish tint.

BORING LOG

PROJECT: Durham Transportation
HOLE / WELL #: B-1
JOB NUMBER: 90-4
PAGE : 2 OF 2

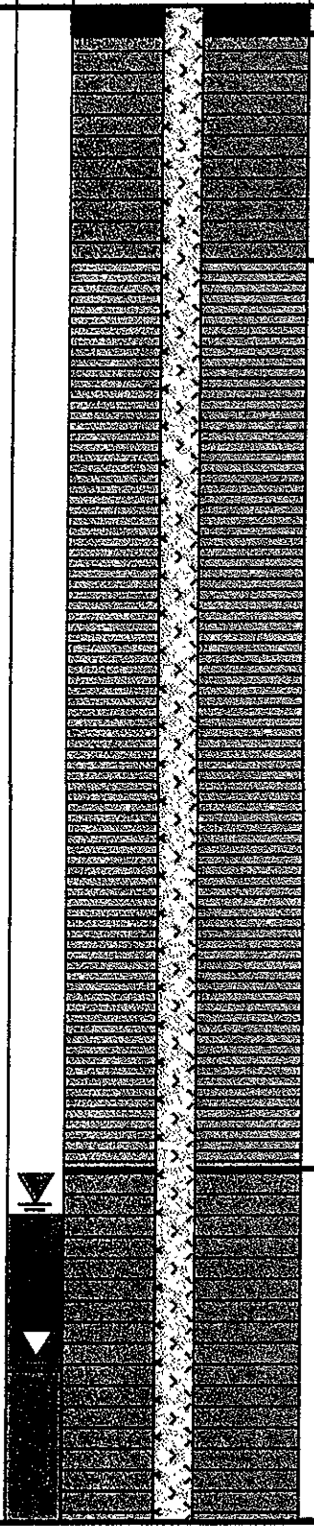
DEPTH (FEET)	COMPLETION DETAIL	SAMPLE #	BLOW COUNTS / FOOT	USCS SYMBOL	DESCRIPTION
25		5	15		gray with slight green tinge first 10". brown clay, mottled green and orange; very plastic soil, still pretty dry.

GEOLOGIC LOG

Exploratory Borehole

JOB NO.: H9042.B DATE: February 14, 2001
CLIENT: Harbert Transportation
LOCATION: 19984 Meekland Avenue, Hayward, California
LOGGED BY: C. Taylor SAMPLED BY: C. Taylor
DRILLER: En Probe (Dennis)
DRILL METHOD: Hydraulic Driven Large Bore and Macro-Core Probes

BORING #
DP-1
Sheet
1 of 2



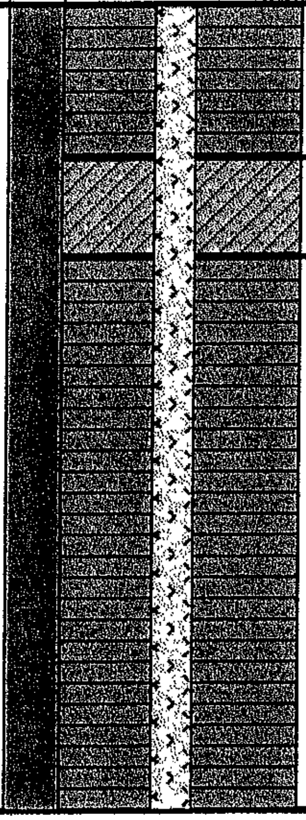
Depth (feet)	Sample Identification & OVA Data (ppmv)	USCS	SOIL DESCRIPTION & CLASSIFICATION (Lithologic name, color, moisture, density/consistency, grain size%, other descriptors, HC odor.)
0		--	**ASPHAULT**
0.5		CH	**Fat CLAY**, very dark grayish brown (10 YR 3/2), moist to wet, firm, moderate to high plasticity, no dilatency, low toughness, dominantly clay with few fine grained sands, subrounded grains, no odor, no discoloration.
2	DP-1a		
4.5			- Coarsening downward, gradational contact.
5		CL	**Sandy CLAY**, brown (10 YR 4/3), damp, moderate plasticity, no dilatency, contains some subrounded sands, no odor, no dicoloration.
6	DP-1b		
10	DP-1c		
12.5			- Thin lenses of fine grained sands with some clays.
14	DP-1d		
18	DP-1e		- Thin lenses of fat clays wiht trace sands.
22	DP-1f		- Color change to gray (10 YR 4/1) associated with hydrocarbon contamination, moderate hydrocarbon odor.
23		CH	**Fat CLAY**, dark -gray (10 YR 4/1), damp to moist, soft, very high plasticity, no dilatency, low toughness, trace sands, discolored due to hydrocarbons, moderate to high odor.
24	DP-1g		
27	DP-1g		- Moisture increase to wet, groundwater encountered.
29	DP-1h		
30			

GEOLOGIC LOG

Exploratory Borehole

JOB NO.: H9042.B DATE: February 14, 2001
CLIENT: Harbert Transportation
LOCATION: 19984 Meekland Avenue, Hayward, California
LOGGED BY: C. Taylor SAMPLED BY: C. Taylor
DRILLER: En Probe (Dennis)
DRILL METHOD: Hydraulic Driven Large Bore and Macro-Core Probes

BORING #
DP-1
Sheet
2



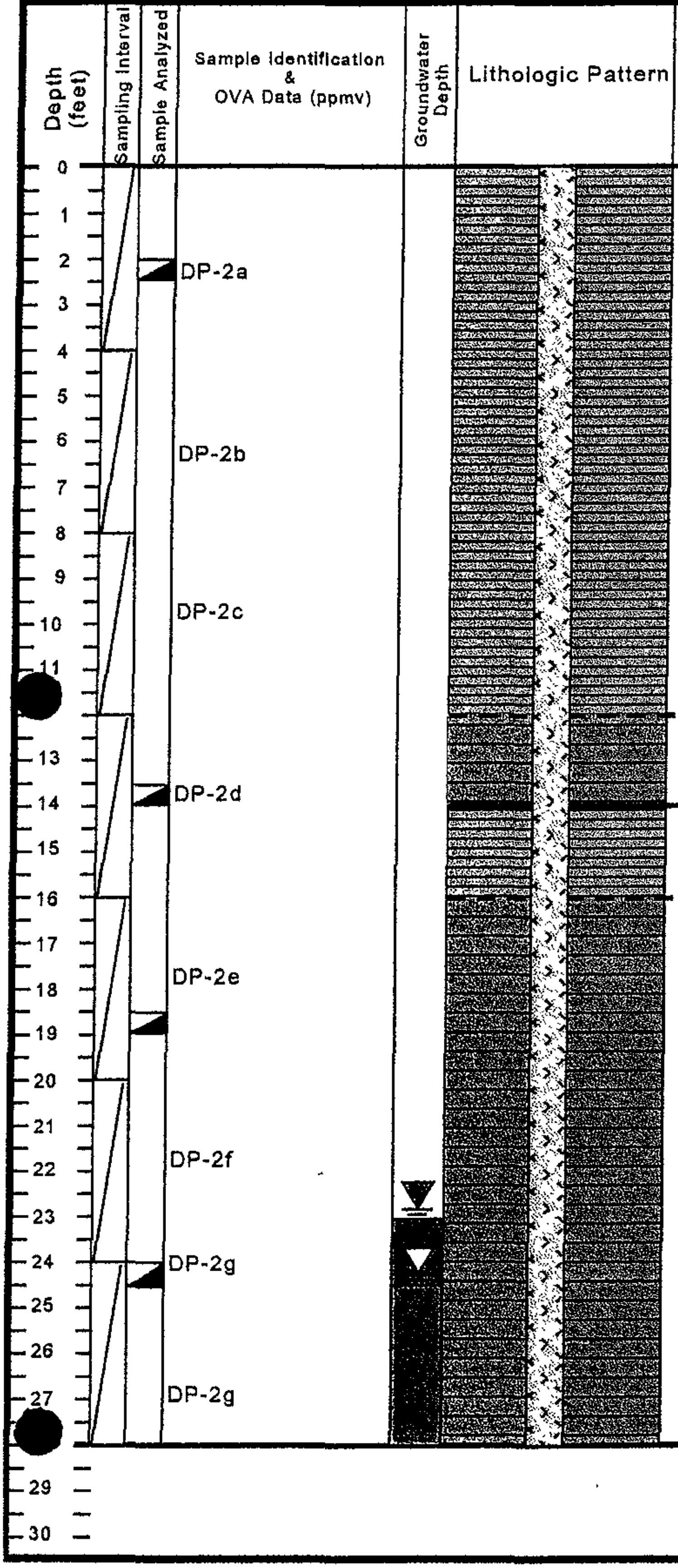
Depth (feet)	Sampling Interval	Sample Analyzed	Sample Identification & OVA Data (ppmv)	Groundwater Depth	Lithologic Pattern	USCS	SOIL DESCRIPTION & CLASSIFICATION (Lithologic name, color, moisture, density/consistency, grain size%, other descriptors, HC odor.)
30						CH	**Fat CLAY**, dark-gray (10 YR 4/1), damp to moist, soft, very high plasticity, no dilatency low toughness, trace sands, discolored due to hydrocarbons, moderate to high odor.
31							
32			DP-1h				
33						SC	**Poorly Graded Clayey SANDS**, gray (10 YR 5/1), wet, medium dense, slight plasticity, fine grained sands, sub rounded, 30% clays, discoloration, moderate to high odor.
34							
35						CH	**Fat CLAY**, brown (10YR 5/4), damp, moderate plasticity, no dilatency, contains few to some sands, no odor, no discoloration
36			DP-1i				
37							
38							
39							
40			DP-1j				
41							
.							
43							
44			DP-1k				
45							
46							Boring terminated at 46 feet bgs. Backfill with Portland Cement Slurry t ground surface.
47							
48							
49							
50							
51							
52							
53							
54							
55							
56							
57							
59							
60							

GEOLOGIC LOG

Exploratory Borehole

JOB NO.: H9042.B DATE: February 14, 2001
CLIENT: Harbert Transportation
LOCATION: 19984 Meekland Avenue, Hayward, California
LOGGED BY: C. Taylor SAMPLED BY: C. Taylor
DRILLER: En Probe (Dennis)
DRILL METHOD: Hydraulic Driven Large Bore and Macro-Core Probes

BORING #
DP-2
Sheet 1 of 1



USCS	SOIL DESCRIPTION & CLASSIFICATION (Lithologic name, color, moisture, density/consistency, grain size%, other descriptors, HC odor.)
CL	Sandy CLAY, very dark grayish brown (10YR 3/2), dry, lean, ver stiff, no plasticity, no dilatency, high toughness, little sands, subangular grains, no odor, no discoloration. - Coarsening downward, - Color change to dark yellowish brown (10 YR 4/4) - Gradational contact.
CH	Fat CLAY, gray brown (10YR 5/2), moist, firm, moderate to high plasticity, no dilatency, low toughness, trace sands, high hydrocarbon odor, blue-gray discoloration (Gley 2 5/5B).
CL	Sandy CLAY, gray brown (10 YR 5/2), damp, soft and loose, low plasticity, no dilatency, low toughness, some sands, sands subangular and poorly graded, high hydrocarbon odor, blue gray discoloration (Gley 2 5/5B).
CH	Fat CLAY, gray brown (10YR 5/2), moist, firm, moderate to high plasticity, no dilatency, low toughness, trace sands, high hydrocarbon odor, blue-gray discloration (Gley 2 5/5B). - Moisture increases to wet, groundwater first encountered.

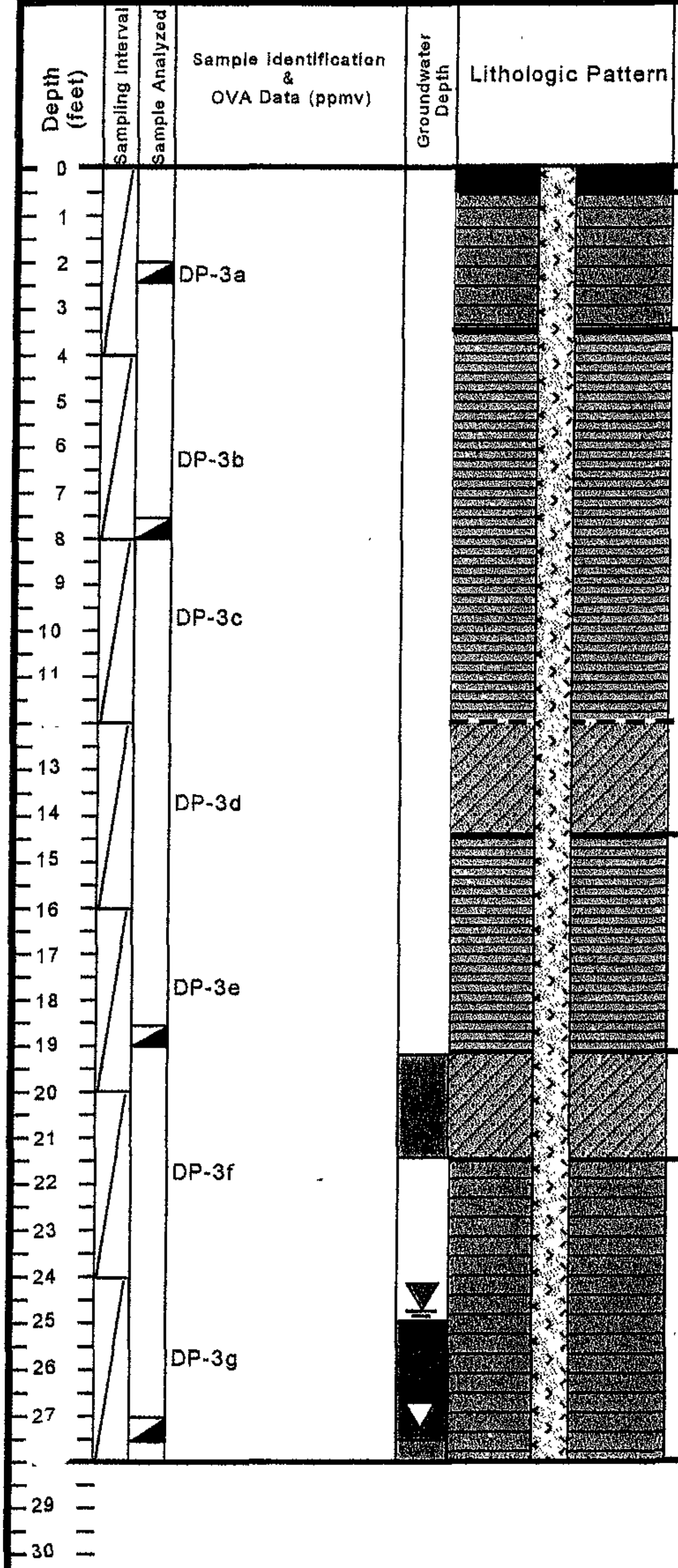
GEOLOGIC LOG

Exploratory Borehole

JOB NO.: H9042.B DATE: February 14, 2001
CLIENT: Harbert Transportation
LOCATION: 19984 Meekland Avenue, Hayward, California
LOGGED BY: C. Taylor SAMPLED BY: C. Taylor
DRILLER: En Probe (Dennis)
DRILL METHOD: Hydraulic Driven Large Bore and Macro-Core Probes

BORING # DP-3

Shee
1 of



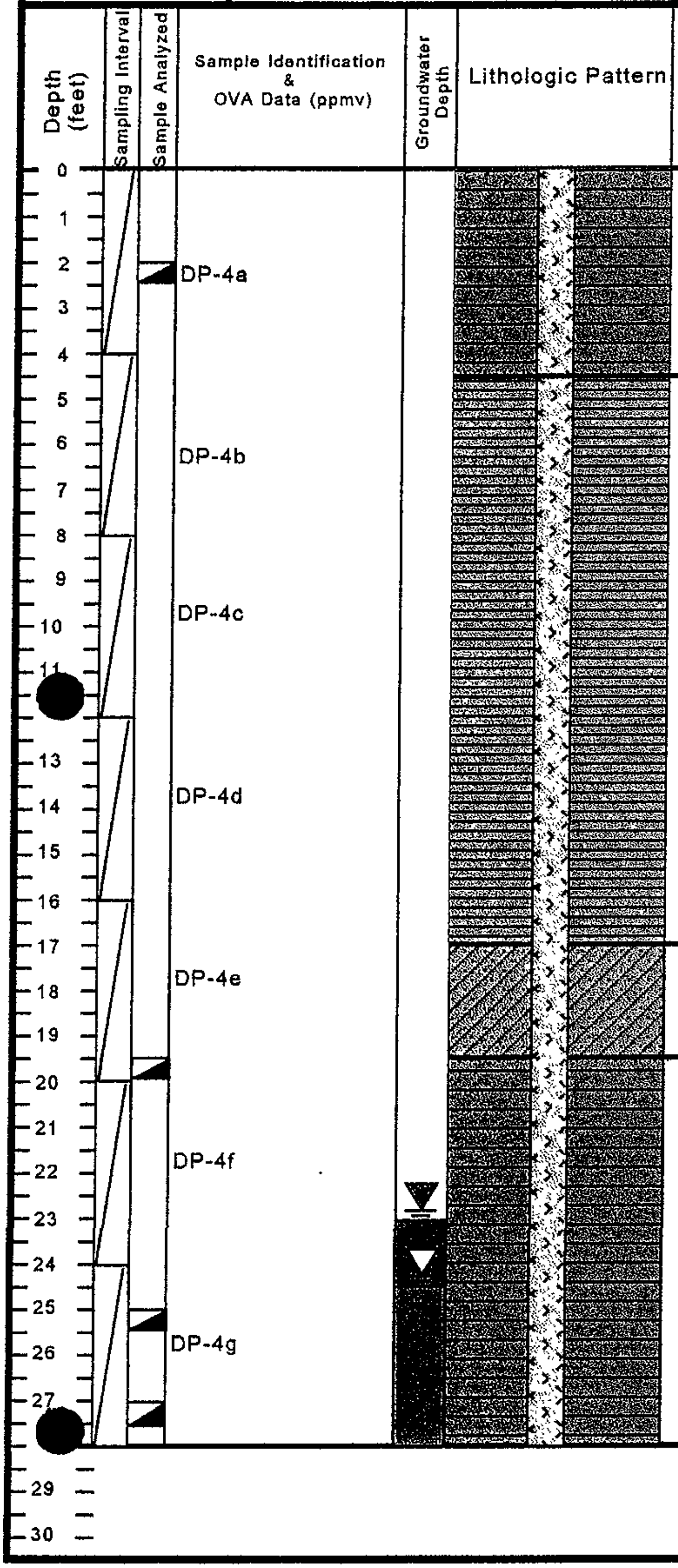
USCS	SOIL DESCRIPTION & CLASSIFICATION (Lithologic name, color, moisture, density/consistency, grain size%, other descriptors, HC odor.)
--	**ASPHAULT**
CH	Fat CLAY, very dark gray brown (10YR 3/2), damp, firm, moderate plasticity, no dilatency, low toughness, trace sands, no odor no discloration, roots, high organic content.
CL	Sandy CLAY, very dark grayish brown (10YR 3/2), dry, lean, ver stif, no plasticity, no dilatency, high toughness, little sands, subangular grains, no odor, no discoloration. - Low-moderate Hydrocarbon odor detected.
SC	Clayey SAND with Gravels, very dark grayish brown (10YR 3/2), dry, loose, mostly medium sized sand grains, subangular, 10 % fine subangular gravels 20 % clay, no plasticity, no dilatency, moderate odor, no discoloration.
CL	Sandy CLAY, very dark grayish brown (10 YR 3/2), dry, lean, low plasticity, no dilatency, mostly clays, 30-35 % medium grained sands, subangular grains, moderate hydrocarbon odor, slight blue-gray discoloration (Gley 2 5/5B).
SC	Clayey SAND, dark yellowish brown (10 YR 3/6), wet to saturated, loose to medium dense, mostly medium to fine grained sands, subangular, 25 % clays, no plasticity, 15 % silts, moderate hydrocarbon odor, no discoloration. - Perched Groundwater
CH	Fat CLAY, gray brown (10 YR 5/2), moist, firm, moderate to high plasticity, no dilatency, low toughness, trace sands, high hydrocarbon odor, blue-gray discloration (Gley 2 5/5B). - Moisture increases to saturated, groundwater encountered.

GEOLOGIC LOG

Exploratory Borehole

JOB NO.: H9042.B DATE: February 14, 2001
CLIENT: Harbert Transportation
LOCATION: 19984 Meekland Avenue, Hayward, California
LOGGED BY: C. Taylor SAMPLED BY: C. Taylor
DRILLER: En Probe (Dennis)
DRILL METHOD: Hydraulic Driven Large Bore and Macro-Core Probes

BORING #
DP-4
Sheet
1 of 1



USCS	SOIL DESCRIPTION & CLASSIFICATION (Lithologic name, color, moisture, density/consistency, grain size%, other descriptors, HC odor.)
CH	**Fat CLAY**, very dark gray brown (10YR 3/2), damp, firm, moderate plasticity, no dilatency, low toughness, trace sands, no odor no discloration, roots, organic content.
CL	**Sandy CLAY**, grayish brown (10YR 5/2), dry, lean, very stiff, no plasticity, no dilatency, high toughness, little fine to medium sands, subangular grains, no odor, no discoloration. - Coarsening downward sequence. - Sands increase to some. - Few subrounded to rounded gravels and pebbles present.
SC	**Clayey SAND**, very dark grayish brown (10YR 3/2), dry, very dense, mostly sands, fine to medium subangular grains, 35-40% clays, no plasticity, no odor, no discoloration.
CH	**Fat CLAY**, gray brown (10 YR 5/2), moist, firm, moderate to high plasticity, no dilatency, low toughness, trace sands, ino hydrocarbon odor, no discoloration. - Moisture increases to saturated, groundwater encountered.

GEOLOGIC LOG

Exploratory Borehole

JOB NO.: H9042.B DATE: February 14, 2001
CLIENT: Harbert Transportation
LOCATION: 19984 Meekland Avenue, Hayward, California
LOGGED BY: C. Taylor SAMPLED BY: C. Taylor
DRILLER: En Probe (Dennis)
DRILL METHOD: Hydraulic Driven Large Bore and Macro-Core Probes

BORING #
DP-5
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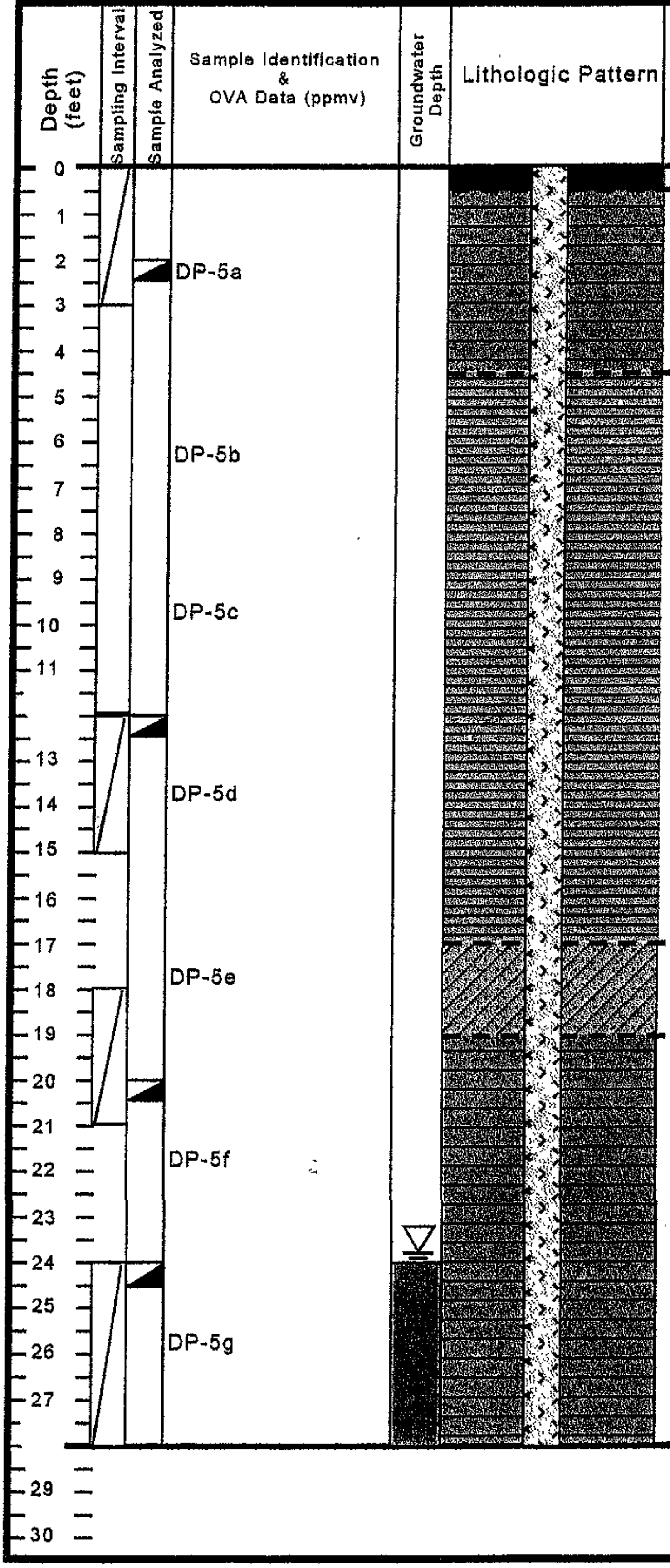


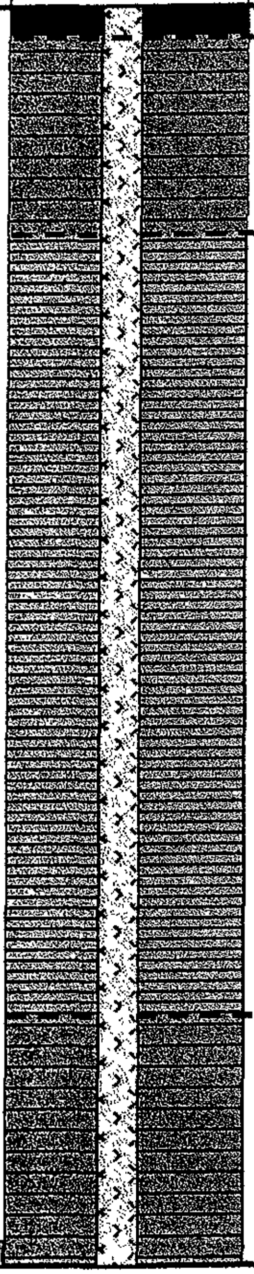
USCS	SOIL DESCRIPTION & CLASSIFICATION (Lithologic name, color, moisture, density/consistency, grain size%, other descriptors, HC odor.)
--	<u>ASPHAULT</u>
CH	<u>Fat CLAY,</u> very dark gray brown (10YR 3/2), damp, firm, moderate plasticity, no dilatency, low toughness, trace sands, no odo no discloration, roots, high organic content.
CL	<u>Sandy CLAY,</u> very dark grayish brown (10YR 3/2), dry, lean, ver stif, no plasticity, no dilatency, high toughness, little sands, subangular grains, no odor, no discoloration.
SC	<u>Clayey SAND</u>, very dark grayish brown (10YR 3/2), dry, loose, mostly medium sized sand grains, subangular, trace fine subangular gravels 20 % clay, no plasticity, no dilatency, no odor, no discoloration.
CH	<u>Fat CLAY,</u> gray brown (10 YR 5/2), moist, firm, moderate to high plasticity, no dilatency, low toughness, trace sands, no hydrocarbon odor, no discloration. - Moisture increases to saturated, groundwater encountered.

GEOLOGIC LOG

Exploratory Borehole

JOB NO.: H9042.B DATE: February 14, 2001
CLIENT: Harbert Transportation
LOCATION: 19984 Meekland Avenue, Hayward, California
LOGGED BY: C. Taylor SAMPLED BY: C. Taylor
DRILLER: En Probe (Dennis)
DRILL METHOD: Hydraulic Driven Large Bore and Macro-Core Probes

BORING #
DP-6
Sheet 1 of 1



Depth (feet)	Sampling Interval	Sample Analyzed	Sample Identification & OVA Data (ppmv)	Groundwater Depth	Lithologic Pattern	USCS	SOIL DESCRIPTION & CLASSIFICATION (Lithologic name, color, moisture, density/consistency, grain size%, other descriptors, HC odor.)
0						--	ASPHAULT
1						CH	Fat CLAY, very dark gray brown (10YR 3/2), damp, firm, moderate plasticity, no dilatency, low toughness, trace sands, no odor no discloration, roots, high organic content.
2			DP-6a				
5						CL	Sandy CLAY, very dark grayish brown (10YR 3/2), dry, lean, ver stif, no plasticity, no dilatency, high toughness, little sands, subangular grains, no odor, no discoloration.
6			DP-6b				
10			DP-6c				
14			DP-6d				
18			DP-6e				
21						CH	Fat CLAY, gray brown (10 YR 5/2), moist, firm, moderate to high plasticity, no dilatency, low toughness, trace sands, no hydrocarbon odor, no discloration.
22			DP-6f				
24			DP-6g	▽			- Moisture increases to saturated, groundwater encountered.
25							
26							
27							
29							
30							

GEOLOGIC LOG

Exploratory Borehole

JOB NO.: H9042.B DATE: February 14, 2001
CLIENT: Harbert Transportation
LOCATION: 19984 Meekland Avenue, Hayward, California
LOGGED BY: C. Taylor SAMPLED BY: C. Taylor
DRILLER: En Probe (Dennis)
DRILL METHOD: Hydraulic Driven Large Bore and Macro-Core Probes

BORING #
DP-7
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1 of

Depth (feet) | Sampling Interval | Sample Analyzed | Sample Identification & OVA Data (ppmv) | Groundwater Depth | Lithologic Pattern | USCS | SOIL DESCRIPTION & CLASSIFICATION (Lithologic name, color, moisture, density/consistency, grain size%, other descriptors, HC odor.)

Depth (feet): 0 1 2 3 4 5 6 7 8 9 10 11 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 29 30

Sample Identification & OVA Data (ppmv)	USCS	SOIL DESCRIPTION & CLASSIFICATION
	--	**ASPHAULT**
DP-7a	CH	Fat CLAY, very dark gray brown (10YR 3/2), damp, firm, moderate plasticity, no dilatency, low toughness, trace sands, no odo no discloration, roots, high organic content.
DP-7b DP-7c	CL	Sandy CLAY, very dark grayish brown (10YR 3/2), dry, lean, ver stif, no plasticity, no dilatency, high toughness, little sands, subangular grains, no odor, no discoloration.
	SC	Clayey SAND, very dark grayish brown (10YR 3/2), dry, loose, mostly medium sized sand grains, subangular, trace fine subangular gravels 20 % clay, no plasticity, no dilatency, no odor, no discoloration.
DP-7d DP-7e DP-7f DP-7g	CH	Fat CLAY, gray brown (10 YR 5/2), moist, firm, moderate to high plasticity, no dilatency, low toughness, trace sands, no hydrocarbon odor, no discloration. - Moisture increases to saturated, groundwater encountered.

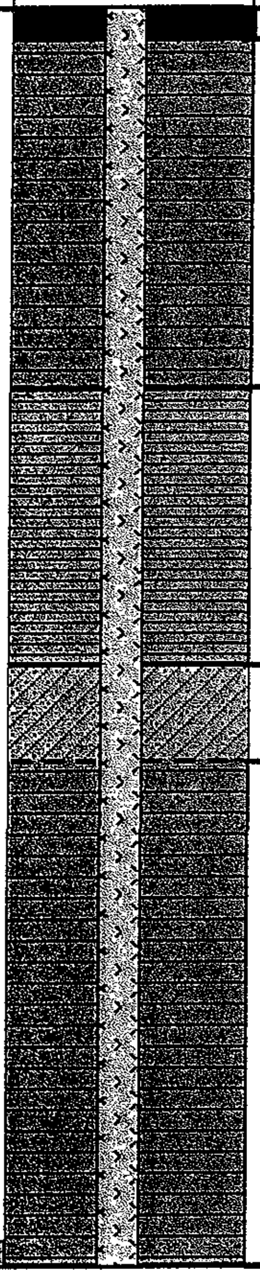
GEOLOGIC LOG

Exploratory Borehole

JOB NO.: H9042.B DATE: February 14, 2001
CLIENT: Harbert Transportation
LOCATION: 19984 Meekland Avenue, Hayward, California
LOGGED BY: C. Taylor SAMPLED BY: C. Taylor
DRILLER: En Probe (Dennis)
DRILL METHOD: Hydraulic Driven Large Bore and Macro-Core Probes

BORING #
DP-8
Sheet
1 of 1

Depth (feet)	Sample Identification & OVA Data (ppmv)	USCS	SOIL DESCRIPTION & CLASSIFICATION (Lithologic name, color, moisture, density/consistency, grain size%, *other descriptors, HC odor.)*
0		--	**ASPHAULT**
1		CH	Fat CLAY, very dark gray brown (10YR 3/2), damp, firm, moderate plasticity, no dilatency, low toughness, trace sands, no odor no discloration, roots, high organic content.
2	DP-8a		
6	DP-8b		
8		CL	Sandy CLAY, very dark grayish brown (10YR 3/2), dry, lean, ver stif, no plasticity, no dilatency, high toughness, little sands, subangular grains, no odor, no discoloration.
10	DP-8c		
13		SC	Clayey SAND, very dark grayish brown (10YR 3/2), dry, loose, mostly medium sized sand grains, subangular, trace fine subangular gravels 20 % clay, no plasticity, no dilatency, no odor, no discoloration.
14	DP-8d		
15		CH	Fat CLAY, gray brown (10 YR 5/2), moist, firm, moderate to high plasticity, no dilatency, low toughness, trace sands, no hydrocarbon odor, no discloration.
18	DP-8e		
22	DP-8f		
24–25	DP-8g		- Moisture increases to saturated, groundwater encountered.



GEOLOGIC LOG

Exploratory Borehole

JOB NO.: H9042.B DATE: February 14, 2001
CLIENT: Harbert Transportation
LOCATION: 19984 Meekland Avenue, Hayward, California
LOGGED BY: C. Taylor SAMPLED BY: C. Taylor
DRILLER: En Probe (Dennis)
DRILL METHOD: Hydraulic Driven Large Bore and Macro-Core Probes

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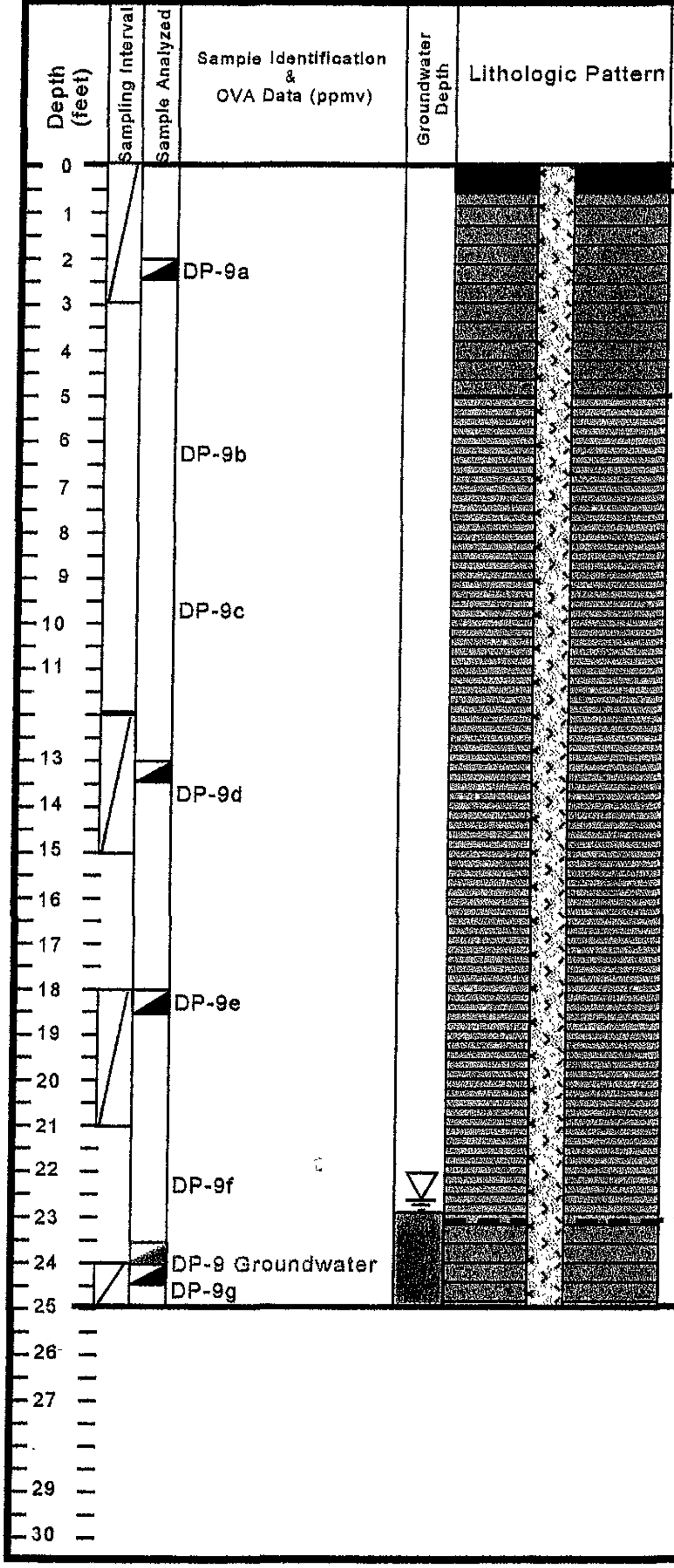

USCS	SOIL DESCRIPTION & CLASSIFICATION (Lithologic name, color, moisture, density/consistency, grain size%, other descriptors, HC odor.)
--	**ASPHAULT**
CH	**Fat CLAY**, very dark grayish brown (10 YR 3/2), moist to wet, firm, moderate to high plasticity, no dilatency, low toughness, dominantly clay with few fine grained sands, subrounded grains, no odor, no discoloration.
CL	**Sandy CLAY**, brown (10 YR 4/3), damp, moderate plasticity, no dilatency, contains some subrounded sands, no odor, no dicoloration.
	- Thin lenses of fine grained sands with some clays.
	- Thin lenses of fat clays wiht trace sands.
CH	**Fat CLAY**, dark -gray (10 YR 4/1), damp to moist, soft, very high plasticity, no dilatency, low toughness, trace sands, discolored due to hydrocarbons, moderate to high odor.

Geologic Logs of Landfill Acceptance Borings

GEOLOGIC LOG

Driven Probe Boring

JOB NO.: H9042.C DATE: October 18, 2001
CLIENT: Harbert Transportation
LOCATION: 19984 Meekland Avenue, Hayward, California
LOGGED BY: A. Bierman SAMPLED BY: A. Bierman
DRILLER: EnProbe (Dennis Ott)
DRILL METHOD: Hydraulic Driven Large Bore and Macro-Core Probes

BORING #
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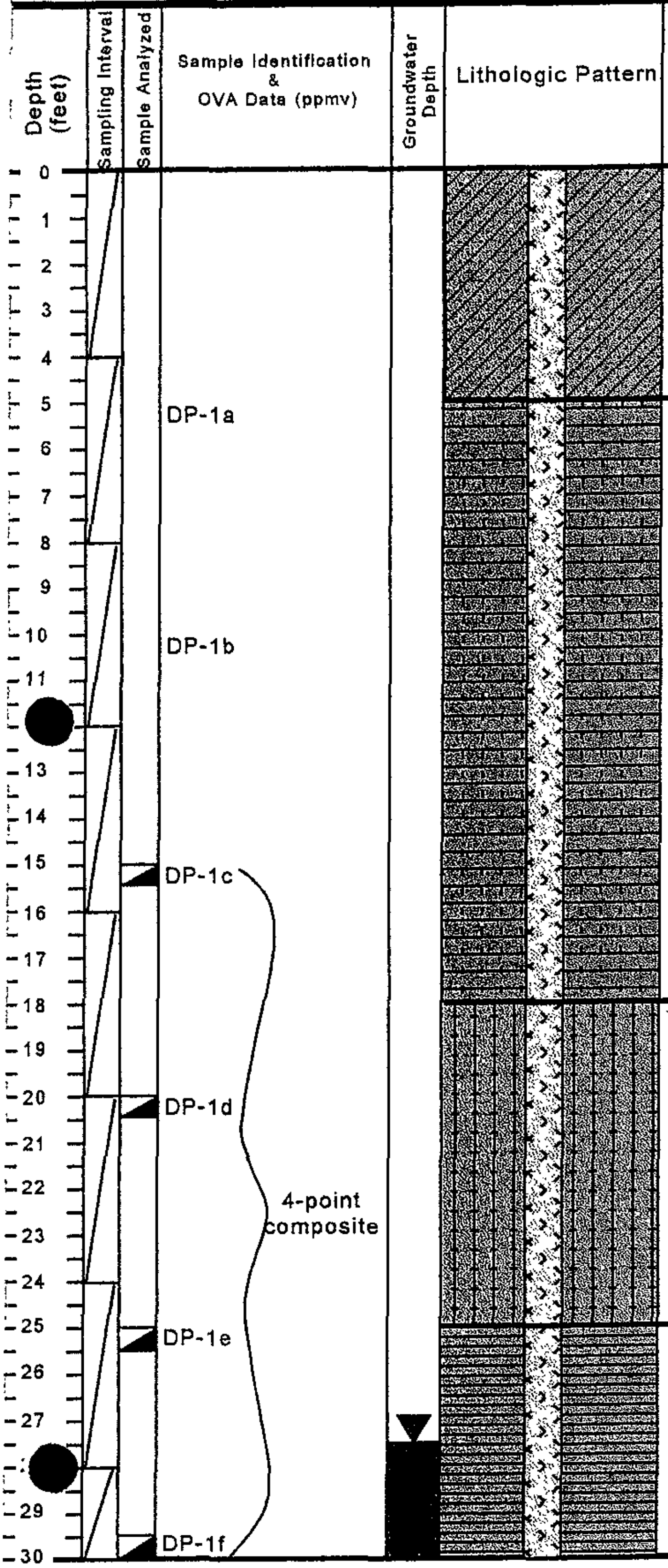
DP-1

Sheet
1 of 2



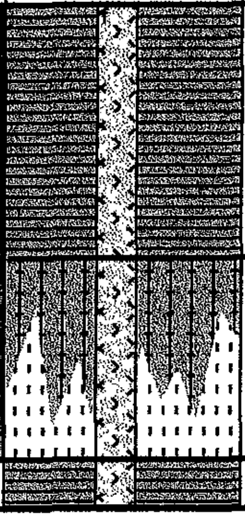
USCS	SOIL DESCRIPTION & CLASSIFICATION (Lithologic name, color, moisture, density/consistency, grain size%, other descriptors, HC odor.)
CH	**Former Excavation Footprint: Clayey SAND**, very dark grayish brown (10YR 3/2), damp to dry, medium stiff to stiff, slightly friable, 30% fines 60% fine sands, 10% trace fine angular gravels, low plasticity, no odor, no discoloration.
SM/SC	-Gradational contact
SC	**SANDY CLAY**, brown (10YR 5/3) with dark gray (10YR 3/1) mottling, damp, moderate plasticity , 70% fines, 30% fine sands, no odor, no discoloration.
	-Coarsening downward to 40% fine sands, 60% fines, moist -Color changes to olive gray (5Y 4/2), moderate to strong odor.
	-Moderate to strong odor and discolored olive gray (5Y 4/2).
SC-SM	-clay fines diminish, gradational contact.
SM	**SILTY SAND**, olive gray (5Y 4/2), damp to moist, soft to very soft, 70% fine sands 30% silts, moderate odor.
SM-CH	-Formation becomes medium stiff, gradational contact.
CL	**Lean CLAY**, olive gray (5Y 4/2), with yellowish brown mottling (10YR 5/4), stiff to very stiff, moderate to low odor.
	-Groundwater stablizes at 27.55 feet bgs, rising from 32 feet bgs.
CL	-Geologic log continued next page.

GEOLOGIC LOG

Driven Probe Boring

JOB NO.: H9042.C DATE: October 18, 2001
CLIENT: Harbert Transportation
LOCATION: 19984 Meekland Avenue, Hayward, California
LOGGED BY: A. Bierman SAMPLED BY: A. Bierman
DRILLER: EnProbe (Dennis Ott)
DRILL METHOD: Hydraulic Driven Large Bore and Macro-Core Probes

BORING #
DP-1
Sheet
2 of

Depth (feet)	Sampling Interval	Sample Analyzed	Sample Identification & OVA Data (ppmv)	Groundwater Depth	Lithologic Pattern	USCS	SOIL DESCRIPTION & CLASSIFICATION (Lithologic name, color, moisture, density/consistency, grain size%, other descriptors, HC odor.)
30			DP-1f			CL	**Lean CLAY**, olive gray (5Y 4/2) with yellowish brown mottling (10YR 5/4), damp, stiff to very stiff, moderate to low odor.
31							
32							-Color changes to yellowish brown (10YR 5/4), with olive gray mottling (5Y 4/2), very stiff, low to no odor.
33							
34				▼		CL-SM	-Gradational contact. First encountered groundwater at 35' bgs, rising to 27.5 feet bgs.
35			DP-1g			SM	**SILTY SAND to Poorly Graded SAND**, greenish gray (5GY 5/1), wet, soft, 70% fine sands, 30% silts, moderate odor, coarsening downward to 90% medium to fine sands, 5% fines, moderate odor.
36							
37							
38						SM	-Abrupt contact.
39			DP-1h			CL	**Lean CLAY**, brown (10YR 4/3), dry, stiff to very stiff, no odor, no discoloration.
40							
41							-Boring terminated at 40 feet bgs. -Seal boring with portland cement to groundsurface.
42							
43							
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GEOLOGIC LOG

Driven Probe
Angle Boring

JOB NO.: H9042.C DATE: October 18, 2001
CLIENT: Harbert Transportation
LOCATION: 19984 Meekland Avenue, Hayward, California
LOGGED BY: A. Bierman SAMPLED BY: A. Bierman
DRILLER: EnProbe (Dennis Ott)
DRILL METHOD: Hydraulic Driven Large Bore and Macro-Core Probes

BORING #
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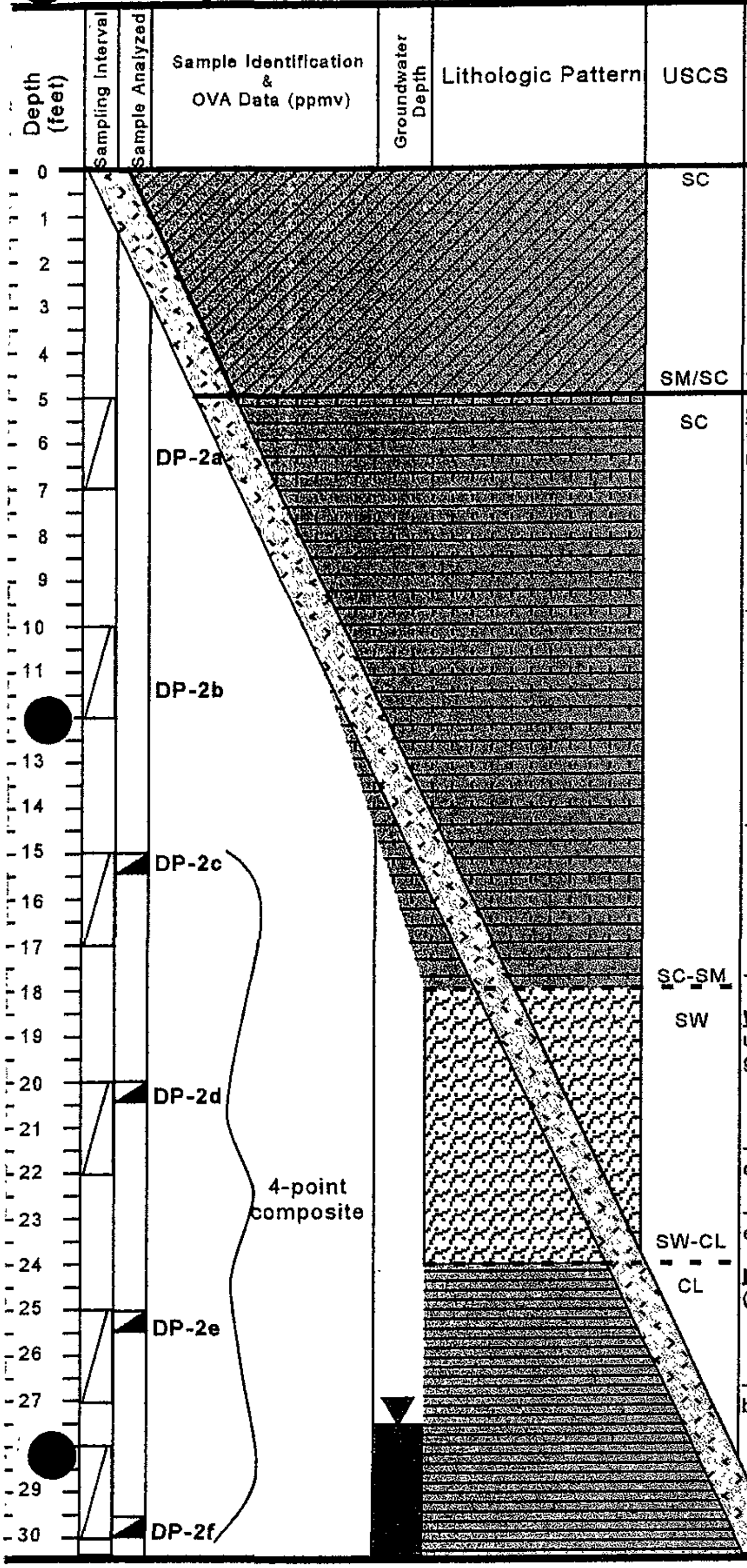


SOIL DESCRIPTION & CLASSIFICATION
(Lithologic name, color, moisture, density/consistency, grain size%, other descriptors, HC odor.)

Former Excavation Footprint: Clayey SAND, very dark grayish brown (10YR 3/2), damp to dry, medium stiff to stiff, slightly friable, 30% fines 60% fine sands, 10% trace fine angular gravels, low plasticity, no odor, no discoloration.

-Gradational contact

SANDY CLAY, brown (10YR 5/3) with dark gray (10YR 3/1) mottling, damp, moderate plasticity , 70% fines, 30% fine sands, no odor, no discoloration.

-Coarsening downward to 40% fine sands, 60% fines, moist

-Same as above, no odor, no discoloration.

-clay fines diminish, gradational contact.

Well Graded SAND, brown (10YR 4/3), damp, loose, 60% medium sands, 30% coarse rounded sands, 10% fine rounded gravels, trace fines, no odor no discoloration.

-Color changes to olive gray (5Y 4/2), moderate odor, and discolored.

-Fining downward to 70% fine sands, 20% fines, 10% fine rounded gravels, loose to medium stiff, gradational contact.

Lean CLAY, olive gray (5Y 4/2), with yellowish brown mottling (10YR 5/4), stiff to very stiff, moderate to low odor.

-Groundwater stablizes at 27.55 feet bgs, rising from 32 feet bgs.

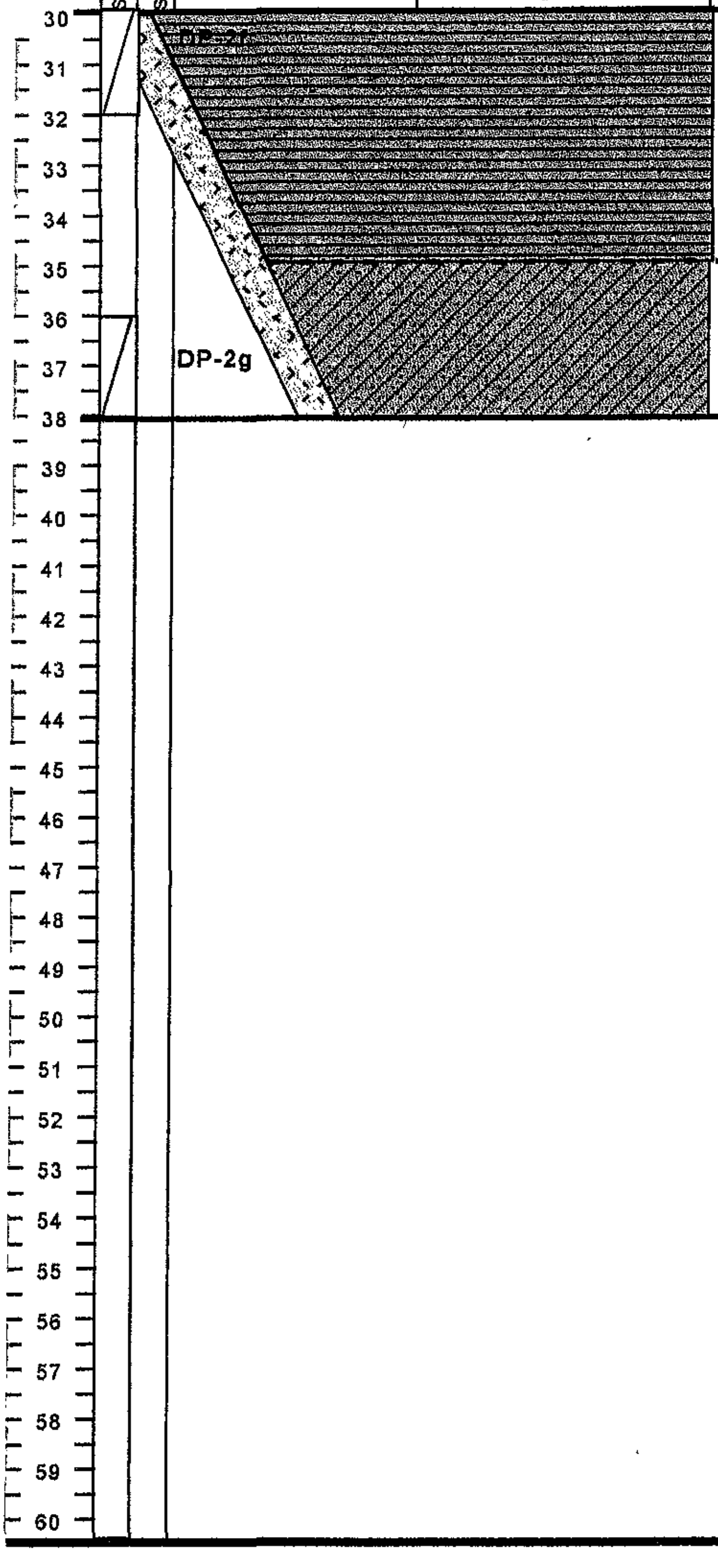
-Geologic log continued next page.

GEOLOGIC LOG

Driven Probe
Angle Boring

JOB NO.: H9042.C DATE: October 18, 2001
CLIENT: Harbert Transportation
LOCATION: 19984 Meekland Avenue, Hayward, California
LOGGED BY: A. Bierman SAMPLED BY: A. Bierman
DRILLER: EnProbe (Dennis Ott)
DRILL METHOD: Hydraulic Driven Large Bore and Macro-Core Probes

BORING #
DP-2
Sheet
1 of



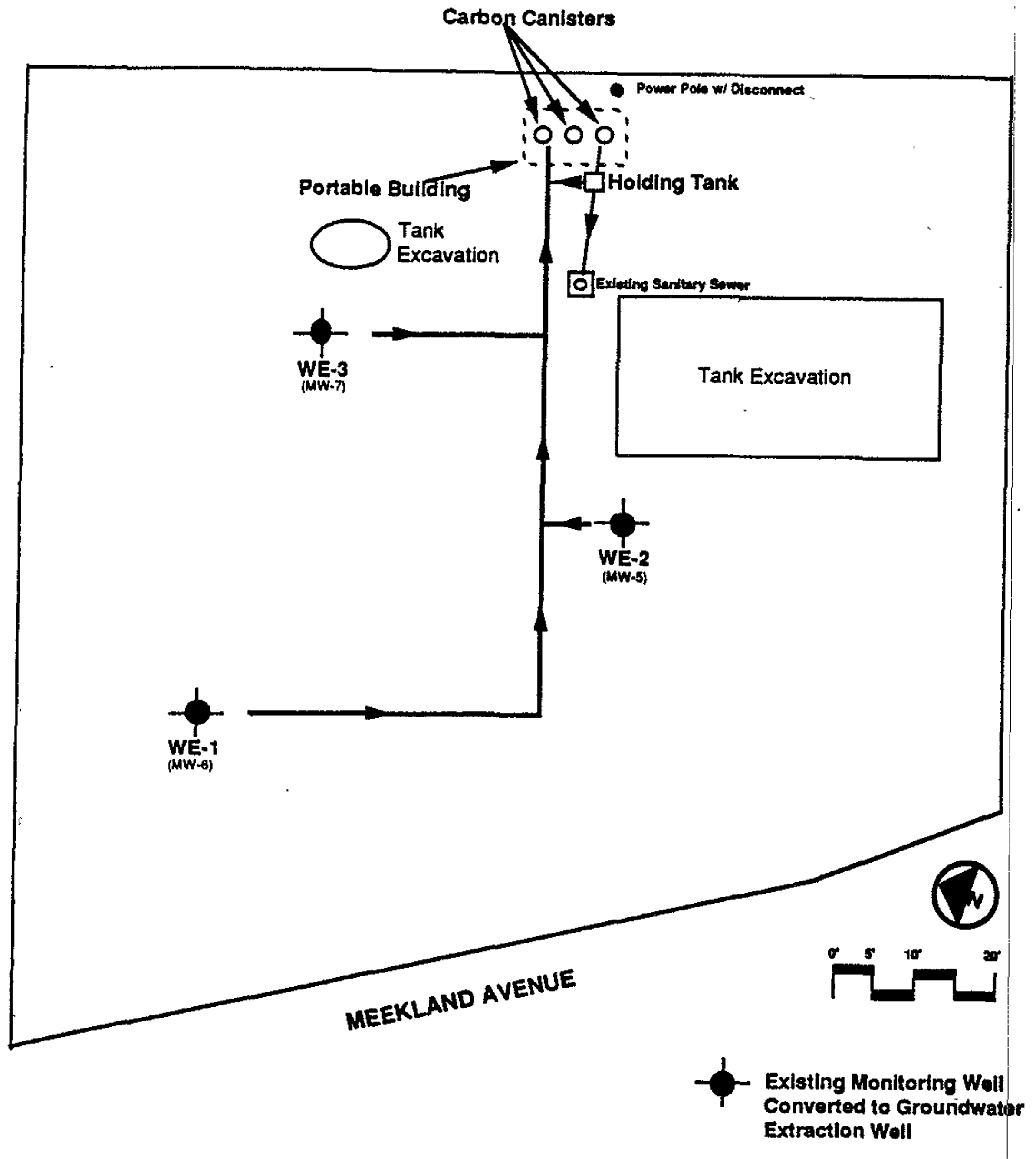
Depth (feet)	Sample Identification & OVA Data (ppmv)	USCS	SOIL DESCRIPTION & CLASSIFICATION (Lithologic name, color, moisture, density/consistency, grain size%, other descriptors, HC odor.)
30	DP-2f	CL	**Lean CLAY**, olive gray (5Y 4/2), with yellowish brown mottling (10YR 5/4), stiff to very stiff, moderate to low odor.
32			-color changes to yellowish brown (10YR 5/4), odor decreases to very low to no odor.
34		CL-SC	-Formation increases in moisture, fine sands increase, gradational contact.
35		SC	**CLAYEY SAND**, yellowish brown (10YR 5/4), very moist to wet, rises to 28 feet bgs, soft to slightly loose, 80% fine sands, 20% fines, no odor, no discolroation.
37	DP-2g		
38			-Boring terminated at 38 feet bgs. -Seal boring with portland cement to groundsurface.

APPENDIX C

Historical Reference Figures & Results

- **Historical Groundwater Elevation Data**
- **Soil Sampling Results from Well Installations (1986-1992)**
- **Results of Soil Vapor Assessment (May 1990)**
- **Tank Removal Report (1989)**

Toxic Technology Services
AGI Technologies, Inc



CTTS , Inc.
toxic technology services
P.O. Box 515 • Rodeo, California 94572
(510) 799-1140

GROUNDWATER REMEDIATION SYSTEM
Project 92-7
Durham Transportation
Meekland Avenue, Hayward, California

Plate
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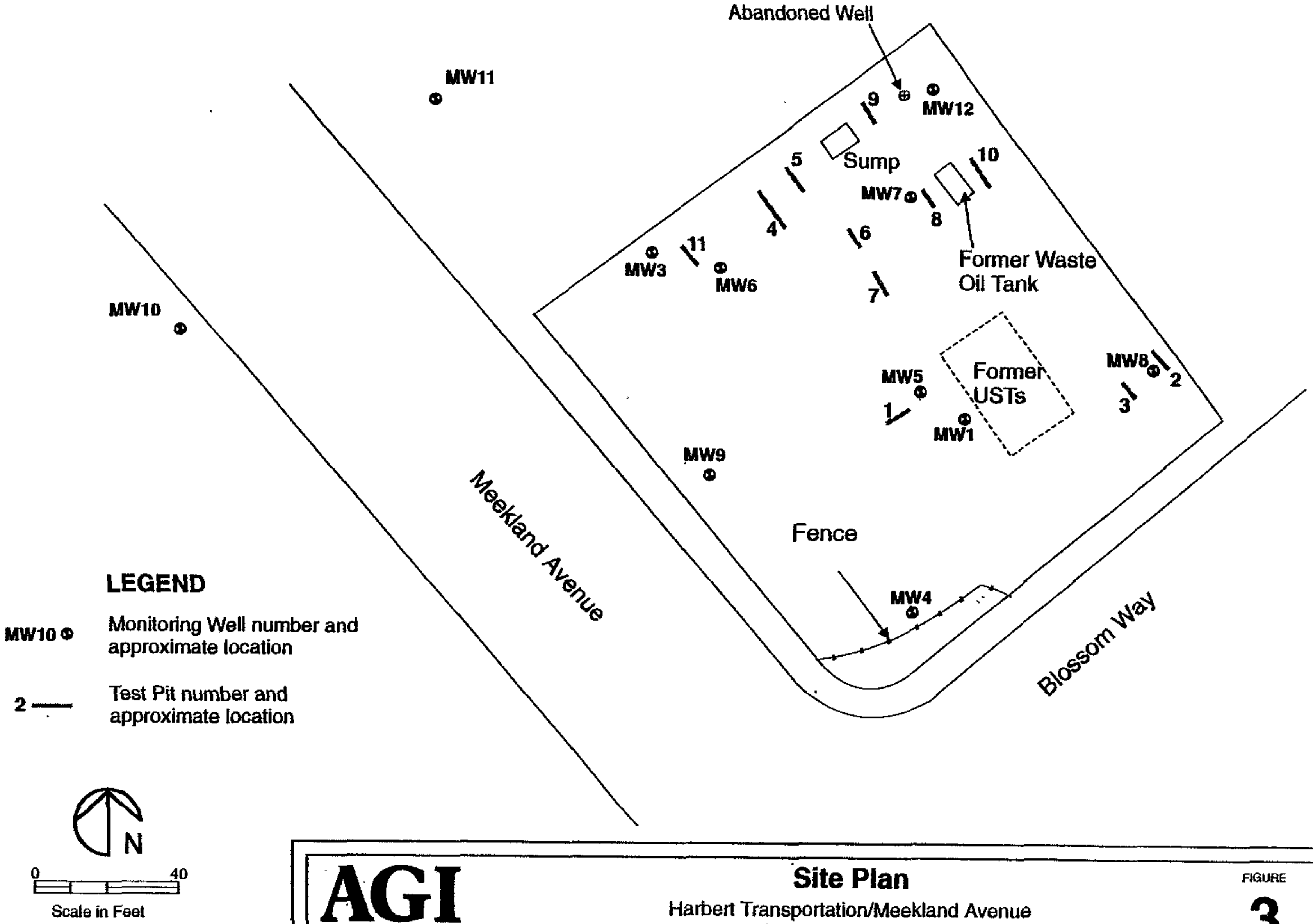
1" = 20'



AGI
TECHNOLOGIES

Site Plan

Harbert Transportation/Meekland Avenue
Hayward, California

FIGURE
3

	PROJECT NO	DRAWN	DATE	APPROVED	REVISED	DATE
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TABLE 2

GROUNDWATER ELEVATIONS (feet above MSL)
DURHAM TRANSPORTATION--MEEKLAND PROJECT

DATE	MW1	MW3	MW4	MW5	MW6	MW7	MW8	MW9	MW10	MW11
Jan-91	25.18	25.16	25.22	25.54	25.16	25.21	.	.	.	.
Feb-91	25.44	25.38	25.45	25.39	25.40	25.46	25.48	25.40	.	.
Mar-91	27.48	27.45	29.56	26.62	27.46	27.50	27.40	27.40	.	.
Apr-91	28.15	28.09	27.99	28.04	28.00	28.02	28.06	27.99	.	.
May-91	27.18	27.12	27.16	27.17	27.11	27.19	27.19	27.13	.	.
Jun-91	26.54	26.45	26.56	26.77	26.46	26.53	26.57	26.58	.	.
Jul-91	26.12	26.04	26.05	26.13	26.04	26.10	26.13	26.04	.	.
Aug-91	25.59	25.49	25.62	25.37	25.50	25.59	25.60	25.52	.	.
Sep-91	25.15	25.18	25.18	25.49	25.06	25.16	25.18	25.15	.	.
Oct-91	24.88	24.86	24.92	25.00	24.82	24.97	24.94	24.84	.	.
Nov-91	24.96	24.90	24.97	24.94	24.87	24.94	24.96	24.89	.	.
Dec-91	24.76	24.69	24.78	24.89	24.67	24.76	24.79	24.70	.	.
Jan-92	25.39	25.31	25.28	25.48	25.31	25.37	25.37	25.32	25.16	25.90
Feb-92	28.24	28.23	28.22	28.24	28.15	28.24	28.26	28.19	28.37	28.18
Mar-92	28.46	28.54	28.46	28.49	28.40	28.46	28.59	28.42	28.32	28.41
Apr-92	28.49	28.43	28.48	28.39	28.43	28.49	28.51	28.44	28.32	28.44
May-92	27.77	27.76	27.75	27.79	27.56	27.75	27.79	27.70	27.67	27.68
Jun-92	26.91	26.92	26.87	26.88	26.81	26.87	26.92	26.81	26.64	26.76
Jul-92	26.50	26.40	26.47	26.49	26.41	28.16	26.53	26.41	26.23	26.37
Aug-92	25.86	25.88	25.85	25.81	25.76	25.83	25.88	25.79	25.26	26.07
Sep-92	25.65	25.68	25.64	25.60	25.56	25.61	25.67	25.56	25.39	25.54

Table 1

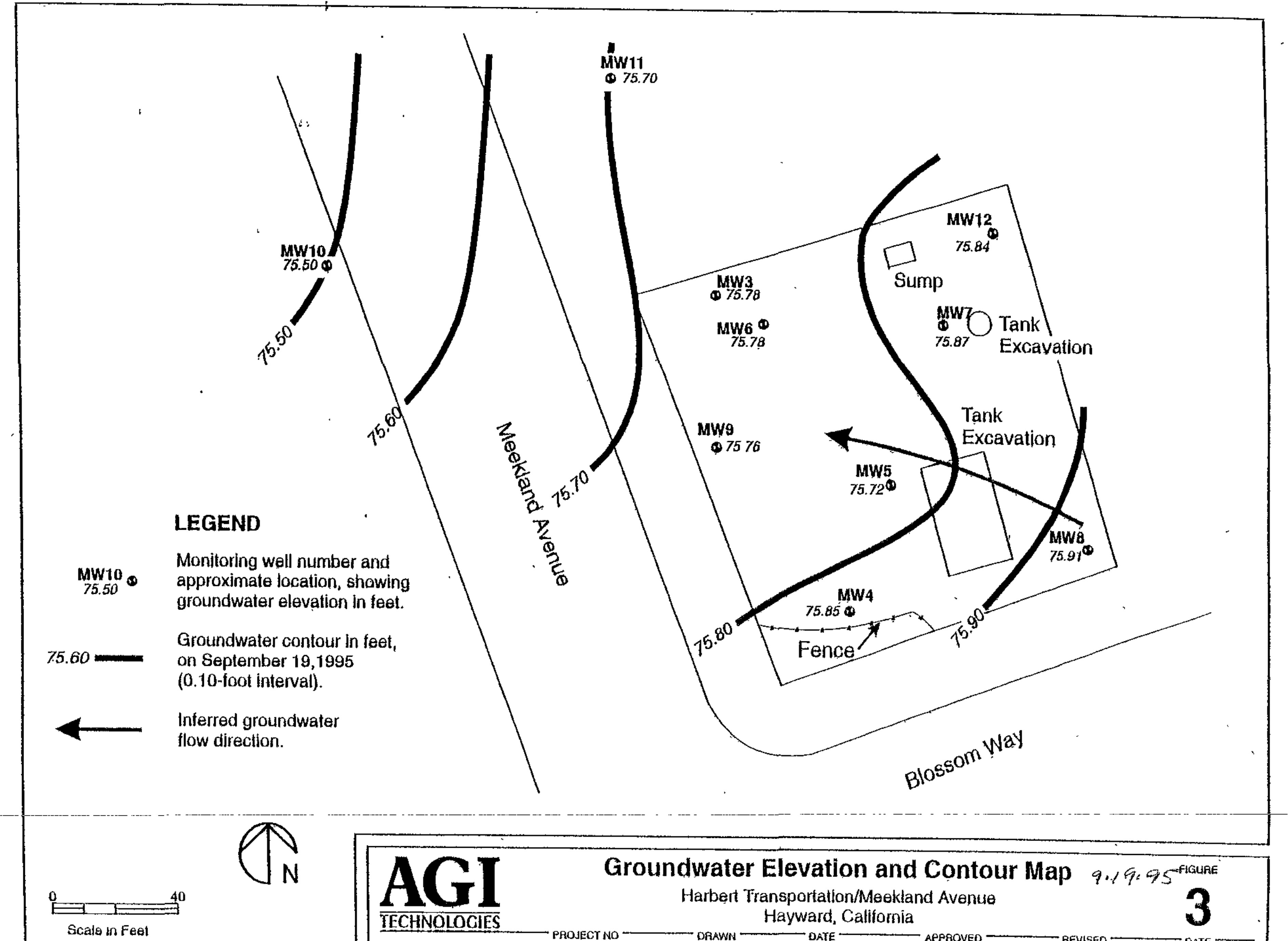
Groundwater Elevation Data

Harbert Transportation/Meekland Avenue
Hayward, California

Well Number	Date Sampled	Top of Casing Elevation (feet)	Depth to Groundwater (ft bgs)	Groundwater Elevation (feet)
MW3	10/20/94	100.00	27.12	72.88
	09/15/95		24.22	75.78
	03/14/96		19.02	80.98
	09/26/96		23.61	76.39
MW4	10/20/94	100.27	27.32	72.95
	09/15/95		24.42	75.85
	03/14/96		19.23	81.04
	09/26/96		23.85	76.42
MW5	10/20/94	100.59	27.71	72.88
	09/15/95		24.87	75.72
	03/14/96		19.95	80.64
	09/26/96		24.38	76.21
MW6	10/20/94	100.57	27.68	72.89
	09/15/95		24.79	75.78
	03/14/96		19.54	81.03
	09/26/96		24.20	76.37
MW7	10/20/94	101.22	28.25	72.97
	09/15/95		25.35	75.87
	03/14/96		20.06	81.16
	09/26/96		24.75	76.47
MW8	10/20/94	100.72	27.73	72.99
	09/15/95		24.81	75.91
	03/14/96		19.52	81.20
	09/26/96		24.13	76.59
MW9	10/20/94	99.77	26.90	72.87
	09/15/95		24.01	75.76
	03/14/96		18.80	80.97
	09/26/96		23.50	76.27
MW10	10/20/94	99.29	26.46	72.83
	09/15/95		23.79	75.50
	03/14/96		18.62	80.67
	09/26/96		23.30	75.99
MW11	10/20/94	99.75	26.89	72.86
	09/15/95		24.05	75.70
	03/15/96		18.79	80.96
	09/26/96		23.53	76.22
MW12	10/20/94	101.03	28.11	72.92
	09/15/95		25.19	75.84
	03/14/96		19.84	81.19
	09/26/96		24.57	76.46

Note:

ft bgs - Feet below ground surface.



AGI
TECHNOLOGIES

Groundwater Elevation and Contour Map

9.19.95

Harbert Transportation/Meekland Avenue
Hayward, California

FIGURE
3

	PROJECT NO	DRAWN	DATE	APPROVED	REVISED	DATE
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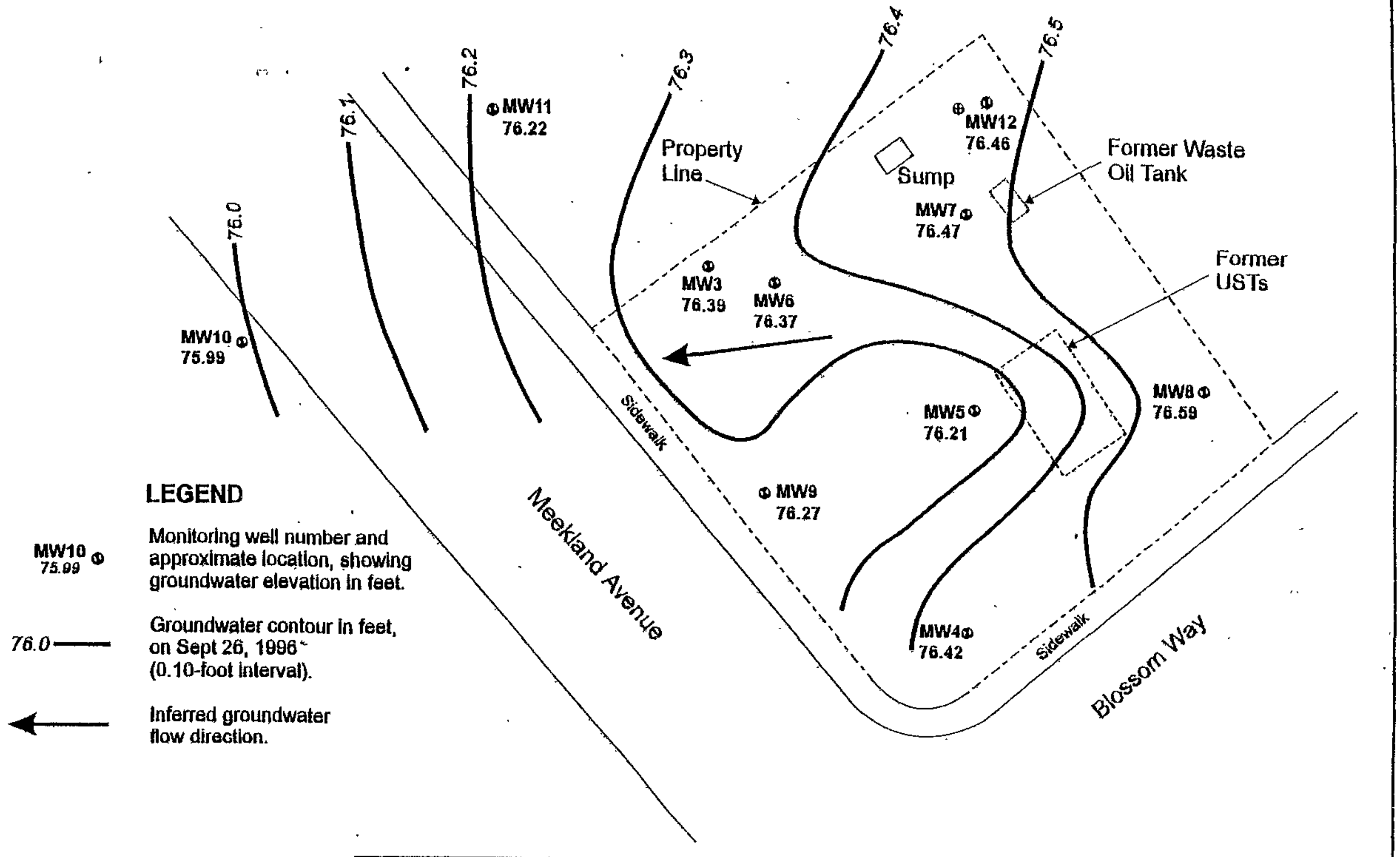
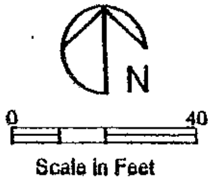




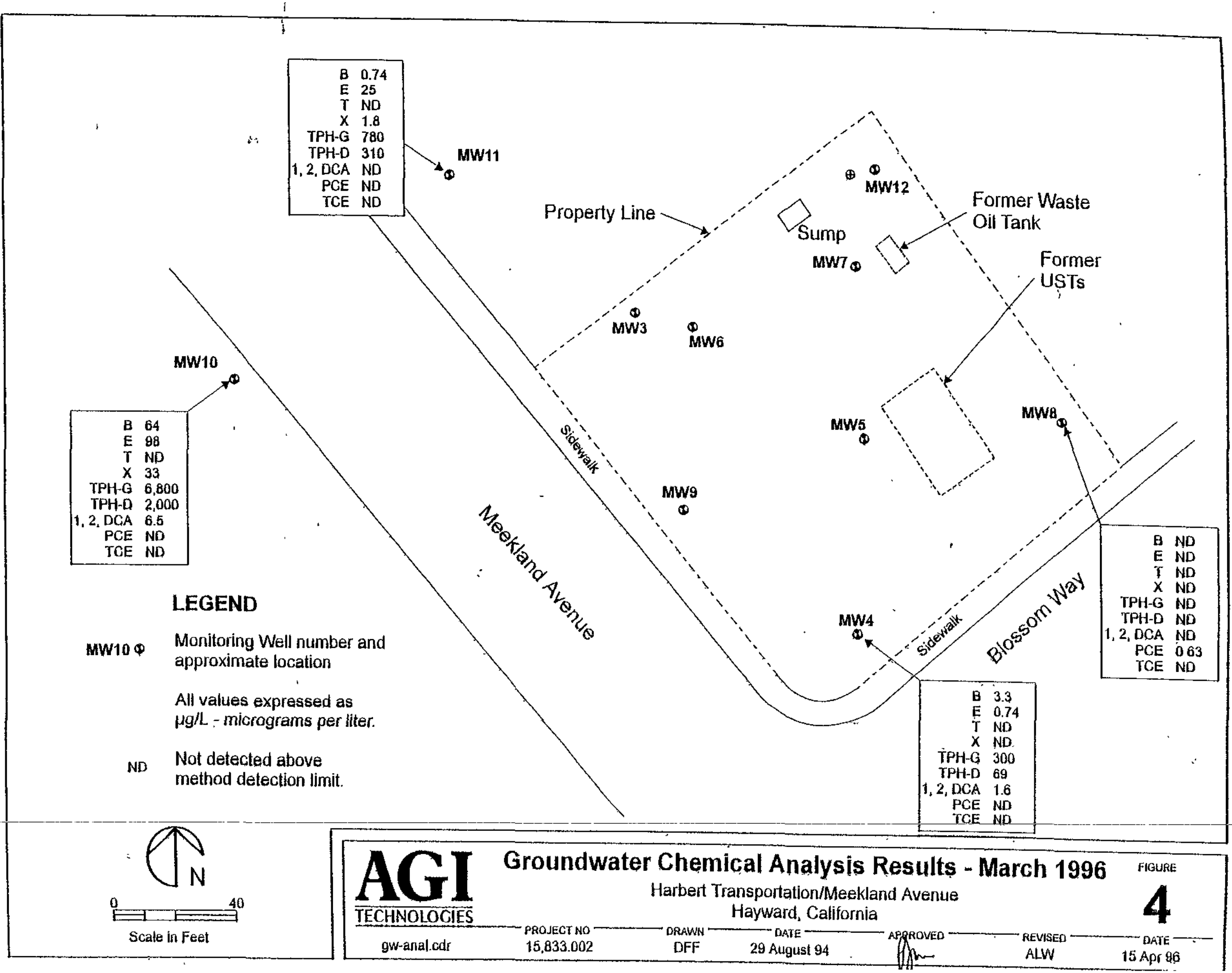
AGI TECHNOLOGIES

Groundwater Elevation and Contour Map

Harbert Transportation/Meekland Avenue
Hayward, California

FIGURE
9.26.96 3

	PROJECT N	DRAWN	DATE	APPROVED	REVISED	ATE
gw-sep96.cdr	15,833.0	DFF	29 August 94		ALW	15 Apr 96



AGI TECHNOLOGIES

Groundwater Chemical Analysis Results - March 1996

Harbert Transportation/Meekland Avenue
Hayward, California

FIGURE
4

	PROJECT NO	DRAWN	DATE	APPROVED	REVISED	DATE
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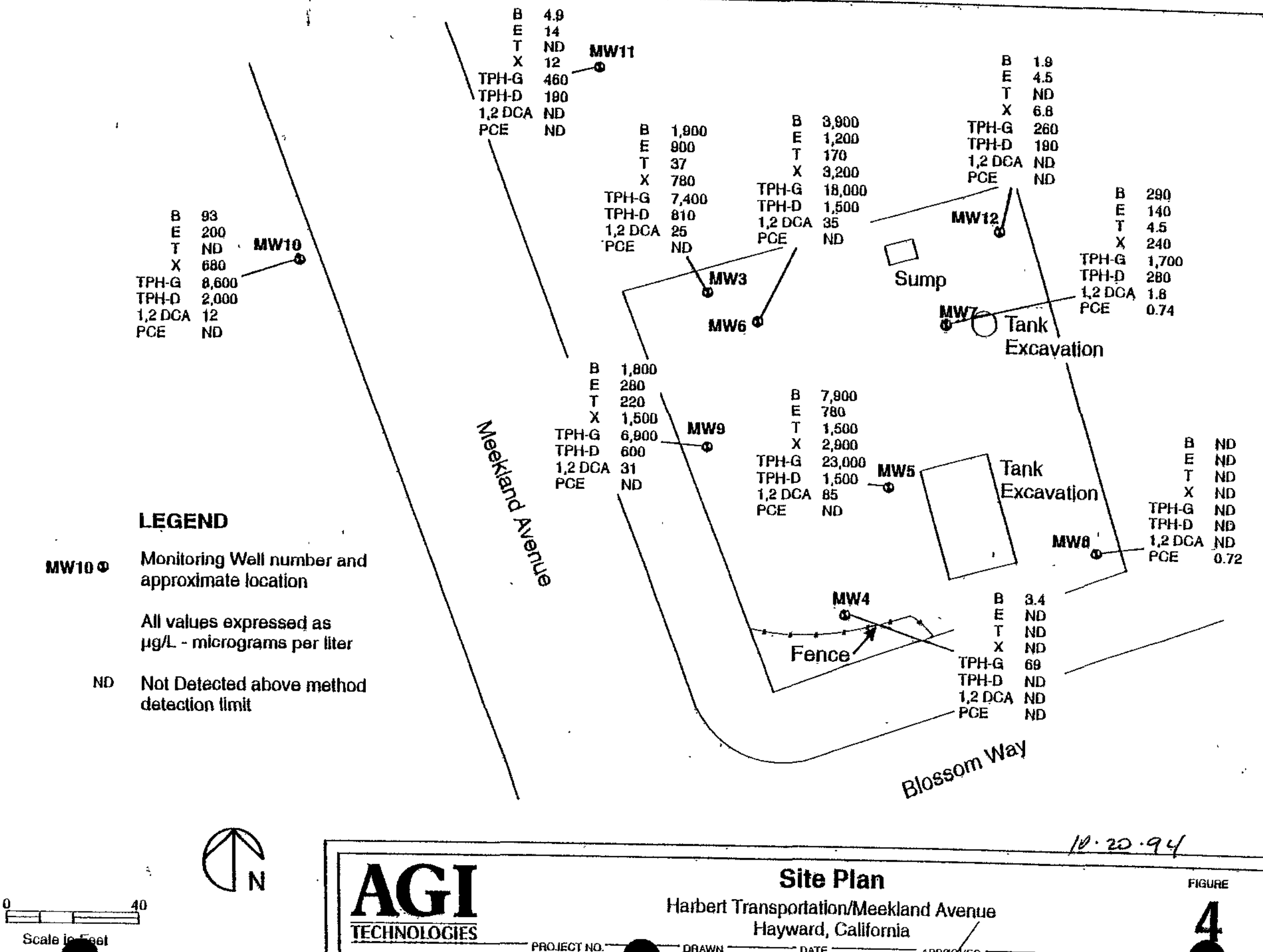

10·20·94

AGI TECHNOLOGIES

Site Plan

Harbert Transportation/Meekland Avenue
Hayward, California

FIGURE 4

	PROJECT NO.	DRAWN	DATE	APPROVED	REVISED
siteplan.cdr	15,833.002	DFF/ALW	01 February 95		

CTTS, Inc.
toxic technology services

WORKPLAN FOR THE DELINEATION, CONTAINMENT AND REMEDIATION OF SOIL AND GROUNDWATER CONTAMINATION

19984 MEEKLAND AVENUE
HAYWARD, CALIFORNIA

Prepared For:

Mr. David Delamotte
Durham Transportation
9171 Capitol of Texas Highway North
Travis Building, Suite 200
Austin, Texas 78759

Prepared By:

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Toxic Technology Services
P.O. Box 515
Rodeo, California 94572

November 1, 1992
Project No. 92-7

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PLATES

APPENDICES

SECTION 1 INTRODUCTION

The following is the proposed workplan for the delineation, containment, and remediation of soil and groundwater at 19984 Meekland Avenue in Alameda County near Hayward, California.

1.1 Scope Of Work

The purpose of this project is three fold:

1. Remediate on site contaminated soil,
2. Initiate a groundwater remediation program for contaminated groundwater located under the site,
3. Investigate the off-site groundwater contamination issue and make recommendations, if necessary, for further work.

1.2 Site Location

The subject site is located at the northeast corner of the intersection of Meekland Avenue and Blossom Way in the unincorporated area of Alameda County, near the City of Hayward (Plate 1).

1.3 Background

The subject site is currently owned by Durham Transportation. The corporate headquarters of this firm is located at:

Durham Transportation
9171 Capitol of Texas Highway North
Travis Building, Suite 200
Austin, Texas 78759

The Durham Transportation representative responsible for this project is Mr. David Delamotte, Senior Vice President, Facilities Fleet Services and Quality Systems.

The subject site has been investigated and routinely monitored since 1989. A great deal of information has been collected and reported to the Alameda County Health Care Services Agency, Department of Environmental Health, Hazardous Materials Division. Throughout this document, reference will be made to previous reports where more detailed information can be obtained.

1.4 Site History

1.4.1 Business Activity Currently At The Site

The subject site is owned by Durham Transportation and is currently a vacant lot. On site operations ceased in 1989.

1.4.2 Previous Business Activity At The Site

According to Mr. Brad Austin, a long-time resident of the area who owns the adjacent property east of the subject site, the subject site was a family run service station in the 1940's. In the 1950's, a petroleum company built a larger station.

Alameda County Building Department files support Mr. Austin's information. Plate 2 is a site plan of how the subject site appeared in May of 1946. This plate is a re-creation of the County file map. It appears that the subject site was two parcels, with the house occupying the north side and the service station occupying the south side.

The County file also contained a site plan from 1954 describing a proposed service station. Plate 3 is a re-creation of this site plan. This proposed station was in fact the layout of the subject site as it existed until demolition in March 1990.

Harbert Transportation is believed to be the next owner of record. The property was used as a fueling and vehicle yard. Durham Transportation purchased the property from Harbert Transportation in 1986 using it as a fueling station and vehicle yard for buses. Durham Transportation shut down the yard in 1989.

1.4.3 Tank Activities, Tank Contents, and Tank Removal

1.4.3.1 Tank History

The station in 1946 (Plate 2) had two 1000 gallon fuel tanks located in the southwest region of the site. The contents of the tanks are unknown.

In the southeast region there was also an old lube rack which contained a sump. The County file contained a blueprint of the sump specifications, which indicated that it was a two-stage system.

The County file contained no information on the construction material of the tanks or the status of the original fuel tanks and sump from 1946.

The station in 1954 (Plate 3) had two fuel tanks; one 4,000 gallons in capacity the other 6,000 gallons in capacity. Both were constructed of single walled steel and were manifolded together. The typical contents of the tanks are unknown.

It was originally thought that tanks 1 & 2 (Plate 3) were installed in 1947, but in fact these tanks were installed in approximately 1954.

Tanks 1 and 2 remained in service until 1988. A third fuel tank (5000 gallon gasoline, single walled steel) was installed in 1972 and used until 1989.

During the time that the site was owned and operated by Harbert Transportation and Durham Transportation, the tanks were used exclusively for gasoline.

A waste oil tank (500 gallon, single walled steel) was located behind the service station building. This tank was removed in 1989, along with the three fuel tanks (Plate 3). The 1954 County site plan did not show a waste oil tank in this or any other location. The installation date of this tank is unknown.

1.4.3.2 Tank Removal

On August 9, 1989, the product lines to all four tanks were removed and the tops and sides of the tanks were exposed.

Tanks 1 & 2 were manifolded together. The unions on these tanks were loose. Upon opening the fill ports, no pressure was released from the tanks, nor was any visible product present. The pit walls around tank 1 were stained and colored green in some areas. A gasoline odor was present in the soil.

Tank 3 had a pressure release when opened and contained approximately 3 gallons of gasoline. The pit area around this tank had no visible staining.

The product lines to the three tanks were corroded. The tops of the three tanks had no visible holes, but had some corrosion.

The waste oil tank and the tank line were corroded. There was a distinct solvent odor near the tank, but there were no visible holes in the top of the tank or visible staining of the soil.

All four tanks were removed from the subject site on August 11, 1989.

The results of the tank inspection are as follows:

Tank 1 - Tank 1 had several holes, up to a 1/2" in size, near the base of the tank, at the fill pipe end. Other parts of the tank were corroded and locally deeply pitted. No other holes were observed. The excavation area of the tank had several areas of stained soil from both the side and base of the tank.

Tank 2 - Tank 2 was corroded and locally deeply pitted, especially along the welds. No holes were observed in the tank however. There were also areas of stained soil at the base of the excavation for tank 2.

Tank 3 - Tank 3 was in relatively good condition with minor corrosion. No evidence of significant soil staining was observed in the excavation for tank 3.

Tank 4 - Tank 4, the waste oil tank, was lightly rusted and had a small (approximately 1/4") hole near the bottom of the tank. Several additional holes were made during the tank removal, however, the tank was empty at the time. No evidence of soil staining was observed in the excavation from the waste oil tank.

1.4.4 Waste Removal

Under the ownership of Durham Transportation, any waste disposal attributable to activities at the subject site took place prior to 1989, which is beyond the statutory file maintenance time of hazardous waste manifests. However, manifests for wastes removed from the subject site attributable to the tank removals and characterization of the site are presented under Appendix A.

1.4.5 Unauthorized Release Form

An Underground Storage Tank Unauthorized Release (Leak)/Contamination Site Report, dated November 11, 1989, was filed with Alameda County.

1.4.6 Previous Tank Testing Results

Tank tests were conducted on the three fuel tanks in April of 1988. The Horner "Ezy Chek" leak detection method was utilized. Data indicated that Tanks 1 & 2 had a leak in the piping. Tank 3 tested tight.

The report from Testing and Technology is presented as Appendix B.

1.4.7 Quantity Of Product Lost

It is unknown when product release began or how much product had been released prior to tank removal.

SECTION 2 SITE DESCRIPTION AND CONTAMINATION CHARACTERIZATION

2.1 Vicinity Description

The subject site is located at the northeast corner of the intersection of Meekland Avenue and Blossom Way in the unincorporated area of Alameda County, near the City of Hayward. The site is in a commercial area, surrounded by residential areas of both single family and multiple family complexes. At the four corners of the Meekland/Blossom intersection are the subject site, a liquor store, an auto repair shop, and a strip center with a grocery store, hair salon and comics/trading card shop. Both the liquor store and auto repair shop had operated at one time as gas stations. Fuel tanks have been removed from both locations. Plate 4 presents a one mile radius around the subject site. Plate 5 presents a vicinity map which includes businesses and residences around the subject site and locations of the wells associated with the subject site.

2.2 Hydrogeological Setting

The subject site is underlain by generally fine-grained alluvial fan and flood plain deposits derived from the hills located approximately two miles east of the site. The deposits are late Quaternary in age and overlie rock of the Franciscan Assemblage at an unknown but probably great depth.

Three to four feet of fill generally overlies the Quaternary deposits at the site. The fill consists primarily of a clayey to sandy gravel.

The native deposits underlying the fill consist of silty clay to clayey silt with minor and varying amounts of sand and gravel. Lenses of silty sand and gravel, approximately 3 to 4 inches thick, were encountered during well installations. No other significant bedding or stratification of the units was observed to the depth explored (40 to 45 feet) and the deposits are considered to be homogeneous for hydrologic considerations.

2.3 Site Map

Plate 1 presents the subject site as it currently exists. Included in this plate are the adjacent streets, tank excavation locations, and monitoring well locations. After repeated searches by USA, no underground utilities have been located.

Plate 3 presents the site as it appeared from 1954 to the time of demolition in 1990.

2.4 Soils Investigation

Soil conditions have been extensively investigated from the time of tank removal. The methods utilized include soil gas testing, visual inspection and sampling and analysis of soils from shallow trenches and soil borings installed as groundwater monitoring wells.

2.4.1 Tank Removal

Soil samples taken at the time of tank removal indicated that contamination exists at the bottom of the fuel tank excavation. Contamination is the most prevalent in the area where the manifolded tanks were situated. The highest levels of contaminates were found to be:

Gasoline	6178 ug/Gm
Benzene	12 ug/Gm
Ethylbenzene	67 ug/Gm
Toluene	83 ug/Gm
Xylenes	420 ug/Gm

Soil samples were collected from beneath each of the tanks. Two samples were collected from below the gasoline tanks, one from each end. One sample was collected from below the waste oil tank. Groundwater was not encountered in the excavations.

Samples were collected by excavating approximately two feet into native soil using a backhoe. A brass sample tube was driven into the soil brought up by the backhoe bucket. The sample tube was capped with teflon tap and plastic slip caps, labeled, and placed in an iced cooler for transportation, under chain of custody to a state certified hazardous waste laboratory for analysis.

The complete data report for the tank removal can be found in Toxic Technology Services Report 89-6 dated September 13, 1989.

The Phase II investigation that took place during 1990 consisted of soil gas testing, sampling and analysis of the on site wash rack sump, shallow test pits and the installation of five on site monitoring wells. The complete data report on the Phase II Characterization can be found as Toxic Technology Services Report 90-4 dated November 27, 1990.

2.4.2 Soil Gas Testing

NET Pacific, Inc., of Santa Rosa, California was contracted to perform soil gas testing as outlined in the workplan of April 6, 1990, which is on file with Alameda County. Testing was conducted from April 30, 1990 through May 3, 1990.

The soil gas results were used as a qualitative indicator of areas of contamination. Analyses requested were:

- o Petroleum Hydrocarbons (gasoline) which was measured as Hexane,
- o Volatile Halogenated Hydrocarbons by Method 8010
- o Benzene, Toluene, Ethylbenzene and Xylenes by Method 8020

Samples were collected by pounding a 1 inch probe to the desired depth with a pneumatic hammer. The probe allowed for a sampling interval of up to 6 feet. A vacuum was drawn on each sampling hole and a soil vapor sample collected in an evacuated glass globe. Before the sampling probe was pulled out, the vapor was monitored with a portable vapor analyzer. Samples were kept on ice until analysis.

Analysis was conducted on site via a mobile laboratory. The mobile lab is equipped with two gas chromatographs and three detectors; Flame Ionization Detector (FID), Hall Detector and a Photoionization Detector. Analytical standard curves and sample duplicates were run throughout the testing period.

After the sample was taken, each sampling hole was filled with concrete grout. A permit from Zone 7 was obtained for this work.

Plate 6 shows the soil gas testing locations. Volatile halogenated hydrocarbon levels were non-detected for all soil gas locations tested. Plate 6 also presents petroleum hydrocarbon values plotted for each location. Results indicate pockets of contamination, but give no clear-cut source or plume.

A complete analytical report from NET Pacific is presented as Appendix D of Progress Report #1, dated July 2, 1990.

2.4.3 Trenching Activities

On June 20, 1990, shallow exploratory trenching activities were conducted. This was prompted by additional information regarding the site. The 1946 site plan (Plate 2) shows a lube garage containing a sump in the southeast corner of the property and two 1000 gallon tanks in the southwest quadrant of the site.

Several unsuccessful attempts were made to get a soil gas sample in the southwest part of the site, where these tanks were located. At approximately six feet below grade, the probe struck an object or objects that were impenetrable. The decision was made to trench in this area.

Plate 7 shows the locations of the shallow trenches. No trench was greater than a depth of 5 feet. No staining or odor was detected from any of the trenches, so soils were put back in the respective trench.

Test Pit #1 was a 5 foot deep cut through the area where the old gasoline tanks were located as per the 1946 site plan (Plate 1). No tanks were located. The pit had been backfilled with construction debris presumably from the demolition of the original service station.

Test Pit #2 was a 5 foot deep cut in the southeast corner of the site. According to the 1946 site plans, this was the location of a lube garage which contained a two-stage, concrete sump. No sign of a sump was found in this trench.

Test Pit #3 was a 5 foot deep cut in the southeast corner of the site, approximately 5 feet south of Trench #2. In this trench was a concrete basin, thought to be one stage of the old two stage sump. A clay sewer pipe also ran north/south in this trench. The sewer pipe was dry and had not been used in some time. Attempts made to locate the other stage of the sump were unsuccessful. It is assumed that it has been removed.

Test Pit #4 was a three foot deep cut on the west side of the concrete sump located on the north side of the property. This sump is from the service station built sometime after 1954. The purpose of this trench was to assess whether or not there are any lines leading from the sump to the west. No such lines were located. The soil in this area was composed of a top layer of fill, approximately a foot deep, the remainder being previously undisturbed native soil.

In summary, results from the shallow trenching activities indicate that the original gasoline tanks from 1946 had been removed and the pit filled with construction rubble. The original sump in the southeast corner of the site was found as evidenced by the concrete basin and the adjacent sewer pipe. This sump apparently was cleaned out and filled in with soil.

None of the areas trenched had odor or visible contamination.

On September 4, 1990, shallow trenches were excavated in specific locations on the subject site as per the amendment to the Phase II Plan (Plate 7). A minimum of one soil sample was taken from each trench. No significant contamination was found in any of the trenches.

Test Pits #5-#7 were excavated where the hydraulic lifts were located. The purpose of these excavations was to investigate shallow contamination from hydraulic oil. One sample from each trench was taken at the location of the bottom of the trench. No odor or staining was found in any of these trenches. Samples were analyzed for Total Oil and Grease, Total Petroleum Hydrocarbons as Diesel and Motor Oil and Stoddard Solvent. Data for Test Pits #5 and #6 were none detected. Data for Test Pit #7 are reported in Table 1.

Test Pit #8 was located through the waste oil sump that lead to the waste oil tank. At a depth of eight feet, a slight odor was detected. Samples were collected at depths of 2.5' and 8.0' and analyzed for Total Oil and Grease, Volatile Chlorinated Hydrocarbons, Total Petroleum Hydrocarbons as Gasoline, Diesel and Motor Oil, BTEX and Stoddard Solvent.

Test Pit #9 was on the east side of the washrack sump. The purpose of this trench was to investigate the outlet of the sump. The sump emptied into an old sewer line. There was no odor or staining detected. A soil sample was collected at 7.0' and analyzed for Total Petroleum Hydrocarbons as Gasoline, Diesel, Stoddard Solvent and BTEX.

Test Pit #10 was through the center of the waste oil tank excavation. The purpose of this trench was to confirm that this area is not a shallow source of contamination. A sample was taken at 7.5' and analyzed for Total Oil and Grease, Volatile Chlorinated Hydrocarbons, Total Petroleum Hydrocarbons as Gasoline, Diesel and Motor Oil, BTEX and Stoddard Solvent.

Test Pit #11 was located between monitoring wells MW-3 and MW-6. A trench was placed in this location because a high soil gas reading was obtained in this area. The possibility of a shallow source of contamination had to be investigated. One sample was taken at a depth of 7.5' and analyzed for Total Oil and Grease, Volatile Chlorinated Hydrocarbons, Total Petroleum Hydrocarbons as Gasoline, Diesel and Motor Oil, BTEX and Stoddard Solvent. A slight odor was detected in this trench between 4' and 8'.

All test pits were backfilled with the respective soils that had been excavated. Table 1 is a summary of positive results from test pit sampling. Test pit logs and laboratory reports for the test pit samples are presented in Toxic Technology Services Report 90-4 dated November 27, 1990.

2.4.4 Soil Borings From Groundwater Monitoring Well Installations

On October 1, 1990, a boring, identified as B-1 (Plate 7) was placed to a depth of 25 feet in the area where the fuel tanks from the 1940's were located. This was done to evaluate this area as a shallow source of contamination. Soil samples were taken every 5 feet. Samples from 5 feet, 15 feet and 25 feet were sent to NET Pacific for analysis. After sample collection, the bore hole was filled with concrete to grade as required by Zone 7.

There are currently eight on site and two off site groundwater monitoring wells associated with the subject site. This includes MW-1 installed in 1986 by Applied Geosystems and nine wells installed under the direction of Toxic Technology Services dating from 1989 to 1992. Boring logs of each well and B-1 are presented under Appendix C. The boring logs provide soil strata information. Appendix D presents analytical data for all soils resulting from well installations and B-1.

2.5 Summary of Soils Investigation

It appears that the fuel tanks that were removed in 1989 were the primary source of contamination. A search was made for additional sources via the soil gas testing and the shallow trenching, but none were found.

Data from the soils investigation thus far indicates that there are two zones of contamination. These are the fuel tank excavation and the capillary fringe.

2.5.1 Fuel Tank Excavation

Data indicates that the tank excavation is contaminated from the approximate depth of the tank bottom (12 feet) to groundwater.

2.5.2 Capillary Fringe

Data from the soil gas testing and well installation borings indicate that in general, the soil throughout the subject site is contaminated from a depth of approximately 20 feet (the capillary fringe) to the depth of groundwater at approximately 28 feet. Contamination includes low levels of gasoline petroleum hydrocarbons, Benzene, Toluene, Ethylbenzene, Xylenes and trace levels of halogenated hydrocarbons.

It appears that this lower soil contamination is a result of groundwater contamination permeating the soil in the capillary fringe zone and depositing contamination.

Appendix D presents in tabular form, an analytical summary of soil boring samples.

2.6 Groundwater Elevations

The groundwater gradient at the site is essentially flat. The elevation of the groundwater has been measured in the monitoring wells on site by surveying the elevation of the top of the casing and measuring the depth to groundwater using an electronic probe. The elevations are based on Alameda County benchmark BLO-MEEK located in the middle of the intersection of Blossom Way and Meekland Avenue. The depth to groundwater was measured in December of 1989, January of 1990, and then monthly since March of 1990.

The data are presented on Table 2. They indicate a very low westward to northwestward gradient. For the most part, the elevations to groundwater in the wells are within 0.1 feet and are about at the level of error in the measuring techniques. Therefore an exact gradient was not calculated. Table 2a presents the monthly odor and sheen observations recorded concurrently with the elevations to groundwater.

Figure 1 is a graphical representation of groundwater elevations over time. This indicates that the gradient is quite flat and that the water table fluctuates in response to the various seasons of the year.

Figure 2 presents a gradient contour of the site confirming the flatness of the subject site and the general regional gradient.

2.7 Abandoned Well

A water well was located at the northeast corner of the building and connected to a holding water tank inside the building by a galvanized surface pipe. This is presented on Plate 1. Previous attempts to activate the pump to sample the well were not successful.

Alameda County Public Works Department has no record of a well at the subject site prior to the 1986 installation of one monitoring well by Applied Geosystems. No data were available regarding the total depth, screened interval or condition of the well. Because of the potential that the well could act as a conduit for downward migration of the near surface contamination, it was decided that the well should be grouted and abandoned.

The grouting was done on December 12, 1989 by HEW Drilling, Inc.

The well head and surface piping was removed and the pump was then taken out of the well. The well was four inches in diameter with a PVC casing. the total depth of the well was measured at 67.9 feet to the ground surface. The top of the casing was approximately one foot below the ground surface.

The depth to standing water in the well was measured at 29.9 feet from the ground surface. The well was purged by bailing and a water sample collected. The initial bailer of water has no odor, sheen or product. After bailing approximately 2 gallons, a solvent odor was detected. The odor increased in intensity as more water was extracted from the well, however, the samples collected had no noticeable odor. The sample was shipped in a cooled ice chest to TMA/Norcal and analyzed for Volatile Halogenated Hydrocarbons, Total petroleum Hydrocarbons as gasoline and Benzene, Toluene, Ethylbenzene and Xylenes (BTEX). Results are presented in Appendix E.

The well was pressured grouted using a tremie pipe starting from the bottom and continuing upward. The grout mix was one 90 pound sack of Lonestar Cement Type I & II per five gallons of water. A total of 22 sacks of cement were used to grout the well. The level of the cement grout was brought up to where it overflowed the top of the casing.

2.8 Groundwater Contamination

Groundwater has been monitored at the subject site on a quarterly basis. Data indicates that the contamination includes gasoline petroleum hydrocarbons, Benzene, Toluene, Ethylbenzene, Xylenes and trace levels of halogenated volatile hydrocarbons. Levels of contamination have consistently been the highest at MW-1, located approximately 10 feet west of the fuel tank excavation.

MW-8, the on site up-gradient monitoring well, has contained trace levels of halogenated, volatile hydrocarbons well below any regulatory limit. It appears that these contaminants are passing through the vadose zone and showing up in the groundwater.

Data from MW-10 and MW-11 indicate that groundwater contamination has migrated off site. However, levels of contamination in MW-10 seem to suggest the possibility of additional off site sources contributing to the contaminant plume. In the three sampling episodes that have included MW-10 and MW-11, both indicate that levels in MW-10 are substantially higher than MW-11. MW-11 is closer to the site and exhibits contaminant levels more in keeping with the closest on site well (MW-3). Yet, contamination levels in MW-10 have been among the highest values detected.

Appendix E presents all groundwater data obtained from quarterly monitoring, the abandoned well and the 1986 sampling of MW-1. Original lab reports, sampling information and Chain of Custody sheets are already on file with Alameda County. The data is presented in two formats; the first is all data for each well over time; the second is a graphical presentation of petroleum hydrocarbons as gasoline and Benzene values over time for each well.

2.9 Waste Storage And Disposal

After tank removal, the excavations were lined with plastic. Excavated soil was placed back in the respective pit and covered with plastic.

All contaminated groundwater and cuttings from well installations are placed in 55 gallon drums at the time of generation and after analysis are disposed under a hazardous waste manifest. Cuttings that are not a hazardous waste remain on site.

2.10 Underground Utilities

Several utility checks have been conducted by USA. To the best of our knowledge, there are no active on site underground utilities. During trenching operations, a clay pipeline, possibly an old sewer line was uncovered, however, the line was dry and appeared unused.

2.11 Unusual Conditions

The investigation thus far has not presented any situation that is particularly unusual or troublesome.

2.12 Permits

At the time of tank removal, a permit was obtained from Alameda County and the Eden Fire District. All well installations and the one well abandonment were conducted under permit by Zone 7 of the Alameda County Water District.

SECTION 3 PROPOSED REMEDIATION FOR ON SITE SOIL CONTAMINATION

3.1 Purpose

The proposed soil remediation for the site is to excavate approximately 450 cubic yards of contaminated soil from the fuel tank pit and waste oil tank pit and process it through a portable soil remediation unit designed for thermally treating hydrocarbon contaminated soils.

Excavated soil will be thermally treated to achieve a level of no more than 10 ppm of petroleum hydrocarbons. However the goal of treatment is to obtain levels of non-detectable with a detection reporting limit of no greater than 1 ppm. Treated soil will be placed back into the on site excavations. Clean fill will be brought in from off site to bring the excavations up to grade. The excavated areas will be paved with asphalt.

3.2 Method Description

Falcon Energy of Stockton, California operates a transportable soil burning unit for hydrocarbon contaminated soils. This unit is designed to remediate soil contaminated with light distillate petroleum hydrocarbons which include gasoline, diesel and a variety of other fuels. The system operates by rapidly volatilizing petroleum hydrocarbons from the soil and then thermally destroying them in the discharge air stream. The unit consists of a rotary dryer with feed system, discharge and combustion control systems, a dust collector, a modular thermal oxidizer and associated fuel and delivery systems.

The soil remediation unit can process approximately 25 tons per hour throughput depending on contaminant levels, moisture content and other variables.

The unit is designed for a maximum peak soil discharge temperature of 850 degrees Fahrenheit from the dryer and a maximum afterburner peak outlet temperature at 1850 degrees Fahrenheit. Operating setpoint maximums of 800 degrees Fahrenheit and 1800 degrees Fahrenheit respectively are recommended.

Soil in need of treatment is loaded onto the feed hopper which discharges the soil onto a variable speed feeder belt. The feeder belt conveys the soils to a vibrating screen and then onto a belt weigh scale which provides soil feed rate and total weights to the units's electronic control panel. The belt then feeds the contaminated soil into a counterflow rotary drum dryer where volatile compounds and moisture in the soil are evaporated by the heat which is supplied by the direct firing burner. Heat transfer to the soil in the rotary dryer is maximized by the veiling action of specifically designed lifting flights and patented combustion volume flights.

The heated, dry soil is then discharged into the mixer cooler. The evaporated volatiles and water, along with dust released by the drying process, are carried over the dryer's exhaust gases into a knockout box in the baghouse where the large particles drop out in the gas stream. These precleaned gases are then routed through the baghouse. Dust collected from the knockout box and baghouse are carried to the dryer's mixer cooler and blended into the clean soil output. Output from the baghouse is routed through an exhaust fan into a modular thermal oxidizer/stack unit which reduces the hydrocarbon content of the gas stream.

The Falcon unit currently holds a permit to operate from the San Joaquin Valley Unified Air Pollution Control District. The unit is also recognized by the Bay Area Air Quality Management District. The BAAQMD however requires that Falcon Energy obtain a site specific operating permit prior to commencement of any project in that district.

Appendix F presents information on Falcon Energy's portable soil remediation unit.

3.3 On Site Soil Remediation

Soils from the fuel tank excavation and the waste oil tank excavation will be excavated and processed through the Falcon Energy portable soil remediation unit. Remediated soil will be placed on plastic and piled into 50 cubic yard portions. The piles will be marked as to time and date of treatment. These piles will then be sampled as described below and analyzed by a certified environmental laboratory to confirm the effectiveness of treatment. Piles that are clean will be placed back into the plastic lined excavations.

Soils to be treated are of two types, previously excavated soil and undisturbed soil.

3.3.1 Previously Excavated Soil

Soils that had been excavated in both the fuel tank area and the waste oil tank area at the time of tank removal, had been placed back into the respective excavations after the excavations had been lined with plastic. The levels of contamination over time have more than likely decreased, however this soil will be removed and processed through the portable soil remediation unit so that it can be placed back into the excavations.

3.3.2 Undisturbed Soil

The waste oil pit was essentially clean when samples were taken at the time of tank removal. Therefore the pit will not be over excavated, but a confirmatory sample will be taken from each side wall and the bottom of the excavation.

If data from the waste oil tank excavation indicates contamination, additional soil will be excavated until a 100 ppm hydrocarbon (or less) level is attained.

The fuel pit was significantly contaminated with gasoline and BTEX. This pit will be over excavated on the north, east and west sides. The south side of the pit was clean and will not be over excavated for safety reasons. The bottom of this pit will be excavated to a depth of approximately 23 feet. Two soil samples will be taken from each sidewall and four will be taken from the bottom. Samples will be collected in brass liners and kept in a cooled ice chest until delivery to NET Pacific Laboratory, a state certified hazardous waste laboratory. Analytical parameters will be:

Total Petroleum Hydrocarbons, Gasoline (TPH-G)
Total Petroleum Hydrocarbons, Diesel (TPH-D)
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)

If at the time of excavation and sampling, it appears that excavation should continue, this will be done to the extent possible. Field measurements will be taken with a portable organic vapor analyzer to assist with this decision making. Field measurements will be confirmed by soil sampling and analysis.

If data from the fuel pit excavation indicates no detectable levels of contamination or levels less than 100 ppm of TPH-G, the excavations will be backfilled with the remediated soil, brought up to grade with clean fill and paved with asphalt.

If data from the fuel pit excavation indicates contamination over 100 ppm of TPH-G, Alameda County will be immediately notified. For safety reasons, the excavation will be too large and deep to remain open. The hole will be backfilled with the remediated soil. Further remediation of the soil contamination will addressed by the groundwater remediation.

3.3.3 Sampling And Analysis Of Remediated Soil

As stated earlier, remediated soil will be placed on plastic in 50 cubic yard portions and labeled as to time and date of treatment. To confirm that the remediated soil has been treated to 10 ppm TPH-G or less, each pile will be sampled in a manner similar to Regulation 8, Rule 40 of the the Bay Area Air Quality Management District. The sampling strategy is as follows:

> Each 50 cubic yard pile will be figuratively split into four equal sectors. A discreet sample will be collected from the center of each sector. Samples will be taken using a clean brass tube driven into the soil with a rubber mallet. The ends of the brass tube will be covered with teflon tape and plastic caps and taped. All samples will immediately placed on ice and transported to NET Pacific, a state certified hazardous waste laboratory. At the lab, each of the four samples will be analyzed for:
>
> Total Petroleum Hydrocarbons, Gasoline (TPH-G)
> Total Petroleum Hydrocarbons, Diesel (TPH-D)
> Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)
>
> Results will be obtained within 24 - 48 hours of sampling. All piles that are 10 ppm of TPH-G or less will be placed back into the on site excavations.

3.3.4 Replacement Of Remediated Soil

Both the fuel tank and the waste oil excavations will be lined with plastic after data from sidewall and bottom samples confirm levels remaining in the pits, if any.

After verified clean (10 ppm TPH-G or less), remediated soil will be placed back into the excavations.

Because of the size and depth of the fuel tank excavation, the hole should filled as soon as possible. For this reason, verified clean remediated soil will be placed into the excavation starting from the southeast side. This side was clean at the time of tank removal. Replacement of soil will proceed to the northwest after sidewall and bottom samples are taken.

When soil replacement is completed, clean fill will be brought in from off site to bring the excavation up to grade. Both excavations will then be paved with asphalt.

3.4 Well Abandonment

The over excavation of the fuel pit will destroy the integrity of MW-1. Therefore, MW-1 will be abandoned according to regulations set forth by Zone 7 prior to pit excavation. This includes obtaining a permit from Zone 7 and abandonment of the well by pulling up the casing and grouting the boring.

MW-5 will be used to monitor the groundwater near the contaminated pit area.

3.5 Time Schedule

Figure 3 presents the proposed time/task schedule for the proposed soil remediation.

SECTION 4 PROPOSED REMEDIATION FOR ON SITE GROUNDWATER CONTAMINATION

4.1 Purpose

The purpose of the proposed on site groundwater remediation is to deal with on site groundwater contamination as a separate issue from off site groundwater contamination. Off site contamination has not yet been fully characterized. However, there is sufficient on site data to begin an on site remediation program. The treatment consists of groundwater pumped through a series of carbon canisters and discharged under permit to the local POTW.

4.2 Scope Of Work

4.2.1 Monitoring Well Installation In The North Corner

In general, the subject site has a strong chemical data base, however before beginning remediation, new information revealed that the adjacent neighbor to the northeast has been using a groundwater well monthly for several years. This could have an affect on the movement of the contamination in this direction. To this end, a two inch groundwater monitoring well will be installed as shown in Plate 1, purged, sampled and analyzed for the constituents listed below. This well would then be incorporated in the quarterly monitoring program.

4.2.2 Proposed Aquifer Tests

4.2.2.1 Slug and Recovery Tests

Slug and/or recovery tests may be performed in selected existing monitoring wells to estimate material properties, primarily hydraulic conductivity. Slug tests will involve the "instantaneous" introduction of water into the well and observations of subsequent declining water level. It is anticipated that distilled or deionized water will be used for these tests. An alternative to introduction of water may be raising of the water level in the wells by displacement with a rod or similar object. The rod would be decontaminated if used for multiple tests.

Recovery tests would involve the removal of water from the well and observation of subsequent rise in water levels in the well over time. Water would be removed from the well by bailing or pumping. Pumps and hoses would be decontaminated as discussed above. Bailers will be of the disposal type and used for only one well. Water derived from testing will be placed in 55 gallon drums and disposed of or treated on site.

4.2.2.2 Pump Tests

A pump test may be performed in Monitoring Well No. 6. The test will involve pumping of the well, observation of water levels in the pumping well and one or more nearby observation wells. Water derived from the pumping will be treated on site or disposed of as discussed above.

4.2.3 On Site Groundwater Remediation Program

In general, the groundwater remediation chosen for the subject site is to pump contaminated groundwater from MW-5, MW-6, MW-7 and MW-9 (Plate 8) and direct it through a three canister carbon bed system. Deposition of treated water would be into the sanitary sewer. A schematic of this system is presented as Plate 9.

Each extraction well will contain a dedicated pump and the output from each pump will be manifolded into a single pipe. Pumping rates will be determined by conducting a pump test. Extracted water will be directed through three 55 gallon canisters of activated carbon. Treated water will then be pumped into a 500 gallon holding tank. When water in the holding tank has been verified clean, through chemical analysis, it will be discharged into the sanitary sewer.

The system is designed such that if treated water does not meet the discharge requirements of the Oro Loma Sanitary District, the water can be redirected through the carbon until discharge requirements have been achieved.

Sampling ports will be located at each extraction well, before each carbon canister and before and after the holding tank.

A sanitary sewer discharge permit will be obtained from the Oro Loma Sanitary District before final deposition.

According to the Oro Loma Sanitary District discharge requirements dated January 3, 1991, the allowable limits for our subject site requirements are as follows:

BTEX..................................	Non-detectable
Total Petroleum Hydrocarbons...........	15 mg/L

A copy of the Oro Loma Sanitary District Special Discharge Conditions are presented as Appendix G.

Discharge into the sanitary sewer will be controlled on site so that discharge will be at selected time intervals. These time intervals and flow rates will be negotiated with the Oro Loma Sanitary District prior to discharge.

The sampling schedule for the groundwater remediation is as follows:

First Week of Installation - Daily influent and effluent

Weeks Two through Four - Weekly influent and effluent

Weeks Five through End of Remediation - Monthly influent and effluent

Samples will also be taken between canisters 1 and 2 to check for breakthrough. This will occur weekly for the first six weeks and monthly thereafter. When breakthrough occurs, canister 2 will be moved to the number one position, canister 3 will be moved to the number two position and the spent canister will be replaced with fresh carbon and placed in the number three position.

The groundwater remediation alternative is a closed system and does not involve air stripping of contaminants, therefore, no permit from the Bay Area Air Quality Management District (BAAQMD) will be required.

4.3 Time Schedule

Figure 3 presents the proposed time/task schedule for the proposed on site groundwater remediation.

It is recommended that the remediation of the groundwater below the site be initiated concurrently with on-going characterization of the off site groundwater contamination. If an off site remediation system is required, it would probably be set up and operated independently of the on site system.

Therefore, the is no reason to delay the on site work and in addition, it will provide valuable for a cost effective data design and operation of an off site system.

SECTION 5 PHASE I INVESTIGATION OF OFF SITE GROUNDWATER CONTAMINATION

Data obtained from MW-10 and MW-11, the off site groundwater monitoring wells indicates that there is contamination off site. However, the contaminant levels in MW-10 are considerably higher than in MW-11 or the down gradient on site wells. This raises the issue of other possible sources of contamination contributing to the off site problem.

In brief discussions with neighbors of the subject site, it was learned that several of the local properties had operated as gas stations at one time and had underground tanks. There is the possibility too that the car wash located on Blossom Way was at one time a petroleum distribution center. Any releases from this site could spread contamination down gradient and be present in MW-10.

Similarly, product releases to the groundwater from tanks located under Hank's Liquors (northwest corner of Meekland and Blossom) and Hoang's Auto Care (southwest corner of Meekland and Blossom) (Plate 5) could appear in MW-10.

The initial scope of work, is to conduct an intensive historical search of the area within a one-half mile radius of the subject site.

This includes the following steps:

1. An area reconnaissance in a one-half mile radius around the subject site.
2. A file search and personal interviews with the Alameda County inspectors for that area and the Eden Fire District inspectors.
3. A file search at the Regional Water Quality Control Board
4. A file search at the Alameda County Planning Department
5. A search of the known water wells in the area.
6. A historical aerial photograph search.
7. Interviews with some of the local residents.

This information would then be assessed and compiled into a report detailing the possible contributors, if any and specific steps to characterize the off site contamination.

SECTION 6 REPORTING

All activities involving the subject site will be reported to Durham Transportation on a monthly basis.

The reports will be in the format of progress reports which could include any or all of the following:

Introduction
Monthly Monitoring of Groundwater Elevations
Quarterly Monitoring Well Sampling and Analysis
Monthly Activities
Remediation Data
Summary and Conclusions

Each month, copies of progress reports will be forwarded to representatives of Alameda County and the Water Quality Control Board.

SECTION 7 SITE SAFETY PLAN

A site safety plan for this program is provided as a separate document.

TABLE 1
SUMMARY OF RESULTS FROM TEST PIT SAMPLING

Test Pit #7 - 9.0'

Oil and Grease	57 mg/kg (ppm)
Total Petroleum Hydrocarbons (Motor Oil)	16 mg/kg (ppm)

Test Pit #8 - 2.5'

Toluene	69 ug/kg (ppb)
Total Petroleum Hydrocarbons (Motor Oil)	20 mg/kg (ppm)

Test Pit #8 - 8.0'

Toluene	17 ug/kg (ppb)

Test Pit #9 - 7.0'

Toluene	24 ug/kg (ppb)

Test Pit #10 - 7.5'

Toluene	5 ug/kg (ppb)

Test Pit #11 - 7.5'

Toluene	34 ug/kg (ppb)

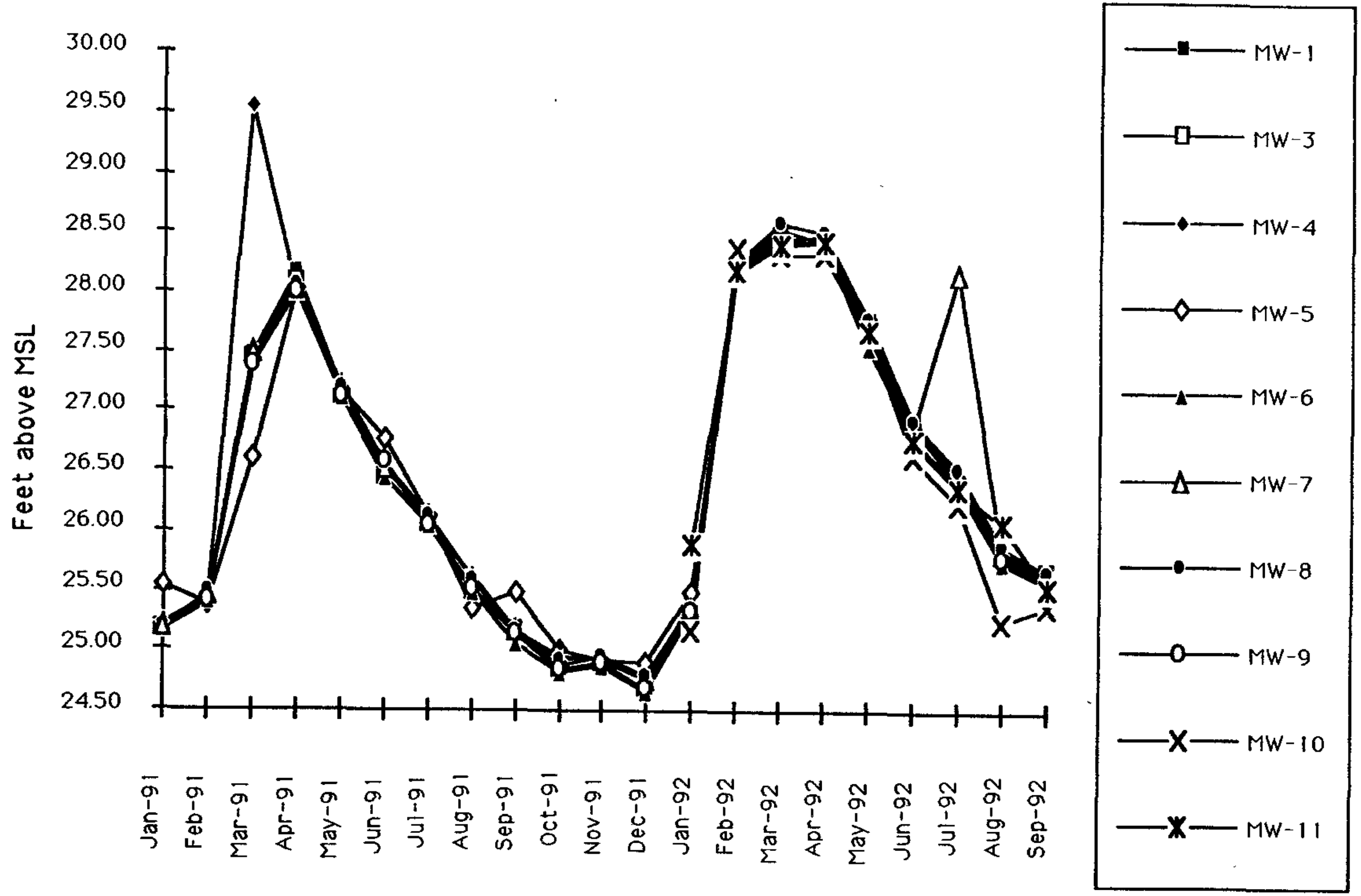
TABLE 2 a

GROUNDWATER ODOR AND SHEEN OBSERVATIONS
DURHAM TRANSPORTATION--MEEKLAND PROJECT

	MW1	MW3	MW4	MW5	MW6	MW7	MW8	MW9	MW10	MW11
Jan-91	O S	- -	- -	- -	o -	o -	. .	. .	. .	. .
Feb-91	O S	- -	- -	o -	o -	- -	- -	o -	. .	. .
Mar-91	X X	X X	X X	X X	X X	X X	X X	X X	. .	. .
Apr-91	O -	- -	- S	- -	- -	- -	- -	- -	. .	. .
May-91	- -	- -	- -	o -	- -	- -	- -	- -	. .	. .
Jun-91	o -	- -	- -	o -	- -	- -	- -	- -	. .	. .
Jul-91	O S	- -	- -	- -	o -	- -	- -	- -	. .	. .
Aug-91	O S	- -	o -	o -	o -	o -	- -	- -	. .	. .
Sep-91	O S	- -	- -	o -	o -	- -	- -	- -	. .	. .
Oct-91	O S	- -	- -	- -	- -	- -	- -	- -	. .	. .
Nov-91	O S	- -	- -	o -	o -	- -	- -	- -	. .	. .
Dec-91	O S	o -	- -	o -	o -	- -	- -	- -	. .	. .
Jan-92	O S	o -	- -	o -	o -	- -	- -	o -	o -	o -
Feb-92	O -	- -	- -	o -	- -	- -	- -	- -	O -	- -
Mar-92	O -	- -	- -	o S	- -	- -	- -	o -	o -	- -
Apr-92	o -	o -	- -	o -	o -	- -	- -	- -	o -	- -
May-92	O S	o -	- -	o -	- -	o -	- -	- -	o -	o -
Jun-92	O -	- -	- -	- -	- -	- -	- -	- -	O -	- -
Jul-92	O -	- -	- -	o -	- -	- -	- -	- -	- -	- -
Aug-92	O -	- -	- -	o -	- -	- -	- -	- -	- -	- -
Sep-92	O -	- -	- -	o -	- -	- -	- -	- -	o -	- -

O=Strong Odor   o=Slight Odor   S=Sheen   -=None Present   X= No Observation Made

FIGURES



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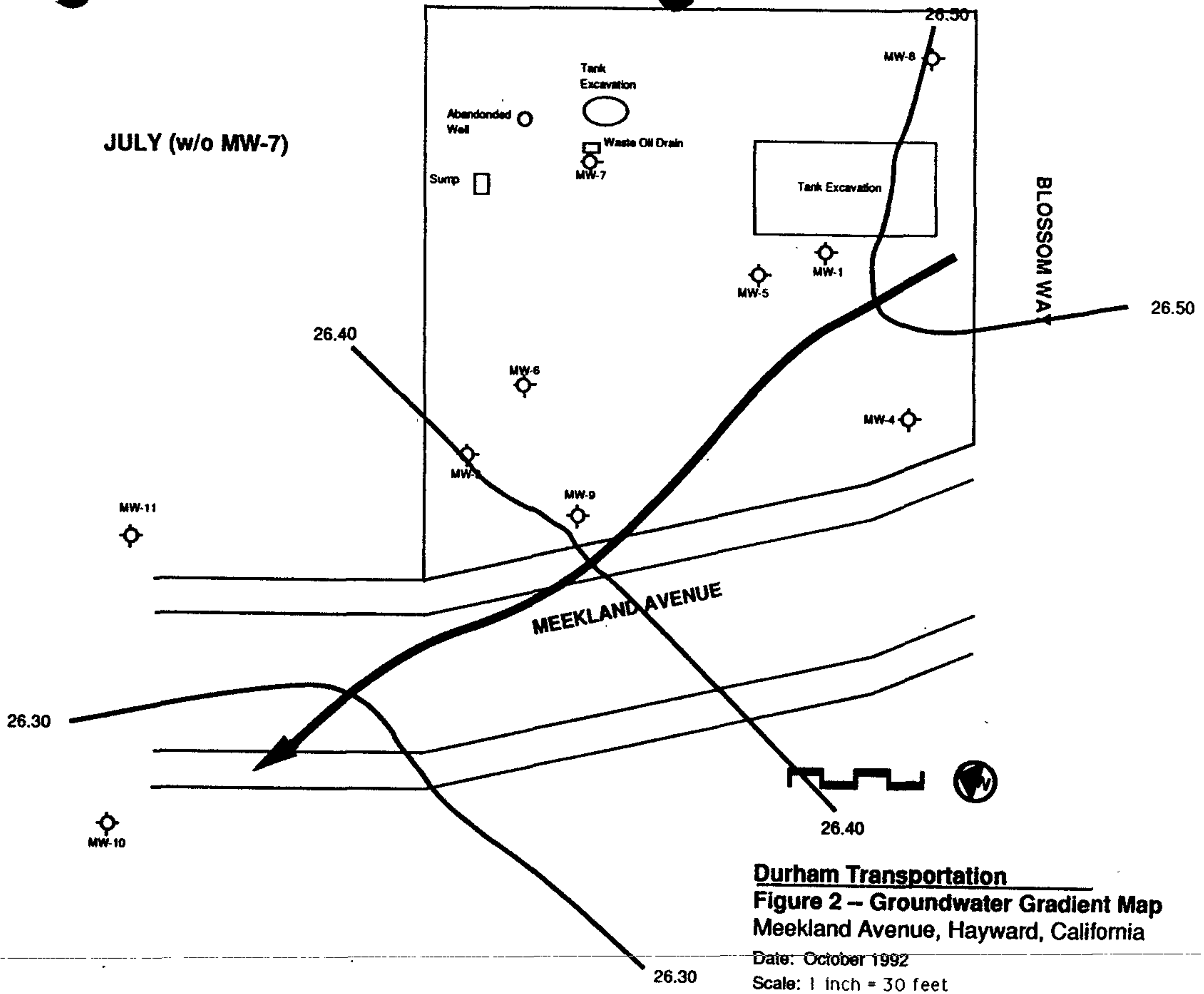
Groundwater Elevations

Durham Transportation
Meekland Avenue, Hayward, California

Figure
1



Durham Transportation

Figure 2 -- Groundwater Gradient Map

Meekland Avenue, Hayward, California

Date: October 1992

Scale: 1 inch = 30 feet

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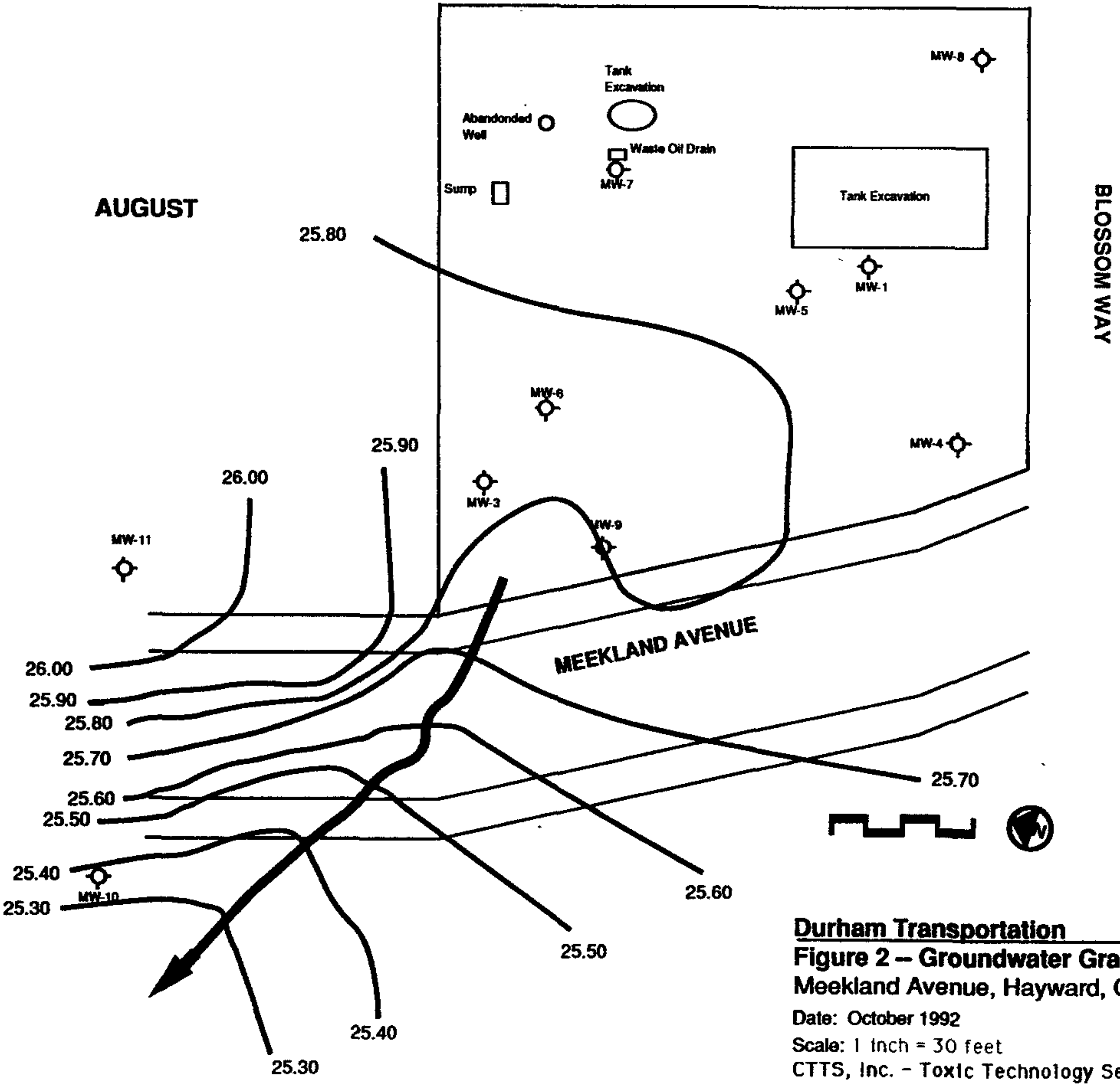

Durham Transportation

Figure 2 -- Groundwater Gradient Map

Meekland Avenue, Hayward, California

Date: October 1992

Scale: 1 inch = 30 feet

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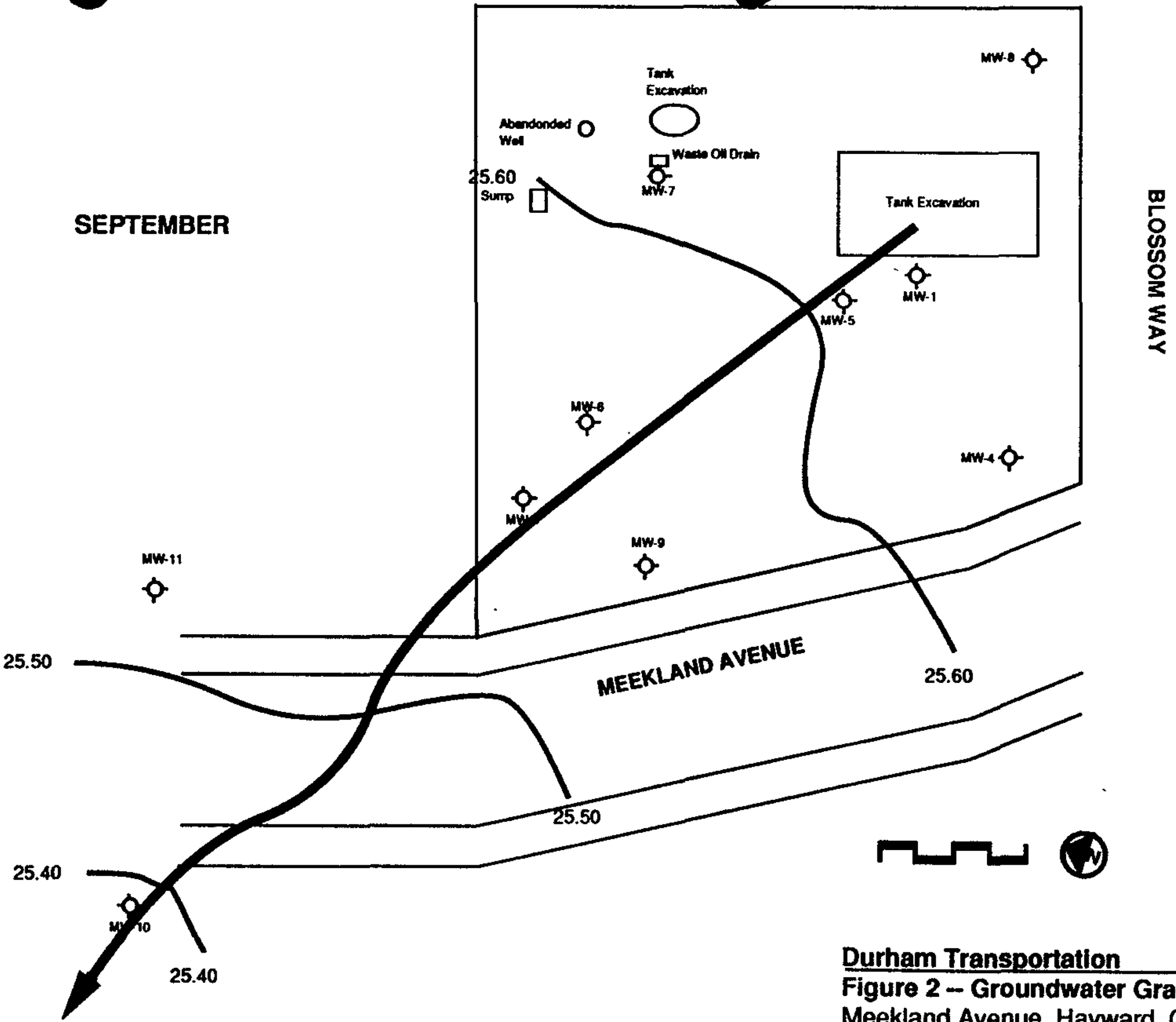

Durham Transportation

Figure 2 -- Groundwater Gradient Map

Meekland Avenue, Hayward, California

Date: October 1992

Scale: 1 inch = 30 feet

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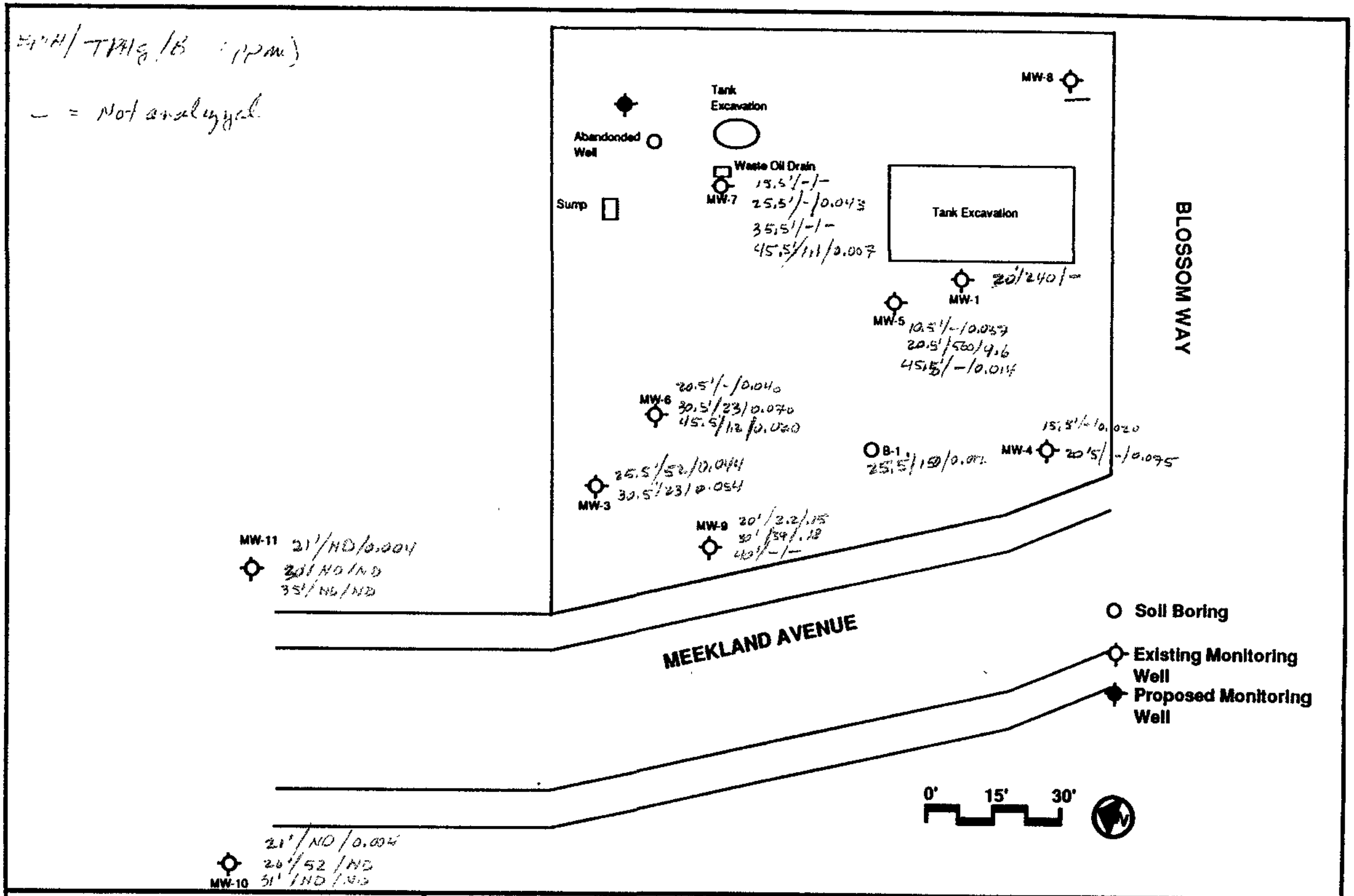

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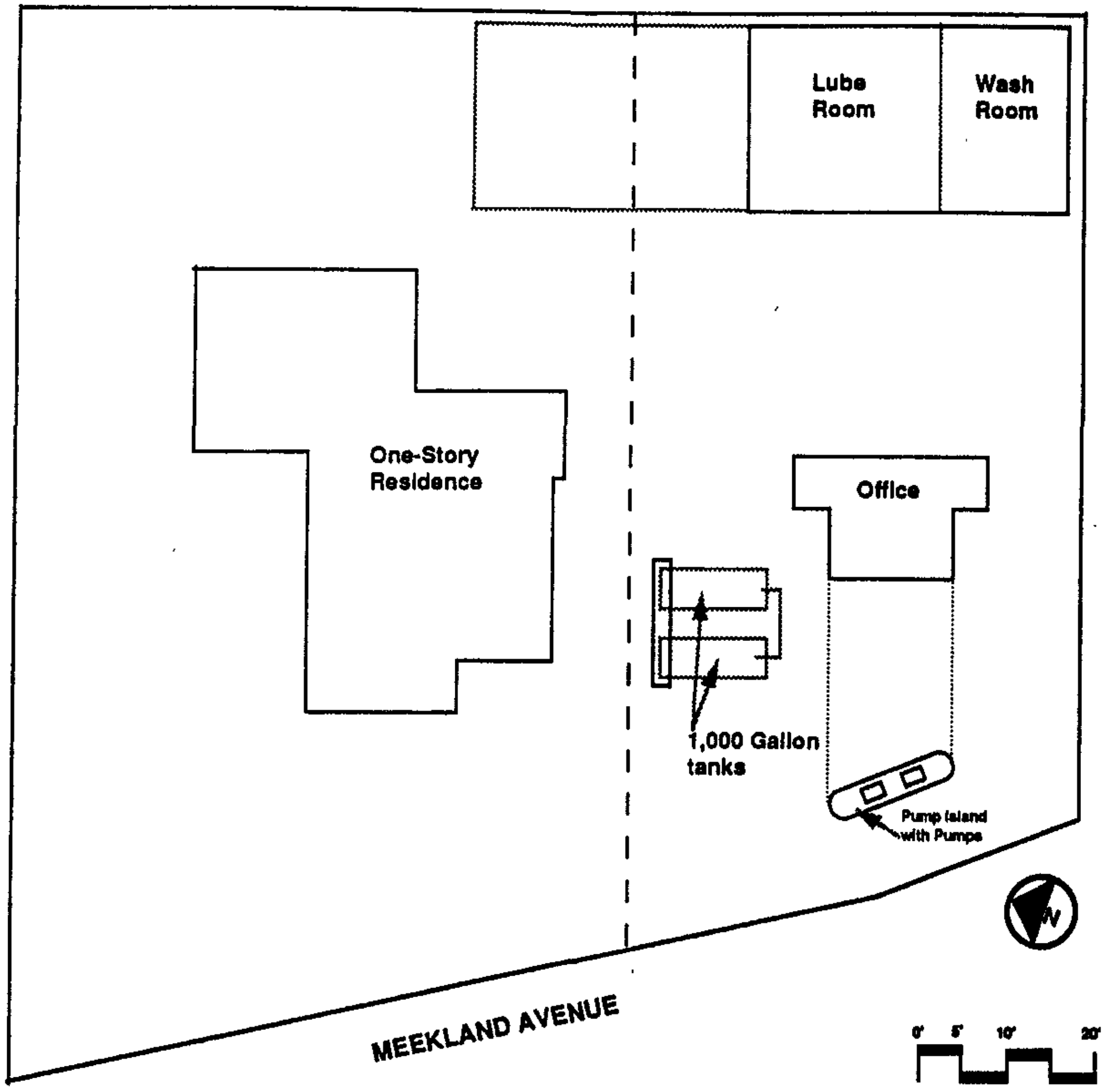
SITE PLAN (Current)

Project 92-7
Durham Transportation
Meekland Avenue, Hayward, California

Plate
1
1" = 30'



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SITE PLAN (1946)

Project 92-7

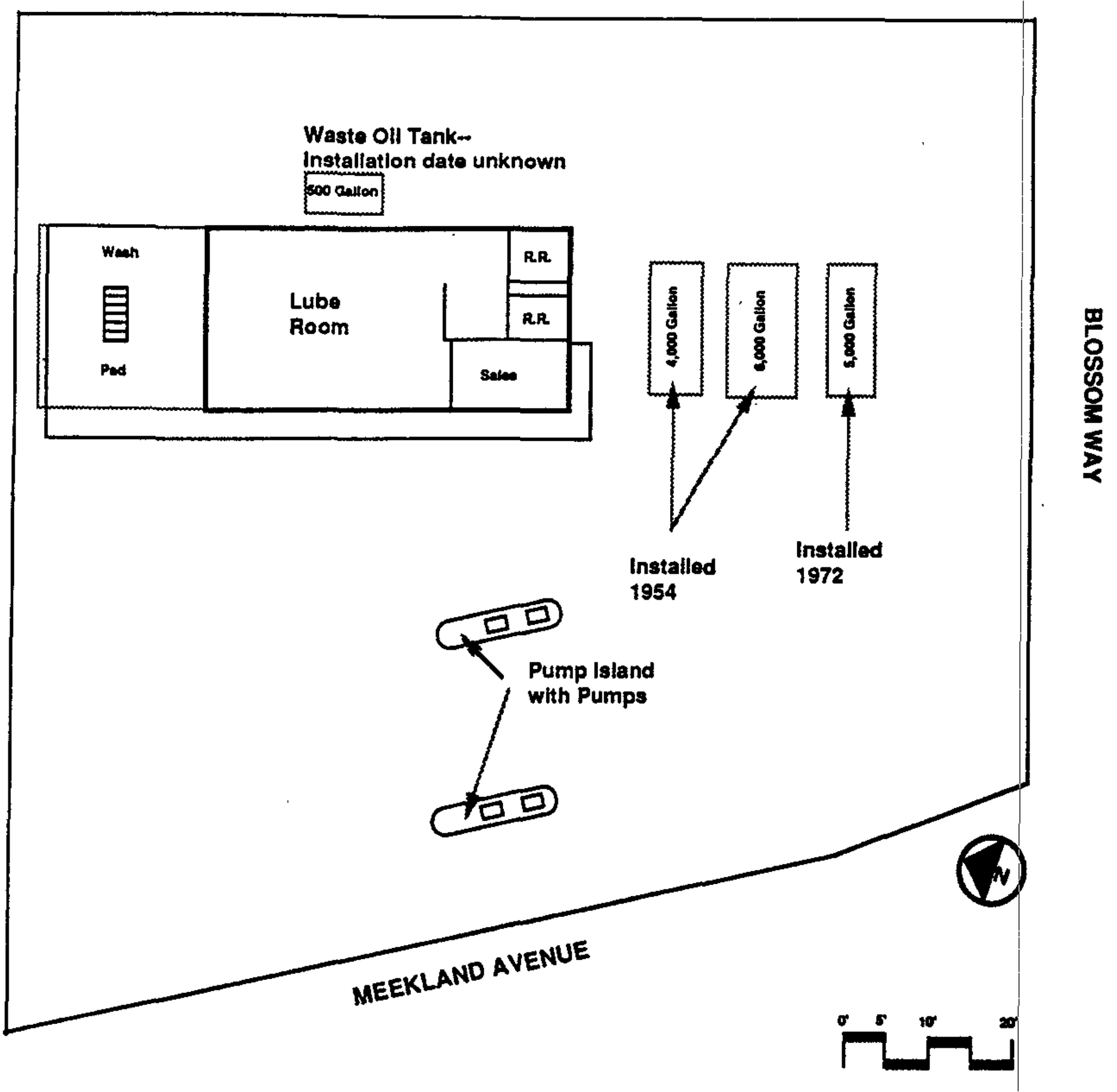
Durham Transportation

Meekland Avenue, Hayward, California

Plate

2

1" = 20'



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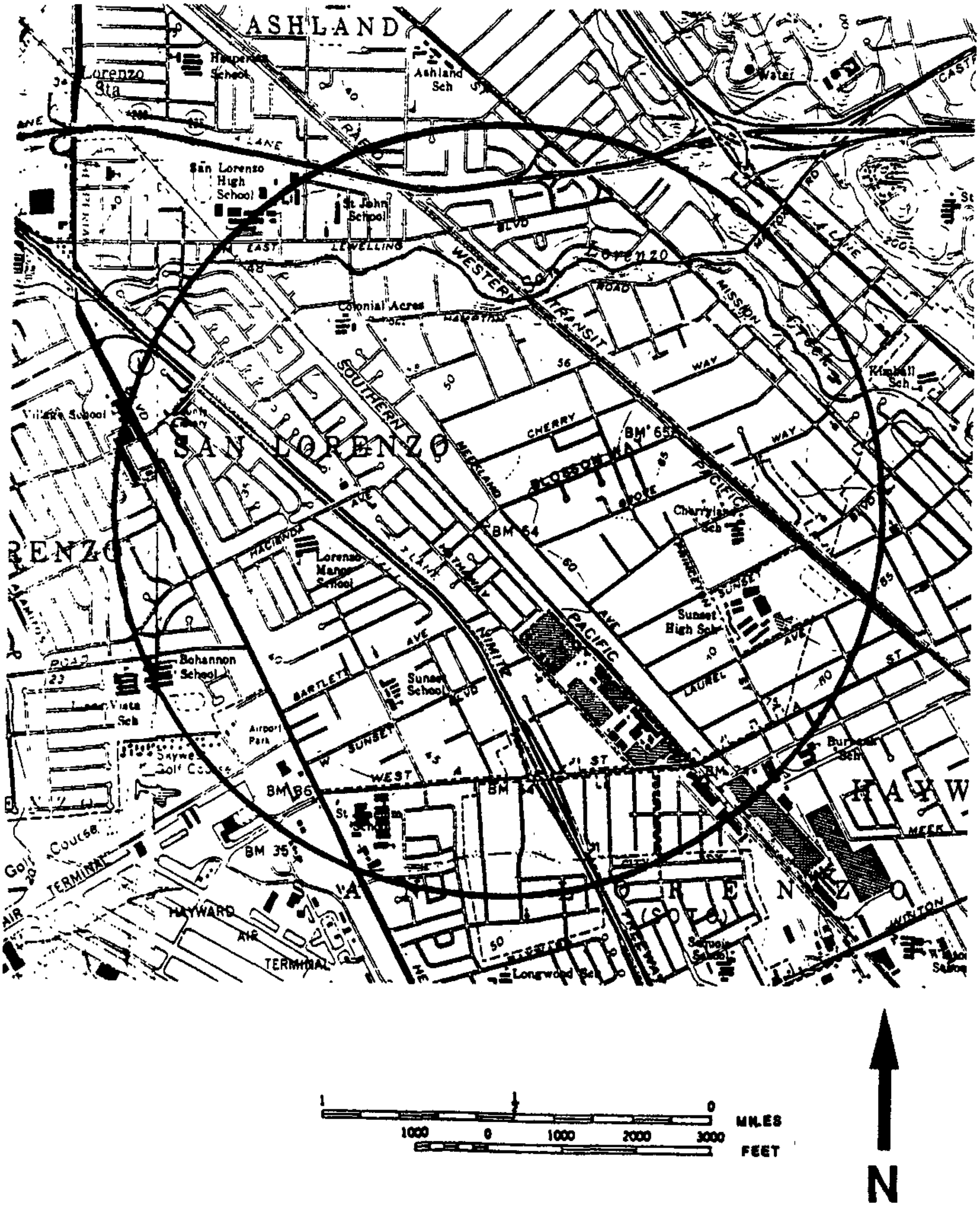
SITE PLAN (1954-1990)

Project 92-7
Durham Transportation
Meekland Avenue, Hayward, California

Plate
3
1" = 20'



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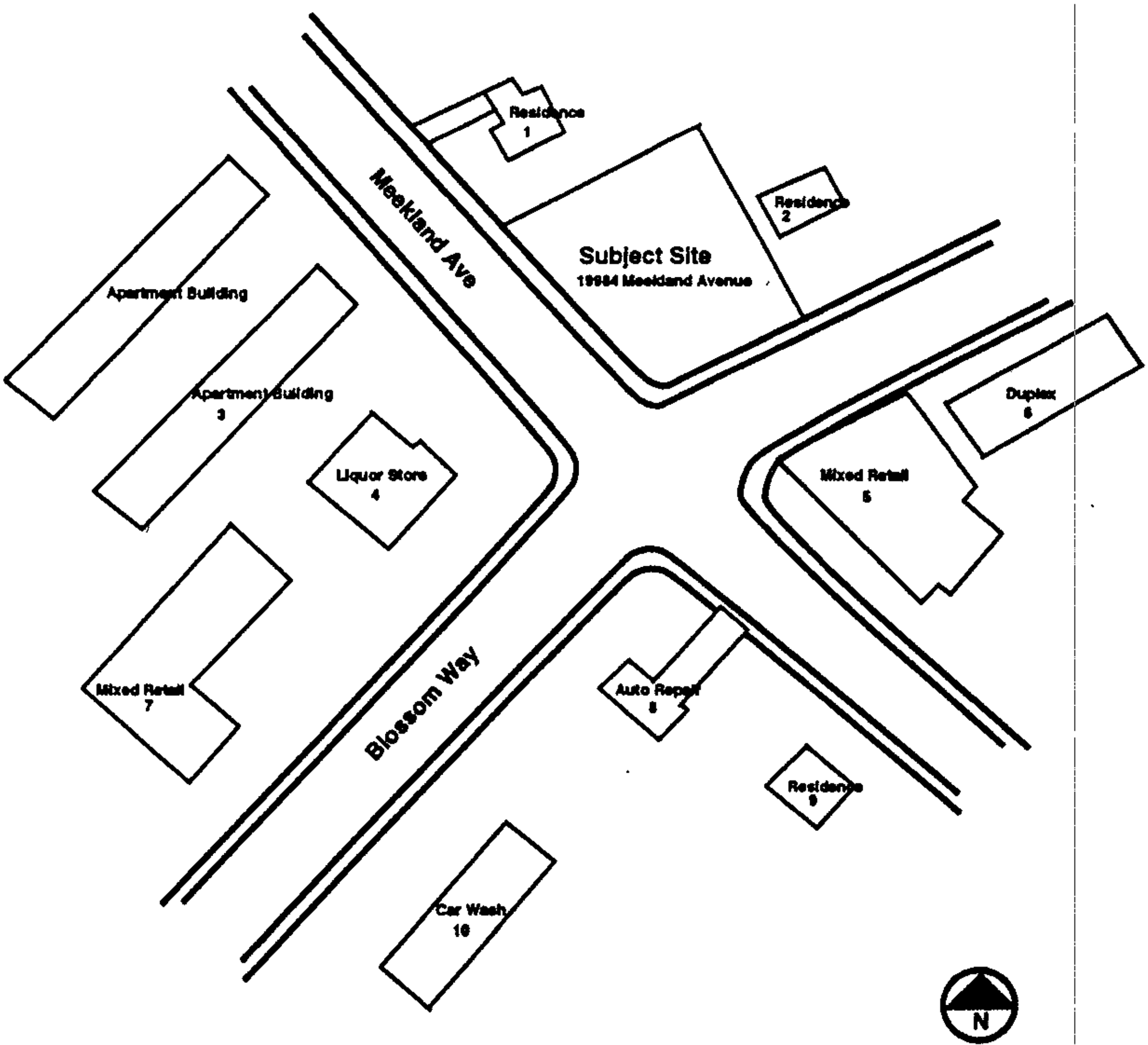
ONE MILE RADIUS VICINITY MAP

Project 92-7
Durham Transportation
Meekland Avenue, Hayward, California

Plate
4



KEY TO BUILDING ADDRESSES

1. 19870 Meekland Avenue
2. 126 Blossom Way
3. 19875 Meekland Avenue
4. 50 Blossom Way
5. 20008 - 20332 Meekland Avenue
6. 127 - 139 Blossom Way
7. 40 - 46 Blossom Way
8. 20006 Meekland Avenue
9. 20337 Meekland Avenue
10. 30 Blossom Way

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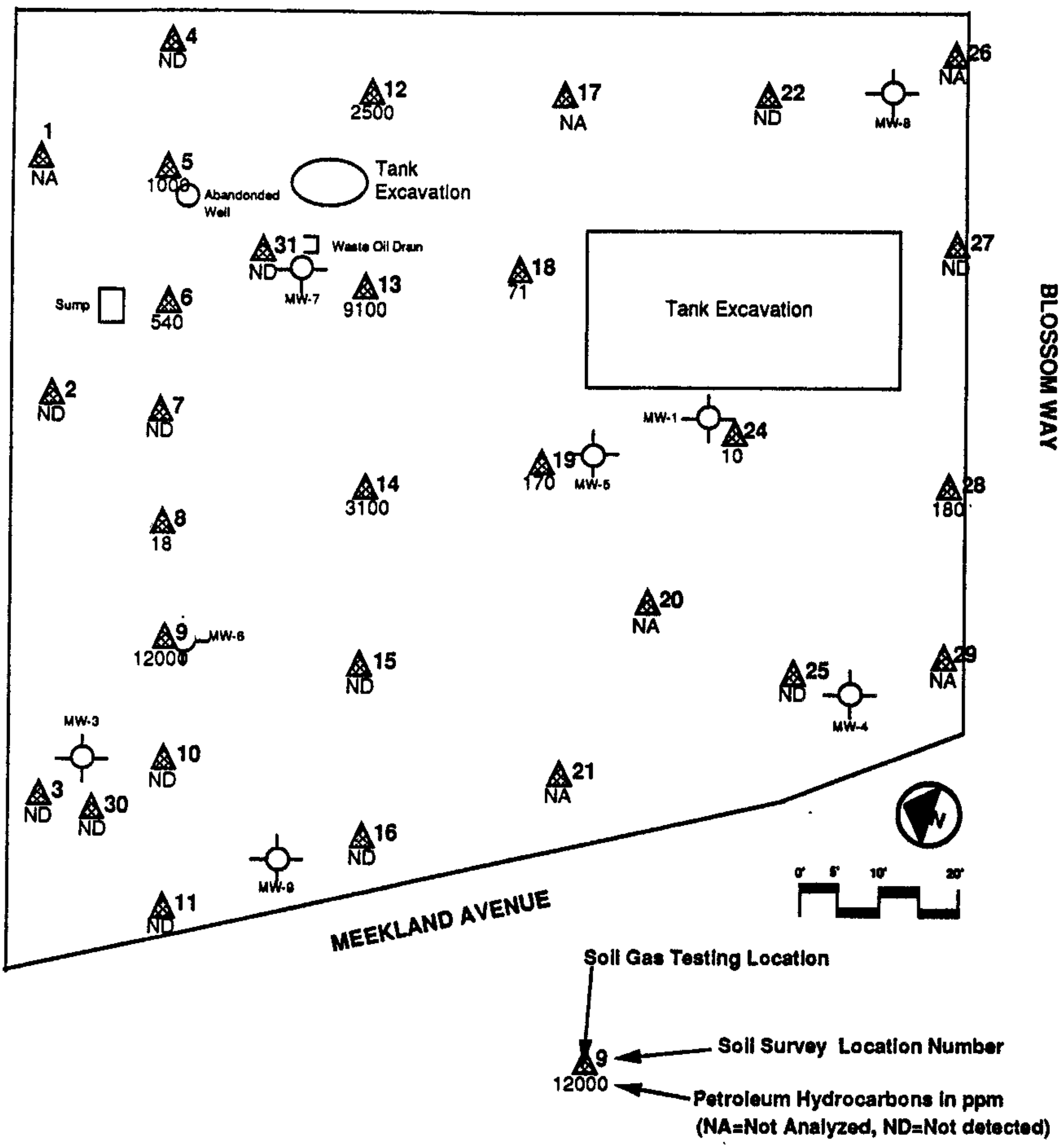
IMMEDIATE VICINITY MAP

Project 92-7
Durham Transportation
Meekland Avenue, Hayward, California

Plate
5
1" = 100'



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SOIL GAS TESTING LOCATIONS

Project 92-7
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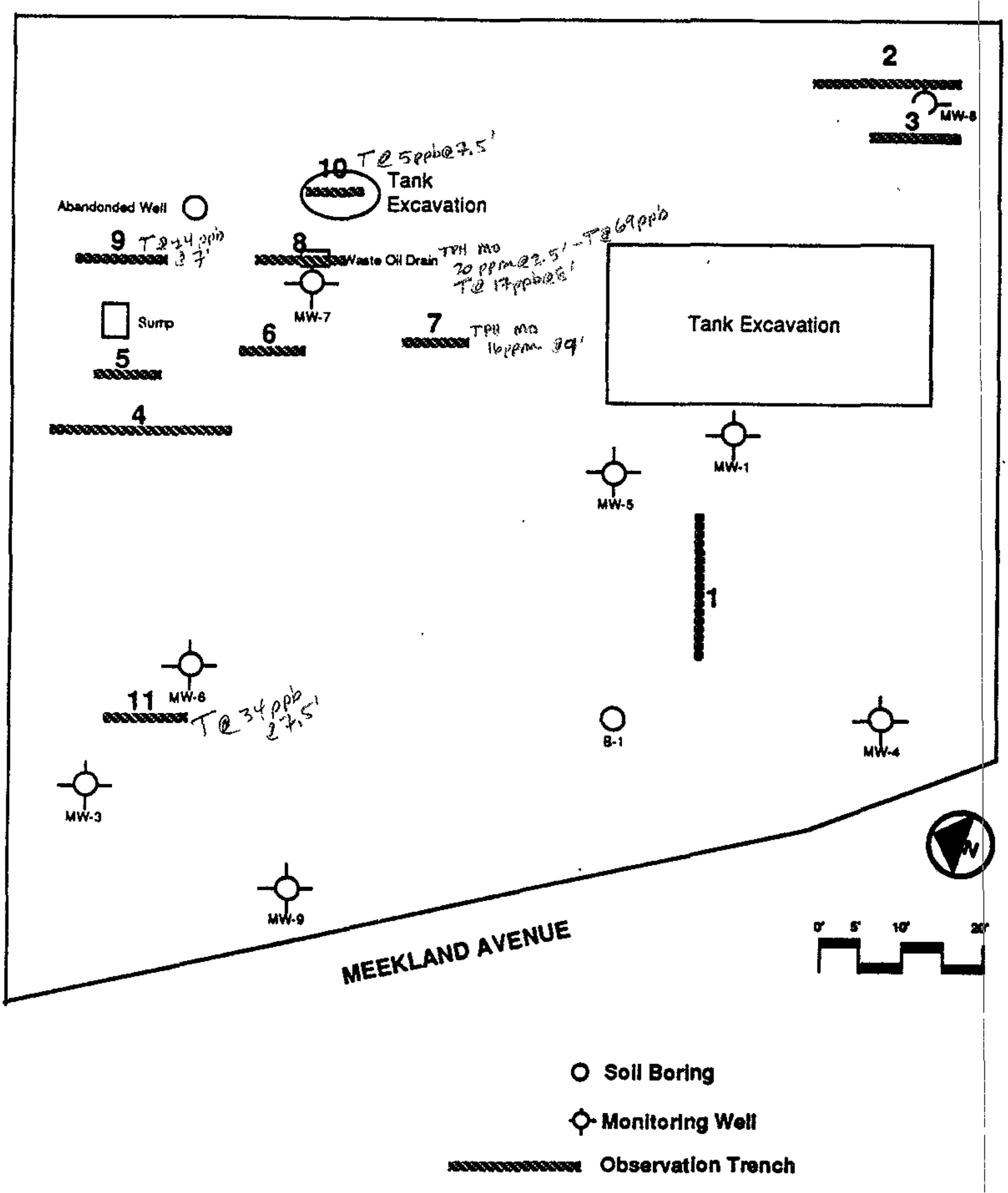
Meekland Avenue, Hayward, California

Plate
6
1" = 20'



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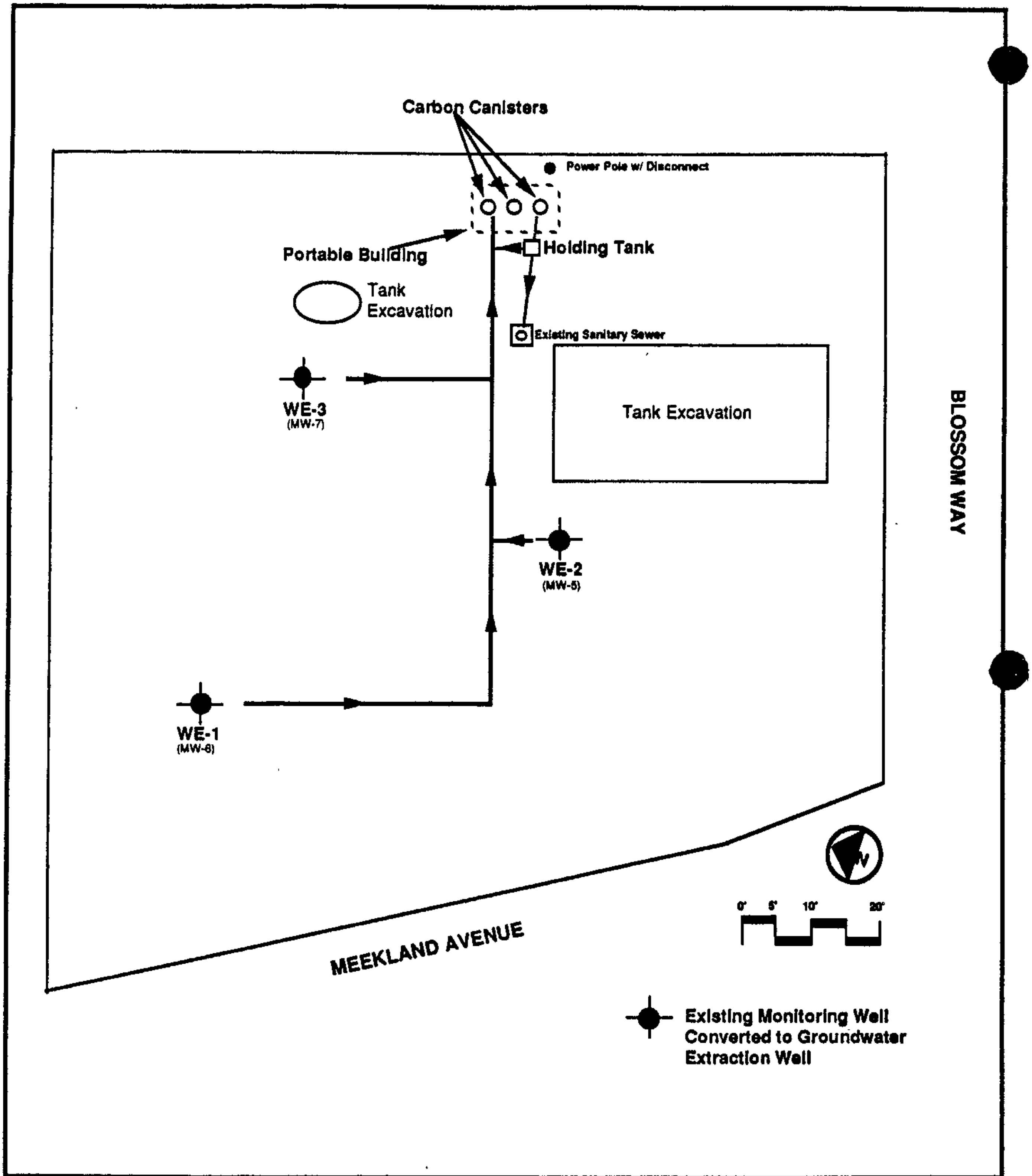
TRENCH LOCATIONS

Project 92-7
Durham Transportation
Meekland Avenue, Hayward, California

Plate
7
1" = 20'



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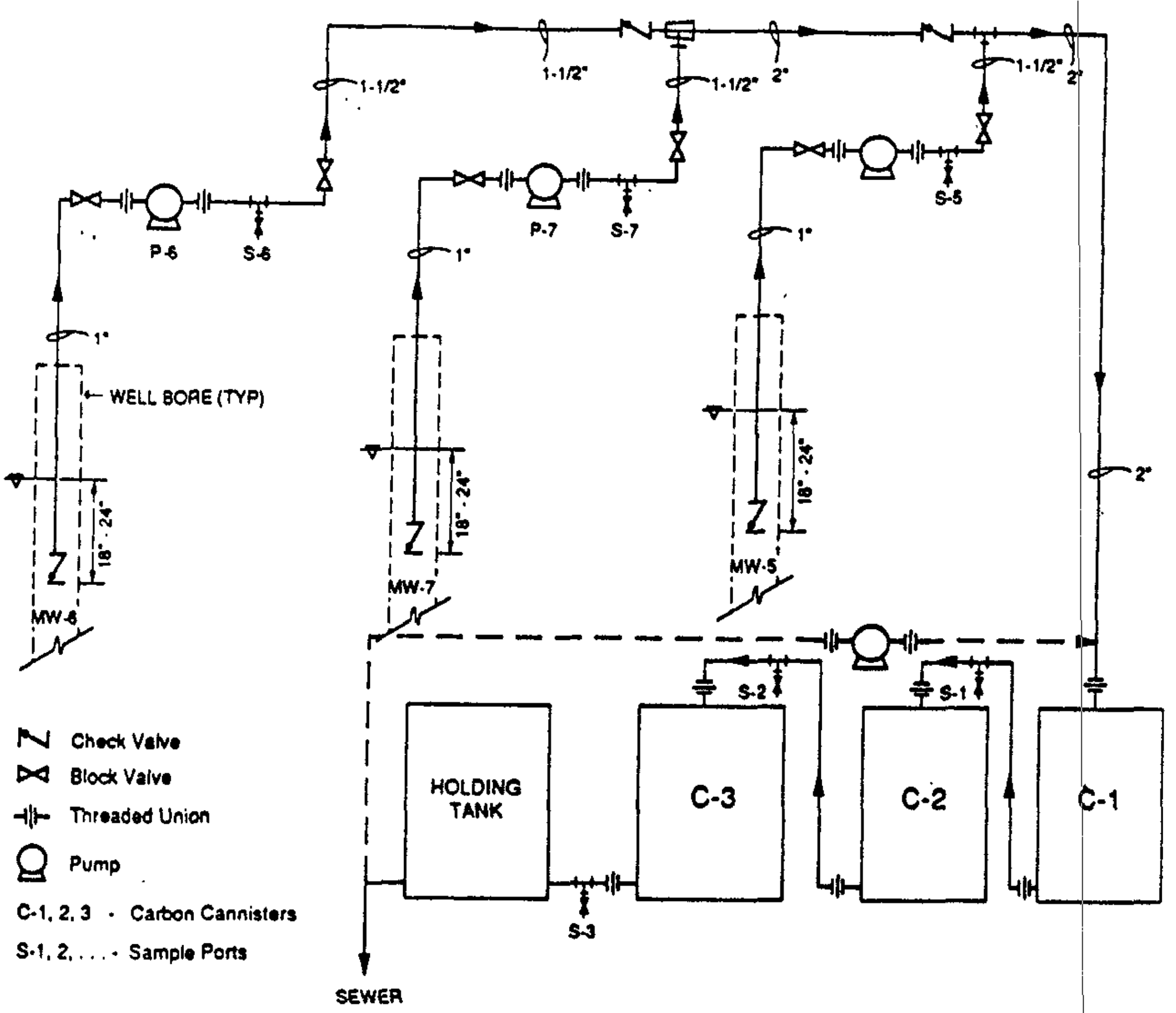
GROUNDWATER REMEDIATION SYSTEM
Project 92-7
Durham Transportation
Meekland Avenue, Hayward, California

Plate
8
1" = 20'



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GROUNDWATER REMEDIATION SCHEMATIC

Project 92-7
Durham Transportation
Meekland Avenue, Hayward, California

Plate
9
no scale

SOIL CHEMICAL DATA
DURHAM TRANSPORTATION--MEEKLAND PROJECT

BORING 1
Installed 10/1/90

Depth (ft)	5.5	15.5	25.5
Gasoline (mg/Kg)			150
Diesel (mg/Kg)			3.7
Motor Oil (mg/Kg)	*13		
Benzene (ug/Kg)		40	1200
Ethylbenzene (ug/Kg)		5.8	2100
Toluene (ug/Kg)	36	34	2400
Xylenes (ug/Kg)		25	8400
1,2-Dichloroethane (ug/Kg)		4	41

MONITORING WELL 1
Installed 6/30/86

Depth (ft)	20
Gasoline (mg/Kg)	**240

MONITORING WELL 3
Installed 11/28/89

Depth (ft)	20.5	25.5	30.5
Gasoline (mg/Kg)		52	23
Diesel (mg/Kg)			
Benzene (ug/Kg)	130	440	540
Ethylbenzene (ug/Kg)		200	210
Toluene (ug/Kg)	22	480	188
Xylenes (ug/Kg)		930	400
Trichloroethene (ug/Kg)	200		

* The positive result for the Motor Oil analysis on this sample appears to be a lighter hydrocarbon than Diesel.

**Reported as total Hydrocarbons by Method 8020. Analysis performed by Applied Geosystems, Fremont, CA.

MONITORING WELL 4

Installed 11/28/89

Depth (ft)	15.5	20.5
Benzene (ug/Kg)	20	75
Ethylbenzene (ug/Kg)	13	26
Toluene (ug/Kg)	19	20
Xylenes (ug/Kg)		15

MONITORING WELL 5

Installed 8/31/90

Depth (ft)	5.5	10.5	20.5	45.5
Gasoline (mg/Kg)			560	
Diesel (mg/Kg)			6.4	
Benzene (ug/Kg)		37	9600	14
Ethylbenzene (ug/Kg)		3.5	7400	7.3
Toluene (ug/Kg)	3.9	16	22000	21
Xylenes (ug/Kg)		19	45000	34
1,2-Dichloroethane (ug/Kg)		2.4	61	

MONITORING WELL 6

Installed 8/30/90

Depth (ft)	20.5	30.5	45.5
Gasoline (mg/Kg)		23	1.2
Diesel (mg/Kg)		5.3	
Benzene (ug/Kg)	46	70	20
Ethylbenzene (ug/Kg)		60	15
Toluene (ug/Kg)		96	35
Xylenes (ug/Kg)		59	56
1,2-Dichloroethane (ug/Kg)		5.7	

* The positive result for the Petroleum Hydrocarbon as Diesel analysis on this sample appears to be a lighter hydrocarbon than Diesel.

MONITORING WELL 7
Installed 10/1/90

Depth (ft)	**AUGER**	**15.5**	**25.5**	**35.5**	**45.5**
Gasoline (mg/Kg)	120				1.1
Diesel (mg/Kg)	23				
Benzene (ug/Kg)	310		43		7.1
Ethylbenzene (ug/Kg)	1700		3.4		12
Toluene (ug/Kg)	1400	15	4.4	27	36
Xylenes (ug/Kg)	6900		10	5.7	56
1,2-Dichloroethane (ug/Kg)	5.9				

MONITORING WELL 8
Installed 2/13/91

Depth (ft)	**25**	**35**
Toluene (ug/Kg)	3.3	28

MONITORING WELL 9
Installed 2/13/91

Depth (ft)	**20**	**30**	**40**
Gasoline (mg/Kg)	2.2	39	
Diesel (mg/Kg)		6	
Benzene (ug/Kg)	150	180	
Ethylbenzene (ug/Kg)	29	230	
Toluene (ug/Kg)	66	340	11
Xylenes (ug/Kg)	67	1000	8.2
1,2-Dichloroethane (ug/Kg)	7.9	11	

* The positive result for the Petroleum Hydrocarbon as Diesel analysis on this sample appears to be a lighter hydrocarbon than Diesel.

MONITORING WELL 10

Installed 1/21/92

Depth (ft)	21	26	31
Gasoline (mg/Kg)	ND	52	ND
Diesel (mg/Kg)	ND	*11	ND
Benzene (ug/Kg)	4.4	ND	ND
Ethylbenzene (ug/Kg)	3.6	330	ND
Toluene (ug/Kg)	14	ND	2.5
Xylenes (ug/Kg)	18	1500	3.4
1,2-Dichloroethane (ug/Kg)	ND	ND	ND
Tetrachloroethene (ug/Kg)	ND	ND	ND

MONITORING WELL 11

Installed 1/24/92

Depth (ft)	21	30	35
Gasoline (mg/Kg)	ND	ND	ND
Diesel (mg/Kg)	ND	ND	ND
Benzene (ug/Kg)	4.3	ND	ND
Ethylbenzene (ug/Kg)	ND	3.9	ND
Toluene (ug/Kg)	8	4.1	4.5
Xylenes (ug/Kg)	ND	ND	ND
1,2-Dichloroethane (ug/Kg)	ND	ND	ND
Tetrachloroethene (ug/Kg)	ND	ND	ND

* The positive result for the Petroleum Hydrocarbon as Diesel analysis on this sample appears to be a lighter hydrocarbon than Diesel.

GROUNDWATER CHEMICAL DATA
DURHAM TRANSPORTATION--MEEKLAND PROJECT

MONITORING WELL 1

	Jul-86	Mar-90	Jul-90	Oct-90	Jan-91	Apr-91	Jul-91	Oct-91	Jan-92	Apr-92	Jul-92
Gasoline(mg/L)	*42	27	27	43	22	42	46	27	27	33	41
Diesel(mg/L)	NA	NA	11	8.5	2.7	**3.1	**4.3	**4.3	**14	**11	**19
Benzene(ug/L)	5500	2700	4000	3400	3000	5100	6500	4400	3300	8900	5600
Ethylbenzene(ug/L)	NA	490	ND	1200	990	1200	830	1100	1200	1200	1300
Toluene(ug/L)	4900	840	1500	2700	1800	3700	2900	1400	1600	3500	2600
Xylenes(ug/L)	6100	800	4400	5300	2800	3200	3700	3200	3800	3700	4000
Lead (Total)(ug/L)	NA	NA	NA	9.0							
1,1-Dichloroethane(ug/L)	NA	16	ND	ND							
1,2-Dichloroethane(ug/L)	NA	ND	62	26	27	120	64	25	24	120	49
Trichloroethene(ug/L)	NA	ND	ND	ND							
Chlorobenzene(ug/L)	NA	ND	ND	1.4				ND			
Tetrachloroethene(ug/L)						ND	ND	ND	ND	ND	ND

*Reported as Total Hydrocarbons by method 602. Analysis performed by Applied Geosystems, Fremont, CA.

** The positive result for the Petroleum Hydrocarbon as Diesel analysis on this sample appears to be a lighter hydrocarbon than Diesel

MONITORING WELL 3

	Nov-89	Mar-90	Jul-90	Oct-90	Jan-91	Apr-91	Jul-91	Oct-91	Jan-92	Apr-92	Jul-92
Gasoline(mg/L)	29	12	7.3	6.2	4.6	8.3	6.6	6.3	4	7.4	3
Diesel(mg/L)	NA	NA	0.99	0.97	0.68	*0.64	*0.89	*1.7	*0.79	*1.8	*2.4
Benzene(ug/L)	4600	2300	5200	75	2200	2800	2000	2000	1200	730	190
Ethylbenzene(ug/L)	680	59	ND	7.5	220	370	250	410	250	370	ND
Toluene(ug/L)	1100	300	440	150	110	490	230	330	60	180	2.8
Xylenes(ug/L)	1100	490	480	250	89	760	380	550	200	640	410
Lead (Total(ug/L))	40	NA	NA	ND							
1,1-Dichloroethane(ug/L)	ND	26	ND	ND							
1,2-Dichloroethane(ug/L)	36	ND	67	48	40	43	29	27	22	19	30
Trichloroethene(ug/L)	ND	ND	ND	ND							
Chlorobenzene(ug/L)	ND	ND	ND	ND				ND			
Tetrachloroethene(ug/L)						ND	ND	ND	ND	ND	ND

MONITORING WELL 4

	Nov-89	Mar-90	Jul-90	Oct-90	Jan-91	Apr-91	Jul-91	Oct-91	Jan-92	Apr-92	Jul-92
Gasoline(mg/L)	ND	ND	ND	ND	0.08	1.4	0.13	ND	ND	0.78	ND
Diesel(mg/L)	NA	NA	ND	ND	ND	*0.13	ND	ND	ND	*0.13	ND
Benzene(ug/L)	33	7.4	ND	ND	9.2	220	14	5.3	6.8	ND	ND
Ethylbenzene(ug/L)	1.3	2.0	ND	ND	2.4	72	3.3	1.0	1.3	51	ND
Toluene(ug/L)	1	2.0	ND	ND	1.7	ND	9.7	ND	ND	ND	ND
Xylenes(ug/L)	5.2	1.1	ND	ND	0.7	17	ND	0.8	ND	4.8	ND
Lead (Total)(ug/L)	12	NA	NA	ND							
1,1-Dichloroethane(ug/L)	NA	ND	ND	ND							
1,2-Dichloroethane(ug/L)	NA	ND	0.9	0.5	ND	ND	0.81	ND	ND	1.6	1.3
Trichloroethene(ug/L)	NA	ND	ND	0.7							
Chlorobenzene(ug/L)	NA	ND	ND	ND				ND			
Tetrachloroethene(ug/L)						ND	ND	ND	ND	ND	ND

* The positive result for the Petroleum Hydrocarbon as Diesel analysis on this sample appears to be a lighter hydrocarbon than Diesel.

MONITORING WELL 5

	Oct-90	Jan-91	Apr-91	Jul-91	Oct-91	Jan-92	Apr-92	Jul-92
Gasoline(mg/L)	9.6	10	18	15	14	12	23	27
Diesel(mg/L)	1.9	1.2	*0.86	*2.2	*3.3	*1.9	*6.4	*5.9
Benzene(ug/L)	1200	1600	2500	4800	5000	4300	8600	6000
Ethylbenzene(ug/L)	70	720	550	610	530	390	ND	ND
Toluene(ug/L)	160	200	580	1100	820	380	2600	1500
Xylenes(ug/L)	520	510	500	760	800	590	1900	1600
Lead (Total)(ug/L)	3.0							
1,2-Dichloroethane(ug/L)	22	33	61	62	49	56	125	93
Tetrachloroethene(ug/L)	ND		ND	ND	ND	ND	ND	ND
Chlorobenzene(ug/L)					0.42			
Chloroform(ug/L)	ND							
Oil and Grease(ug/L)	5.4							

MONITORING WELL 6

	Oct-90	Jan-91	Apr-91	Jul-91	Oct-91	Jan-92	Apr-92	Jul-92
Gasoline(mg/L)	27	7.2	17	11	4.8	6.1	7.2	8.6
Diesel(mg/L)	4.7	1.6	*0.80	*1.4	*1.6	*1.2	*1.8	*1.7
Benzene(ug/L)	2700	1400	2800	1200	380	460	340	1300
Ethylbenzene(ug/L)	450	ND	610	ND	69	180	350	380
Toluene(ug/L)	2900	200	1200	380	340	200	460	280
Xylenes(ug/L)	3300	830	1800	750	730	590	920	1100
Lead (Total)(ug/L)	9							
1,2-Dichloroethane(ug/L)	40	23	53	29	22	26	30	35
Tetrachloroethene(ug/L)	ND		ND	ND	ND	ND	ND	ND
Chlorobenzene(ug/L)					ND			
Chloroform(ug/L)	0.4							
Oil and Grease(mg/L)	ND							

* The positive result for the Petroleum Hydrocarbon as Diesel analysis on this sample appears to be a lighter hydrocarbon than Diesel.

MONITORING WELL 7

	Oct-90	Jan-91	Apr-91	Jul-91	Oct-91	Jan-92	Apr-92	Jul-92(1)	Jul-92(2)
Gasoline(mg/L)	14	4.5	2.4	2	ND	1.1	1.7	1.9	1.2
Diesel(mg/L)	2.7	1.4	LOST	* 0.91	*0.37	*0.29	*0.52	*0.59	*0.7
Benzene(ug/L)	390	320	320	470	ND	230	310	410	21
Ethylbenzene(ug/L)	ND	42	77	ND	ND	45	78	78	1.0
Toluene(ug/L)	18	48	62	24	ND	7.0	28	21	2.6
Xylenes(ug/L)	1200	350	130	88	ND	88	170	170	90
Lead (Total)(ug/L)	11								
1,2-Dichloroethane(ug/L)	14	10	11	9.7	4.5	6.4	3.2	8.7	8.2
Tetrachloroethene(ug/L)	1.3		0.6	ND	0.68	3.5	0.5	2.1	2.0
Chlorobenzene(ug/L)					ND				
Chloroform(ug/L)	ND								
Oil and Grease(mg/L)	7.8								

MONITORING WELL 8

	Feb-91	Apr-91	Jul-91	Oct-91	Jan-92	Apr-92	Jul-92
Gasoline(mg/L)	ND	ND	ND	ND	ND	ND	ND
Diesel(mg/L)	ND	ND	ND	ND	ND	ND	ND
Benzene(ug/L)	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene(ug/L)	ND	ND	ND	ND	ND	ND	ND
Toluene(ug/L)	ND	ND	2	0.6	ND	ND	3.3
Xylenes(ug/L)	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane(ug/L)	ND		ND	ND	ND	ND	ND
Tetrachloroethene(ug/L)		0.5	1.2	0.4	0.68	0.8	1.6
Chlorobenzene(ug/L)				ND			

* The positive result for the Petroleum Hydrocarbon as Diesel analysis on this sample appears to be a lighter hydrocarbon than Diesel.

MONITORING WELL 9

	Feb-91	Apr-91	Jul-91	Oct-91	Jan-92	Apr-92	Jul-92
Gasoline(mg/L)	6	4.2	1.9	0.88	0.38	2.9	4.4
Diesel(mg/L)	1.6	*0.41	*0.18	*0.3	*0.12	*0.7	*1.3
Benzene(ug/L)	180	520	190	160	14	510	860
Ethylbenzene(ug/L)	19	130	12	31	7.6	80	210
Toluene(ug/L)	170	410	52	44	2.2	260	340
Xylenes(ug/L)	200	580	77	83	14	260	640
1,2-Dichloroethane(ug/L)	13	26	12	10	9.6	11	22
Tetrachloroethene(ug/L)		ND	6.5	ND	ND	ND	ND
Chlorobenzene(ug/L)				ND			

MONITORING WELL 10

	Jan-92	Apr-92(1)	Apr-92(2)	Jul-92
Gasoline(mg/L)	13	15	13	8.1
Diesel(mg/L)	*3.7	*5.0	*7.5	*4.4
Benzene(ug/L)	130	180	240	74
Ethylbenzene(ug/L)	580	ND	490	360
Toluene(ug/L)	110	18	65	ND
Xylenes(ug/L)	3000	2700	2500	1100
1,2-Dichloroethane(ug/L)	33	20	22	29
Tetrachloroethene(ug/L)	ND	ND	ND	ND

* The positive result for the Petroleum Hydrocarbon as Diesel analysis on this sample appears to be a lighter hydrocarbon than Diesel.

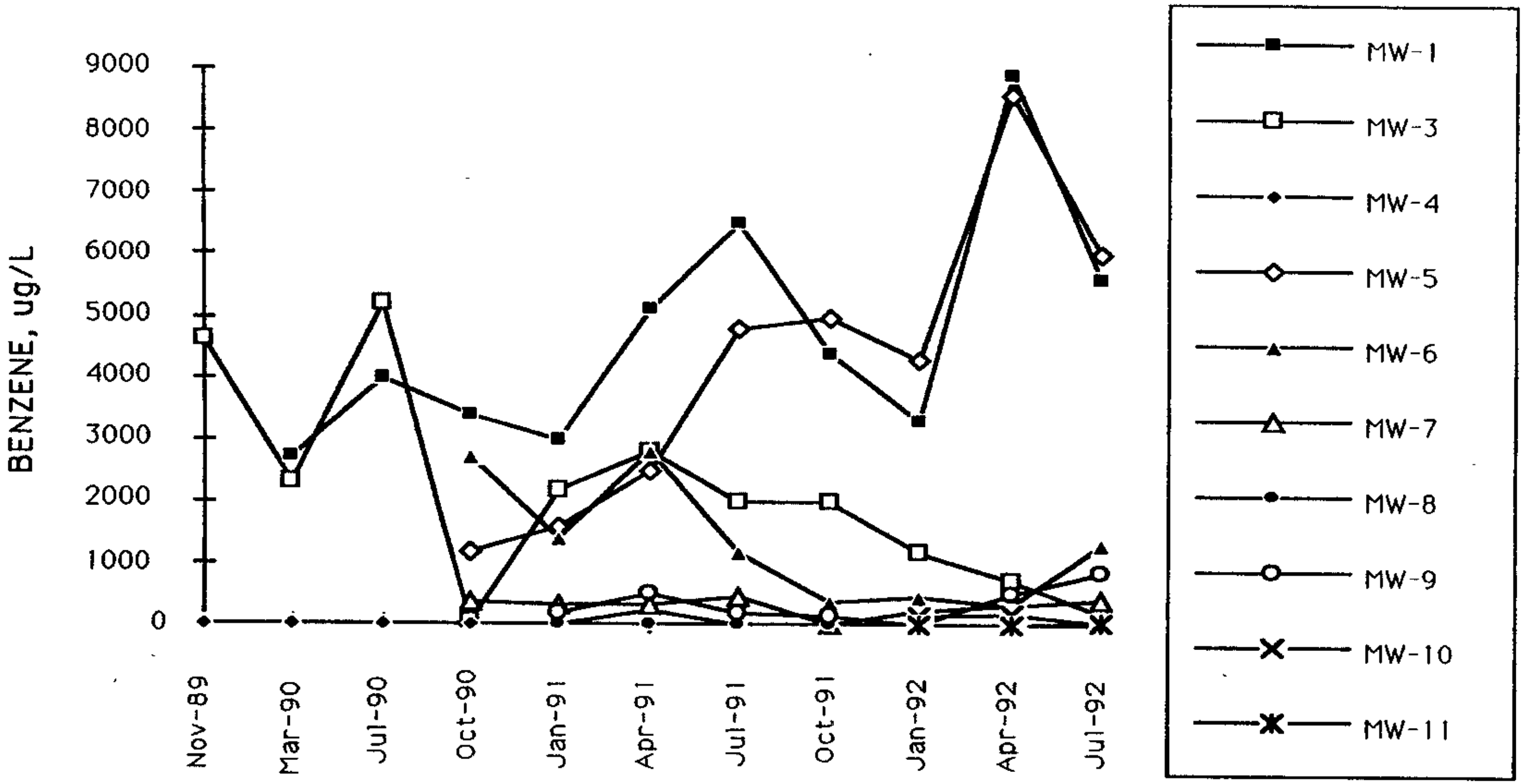
MONITORING WELL 11

	Jan-92	Apr-92	Jul-92
Gasoline(mg/L)	8.2	0.16	2.1
Diesel(mg/L)	*3.2	*1.2	*0.71
Benzene(ug/L)	23	ND	39
Ethylbenzene(ug/L)	250	ND	100
Toluene(ug/L)	ND	ND	2.3
Xylenes(ug/L)	1100	ND	53
1,2-Dichloroethane(ug/L)	ND	ND	ND
Tetrachloroethene(ug/L)	ND	ND	ND

ABANDONED WELL

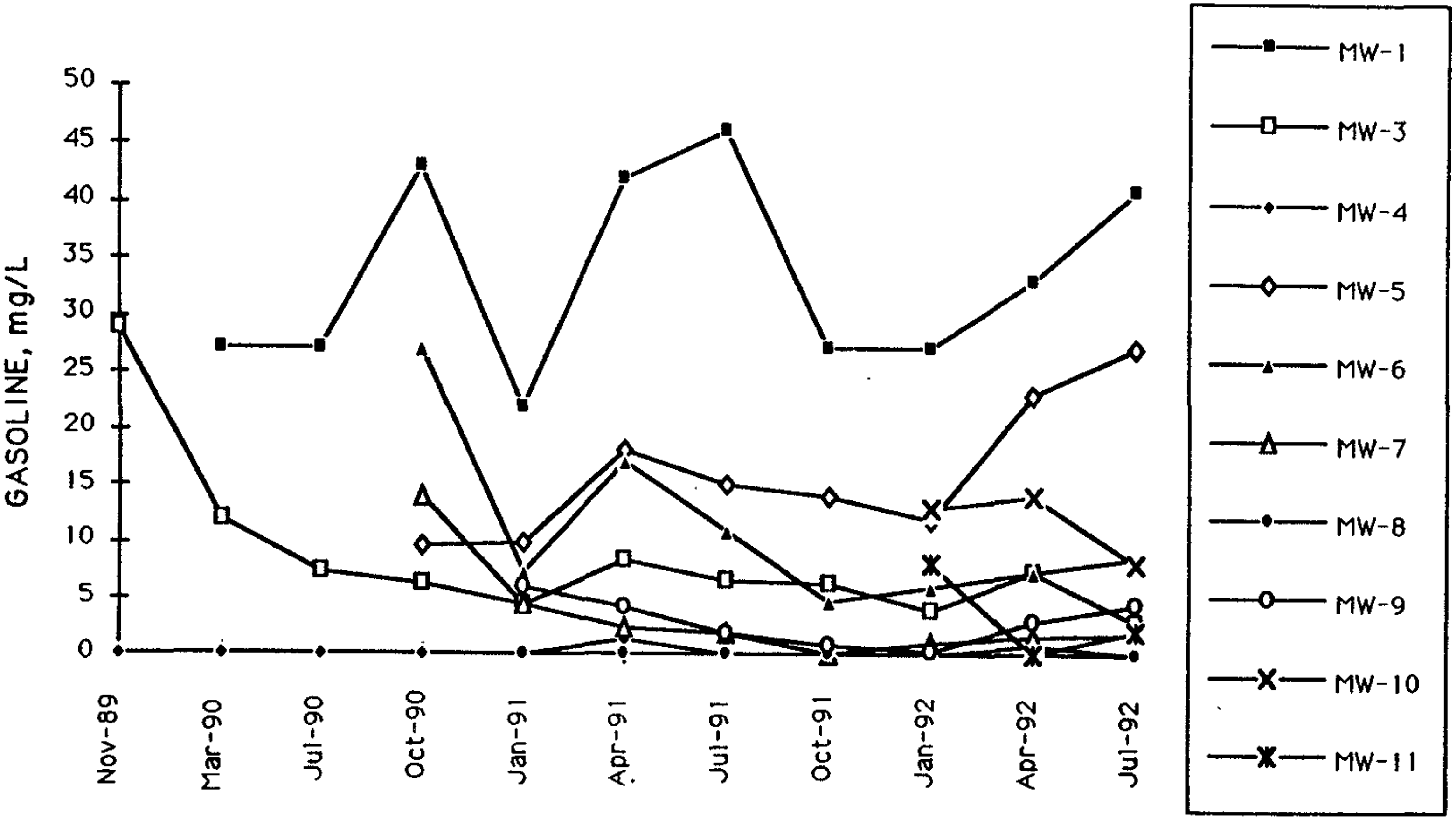
	Dec-89
Gasoline(mg/L)	1.8
Benzene(ug/L)	200
Ethylbenzene(ug/L)	24
Toluene(ug/L)	18
Xylenes(ug/L)	34
1,2-Dichloroethane(ug/L)	1.5

* The positive result for the Petroleum Hydrocarbon as Diesel analysis on this sample appears to be a lighter hydrocarbon than Diesel.



CTTS , Inc.
toxic technology services
P.O. Box 515 • Rodeo, California 94572
(510) 799-1140

Benzene (ug/L) in Groundwater
Durham Transportation
Meekland Avenue, Hayward, California



CTTS , Inc.

toxic technology services

P.O. Box 515 • Rodeo, California 94572

(510) 799-1140

Gasoline (mg/L) in Groundwater

Durham Transportation

Meekland Avenue, Hayward, California

APPENDIX D

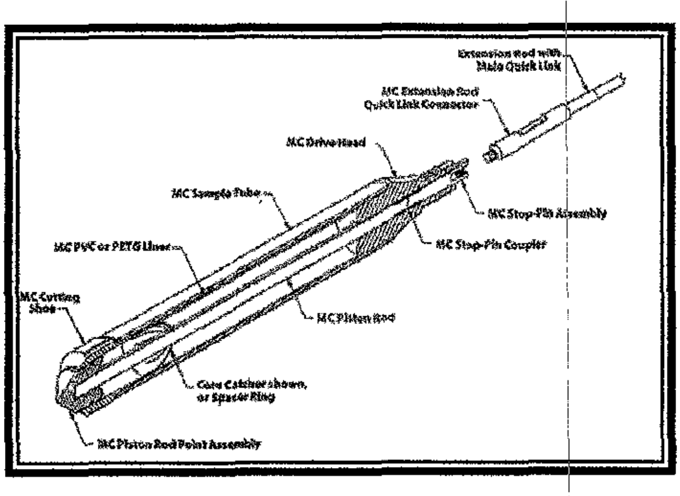
Field Methodology

- Field Methodology for Hydraulic Driven Probes
- Site Health and Safety Plan
- Monitoring Well Sampling

Field Methodology
Hydraulic Driven Probes

Using Macro-Core®, Large Bore® or Dual Tube® Hydraulic Driven Probes

Direct push exploratory borings are "drilled" Geo-Probe rig which hydraulically drives and vibrates steel probes into the soil. No drill cuttings are produced. This sampling technology has the ability for either continuous or discrete sampling using a 4-foot long nickel-plated sampling probes fitted with clear acetate liners. During coring operations, the sampler remains open as it is driven into undisturbed soil over it's entire 4-foot sampling interval. After drilling, all exploratory boreholes are grouted according to county regulations



The soil cores are logged by an experienced geologist using the Unified Soil Classification System (USCS), noting in particular, the lithology of the soils, moisture content, and any unusual odor or discoloration. Relatively undisturbed soil samples are obtained for both lithologic logging and laboratory analysis. A portion of individual soil cores are stored in a sealed plastic bags for field screening of hydrocarbons and/or volatile organic compounds by an Organic Vapor Analyzer (Photoionization Detector, PID). Vapor readings in parts per million (ppm) are recorded on the boring logs. The PID is also used during drilling for monitoring the work area for site safety.

All drilling equipment is steam cleaned prior to arriving on-site to prevent possible transfer of contamination from another site. The sampling probe and all other soil sampling equipment are thoroughly cleaned between each sampling event by washing in a Liqui-Nox or Alconox solution followed by a double rinsing with distilled water to prevent the transfer of contamination.

Samples Targeted for Laboratory Analysis: Soil samples targeted for laboratory analysis are immediately protected at both ends with Teflon tape, sealed with non-reactive caps, taped, labeled, and immediately stored in an insulated container cooled with blue ice. A portion of the soil is placed in a baggie and the soil gas is measured using the PID. Groundwater samples are collected after temporary casing is placed in the hole and four to ten borehole volumes are purged. Relatively representative groundwater samples are collected with individual disposable acrylic bailers and dispensed directly into containers specifically prepared for the analyses. Once collected, groundwater samples are immediately placed in ice chests cooled with blue ice. Soil and groundwater samples are then transported to a State-certified laboratory under appropriate chain-of-custody documents.

Monitoring Well Groundwater Sampling

Weber, Hayes and Associates' (WHA) groundwater monitoring field methodology is based on procedures specified in the *LUFT Field Manual*. The first step in groundwater well sampling is for WHA field personnel to measure the depth-to-groundwater to the nearest hundredth (0.01) of a foot with an electric sounder. If the well appears to be pressurized, or the groundwater level is fluctuating, measurements are made until the groundwater levels stabilizes, and a final depth-to groundwater measurement is taken and recorded. After the depth-to-groundwater is measured, the well is then checked for the presence of free product with a clear, disposable polyethylene bailer. If free product is present, the thickness of the layer is recorded, and the product is bailed to a sheen. All field data (depth-to-groundwater, well purge volume, physical parameters, and sampling method) is recorded on field data sheets. Because removing free product may skew the data, wells that contain free product are not used in groundwater elevation and gradient calculations.

After measuring the depth-to-groundwater, each well, starting with the cleanest well (based on analytical results from the last sampling event), is purged with a low flow submersible electric pump. During purging the physical parameters of temperature, conductivity, pH, dissolved oxygen (D.O.) concentration, and Oxidation-Reduction Potential (ORP) of the purge water are monitored with a QED MP20 Micropurge Flow Through Cell equipped meter to insure that these parameters have stabilized (are within ~ 15 percent of the previous measurement). The QED MP20 meter is capable of continuously monitoring the physical parameters of the purge water via the flow through cell and providing an alarm to indicate when the physical parameters have stabilized to the users specifications. Purging is determined to be complete (stabilized aquifer conditions reached) after the removal of approximately three to five well volumes of water or when the physical parameters have stabilized. Dissolved oxygen and ORP measurements are used as an indicator of intrinsic bioremediation within the contaminant plume. All field instruments are calibrated before use.

All purge water is stored on site in DOT-approved, 55-gallon drums for disposal by a state-licensed contractor pending laboratory analysis for fuel hydrocarbons.

After purging, the water level in the well is allowed to recover to 80 percent of its original depth before a sample is collected. After water level recovery, a groundwater sample is collected from each well with a new, disposable bailer, and decanted into the appropriate laboratory-supplied sample container(s). The sample containers at this site were 40-ml. vials. Each vial was filled until a convex meniscus formed above the vial rim, then sealed with a Teflon®-septum cap, and inverted to insure that there were no air bubbles or head space in the vial. All samples are labeled in the field and transported in insulated containers cooled with blue ice to state-certified laboratories under proper chain of custody procedures.

All field and sampling equipment is decontaminated before, between, and after measurements or sampling by washing in an Liqui-Nox and tap water solution, rinsing with tap water, and rinsing with distilled water.

Weber, Hayes & Associates
Hydrogeology and Environmental Engineering
120 Westgate Dr., Watsonville, CA 95076
(831) 722-3580 (831) 662-3100
Fax: (831) 722-1159

SITE HEALTH AND SAFETY PLAN
FOR A
SOIL AND GROUNDWATER INVESTIGATION WORKPLAN
(JULY-AUGUST, 2004)

Job Name and Job Number: *Former Harbert Transportation Facility / H9042*

Client: *Jerry Harbert (Harbert Transportation) & Mike Nolte (Durham Transportation)*
c/o; Jeff Lawson, Silicon Valley Law Group
152 North Third Street, Suite 900
San Jose, California 95112

Site Location: *19984 Meekland Avenue*
Hayward, California

Type Of Facility/Current Usage Of Property: *Former Maintenance and Fueling Facility / Currently Vacant Lot*

Contractors/Subcontractors On Site: Enprob Environmental Probing Inc. Contact: Dennis Ott @ (530) 589-2019
Exploration Geoservices Contact: Bruce McCall @ (408) 280-6822

Lead Regulatory Agency: *Alameda County Environmental Health Services* - Environmental Protection
Case Officer Contact: Scott Seery, Hazardous Materials Specialist

SCOPE OF WORK

Drilling borings for obtaining soil and groundwater sample for confirming whether or not Iinterim Remedial Actions were successful.

Hazards that may be encountered with this scope of work will likely be associated with heavy equipment and noise. All workers/visitors that are on site must be aware of these potential hazards and take precautions to ensure site safety.

Site Activities (Check those that apply)

X Driven Probe and/or Hollow Stem Auger Drilling	*Work in traffic area* ***heavy equipment***
X Soil Sampling	*Tank Excavation*
Trenching	*X Grab Groundwater Sampling*
Soil Excavation	*Large Diameter Borehole*

If excavations or drilling is planned, call Underground Service Alert @ 1 800 642-2444 [USA Ticket No.:# pending]

Physical Hazards (Check and briefly describe source)

Noise: ***Heavy equipment***
Traffic: ***none anticipated***
Overhead Hazards: *none*
Excavation/Trenches: *none*
Underground Hazards: *none anticipated*

Level Of Protection - Is OSHA training for Hazardous Waste Operations required on this job?____ *No* [✓ *Yes*]

Hazardous/Regulated Substances Anticipated? [✓ *No*;] ____ *Yes.*

Anticipated Hazardous or Regulated Substances

Refer to the "Warning Concentrations" and "Health Effects" summaries stapled to this form for details on substances.

NAME (CAS #)	*EXPECTED CONCENTRATION* ☐ *Soil* ☐ *Water* ☐ *Air*	*HEALTH EFFECTS*
▸*TPH-Gas, BTEX*	▸ *Low Level*	▸ *dizziness, headaches*

Equipment (Check appropriate level) A: ☐ B: ☐ C: ☐ [✓ D]

Personal Protective Equipment (R = required, A = As needed)

Hard Hat: A	Eyewear (type) **A**
Safety Boots **R**	Respirator (type) **A** *(½-face minimum)*
Orange Vest **A**	Filter (type) **A** (organic vapor)
Hearing Protection **R**	Gloves (type) **A** nitrile
Tyvek Coveralls **A**	Other

Hospital/Clinic: *St. Rose Hospital*
27200 Calaroga Avenue, Hayward
Emergency Phone: 911

Fire Department Phone Number *911*
Paramedic Phone Number: *911*
Police Department Phone Number: *911*

Hospital Directions: *880 south to West Tennyson Exit, yield right, Hospital on corner*

Emergency/Contingency Plans and Procedures: *Mobile Phone contact with emergency personnel. (831) 334-2237*

Site Hazard Information Provided By: *Aaron Bierman,* Site Safety Officer Cell Phone #: (831) 334-2237

PRINT NAME & INITIAL

FOLLOWING TAILGATE MEETING AND SAFETY INSPECTION

APPENDIX E

Regulatory Correspondence

- **Dec-2, 2004 Directive, Alameda County Health Care Services Agency**

- **Email from Roger Brewer, regarding acceptability of RSBLs proposed in the WHA report: *Proposed Site Cleanup Goals*, dated March 27, 2003.**
(As per ACEH request, dated Dec-2, 2004)

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

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

December 2, 2004

Jerry Harbert
46765 Mountain Cove Dr.
Indian Wells, CA 92210

Gregg Petersen
Durham Transportation, Inc.
9001 Mountain Ridge Dr., Ste. 200
Austin, Texas 78759

Subject: Fuel Leak Case No. RO0000047, Durham Transportation, 19984 Meekland Avenue, Hayward, California – Request for Workplan Modification

Dear Mr. Harbert:

Alameda County Environmental Health (ACEH) has reviewed the July 30, 2004 *Soil and Groundwater Investigation Workplan* prepared by Weber, Hayes and Associates and the case file for the above-referenced site. Three documents were submitted in response to ACEH's May 13, 2004 directive: July 30, 2004 *Revised Site Conceptual Model*; October 14, 2004 *Semi-Annual Groundwater Monitoring Report*; and the workplan referenced above. ACEH made four requests in our May 13, 2004 letter:

- An updated Site Conceptual Model (SCM);
- A workplan for additional soil and groundwater investigation;
- Revised cleanup levels; and
- Ongoing semi-annual groundwater monitoring.

To date, the site conceptual model has not been suitably revised and your workplan does not adequately address the concerns identified in our May 13, 2004 letter. We reiterate our request that you update your site conceptual model, and we request that you revise your workplan to address the following comments. Please submit the requested addendum following the schedule below.

TECHNICAL COMMENTS

1) Assessment of Deeper Water-Bearing Zone

We reiterate our May 13, 2004, request that you refine your understanding of the regional and site hydrogeology. We concur with Weber, Hayes' proposal to evaluate the potential impact to deeper groundwater by drilling and sampling boring CDP-1 adjacent to the former production well location; however, no depth range for sampling was proposed. Prior to approving your sampling plan, ACEH requires additional information. Using the information from the well survey (see Comment 2, below), we request that you determine likely depths and thicknesses of the Newark Aquifer (Shallow Aquifer and main portion), the Newark Aquitard and other lithologic units beneath the site. Weber, Hayes states that the Newark Aquifer is most likely the primary production zone for most of the area's private irrigation and domestic wells. Please i) determine the likely depth of the Newark Aquifer beneath the site, ii) evaluate the likelihood of the former onsite production well being screened within the Newark Aquifer, and iii) report your findings in the workplan addendum requested below.

2) Well Survey

We reiterate our May 13, 2004, request that you review all driller's logs available from the DWR and ACPWA for wells within 1/2 mile of the site. Tasks 2 and 3 in Weber, Hayes' July 30, 2004 workplan are acceptable as proposed to meet our request. As stated in our May 13, 2004 letter, your well survey will provide additional lithologic data which needs to be incorporated in your cross-sections and will provide the basis for your sampling plan. Accordingly, this task needs to be complete prior to proposing additional site investigation. Please note that ACEH requires that you provide location addresses and copies of DWR driller's reports for all wells identified in your survey. Please perform the requested well survey, update your SCM as necessary, and report your findings in the workplan addendum requested below.

3) Site Map

We reiterate our May 13, 2004, request that you prepare a revised map of the site and downgradient area. Toward this request, Task 4 in Weber, Hayes' July 30, 2004 workplan is acceptable as proposed; however, additional work is necessary to fully respond to our request. In addition to surveying monitoring well locations, our May 13, 2004, letter requested that you map additional structures in the site vicinity. Your revised map needs to include former fuel island and UST piping locations, offsite buildings, and other structures to help clearly identify the physical location of your plume and its potential impacts. In meeting this requirement, we suggest that you accordingly revise Figure 2 in both Weber, Hayes' workplan and SCM, provided that this figure is to scale and that additional area north and west of the subject site is shown. Please prepare the revised site map, update your SCM as necessary, and report your findings in the workplan addendum requested below.

4) Cleanup Levels

The site USTs were removed in 1989, and approximately 594 cubic yards of contaminated soil were removed from the site in 2002. The source has been substantially removed and residual soil concentrations are below the RWQCB-SFBR ESLs. However, site groundwater was most recently sampled on September 23, 2004, and the highest detected concentrations for the event were 7,000 ug/L TPHg, 470 ug/L benzene, 86 ug/L toluene, 1,000 ug/L ethylbenzene, and 2,200 ug/L xylenes, detected in onsite monitoring well MW-5. The 2002 soil excavation appears to have had minimal, if any, impact on dissolved petroleum hydrocarbon concentration trends. Groundwater hydrocarbon concentrations have generally remained stable over the past 3 years. Weber, Hayes stated in their July 2, 2003 *Groundwater Monitoring Report* that dissolved oxygen concentrations measured in site monitoring wells suggest that aerobic biodegradation of petroleum hydrocarbons is occurring at the site; however, no evaluation of the degradation rate or the contaminant mass remaining has been performed.

Weber, Hayes proposes modified cleanup levels for groundwater as part of their July 30, 2004 Revised SCM. California DHS drinking water Maximum Contaminant Levels (MCLs) multiplied by a dilution attenuation factor (DAF) of 10 was suggested as a preliminary level for onsite groundwater. Based on the investigation data submitted to date, no onsite or offsite water wells have been or are likely to be impacted by the release. Accordingly, ACEH concurs that a DAF of 10 would likely be protective of potential receptors. However, we question Weber, Hayes' selection of drinking water screening levels, as they do not consistently select the most conservative levels, and their rationale supporting selection of the various screening levels is not clear.

For example, Weber, Hayes proposes an ethylbenzene level of 7,000 ug/L presumably based on the historical ethylbenzene MCL. In September 2003, DHS revised the ethylbenzene MCL downward to 300 ug/L (22 CCR section 64431), and the RWQCB-SFBR ESLs specify an action level of 30 ug/L based on the USEPA secondary MCL. Further, Weber, Hayes' proposed cleanup goals for TPHg, toluene and xylenes are not based on the most conservative screening levels as summarized in the RWQCB-SFBR ESLs. Weber, Hayes' provides no justification to support their selection. Accordingly, ACEH cannot concur with the proposed cleanup levels for ethylbenzene, toluene, xylenes and TPHg. ACEH finds the proposed onsite groundwater levels of 10 ug/L benzene and 50 ug/L MTBE to be based on the most conservative drinking water standards, and protective of human health and the environment with respect to other potential exposure pathways; and therefore acceptable as preliminary levels for active site remediation.

In reconsidering your proposed cleanup levels, please note that the June 1999 *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report* by the RWQCB-SFBR identifies the site's groundwater basin as having both potential and existing beneficial use for municipal water supply. Further, the July 1995 *San Francisco Bay Basin Water Quality Control Plan* (the Basin Plan) indicates that water quality objectives for this area need to be protective of municipal supply. The Basin Plan refers to the RWQCB-CVR report *A Compilation of Water Quality Goals* (most recent version dated August 2003) as a potential source of current water quality numerical objectives; these same figures can be found in the RWQCB-ESLs, Tables F-1a, F-3 and I-1. We request that you propose revised cleanup levels for groundwater that are protective of all current and foreseeable future potential receptors likely to be affected by your groundwater plume. In addition, we request that you identify the applicable cleanup goals (i.e. water quality objectives) for your site.

Please note that SWRCB Resolution No. 92-49 specifies compliance with cleanup goals and objectives within a reasonable time frame. Therefore, according to the SWRCB, even if the requisite level of water quality has not yet been attained, a site may be closed if the level will be attained within a reasonable period. Active remediation to reduce onsite groundwater concentrations to Basin Plan water quality objectives, or even to within an order of magnitude of these objectives, may not be technically or economically feasible. Accordingly, we recommend that you evaluate i) the historic and likely future rates of biodegradation, ii) the likely time period required for intrinsic bioremediation of the site to achieve cleanup goals, and iii) the reasonableness of the anticipated time frame in the context of existing basin and potential future onsite groundwater use. Provided that Basin Plan water quality objectives will be achieved within a reasonable time period, and that the site otherwise qualifies as a low risk groundwater case, ACEH will consider your case for closure. Please present your modified cleanup levels, including rationale supporting your selection, and state the applicable cleanup goals (i.e., water quality objectives) in the workplan addendum requested below.

5) Chemical Analyses

In the Revised SCM, Weber, Hayes states that the previous detection of 2,100 ug/L lead in site groundwater may have been the result of improper sample collection methods; however, no data is presented to substantiate this claim. Please revise your sampling plan to include total lead, in the workplan addendum requested below. Also, we recommend that you evaluate intrinsic biodegradation that may be occurring at your site. Accordingly, as part of future groundwater monitoring events, please collect and analyze groundwater samples from both within and surrounding the contaminant plume for bioparameters, including: DO, ORP, methane, nitrate, sulfate, and dissolved ferrous iron.

6) Site Conceptual Model

We request that you update your site conceptual model to incorporate the results of additional work performed pursuant to comments 1 through 4 above. In addition, Weber, Hayes' July 30, 2004, *Revised SCM* needs to be further revised to include the following:

A. Summary tables of chemical concentrations in each historically sampled media (including soil, groundwater and soil vapor). Tables need to include all historical data (soil and groundwater since 1986) for the site.

B. Evaluation of the likely time period required for the site to meet water quality objectives. Your evaluation needs to be based on historical trends, intrinsic bioremediation, and contaminant mass remaining in soil and groundwater. This data is requested to support the statements regarding natural attenuation made by Weber, Hayes in their August 22, 2003, closure request and in their March 27, 2003, letter regarding revised site specific cleanup goals.

C. Current status of assessment of risk to human health and the environment posed by residual contamination at the site. Please submit a copy of the April 18, 2003 RWQCB email referenced in the Revised SCM, and please reference the appropriate current documents.

7) Investigation Report

In addition to the report elements proposed by Weber, Hayes, ACEH requests that your final investigation report include the supporting documentation listed below.

A. Updated local and regional maps showing location of sources, extent of soil and groundwater contamination for appropriate depth intervals.

B. Updated geologic cross-sections (parallel and perpendicular to the contaminant plume axis).

C. Identification and listing of any data gaps that require further investigation during subsequent phases of work.

D. If necessary, proposed activities to investigate and fill data gaps identified above.

TECHNICAL REPORT REQUESTS

Please submit reports to ACEH according to the following schedule:

- January 20, 2005 – Workplan Addendum with SCM (please submit a combined single document)
- 90 days after Workplan Approval – Soil and Water Investigation Report
- March 31, 2005 – First Semi-Annual Monitoring Report
- September 30, 2005 - Second Semi-Annual Monitoring Report

ACEH makes this request pursuant to California Health & Safety Code Section 25296.10. CCR Title 23 Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to a reportable unauthorized release from a petroleum UST system, and require your compliance with this request.

Perjury Statement

All workplans and technical reports submitted to ACEH must be accompanied by a cover letter from the responsible party that states the following: "I declare under penalty of perjury, that the information and/or recommendations contained in the attached proposal or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company.

Professional Certification

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that workplans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. Please note that to be considered a valid technical report you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature and statement of professional certification. Work at your site is required to be designed, interpreted, and overseen by the appropriately registered professional.

AGENCY OVERSIGHT

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

Please call me at (510) 567-6719 with any questions regarding this case.

Sincerely,

Robert W. Schultz, R.G.
Hazardous Materials Specialist

cc: Jeff Lawson, Silicon Valley Law Group, 25 Metro Dr., Ste. 600, San Jose, CA 95110
Pat Hoban, Weber, Hayes and Associates, 120 Westgate Dr., Watsonville, CA 95076
Mee Ling Tung, ACEH
Donna Drogos, ACEH
Robert Schultz, ACEH

Craig Drizin

'rom: "Roger Brewer" <Rdb@rb2.swrcb.ca.gov>
ent: Friday, April 18, 2003 8:17 AM
Subject: 19984 Meekland (from Roger)

Scott,
I received a copy of a March 27, 2003, "Proposed Site Cleanup Goals" report for the 19984 Meekland site in Hayward and got a followup call from the consultant. You're on the cc list so I assume you are the project manager.

They propose using the less stringent RBSLs for clayey soils at the site. It the absence of soil grains size data, they should instead use the more conservative RBSLs for coarse-grained soils. Based on the soil and groundwater they submitted, it shouldn't make a difference as they would pass wither way.

One note - We should be flexible on the 84 ug/L groundwater screening level for benzene (for potential emissions to indoor air). I know it's overly conservative and am working on ways to adjust it upwards in the next update of our RBSL document. Their highest concentration of 170 ug/L benzene from MW-5 last year is not that significant.

Roger

Craig Drizin

From: "Roger Brewer" <Rdb@rb2.swrcb.ca.gov>
To: <craig@weber-hayes.com>
Sent: Friday, April 18, 2003 10:50 AM
Attach: 19984 Meekland (from Roger).eml
Subject: Fwd: 19984 Meekland (from Roger)

See attached note to Scott.

Roger