Touchstone Developments
Environmental Management

REMEDIATION WORK PLAN
SOIL REMEDIATION
FORMER ALAMEDA BULK PLANT
2001 VERSAILLES ROAD
ALAMEDA, CALIFORNIA

Prepared for
Chevron U.S.A. Products Company

Prepared By
Touchstone Developments

OCTOBER 10, 1995

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ALAMEDA, CALIFORNIA

1.0 INTRODUCTION

This work plan is prepared on behalf of Chevron U.S.A. Products Company and discusses the soil remediation of the Former Alameda Bulk Plant in Alameda, California (Figure 1). The purpose of the work plan is to describe the activities associated with the excavation and remediation of known hydrocarbon impacted soils on-site. All work will be performed in accordance with Regional Water Quality Control Board - San Francisco Bay Region (RWQCB) and Alameda County Environmental Health Department (ACEHD) guidelines, and typical industry operational procedures.

2.0 BACKGROUND

The former Alameda Bulk Plant is located within the City and County of Alameda and is bordered by Versailles Avenue on the east and Fernside Boulevard on the south. Historic use of the site, by a number of prior owners and tenants, was for bulk storage and loading of gasoline, diesel, lubricant fluids and other petroleum products. The facility has been abandoned and the site is currently a vacant lot. Residential housing is proposed as the next use of the site.

A predecessor company of Chevron USA Products Company (Chevron) was one of many tenants of the site who used the area for storage and loading of petroleum products. Recent litigation has designated Chevron to design and implement remediation at the site with cost sharing by others. Chevron will be the primary liaison between ACEHD and all other responsible parties.

Investigation activities at the site began in 1984 (Kennedy/Jenks, April 1984). Borings, monitoring wells, and exploratory trenches have been installed (Figure 2). The most recent field investigation was performed in June of 1995 by Touchstone Developments. The historic soil data (Table A) has been compiled into a series of contour maps that attempt to define the extent of hydrocarbon impacted soil in the subsurface (Figures 3 through 6). Based on the data, excavation is proposed for six areas on-site.

2.1 Site Conditions

Depth to groundwater at the site varies between 5.5 feet and 10 feet below grade surface (bgs) based on groundwater levels encountered during boring installation in June of 1995. Based on analytical data from groundwater monitoring wells, groundwater does not appear to be significantly impacted with petroleum hydrocarbons (Table B).

Lithology at the site is a mixture of sand, clay and fill materials. Bay mud is encountered at lower depths beneath groundwater. A variety of hydrocarbons have been encountered in the subsurface including total petroleum hydrocarbons (TPH) as gasoline, diesel, and oil and grease (Table A).

3.0 SCOPE OF WORK

The objective of the project is to remove the hydrocarbon impacted soil source areas and protect groundwater. A thorough site investigation has been performed. Several options were explored to determine the most cost effective, and viable remediation approach for the site. Our scope of work will be to excavate and aerate impacted soils and abandon existing facilities which include one remaining underground storage tank (UST).

3.1 Proposed Clean-up Criteria

The site is anticipated to be reclaimed for residential use. Initial discussions with ACEHD determined that the Region IX Preliminary Remediation Goals (PRGs) guidance document would be acceptable remediation criteria for the shallow (0-4 ft bgs) root zone area for BTEX constituents. It was believed that less stringent guidelines, based on health risk, would be acceptable between the root zone and ground water. However, due to the current shallow depth of ground water, it is more cost effective to establish only one remediation criteria. We propose to use the Region IX PRG's (August 1994) as our guideline for all soil on-site.

Based on earlier discussions with Alameda County and review of risk criteria, the following target remediation levels are proposed:

SAMPLE DEPTH	BENZENE (ppm)	TOLUENE (ppm)	ETHYL-BENZENE (ppm)	XYLENES (ppm)	TPH-Gas (ppm)	TPH-diesel (ppm)	Oil and Grease (ppm)	Lead (ppm)
soil water interface/ total depth	1.9 ✓	870 ✓	3400 ✓	980 ✓	100	500	500	300 not to exceed 840 ppm
	1.4	1900	2900	980	mg/kg		2/1/95 PRG	

3.2 Excavation

The following approach to the soil remediation is proposed. Based on investigation data, the site has been divided into six source areas (Figure 7), classified by Chevron as:

* The area at the corner of Fernside and Versailles Avenue, adjacent to the alleged 1000 gallon UST still in place (Area 1)
* The former UST vault (Area 2)
* The former drum storage area (Area 3)
* The warehouse (Area 4)
* The pump house, including manifold lines (Area 5)
* The above ground storage tank (AST) area on the north end of the site (Area 6)

Excavation will be performed in all six areas, with limits determined by existing field data from the site investigations (Figure 8). Limits of excavation may be expanded based on analytical data

from confirmation samples if it is necessary to meet clean-up criteria.

Underground storage tanks and dispenser facilities (if encountered) will be removed from the site. Standard protocol for tank removal and abandonment will be followed. Soil and groundwater samples (if necessary) from the excavation areas will be collected according to ACEHD and RWQCB guidelines. Samples will be analyzed using appropriate EPA analytical methods at a California State-certified laboratory. Results of soil and groundwater sampling will be evaluated to further define excavation limits.

Field screening will be performed visually and/or with a hand-held photoionization detector (PID) in areas with volatile constituents. A Hanby field test kit will be used in areas with diesel or oil and grease contamination. Proposed excavation dimension limits may change slightly based on field observations and conditions. Verification soil samples will be collected at the base of the excavation (if above groundwater), or at the soil/water interface. It is anticipated that groundwater will be the vertical limit of the excavations, however, saturated soil may be removed in areas where previous samples indicate that soil contamination is now below the water table.

Each of the six remediation areas is described below, with limits of excavation, sample number, and rationale for analytical testing. This data is summarized in Table C for easy reference.

Area 1: UST in Place

Previous investigation reports have concluded that all subsurface structures were removed in the late 1980s. However, Kleinfelder, during field activities in 1990, described a 1000 gallon UST in-place in this area, and uncovered at 3 feet bgs. A permit will be obtained to remove this UST if, in fact, it is still in-place.

After UST removal, overexcavation is anticipated to occur in an approximate 20 foot by 20 foot area around Kleinfelder sample 44721, previously reported to have levels of 2600 ppm TPH-diesel. Confirmatory samples will be collected from the excavation sidewalls (4 total). The deepest historic soil sample was collected at 5.5 feet bgs. This depth, or the depth of the UST excavation (if applicable) will be the vertical limit.

+BTEX

Historic analytical data indicates that the TPH-gasoline and aromatic constituents are at, or below clean-up criteria. The proposed analytical for the four confirmation samples is TPH-diesel and oil and grease analysis on all four, and TPH-gasoline and benzene, toluene, ethylbenzene, and xylene (BTEX) analysis for two of the samples based on field screening with a PID.

+ TOG on 2 is okay.

Area 2: Former UST Vault

Three gasoline USTs were previously removed from this location. One soil sample, collected after removal, Kleinfelder 47708, indicates that TPH-gasoline levels may be 670 ppm in the area with detectable concentrations of benzene. An approximately 20 foot by 20 foot area will be excavated until groundwater is encountered, or 7.5 feet bgs, whichever is greater. Confirmation

samples (4) will be collected from the soil/water interface.

The deepest soil sample in this area (Kleinfelder 47702) was collected at 9 feet bgs, and was non-detectable for all constituents tested. Low levels of chlorinated solvents detected in April of 1984 have been dismissed as laboratory contamination. Diesel and oil and grease levels have been tested, and are below remediation levels. Therefore, all four confirmatory samples will be tested for TPH-gas and BTEX constituents. One sample will be tested for TPH-diesel and Oil and grease, EPA 8010 and EPA 8270 to confirm low levels. This sample will be selected based on the highest Hanby test results. OK

↖ this may not be necessary.

Area 3: Former Drum Storage Area

One soil sample collected from Area 3, Kleinfelder 47700, indicates that TPH-gasoline levels may be 190 ppm in the area. An approximately 20 foot by 20 foot area will be excavated until groundwater is encountered or 7 feet bgs, whichever is greater. Confirmation samples (4) will be collected from the excavation sidewalls at the soil/water interface.

The number of soil samples in this area are limited, however, TPH-diesel and oil and grease are suspected to be below remediation limits. The proposed confirmatory analytical program for this area is for all four samples to be tested for TPH-gas/BTEX, with two samples also tested for TPH-diesel, oil and grease EPA 8270 and 8010. * based on only 1 sp

not necessary.

Area 4: Warehouse

Two sections of the former warehouse will be excavated in this location. One, 25 feet by 25 feet, concentric to Kleinfelder sample 47715, is proposed due to 1100 ppm TPH-gasoline detected in this location. The second area, approximately 30 feet by 20 feet, inclusive of Kleinfelder sample 47712 and soil boring SB-7, is anticipated to contain soil impacted by gasoline and diesel hydrocarbons. Confirmatory samples will be collected from excavation sidewalls. The deepest historic sample collected in this area is 5 feet bgs. It is anticipated that 5-6 feet bgs will be the vertical limit of the excavation.

The area around Kleinfelder sample 47715 will be designated as Area 4-1. Soil from this area has been identified to have high levels of TPH-gas, but low levels of the diesel and oil and grease constituents. Four samples will be collected, one from each sidewall. All samples will be tested for TPH-gas and BTEX. One sample will also be analyzed for TPH-diesel and oil and grease. This sample will be selected based on Hanby test kit results. ← OK

The second excavation area, around Kleinfelder sample 47712, will be designated as Area 4-2. This area has a mixture of both "light" and "heavy" petroleum compounds. The excavation area is large enough that six sidewall samples is justified. All samples will be analyzed for TPH-gas/BTEX, TPH-diesel, and oil and grease.

OK

Several samples have been tested in the area for solvent constituents using EPA methods 8010 and 8270. All previous results have shown non-detectable levels of these hydrocarbons in the

area, and therefore they will not be tested for in the confirmation samples.

Area 5: Manifold Lines, Pump House

Manifold lines (if encountered) will be removed and the area excavated to groundwater, or 7 feet bgs, which ever is greater. Samples collected previously at 10 feet bgs showed non-detectable levels of constituents tested. Anticipated lateral dimensions of the excavation are 50 feet by 40 feet. Samples will be collected from the excavation sidewalls on approximately 20 foot centers (estimated 8 total) at the soil/water interface.

Both TPH-gas and TPH-diesel are present in the area. All eight samples will be tested for TPH-gas/BTEX. Four samples (one from each sidewall) will also be tested for TPH-diesel and oil and grease.

Several samples have been tested in the area for solvent constituents using EPA methods 8010 and 8270. All previous results have shown non-detectable levels of these hydrocarbons in the area, and therefore they will not be tested for in the confirmation samples.

Area 6: Former ASTs

Three discrete locations will be excavated in the vicinity of the former ASTs:

1) The first is inclusive of Kleinfelder samples 47698 and 47699, and soil boring SB-8. The approximate dimensions of proposed excavation are 25 feet by 40 feet. Total depth of the excavation is anticipated to be groundwater or 7.5 feet bgs whichever is greater.
2) The second area is in the location of SB-9. The dimension of the excavation will be approximately 20 feet by 15 feet with a total depth anticipated to be 8 feet.
3) The third area is anticipated to be twenty feet by twenty feet in the location of Kleinfelder sample 47704. Total depth is anticipated to be groundwater or 8 feet bgs, whichever is greater.

Verification samples will be collected from excavation sidewalls on twenty foot centers (a total of 4 or 6 per excavation) at the soil/water interface.

The excavation area around SB-8 will be designated as Area 6-1. Six samples will likely be collected from the excavation sidewalls. Based on previous tests in the area, all samples should be analyzed for TPH-diesel, with two samples also analyzed for oil and grease. Because volatiles are also indicated to be present, but in lower levels, two samples will also be analyzed to TPH-gas/BTEX to verify that clean-up criteria has been met. – S/B on east end of excavation

The excavation area around SB-9 will be designated at Area 6-2. Four samples will likely be collected from the excavation sidewalls and tested for TPH-diesel. For completeness, two samples will also be tested for oil and grease and TPH-gas/BTEX.

The excavation area around Kleinfelder sample 47704 will be designated as Area 6-3. Four samples will be collected from the excavation sidewalls and tested for TPH-diesel. Two samples will be selected for analysis by TPH-gas/BTEX based on PID reading. One sample will be analyzed for oil and grease based on hanby test kit results. The only EPA 8270 constituents detected on-site are located in this area. To that end all samples in this area will be tested for EPA 8270 compounds.

only one sple required, run same sple as that for oil + grease.

3.3 Continued Field Activities

Based on data currently available, approximately 1585 cubic yards of soil will be removed and stockpiled. Based on verification sampling, additional excavation may be necessary. Soils will be excavated from all known hydrocarbon impacted areas in an attempt to meet remediation objectives. The excavation will continue until one or more of the following conditions are met:

1) Confirmatory soil samples indicate concentrations of hydrocarbons remaining in the soil are below remediation targets. Should confirmation samples reveal residual levels only 10 percent above those proposed, the cost/benefit of further excavation will be evaluated. The cost/benefit analysis may include a more site specific risk evaluation.

2) The extent of the excavation is limited by adjacent improvements, including, but not limited to, sidewalks, utilities and roadways.

3) First occurrence of groundwater, or lowest historic sample depth with detectable concentrations above remediation goals, whichever is greater. (bgs).

4) Practical limits of excavation equipment are reached.

In this phase, confirmation samples will be collected from the sidewalls soil/water interface, or beneath the water table if necessary to verify tha has been remediated. Appropriate side sloping of the excavation will b at all times. An estimation of areas where further excavation may be Figure 9.

Also:
1) MWS ?
2) PRGs - 2/98 levels
3) Contract - prior.

3.4 Sampling Protocol and Methodology

Soil samples will be collected in clean, 6-inch-long, 2-inch diameter, brass sample tubes. Both ends of the tubes will be covered with teflon tape and sealed with plastic end caps. The soil samples will be labeled, entered on the Chain-of-Custody form, and placed in a cooler with ice for transport to a State-certified laboratory.

Soil samples will be analyzed for TPH-gasoline, TPH-diesel and aromatic hydrocarbons (BTEX) according to EPA method 8015/8020 modified. Oil and grease constituents will be analyzed using EPA Method 5520. In select cases verification of the absence of semi-volatile and chlorinated solvents is proposed with the use of EPA methods 8010/8270. Total lead will be

calculated from the DHS Luft preferred methodology (if necessary). It should be noted that all historic lead sampling is several orders of magnitude below clean-up criteria and that lead sampling is not proposed for confirmatory samples.

Groundwater samples will be collected only if field observations indicate that sampling would be prudent and responsible. For example, if odors are detected, or sheen in water accumulating in the excavations, samples will be collected. Water will be sampled directly from the excavations. Water samples will be carefully decanted from a clean, disposable bailer into laboratory supplied VOA vials with no headspace, or other appropriate laboratory supplied containers. These will be labeled, entered on a Chain-of-Custody form and transported on ice to the State-certified laboratory. Groundwater samples will be analyzed for TPH-gas, TPH-diesel, and BTEX for the purposes of treatment and disposal.

3.5 Soil Stockpiles

Soils will be stockpiled on-site based on believed concentrations and constituents of each area.

3.5.1 Soil with Volatile Constituents

Those areas that are believed to be primarily TPH-gas (Area 2, Area 3, Area 4-1, Area 6-3) are candidates for aeration and potential re-use. Field screening with a hand-held OVA or PID will be used to segregate soil into various stockpiles. Soils that read non-detect (ND) on the field screening instrument will be sampled once every 25 cubic yards and composited into one analyzed sample for every 100 cubic yards. If the analytical results indicate that the soil is below 10 ppm TPH-gas, 100 ppm TPH-diesel and ND benzene, the soil will be considered "clean" and stockpiled on-site for future use as backfill. < 500 TOG

Soil that does not meet field screening or analytical criteria will be aerated on-site. All aeration will be conducted in accordance with an air permit received from the Bay Area Air Quality Management District. Soil will be sampled once every 25 cubic yards and composited into one analyzed sample for every 100 cubic yards to attain a baseline reading. Soil will be considered fully remediated when analytical results (one discrete sample per 25 cubic yards) indicate soil is below 10 ppm TPH-gas, 100 ppm TPH-diesel, and ND benzene. Treated soil will be used as backfill, or off-hauled from the site to an approved landfill. ok and < 1ppm total VOC's

3.5.2 Soil with Diesel and Oil and Grease Constituents

Soil with mixed constituents and "heavy" hydrocarbons are not candidates for aeration (Area 1, Area 4-2, Area 5, Area 6-1, Area 6-2) unless passive bioremediation over the last 5 years have lowered diesel and oil and grease levels to those below our proposed remediation levels. Soils will be stockpiled and composite sampled (4 discrete into one composite), for every 100 cubic yards and analyzed for TPH-gas, BTEX, TPH-diesel and oil and grease. If analytical results indicate that the soil is below 10 ppm TPH, 100 ppm-diesel, 100 ppm oil and grease, and ND benzene, the soil will be considered "clean" and stockpiled on-site for future use as backfill. This scenario is not unlikely to occur if care is taken to segregate soils based on previous sample

depth and use of the hanby test kit.

If soils do not meet criteria for re-use, the disposition of soil will be determined based on the amount of soil. It may be cost effective to perform ex-situ remediation using proven biotechnology to meet proposed re-use levels. Alternatively soil will be off-hauled and clean import will be used to backfill excavations.

3.6 Monitoring Well Destruction

Excavation activities may damage the integrity of monitoring wells MW-2, MW-5 or MW-6 (Figure 2). If necessary, these wells will be permitted for destruction and removed using excavation equipment. New wells will be installed at the completion of field activities at the direction of ACEHD. However, if groundwater samples continue to indicate that groundwater is not impacted, all remaining wells will be destroyed upon the approval of ACEHD after final reports are submitted documenting source removal. Wells may need to be relocated prior to new residential construction on-site.

4.0 VERIFICATION MONITORING

Following active soil remediation activities, a groundwater monitoring management program will begin. This will be done to verify groundwater quality through time and determine the effectiveness of the remediation. The specifics of this plan will be determined following excavation activities due to the possibility of abandoning and/or relocating several of the wells. As discussed previously, current monitoring data indicates minimal impact to groundwater.

TABLE A
SOIL SAMPLE RESULTS
Former Alameda Bulk Plant

GASOLINE PETROLEUM HYDROCARBONS

Area	Boring Number	Depth (feet)	Consultant	Date	TPH - gasoline (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Xylene (ppm)
1	B-2	3	Kennedy/Jenks	3/84	NA*	NA	NA	NA	NA
1	SW-2	5-5.5	HLA	11/94	NA	ND	ND	ND	ND
1	47721	4	Kleinfelder	8/90	ND	0.002	0.006	ND	ND
1	SB-1	3	Touchstone	6/29/95	ND	ND	ND	ND	ND
1	SB-1	5	Touchstone	6/29/95	ND	ND	ND	ND	ND
2	B-1	surface	Kennedy/Jenks	3/84	NA*	NA	NA	NA	NA
2	SB-2	5-5.5	HLA	4/85	NA	ND	ND	ND	NA
2	SB-3	5-5.5	HLA	4/85	NA	ND	ND	ND	NA
2	47702	9.0	Kleinfelder	8/90	NA	ND	ND	ND	ND
2	47708	7.5	Kleinfelder	8/90	670	2.9	ND	7	11
2	47717	4.0	Kleinfelder	8/90	0.2	ND	ND	0.001	0.005
2	47720	6.0	Kleinfelder	8/90	9.2	0.003	0.004	0.043	0.028
2	SB-2	3.5	Touchstone	6/29/95	ND	ND	ND	ND	ND
2	SB-2	5	Touchstone	6/29/95	ND	ND	ND	ND	ND
2	SB-4	2.5	Touchstone	6/29/95	ND	ND	ND	ND	ND
2	SB-4	5.5	Touchstone	6/29/95	ND	ND	ND	ND	ND
3	B-4	4.0	Kennedy/Jenks	3/84	NA*	NA	NA	NA	NA
3	W-2	4-5.5	HLA	NA	ND	ND	ND	ND	ND
3	47700	7.0	Kleinfelder	8/90	190	ND	ND	ND	ND

* = samples visually inspected, but not analyzed, odor noted
TPH = Total petroleum hydrocarbons
ppm= parts per million

TABLE A (continued)
SOIL SAMPLE RESULTS
Former Alameda Bulk Plant

GASOLINE PETROLEUM HYDROCARBONS (continued)

Area	Boring Number	Depth (feet)	Consultant	Date	TPH - gasoline (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Xylene (ppm)
4	SB-4	surface	HLA	4/85	NA	ND	ND	0.006	NA
4	47701	1.5	Kleinfelder	8/90	NA	ND	ND	0.5	0.6
4	47712	4.5	Kleinfelder	8/90	1100	ND	ND	0.12	1.4
4	47715	5	Kleinfelder	8/90	1100	0.63	5.5	14	63
4	SB-3	3	Touchstone	6/29/95	ND	ND	ND	ND	ND
4	SB-3	5	Touchstone	6/29/95	ND	ND	ND	ND	ND
4	SB-7	2.5	Touchstone	6/29/95	98	ND	0.61	0.52	0.73
4	SB-7	5	Touchstone	6/29/95	470	ND	5.2	3.7	7.8
5	B-3	3.5	Kennedy/Jenks	3/84	NA	0.35	ND	0.64	NA
5	47703	7.0	Kleinfelder	8/90	8200	ND	ND	ND	2.0
5	SB-5	2.5	Touchstone	6/29/95	ND	ND	ND	ND	ND
5	SB-5	6	Touchstone	6/29/95	76	ND	ND	ND	0.97
5	SB-6	2.5	Touchstone	6/29/95	27	ND	ND	0.13	0.18
5	SB-6	5.5	Touchstone	6/29/95	380	1.1	1.2	2.4	1.6
5	SB-6	10	Touchstone	6/29/95	ND	ND	ND	ND	ND
6	W-1	0.5-1	HLA	11/94	NA	ND	ND	ND	ND
6	W-1	3.5-4.0	HLA	11/94	NA	ND	ND	ND	ND
6	SB-1	5-5.5	HLA	4/85	NA	ND	0.015	ND	NA
6	W-4	5-5.5	HLA	5/85	NA	ND	ND	ND	NA
6	47699	7.5	Kleinfelder	8/90	940	0.49	ND	2.3	1.7
6	47704	8.0	Kleinfelder	8/90	600	ND	ND	ND	ND
6	SB-8	2	Touchstone	6/29/95	ND	ND	0.010	ND	0.021
6	SB-8	5.5	Touchstone	6/29/95	ND	ND	ND	ND	ND
6	SB-9	4.0	Touchstone	6/29/95	ND	ND	ND	ND	ND
6	SB-9	5.5	Touchstone	6/29/95	ND	ND	ND	ND	ND
6	SB-9	10.0	Touchstone	6/29/95	ND	ND	ND	ND	ND

TABLE A (continued)
SOIL SAMPLE RESULTS
Former Alameda Bulk Plant

DIESEL, OIL AND GREASE and SOLVENTS

Area	Boring Number	Depth (feet)	Consultant	Date	TPH - diesel (ppm)	Oil and Grease (ppm)	8010, 601 or 624/625 chlorinated solvents (ppb)	8240 or 8270 semi-volatile solvents (ppb)
1	SW-2	5-5.5	Kennedy/Jenks	5/85	NA	NA	Trimethly chlorohexane = 750 Ethylmethylcyclohexane = 200 Tetramethyl hexane = 850 Decahydromethyl naphthalene =7000 Trimethyl octane = 11000 Dimethyl naphthalene = 13000 Heptadecane = 20000 Dioctylester hexane diocacid = 86000	NA
1	47721	4	Kleinfelder	8/90	2600	260* 2400**	NA	NA
2	SB-2	5-5.5	HLA	4/85	NA	NA	Methylenechloride = 6 Di-n-butyl phthalate= 700 Bisethylhexyl pthalate= 100	NA
2	SB-3	5-5.5	HLA	4/85	NA	NA	Methylenechloride =8 Di-n-butyl phthalate=1100 Bisethylhexyl pthalate= 230	NA
2	44702	9.0	Kleinfelder	8/90	ND	ND	NA	NA
2	47708	7.5	Kleinfelder	8/90	320	20*	NA	8240 = only BTEX
2	47717	4.0	Kleinfelder	8/90	ND	ND**	NA	NA
2	47720	6.0	Kleinfelder	8/90	ND	ND**	NA	NA
2	SB-2	3.5	Touchstone	6/29/95	ND	ND***	ND	ND
2	SB-2	5	Touchstone	6/29/95	ND	ND***	ND	ND
3	47700	7.0	Kleinfelder	8/90	280	30* 160**	NA	8240 = ND for all

* Oil and grease determined by "purge and trap" method EPA 8015 - using GC
** Oil and grease determined by DHS method 503d&e - using IR
*** Oil and grease determined by Method 5520 e&f

TABLE A (continued)
SOIL SAMPLE RESULTS
Former Alameda Bulk Plant

DIESEL, OIL AND GREASE and SOLVENTS (continued)

Area	Boring Number	Depth (feet)	Consultant	Date	TPH - diesel (ppm)	Oil and Grease (ppm)	8010, 601 or 624/625 chlorinated solvents (ppb)	8240 or 8270 semi-volatile solvents (ppb)
4	SB-4	5-5.5	HLA	4/85	NA	NA	Methylenechloride =12 Di-n-butyl phthalate=1800 Bisethylhexyl pthalate= 400	NA
4	47701	1.5	Kleinfelder	8/90	NA	3100**	NA	8240 = BTEX only
4	47712	4.5	Kleinfelder	8/90	6100	1200* 7200**	NA	8240 = BTEX only 8270 = ND for all
4	47715	5	Kleinfelder	8/90	20	ND* 50**	NA	8240 = BTEX only
4	SB-3	3	Touchstone	6/29/95	3.1	ND***	8010 = ND for all	8270 = ND for all
4	SB-3	5	Touchstone	6/29/95	ND	ND***	ND	8270 = ND for all
4	SB-7	2.5	Touchstone	6/29/95	25	ND***	NA	NA
4	SB-7	5	Touchstone	6/29/95	490	140***	NA	NA
5	B-3	3.5	Kennedy/Jenks	3/85	NA	NA	601 = ND for all	NA
5	47703	7.0	Kleinfelder	8/90	570	ND* 1200**	NA	8240 = BTEX only 8270 = ND for all
5	SB-5	2.5	Touchstone	6/29/95	53	NA	NA	NA
5	SB-5	6	Touchstone	6/29/95	23	NA	NA	NA
5	SB-6	2.5	Touchstone	6/29/95	94	ND***	8010 = ND for all	8270 = ND for all
5	SB-6	5.5	Touchstone	6/29/95	460	300***	NA	NA
5	SB-6	10	Touchstone	6/29/95	ND	ND***	8010 = ND for all	8270 = ND for all

* Oil and grease determined by "purge and trap" method EPA 8015 - using GC
** Oil and grease determined by DHS method 503d&e - using IR
*** Oil and grease determined by Method 5520e&f

TABLE A (continued)
SOIL SAMPLE RESULTS
Former Alameda Bulk Plant

DIESEL, OIL AND GREASE and SOLVENTS (continued)

Area	Boring Number	Depth (feet)	Consultant	Date	TPH - diesel (ppm)	Oil and Grease (ppm)	8010, 601 or 624/625 chlorinated solvents (ppb)	8240 or 8270 semi-volatile solvents (ppb)
6	SB-1	5-5.5	HLA	4/85	NA	NA	Methylenechloride =21 Di-n-butyl phthalate= 970 Bisethylhexyl pthalate= 67	NA
6	W-4	5-5.5	HLA	5/85	NA	NA	methylenechloride =5 Di-n-butyl phthalate= 1900 Bisethylhexyl pthalate= 80	NA
6	47698	1.0	Kleinfelder	8/90	NA	ND**	NA	NA
6	47699	7.5	Kleinfelder	8/90	880	ND*	NA	8240 = BTEX only
6	47704	8.0	Kleinfelder	8/90	110	30*	NA	8240 = ND for all Florene = 540 2-Methylnaphthalene = 740 Phenanthrene = 430
6	47707	2.5	Kleinfelder	8/90	NA	20**	NA	NA
6	SB-8	2	Touchstone	6/29/95	110	NA	NA	NA
6	SB-8	5.5	Touchstone	6/29/95	ND	NA	NA	NA
6	SB-9	4.0	Touchstone	6/29/95	1.2	NA	NA	NA
6	SB-9	5.5	Touchstone	6/29/95	580	NA	NA	NA
6	SB-9	10	Touchstone	6/29/95	ND	NA	NA	NA

* Oil and grease determined by "purge and trap" method EPA 8015 - using GC
** Oil and grease determined by DHS method 503d&e - using IR

TABLE A (continued)
SOIL SAMPLE RESULTS
Former Alameda Bulk Plant

METALS (as applicable)

Area	Boring Number	Depth (feet)	Consultant	Date	Cadmium (ppm)	Chromium (ppm)	Lead (ppm)	Nickel (ppm)	Organic Lead (ppm)	Zinc (ppm)
1	47721	4	Kleinfelder	8/90	ND	67	ND	59	NA	31
2	B-1	12.5	Kennedy /Jenks	3/84	0.29	53	ND	50	NA	93
2	SB-2	3.5	Touchstone	6/29/95	ND	27	5.3	8.0	ND	13
2	SB-2	5	Touchstone	6/29/95	ND	40	8.7	50	ND	25
3	47700	7.0	Kleinfelder	8/90	ND	35	ND	40	NA	20
4	47701	1.5	Kleinfelder	8/90	ND	25	8	9	NA	10
4	47712	4.5	Kleinfelder	8/90	ND	25	3	8	NA	21
4	SB-3	3	Touchstone	6/29/95	ND	26	15	10	ND	20
4	SB-3	5	Touchstone	6/29/95	ND	41	9	46	ND	31
4	SB-7	2.5	Touchstone	6/29/95	ND	38	8.4	55	ND	27
4	SB-7	5	Touchstone	6/29/95	ND	35	7.8	34	ND	26
5	47703	7.0	Kleinfelder	8/90	ND	33	ND	42	NA	24
6	47698	1.0	Kleinfelder	8/90	ND	22	3	11	NA	7
6	47707	2.5	Kleinfelder	8/90	ND	26	ND	15	NA	12

ND=Not detected at or above the laboratory detection limits
NA = Analysis not requested
ppm = parts per million (mg/kg)

TABLE A (continued)
SOIL SAMPLE RESULTS
Former Alameda Bulk Plant

METALS (continued)

Area	Boring Number	Depth (feet)	Consultant	Silver (ppm)	Arsenic (ppm)	Beryllium (ppm)	Copper (ppm)	Mercury (ppm)	Antimony (ppm)	Sellenium (ppm)	Thallium (ppm)
1	47721	4	Kleinfelder	ND	8	0.5	46	ND	ND	ND	31
2	B-1	12.5	Kennedy /Jenks	ND	ND	0.18	110	0.1	ND	ND	ND
3	47700	7.0	Kleinfelder	ND	5	0.3	15	ND	ND	ND	13
4	47701	1.5	Kleinfelder	ND	3	0.2	10	ND	ND	ND	9
4	47712	4.5	Kleinfelder	ND	ND	0.2	39	ND	ND	ND	8
5	47703	7.0	Kleinfelder	ND	6	0.4	21	ND	ND	ND	20
6	47698	1.0	Kleinfelder	ND	7	0.2	6	ND	ND	ND	5
6	47707	2.5	Kleinfelder	ND	5	0.3	6	ND	ND	ND	12

Note: B-1 (12.5 ft) and a composite of B-2 (3 ft) B-3 (3.5 ft) and B-4 (4 ft) were tested for polychlorinated biphenyls (PCBs). Results were "ND"
ND=Not detected at or above the laboratory detection limits
NA = Analysis not requested

TABLE B
WATER SAMPLE RESULTS
Former Alameda Bulk Plant

PETROLEUM HYDROCARBONS

Boring Number	Depth to Water (feet)*	Consultant	Date	TPH - gas (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylene (ppb)
B-1	2-3 ft	Kennedy/Jenks	3/84	NA	29	ND	ND	NA
Off-site well	-	Kennedy/Jenks	3/84	NA	ND	ND	ND	NA
W-1	-	HLA	11/84	NA	ND	ND	ND	ND
W-2	-	HLA	11/84	NA	ND	ND	ND	ND
W-3	-	HLA	11/84	NA	ND	ND	ND	ND
SW-1	-	HLA	11/84	NA	ND	ND	ND	ND
SW-2	-	HLA	11/84	NA	ND	ND	ND	ND
W-3	-	HLA	5/85	NA	ND	ND	ND	NA
W-4	5 ft	HLA	5/85	NA	ND	ND	ND	NA
SW-2	2-3 feet	HLA	5/85	NA	ND	ND	ND	NA
MW-1	12 ft	Entrix	6/94	600	43	ND	8.9	3.5
MW-2	3 ft	Entrix	6/94	ND	ND	ND	ND	ND
MW-3	13 ft	Entrix	6/94	360	0.70	ND	ND	0.50
MW-4	9.5 ft	Entrix	6/94	170	ND	ND	ND	ND
MW-5	5.1 ft	Entrix	6/94	140	ND	ND	ND	ND
MW-6	9 ft	Entrix	6/94	ND	ND	ND	ND	ND

* = depth to water determined from boring logs
TPH = Total Petroleum Hydrocarbons
ppb = parts per billion (ug/l)

TABLE B (continued)
WATER SAMPLE RESULTS
Former Alameda Bulk Plant

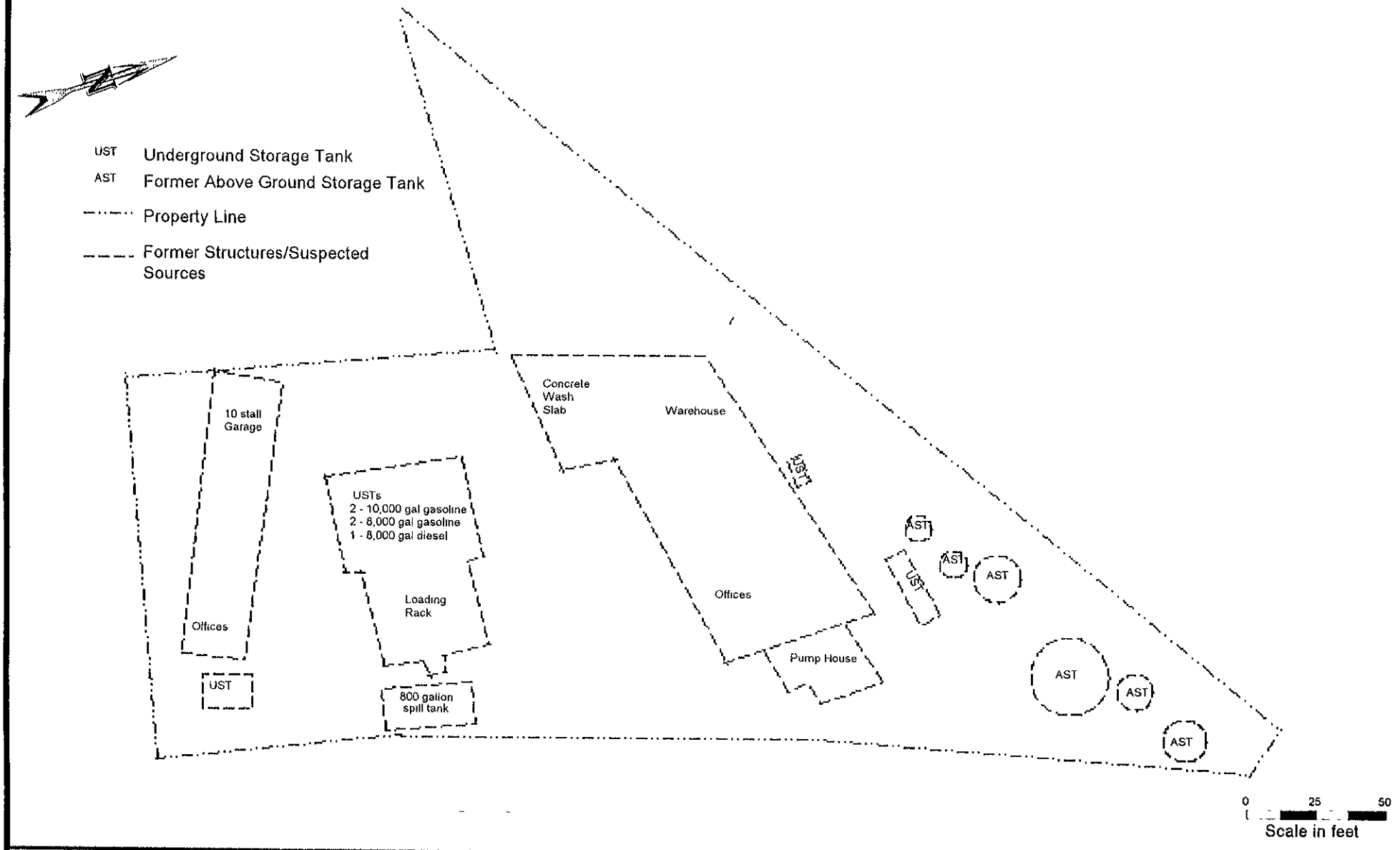
OTHER DISSOLVED CONSTITUENTS

Boring Number	Consultant	Date	TPH - diesel (ppb)	Oil and grease (ppb)	Total Dissolved Solids (mg/l)	Solvents/Other as listed by EPA method number (ppb)
B-1	Kennedy/Jenks	3/84	NA	NA	NA	601 = ND for all
Off-site well	Kennedy/Jenks	3/84	NA	NA	NA	601 = ND for all
W-1	HLA	11/84	NA	NA	NA	624/625 = ND for all
W-3	HLA	5/85	NA	NA	NA	624/625 = ND for all
W-4	HLA	5/85	NA	NA	NA	624/625 = ND for all
SW-2	HLA	5/85	NA	NA	NA	624/625 = ND for all
MW-1	Entrix	6/94	340	43	740	NA
MW-2	Entrix	6/94	270	ND	NA	NA
MW-3	Entrix	6/94	190	0.70	780	NA
MW-4	Entrix	6/94	160	ND	NA	NA
MW-5	Entrix	6/94	620	ND	NA	NA
MW-6	Entrix	6/94	ND	ND	550	NA

Gradient (5/85) towards north at 0.008
TPH = Total Petroleum Hydrocarbons
ppb = parts per million (ug/l)

TABLE C
PROPOSED SOIL SAMPLING SUMMARY
Former Alameda Bulk Plant

Area	Proposed Excavation Dimensions (feet)	Number of Samples	Sample Depth (feet)	Analytical Summary
1	20 feet long 20 feet wide 5.5 feet deep	4 (one from each sidewall)	5.5	2- TPH-diesel, O&G 2- TPH-diesel, O&G, TPH-gas/BTEX (use PID to determine)
2	20 feet long 20 feet wide est. 7.5 feet deep	4 (one from each sidewall)	soil/water interface	3 - TPH-gas/BTEX 1 - TPH-gas/BTEX, TPH-diesel, O&G, 8010, 8270 (Hanby test kit)
3	20 feet long 15-20 feet wide est. 7 feet deep	4 (one from each sidewall)	soil/water interface	2- TPH-gas/BTEX 2 - TPH gas/BTEX, TPH-diesel, O&G, 8010, 8270 (Hanby test kit)
4-1	25 feet long 25 feet wide est. 5-6 feet deep	4 (one from each sidewall)	5 feet or soil/water interface	3- TPH-gas/BTEX 1 - TPH-gas/BTEX, TPH-diesel, O&G (Hanby test kit)
4-2	30 feet long 20 feet wide est. 5-6 feet deep	6 (one/two from each sidewall)	5 feet or soil/water interface	6- TPH-gas/BTEX, TPH-diesel, O&G
5	50 feet long 40 feet wide est. 7 feet deep	8 (two from each sidewall)	soil/water interface	4 - TPH-gas/BTEX 4- TPH-gas/BTEX, TPH-diesel, O&G (one each on each side)
6-1	25 feet long 40 feet wide est. 7.5 feet deep	6 (one or two from each sidewall)	soil/water interface	4- TPH-diesel 2 - TPH-diesel, O&G, TPH-gas/BTEX (visual determination)
6-2	20 feet long 15 feet wide est. 8 feet deep	4 (one from each sidewall)	soil/water interface	3 - TPH-diesel 1 - TPH-diesel, TPH-gas/BTEX, O&G (visual determination)
6-3	20 feet long 20 feet wide 8 feet deep	4 (one from each sidewall)	soil/water interface	2 - TPH-diesel, 8270 2-TPH-diesel, TPH-gas/BTEX, O&G, 8270 (PID used)

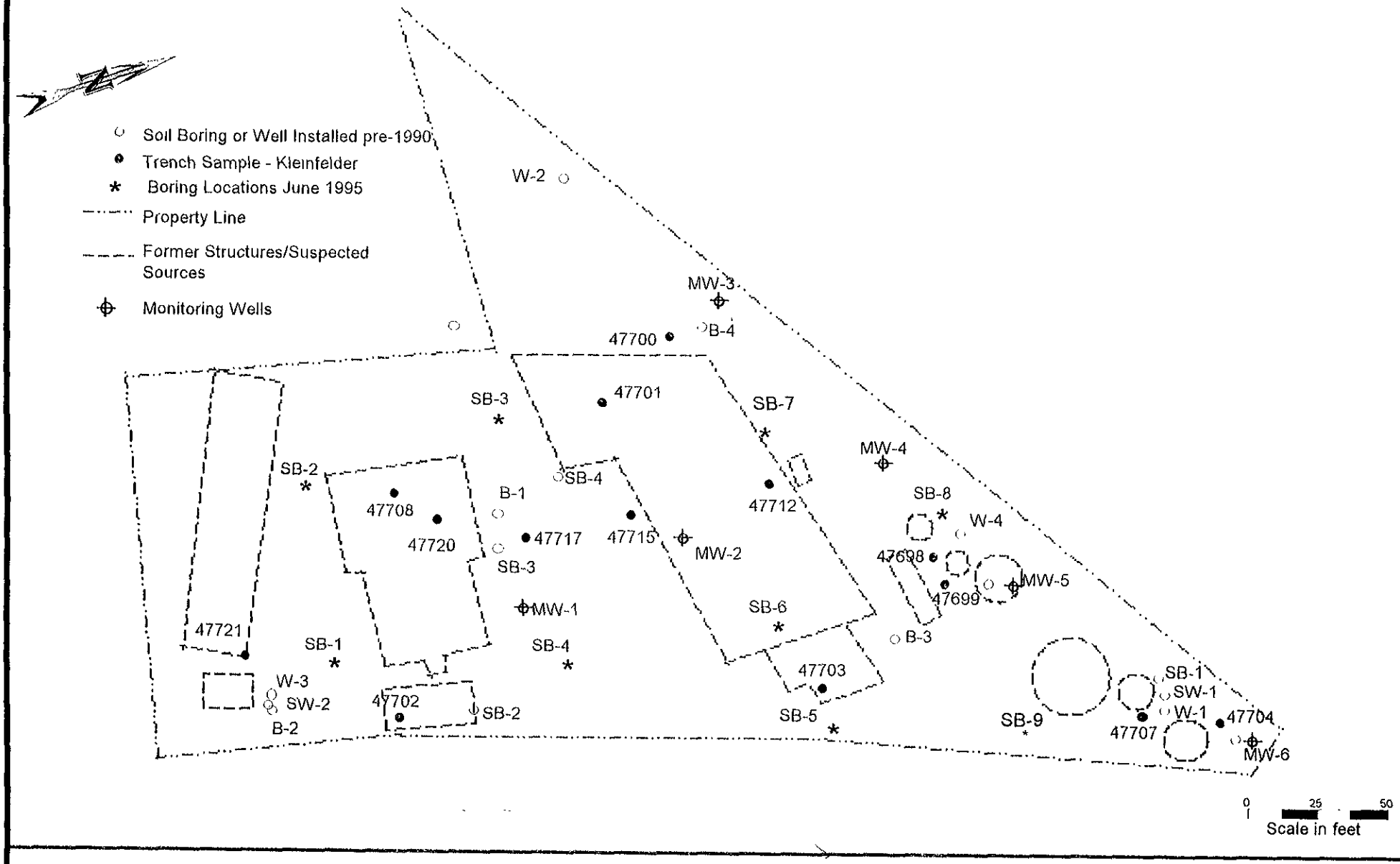


Touchstone Developments
Environmental Management

SITE PLAN
FORMER ALAMEDA BULK PLANT
2001 VERSAILLES AVENUE
ALAMEDA, CALIFORNIA

FIGURE
1

PROJECT NO.	DRAWN BY:	DATE	BASE MAP:
chev-1	AMD	1/95	KLEINFELDER



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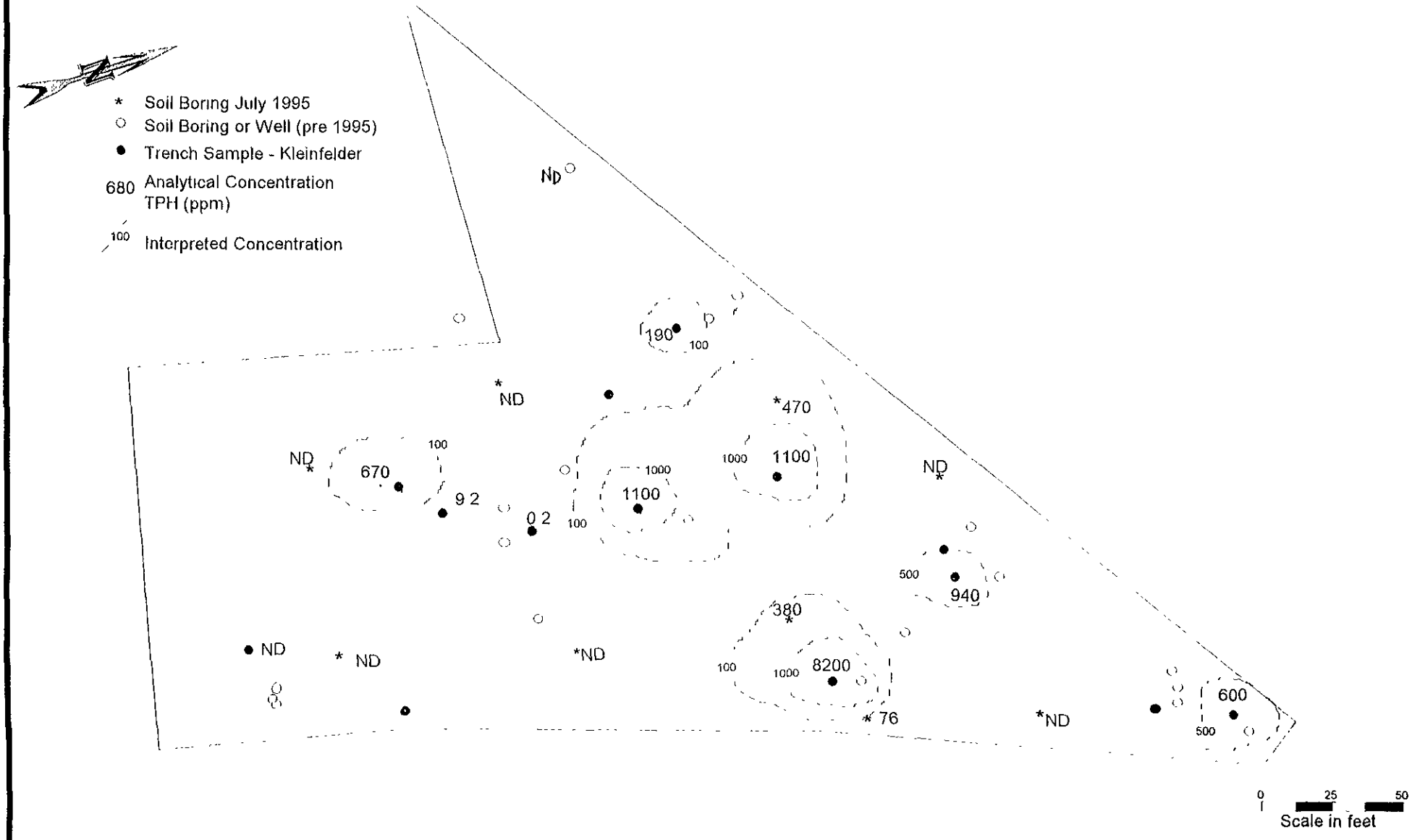
Environmental Management

BORINGS AND SAMPLE LOCATIONS

FORMER ALAMEDA BULK PLANT
2001 VERSAILLES AVENUE
ALAMEDA, CALIFORNIA

FIGURE
2

PROJECT NO.	DRAWN BY:	DATE	BASE MAP:
chev-1	AMD	7/95	KLEINFELDER

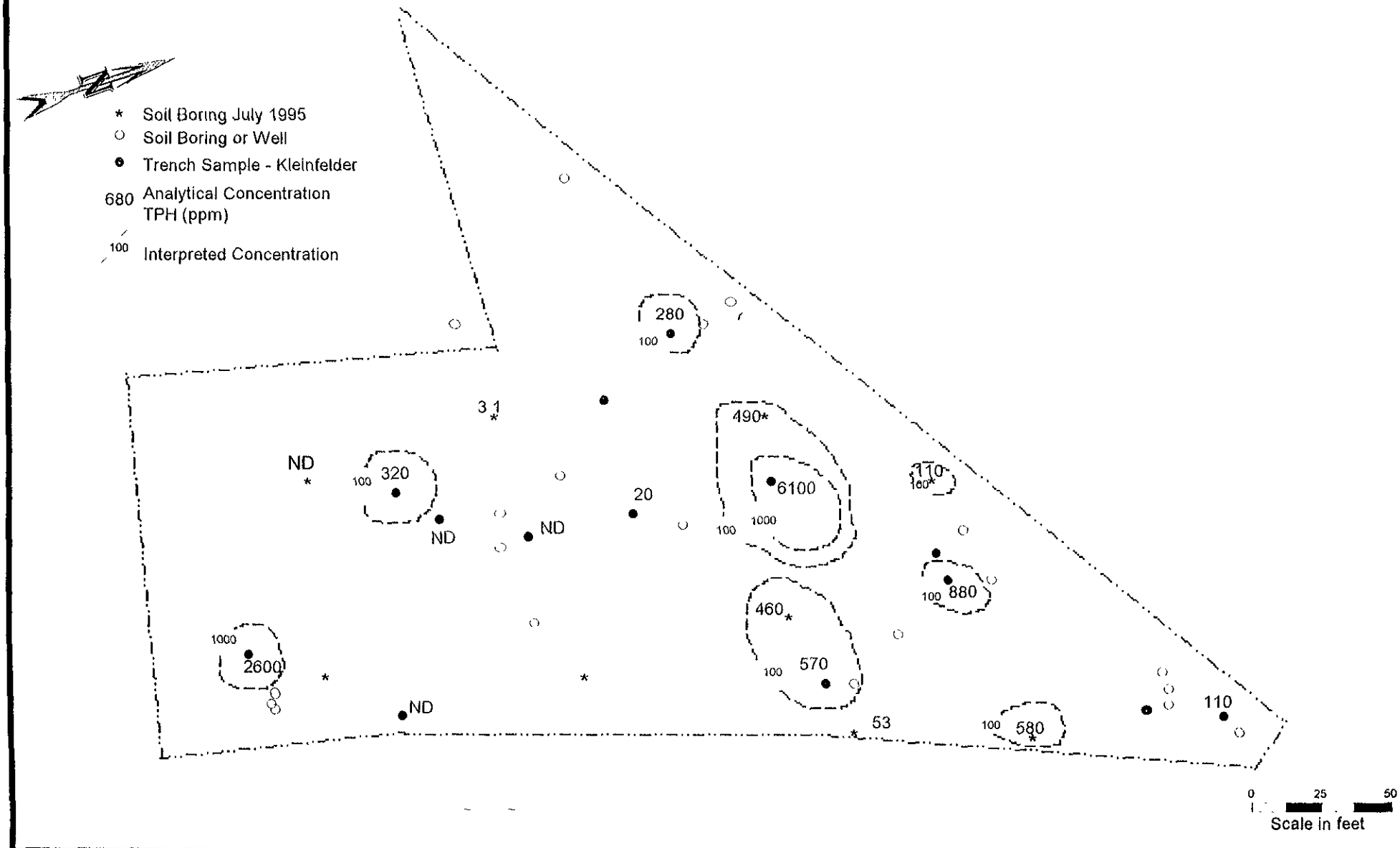


Touchstone Developments
Environmental Management

TPH-GASOLINE - INTERPRETED CONCENTRATIONS
FORMER ALAMEDA BULK PLANT FACILITY
2001 VERSAILLES AVENUE
ALAMEDA, CALIFORNIA

FIGURE
3

PROJECT NO.	DRAWN BY:	DATE	BASE MAP:
chev-1	AMD	7/95	KLEINFELDER

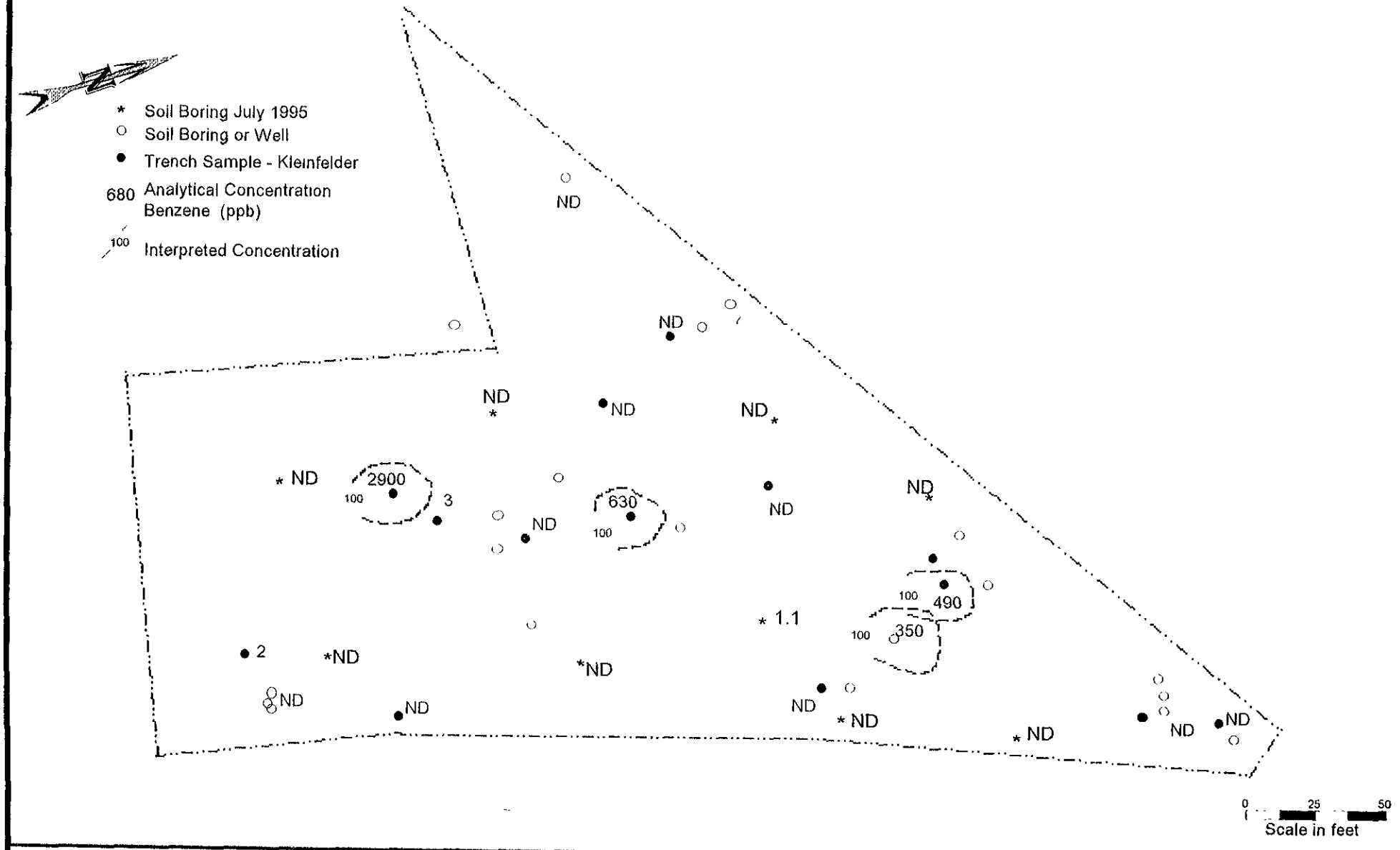


Touchstone Developments
Environmental Management

TPH-DIESEL - INTERPRETED CONCENTRATIONS
FORMER ALAMEDA BULK PLANT FACILITY
2001 VERSAILLES AVENUE
ALAMEDA, CALIFORNIA

FIGURE
4

PROJECT NO.	DRAWN BY:	DATE	BASE MAP:
chev-1	AMD	1/95	KLEINFELDER

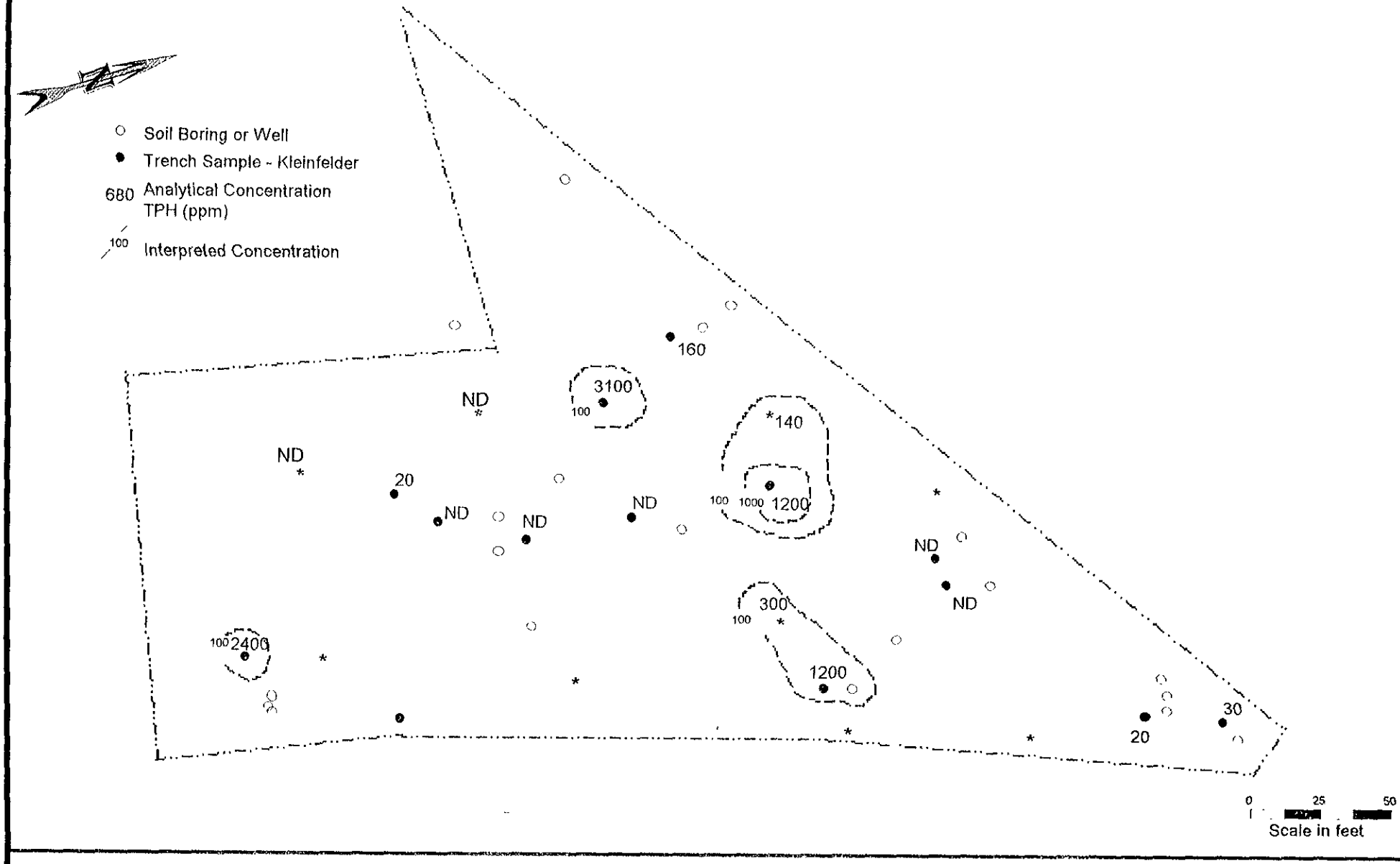


Touchstone Developments
Environmental Management

BENZENE - INTERPRETED CONCENTRATIONS
FORMER ALAMEDA BULK PLANT FACILITY
2001 VERSAILLES AVENUE
ALAMEDA, CALIFORNIA

FIGURE
5

PROJECT NO.	DRAWN BY:	DATE	BASE MAP:
chev-1	AMD	7/95	KLEINFELDER

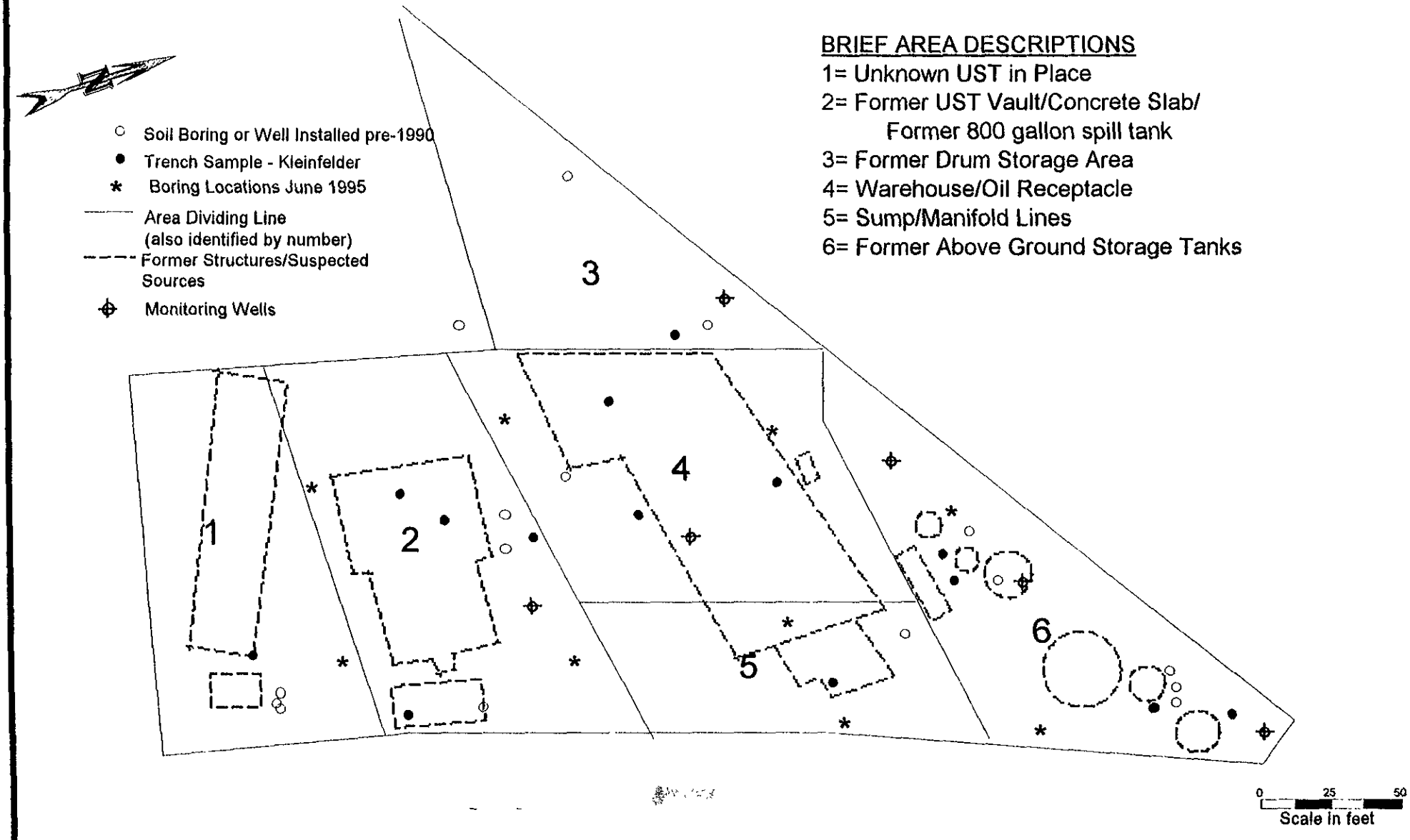


Touchstone Developments
Environmental Management

TPH-OIL AND GREASE - INTERPRETED CONCENTRATIONS
FORMER ALAMEDA BULK PLANT FACILITY
2001 VERSAILLES AVENUE
ALAMEDA, CALIFORNIA

FIGURE
6

PROJECT NO.	DRAWN BY:	DATE	BASE MAP:
chev-1	AMD	1/95	KLEINFELDER

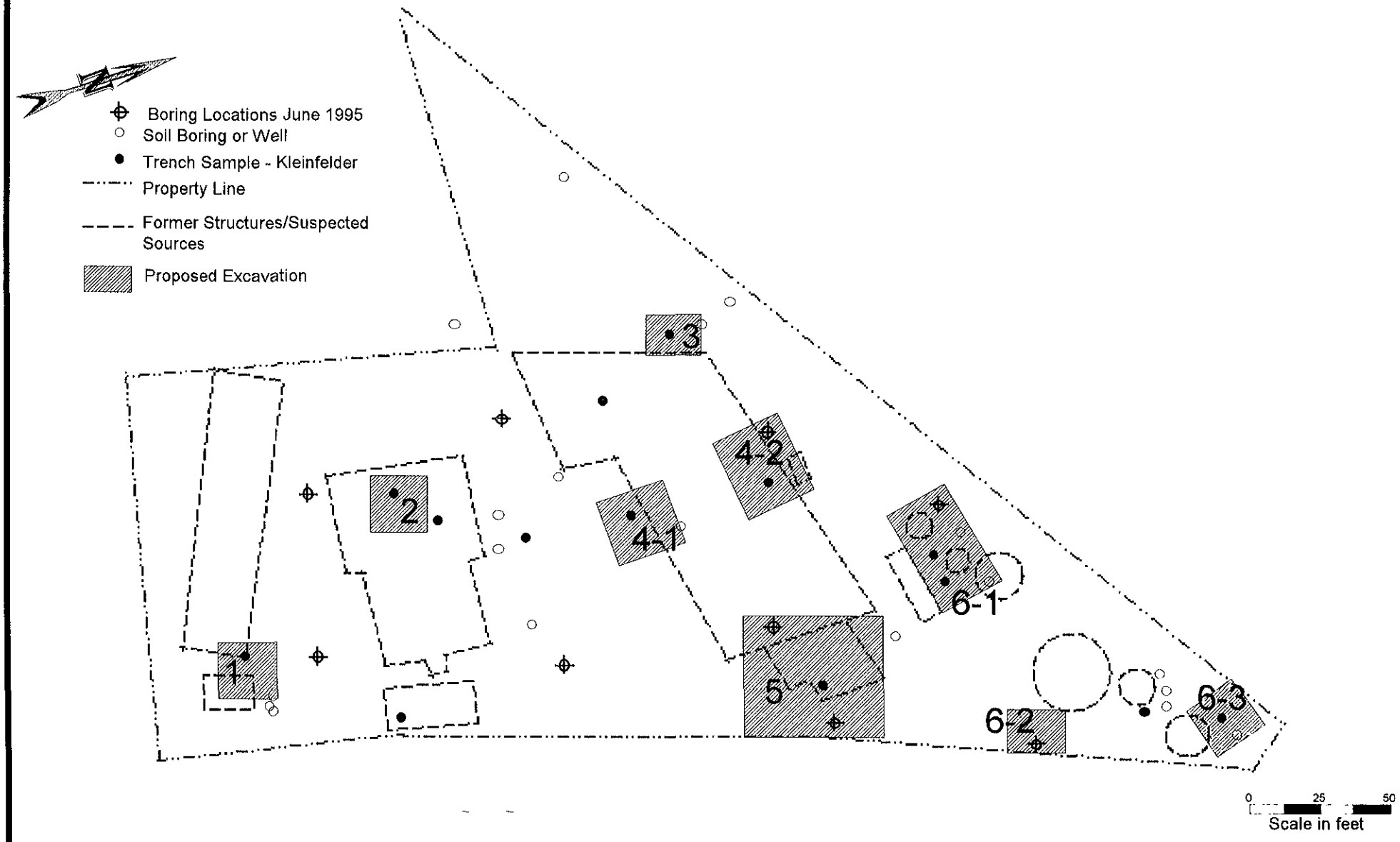


Touchstone Developments
Environmental Management

POTENTIAL SOURCE AREAS
FORMER ALAMEDA BULK PLANT
2001 VERSAILLES AVENUE
ALAMEDA, CALIFORNIA

FIGURE
7

PROJECT NO.	DRAWN BY:	DATE	BASE MAP:
chev-1	AMD	7/95	KLEINFELDER

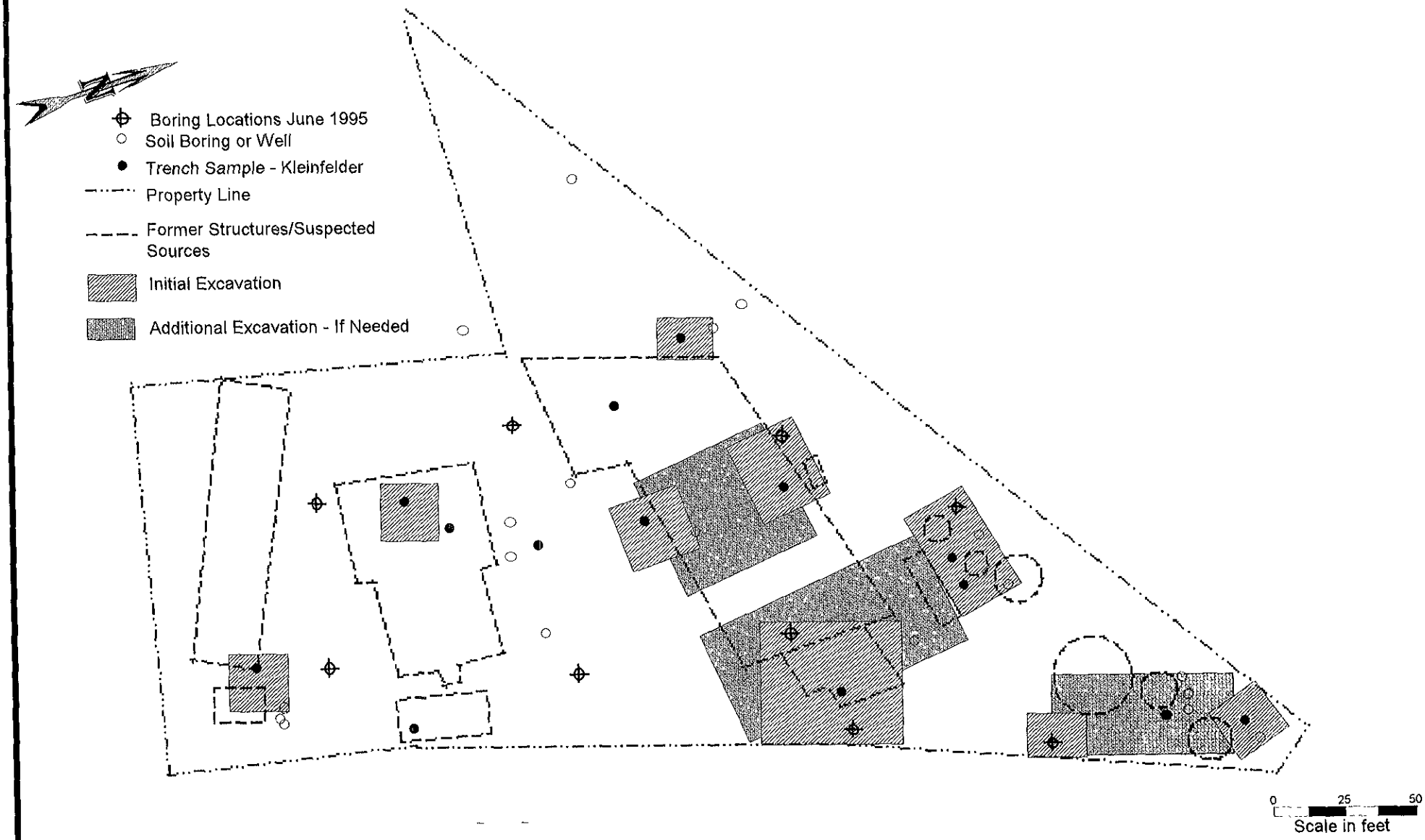


Touchstone Developments
Environmental Management

EXCAVATION - PROPOSED
FORMER ALAMEDA BULK PLANT
2001 VERSAILLES AVENUE
ALAMEDA, CALIFORNIA

FIGURE
8

PROJECT NO.	DRAWN BY:	DATE	BASE MAP:
chev-1	AMD	7/95	KLEINFELDER



Touchstone Developments
Environmental Management

MAXIMUM ANTICIPATED EXCAVATION
FORMER ALAMEDA BULK PLANT
2001 VERSAILLES AVENUE
ALAMEDA, CALIFORNIA

FIGURE
9

PROJECT NO.	DRAWN BY:	DATE	BASE MAP:
0801.1	AMD	7/95	KLEINFELDER