Area 6

Oakland Army Base, Can Transport Site

1.0 INTRODUCTION

Geo/Resource Consultants, Inc. (GRC) was contracted under Contract Number 53P614 and Task Order Number 04-192201-01 by the State of California Department of Transportation (Caltrans) to complete a subsurface investigation at two facilities, Can Transport, Inc. (CanTrans, Area 6) and Smith's Wrecking Yard (Smith's, Area 7); See Figure 1. The purpose of this investigation was to determine if contamination is present, to estimate the potential areal and vertical extent of contamination, and to provide cost estimates for remedial actions, if deemed necessary.

The investigations described in this report are consistent with investigations proposed in the Workplan prepared by GRC and approved by Caltrans (dated June 17, 1992).

1.1 TASK ORDER MEETINGS

CanTrans and Smith's were visited by GRC and Caltrans personnel on May 21 and May 28, 1992. These facilities were also visited by GRC and Bruce Waenas of West Hazmat (the drilling subcontractor) on June 19 to verify site access conditions.

1.2 SITE BACKGROUND

CanTrans and Smith's are located on Burma Road within the Oakland Army Base and 3rd and Lewis Streets, respectively, in Oakland. A brief discussion regarding facility operations and prior investigative activities (if known) was provided in the Caltrans Task Order (May 4, 1992) and is summarized below. These descriptions provided the basis for the subsurface investigations conducted at each site.

Can Transport, Inc.
196 Burma Road
Oakland, California 94607

This site underwent excavation of some soils contaminated with oil and grease. There were stockpiles of soil on part of the property at the time of this investigation.

2.0 FIELD METHODOLOGY

Field methodology pertaining to hand augering, soil boring drilling, and sampling was generally conducted in accordance with the California Site Mitigation Decision Tree (December, 1986), the Environmental Protection Agency (EPA) Ground-Water Monitoring Technical Enforcement Guidance Document (TEGD, September, 1986), and Geo/Resource Consultants Field Procedure Manual (September, 1989). Descriptions of standard methodologies are included in Appendix A. Specific field activities and methodologies are described below.

2.2 CAN TRANSPORT, INC.

On June 29, 1992, three soil borings (CT/B-1, CT/B-2, CT/B-3) were completed using a drill rig equipped with 8-inch diameter, hollow-stem augers. The locations of the borings are shown in Figure 2. Borings CT/B-1 and CT/B-2 were terminated at 10.0 feet below ground surface (bgs), while CT/B-3 was terminated 8.0 feet bgs. Generally, samples were collected at 1 foot, 5 feet, and 8 feet bgs for CT/B-1, CT/B-2, and CT/B-3. Specific sampling locations are depicted in lithologic logs included in Appendix B.

Upon completion of the soil sampling, the borings were backfilled with cement grout and the cuttings were disposed of in 55-gallon United States Department of Transportation (U.S. DOT) approved drums.

3.0 FINDINGS

This section describes subsurface conditions encountered during the field investigation as well as analytical findings.

3.1 SUBSURFACE CONDITIONS

Subsurface conditions at each site were evaluated from visual observations, lithologic logs and photoionization detector (PID) readings from the on-site HnU meter. These data are included in Appendix B.

3.1.1 Can Transport, Inc.

The area investigated at CanTrans is underlain by brown, black, and gray/green silty sands and silty clays (See Appendix B). Clay-dominated materials were generally encountered at depths between 6 and 8 feet bgs. Material overlying the clay was interpreted to be fill.

Ground water, estimated by apparent saturated auger cuttings, was encountered at approximately 8 feet bgs.

HnU readings were obtained from each of the soil samples collected. Hydrocarbons vapors were measured at levels of 3 ppm or less for each sample tested.

HnU readings were not detected above 0 ppm for samples collected from SW/A-3 and SW/A-4. The greatest HnU values were found associated with shallow samples. HnU readings were 20 ppm in SW/A-2 at 1 foot, and 160 ppm in SW/A-1 at 0.5 feet.

3.2 ANALYTICAL FINDINGS

Soil samples were submitted to CKY, Inc. (CKY) for chemical analyses based on site background and suspected contaminants. The analytical results are summarized on Tables 1 and 2 and are included in Appendix C. The findings are briefly described below.

3.2.1 Can Transport, Inc.

Soil borings CT/B-1, CT/B-2, and CT/B-3 were drilled to depths ranging from 8.0 to 10.0 feet bgs. Three soil samples were collected from the unsaturated zone at each boring location for a total of nine samples. Soil samples were chemically analyzed for total recoverable petroleum hydrocarbons (TRPH; EPA Method 418.1) and Title 26 metals (EPA Method 6010).

Soils

TRPH were detected at levels of at least 100 mg/kg in six of nine samples submitted for analysis. The greatest concentration was found to be 5,800 mg/kg in sample CT/B-3 at 2 feet.

In general, metals were detected within background concentrations expected within an alluvial environment. However, relatively high lead and selenium concentrations were detected in CT/B-1 at 6 feet (61 mg/kg lead), CT/B-2 at 2 feet (390 mg/kg lead), and CT/B-2 at 6 feet (820 mg/kg lead), in CT/B-1 at 2 feet (13 mg/kg selenium) and CT/B-3 at 6 feet (17 mg/kg selenium) and 7.5 feet (13 mg/kg selenium).

To further evaluate soluble lead and selenium concentrations, the samples were re-submitted for the WET. Analytical results indicated lead in CT/B-1 at 6 feet and CT/B-2 at 6 feet to be 1.1

mg/l and 52 mg/l, respectively. WET results from CT/B-3 at 6 feet did not indicate selenium above laboratory detection limits.

4.0 REGULATORY FRAMEWORK

The regulatory framework as it pertains to this site investigation is described in Appendix D. Regulatory agencies that set forth guidelines and statutes that may impact these sites include the California Environmental Protection Agency (CalEPA), the California Regional Water Quality Control Board (RWQCB), the Alameda County Water District (ACWD), and the Alameda County Department of Environmental Health (ACDEH). This section describes potential applicability of these agency's waste characterization regulations at each of the sites in Areas 6 and 7.

4.1 CAN TRANSPORT, INC.

Soil

One sample collected from CanTrans contained TRPH in excess of the hazardous waste classification of the RWQCB (greater than 1,000 mg/kg). The greatest concentration of TRPH was found in CT/B-3 at 2 feet (5,800 mg/kg). Designated levels (100 to 1,000 mg/kg) were exceeded in samples from CT/B-2 and CT/B-3.

Lead and selenium were found to be in excess of ten times the STLC of 5.0 mg/l and 1.0 mg/l in six soil samples, and were re-submitted for the WET test. The WET results for CT/B-2 at 6 feet indicated that the sample contained soluble lead at 52 mg/l. No metal concentrations were found to be in excess of the respective Total Threshold Limit Concentrations (TTLC).

APPENDIX A - FIELD METHODOLOGY

The Highway 880, Cypress Structure Reconstruction Site Investigation performed by GRC in June, 1992 included drilling and sampling of both drill rig borings and hand auger borings.

General boring locations and field methodologies were determined during several pre-work site visits conducted by GRC and Caltrans personnel prior to initiating the field investigation. Pre-work site visits were conducted May 21, May 28, and June 5, 1992. Subsequent to the site visits, a Workplan was prepared and approved by Caltrans in June, 1992. Variations from the Workplan, such as re-location of boring locations, were communicated to Caltrans during the field investigation.

A.1 PRELIMINARY ACTIVITIES

Prior to beginning field activities, GRC performed the following tasks at drilling locations as appropriate.

Utility Clearance

Underground Service Alert (USA) was notified by GRC 48-hours in advance of field work of our intent to drill. USA notified the utility companies of our proposed work locations. GRC met with utility company representatives to clear each boring location of buried utilities. GRC also met with site owners and tenants during pre-work site visits to discuss the location of potential underground utility lines.

Above Ground Utility Clearance

Above ground utilities were visually examined by GRC to assure that the drill rig boom would not be within 15 feet of overhead power lines. Boring locations were confirmed with the subcontracted drilling company on June 19 prior to initiating the field investigation.

Permits

Permits to enter each of the project sites were obtained by Caltrans personnel prior to beginning field work and right-to-enter permits are maintained within Caltran's files. All appropriate permits were kept on-site during field work.

A.2 DRILLING AND SAMPLING METHODOLOGY

This section describes the field methodology used to drill and sample both hand auger borings and drill rig borings.

Drill Rig Borings - Drilling and Soil Sample Collection

Soil borings were drilled by a three-man crew from West Hazmat Drilling Company of Hayward California. West Hazmat maintained two drill rigs operating at the project site which included a truck-mounted Mobile B-57 and a truck-mounted CME 75. Soil borings were drilled using hollow stem auger methods with 8-inch augers. A GRC hydrogeologist was present during all field activities to make detailed observations of field conditions and maintain a continuous log of each soil boring. Soil boring logs are contained in Appendix B and soil boring locations are illustrated within the text.

Generally, soil samples collected from the unsaturated zone were submitted for chemical analysis. The sampling interval in the unsaturated zone was dependant on the number of samples to be analyzed as outlined in the Workplan.

Soil samples were collected at each boring location using a California Modified split spoon sampler. Soil samples were collected in three, clean 6-inch stainless steel sleeves. At each sampling interval, the split spoon sampler was driven with a 140-pound hammer dropping 30-inches. Upon retrieval, the sampler was placed on a relatively clean surface and carefully opened. One of the sample sleeves was immediately covered on both ends with aluminum foil, capped, labeled, and placed a plastic bag and then in a cooled ice chest prior to transport to the chemical laboratory. The two remaining sleeves were used for sample

description and field screening using an photoionization meter (HnU).

Field screening was conducted by placing a portion of the remaining soil sample in a zip-lock bag. The head space of the zip-lock bag was then screened for organic vapors using a HnU. and the readings were recorded on the boring log. Soil sample descriptions were maintained on a continuous soil boring log. Soil samples were described according to color, texture, moisture, density, any other appropriate observations, and classified using the Unified Soil Classification System.

Hand Auger - Drilling and Soil Sample Collection

Selected soil boring locations were drilled and sampled by a GRC hydrogeologist using a hand auger. Soil samples collected from the unsaturated zone were submitted for chemical analysis. The sampling interval in the unsaturated zone was dependant on the number of samples to be analyzed as outlined in the Workplan.

Soil samples were collected at each hand auger boring location using two six-inch stainless sleeves attached to a hand held sampler and slide hammer. The slide hammer was used to advance the stainless steel sleeve containing sampler into the soil in advance of the augered hole. Upon retrieval the sampler was placed on a relatively clean surface and carefully opened. One of the sample sleeves was immediately covered on the ends with aluminum foil, capped, labeled, and placed a plastic bag and then in a cooled ice chest for possible chemical analysis. The remaining sleeve was used for sample description and field screening. A portion of the remaining soil sample was placed in a zip-lock bag. The head space of the zip-lock bag was then screened for organic vapors using a HnU and the readings were recorded on the boring log. Soil sample descriptions were maintained on a continuous soil boring log. Soil samples were described according to color, texture, moisture, density, any other appropriate observations, and classified using the Unified Soil Classification System.

A.5 DECONTAMINATION PROCEDURES

The following decontamination procedures were followed in order to maintain sample integrity and to prevent cross-contamination from occurring between sampling locations:

- All sampling equipment was cleaned with Liquinox and rinsed twice with deionized water prior to use at a new sampling location. Sampling equipment included:

  Split spoons;

  Stainless steel tubes;

- Hollow stem augers and drill bits were steam-cleaned between each drilling location.

- Rinsate water was retained and stored in labeled 55-gallon DOT 17H drums pending laboratory results.

A.5 STORAGE AND DISPOSAL OF GENERATED WASTES

Soil cuttings and decontamination water generated from each parcel were not combined in drums with soil from other parcels. All soil cuttings and water were placed into DOT-approved 17H, 55-gallon drums. Following completion of drilling, all drums were moved to the former Kelly's Truck Repair yard located at Cypress and 7th Streets for storage.

A.5 ANALYTICAL PROGRAM

A summary of the projects analytical program is outlined below. Specific analyses performed and results for parcels are described within the text. All soil samples were transported to CKY, Inc. in Pleasanton, California for chemical analyses.

A comprehensive list of the analytical methods used during this investigation is provided below:

Total Petroleum Hydrocarbons (TPH-Gasoline)	EPA Method 8015M-G
(TPH-Diesel)	EPA Method 8015M-D
Aromatic Volatile Organics	EPA Method 8020
Total Recoverable Petroleum Hydrocarbons (TRPH)	EPA Method 418.1

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Total Metals (CAM metals by ICP/AAS)	EPA Method 6010
Volatile Organics (GC/MS)	EPA Method 8240
Semi-Volatile Organics (GC/MS)	EPA Method 8270
Pesticides & Polychlorinated Biphenyls (PCBs)	EPA Method 8080

All chemical analysis was performed on a one-week turn-around basis.

A.6 FIELD QUALITY CONTROL/QUALITY ASSURANCE

The following field documentation procedures were implemented by GRC field personnel.

Sample Identification

Each soil sample was labeled, as applicable, with the following information:

- Boring or Monitoring Well Identification (I.D.) Number;
- Sample I.D. Number;
- Depth of Soil Sample Collection;
- Date and Time of Sample Collection; and
- Name of Person Collecting Sample.

Chain-of-Custody Procedures

Chain-of-custody records were used to document sample handling and shipping. Information recorded on the Chain-of-Custody Records included location of sample collection, sample identification (I.D.) number, date and time of collection, number and type of sample containers and analyses requested.

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Aromatic Volatile Organics	EPA Method 8020
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5.0 REMEDIAL ACTIONS

Very limited data points were obtained at the sites investigated for this Task Order. Therefore, potential contaminant plume boundaries cannot be designated. However, for the purposes of providing very generalized estimates remedial volumes of potentially contaminated soil has been derived from our limited data regarding soil conditions, and types and concentrations of contaminants. These very preliminary estimates should not be construed as final. At sites where contamination was detected, further investigation is recommended to define the lateral and vertical extent. Only from subsequent investigations can reliable volume estimates for remedial actions be provided.

5.1 CAN TRANSPORT, INC.

Soils at CanTrans were found to have elevated levels of TRPH and lead. Soil samples from boring CT/B-1, CT/B-2, and CT/B-3 indicate that TRPH is generally higher than 100 mg/kg and exceeds 1,000 mg/kg at one location. Additionally, WET results indicate soluble lead at 52 mg/l (STLC 5 mg/l) at boring CT/B-2 at 6 feet bgs.

TRPH concentrations generally decreased with depth. Although not all of the footing locations were tested, it appears possible that soils within the general area of CT/B-1 and CT/B-2 will require remediation. The reason for the isolated occurrence of high lead concentrations at CT/B-2 is not known. It is recommended that additional sampling be conducted to determine the extent of contamination.

Sample Preservation

Samples were preserved upon collection by placing them in ice chests containing blue ice. Care was taken not to allow the samples to come into direct contact with the ice.

7.0 REFERENCES

Alameda County Water District, February 1990 Revision, "Groundwater Monitoring Guidelines".

California Department of Health Services (CalEPA), "Persistent and Bioaccumulative Toxic Substance", California Code of Regulations, Title 22, Division 4, Section 66699.

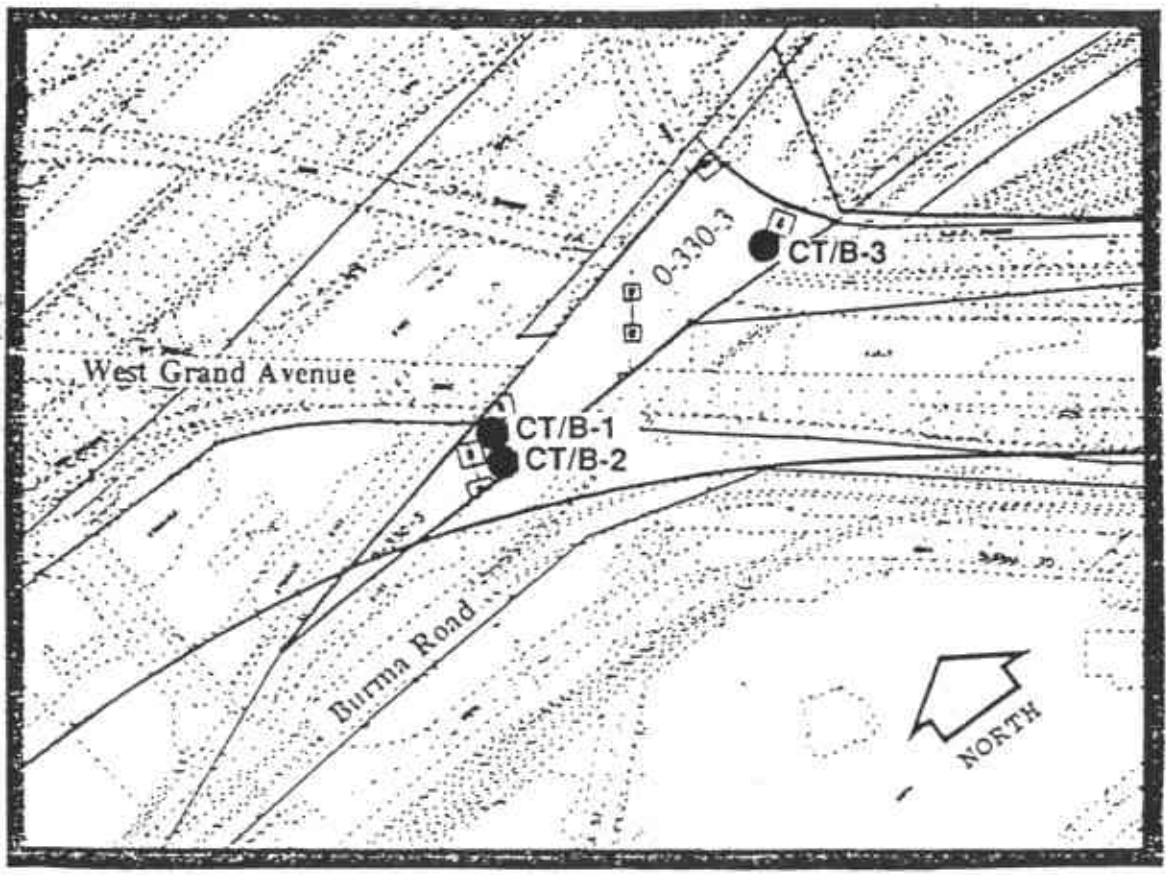
California Department of Health Services (CalEPA), July 2, 1990, "Memorandum from the Toxic Substances Control Program regarding Total Petroleum Hydrocarbons".

California Department of Health Services (CalEPA), Public Water Supply Branch, June 1989, "Recently Adopted Maximum Contaminant Levels for Contaminants in Drinking Water", "Regulated Organic Chemicals" and "Drinking Water Action Levels Recommended by the Department of Health Services".

California Department of Transportation, May 4, 1992, "Task Order 04-192201-01".

California Regional Water Quality Control Board, August 10, 1990, "Tri-Regional Board Staff recommendation for Preliminary Evaluation and Investigation of Underground Tank Sites".

California Regional Water Quality Control Board, April, 1989, "LUFT Field Manual Revision".



0 200
SCALE IN FEET

EXPLANATION

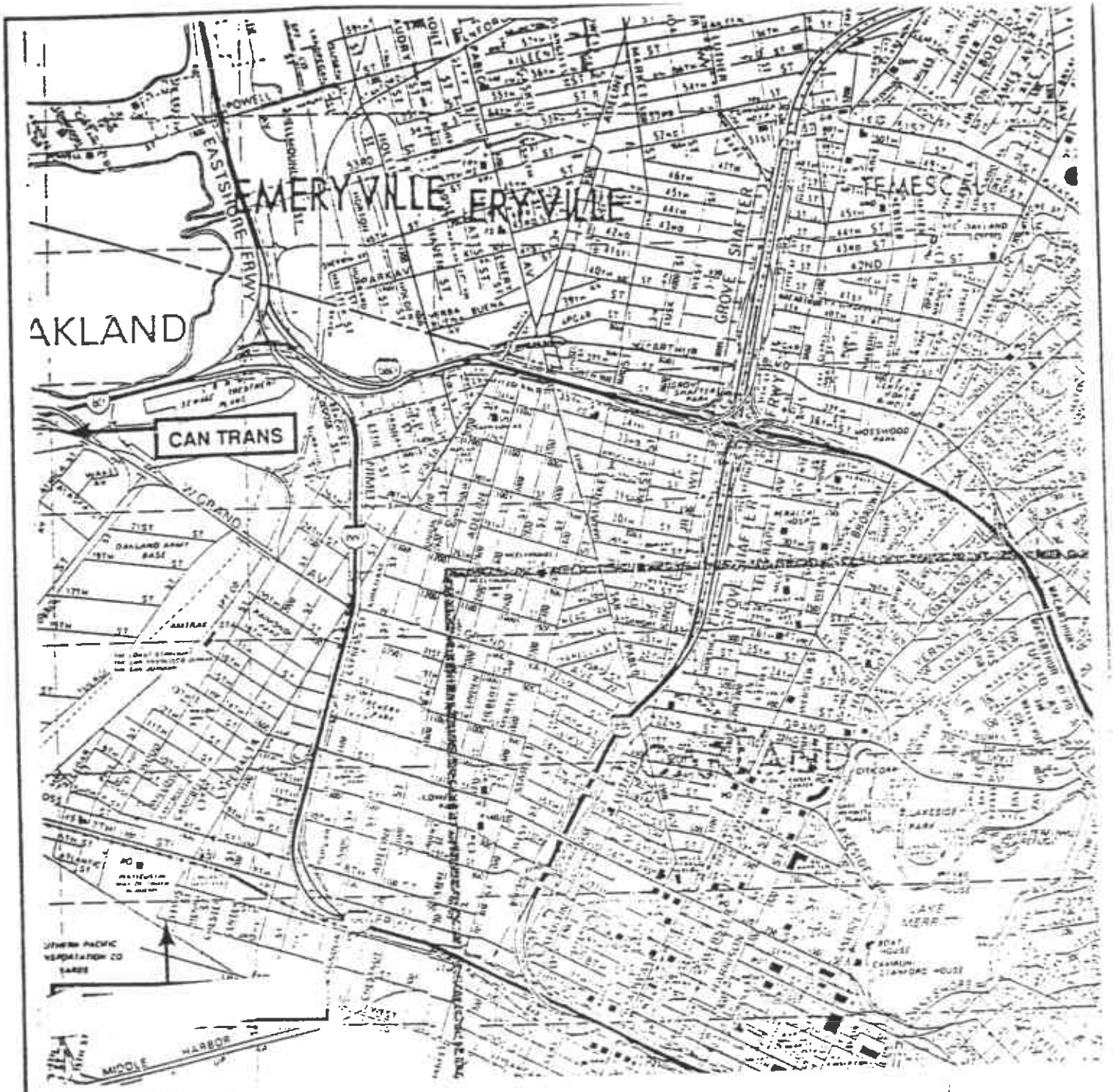
● Boring Location

Geo/ Resource Consultants, Inc.
GEOLOGISTS / ENGINEERS / ENVIRONMENTAL SCIENTISTS
505 BEACH STREET, SAN FRANCISCO, CALIFORNIA 94133

Job No. 1689-019-00 Appr. [illegible] Date 7/24/92

SITE PLAN - AREA 6
CAN TRANSPORT INC. - PARCEL 18
D.O.T. - INTERSTATE 880
CYPRESS RECONSTRUCTION
OAKLAND, CALIFORNIA

FIGURE
2



REFERENCE : Thomas Bros Maps,
Alameda, Contra Costa Counties

0 2200
SCALE IN FEET

Geo/ Resource Consultants, Inc.
GEOLOGISTS / ENGINEERS / ENVIRONMENTAL SCIENTISTS
505 BEACH STREET, SAN FRANCISCO, CALIFORNIA 94133

Job No. 1689-019-00 Appr ___ Date 7/23/92

VICINITY MAP - AREAS 6 & 7
SITE INVESTIGATION REPORT
DEPARTMENT OF TRANSPORTATION
INTERSTATE 880
CYPRESS RECONSTRUCTION
OAKLAND, CALIFORNIA

FIGURE
1

TABLE 1
AREA 6, 7
DOT - CYPRESS
SUMMARY OF ANALYTICAL RESULTS - SOIL
GENERAL

UNITS EPD No.	TRPH mg/kg 418.1	PESTICIDES mg/kg 8080	PCBs mg/kg 8080
OAKLAND ARMY BASE, CAN TRANSPORT SITE			
-Boring			
CT/B-1-2	110	-	-
CT/B-1-6	140	-	-
CT/B-1-9.5	ND	-	-
CT/B-2-2	350(10)	-	-
CT/B-2-6	110	-	-
CT/B-2-9.5	8	-	-
CT//B-3-2	5,800(125)	-	-
CT/B-3-6	350(10)	-	-
CT/B-3-7.5	ND	-	-

LOG OF BORING CT/B-1

Equipment: Hollow Stem Auger

Elevation: N.A. Date: 6/29/92

Laboratory Analysis	Blows/ft.	OVA Readings	Hnu Readings (ppm)	Depth (ft.)	Sample pnts.	
	51		0	0		SILTY SAND (SM) brown, dry, loose to medium dense, rock fragments, brick, concrete debris
	53		0	5		color changes to gray, rock fragments, debris (concrete), medium dense to dense
	2		0	10		SILTY CLAY (CL) mottled gray-green, wet, very soft
						Boring terminated @ 10.0 feet. Ground water not encountered during drilling.
				15		
				20		
				25		
				30		

Fill

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LOG OF BORING CT/B-1
SITE INVESTIGATION REPORT
DEPARTMENT OF TRANSPORTATION
INTERSTATE 880
CYPRESS RECONSTRUCTION
OAKLAND, CALIFORNIA

FIGURE
B-1

LOG OF BORING CT/B-2

Equipment Hollow Stem Auger

Elevation N.A. Date 6/29/92

Laboratory Analysis	Blows/ft.	OVA Readings	Hnu Readings (ppm)	Depth (ft.)	Sample pnts.	
	24			0		SILTY SAND (SM) brown, dry, loose to medium dense, rock fragments, debris (brick, concrete)
				5		damp to moist, loose — Fill
	17		0			
						SILTY CLAY (CL) mottled gray-green, wet, very soft
	2		0	10		Boring terminated @ 10.0 feet. Ground water not encountered during drilling.
				15		
				20		
				25		
				30		

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LOG OF BORING CT/B-2
SITE INVESTIGATION REPORT
DEPARTMENT OF TRANSPORTATION
INTERSTATE 880
CYPRESS RECONSTRUCTION
OAKLAND, CALIFORNIA

FIGURE B-2

LOG OF BORING CT/B-3

Equipment: Hollow Stem Auger

Elevation: N.A. Date: 6/29/92

Laboratory Analysis	Blows/ft.	OVA Readings	Hnu Readings (ppm)	Depth (ft.)	Sample pnts.	
	70		2	0		SILTY SAND (SM) brown, dry, rock fragments, debris
						Fill
	5		3	5		color changes to black, wet, very loose
	4		2			SILTY CLAY (CL) black, wet some organics, very soft
				10		Boring terminated @ 8.0 feet. Ground water not encountered during drilling.
				15		
				20		
				25		
				30		

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Job No. 1689-019-00 Appr: AST Date 7/6/92

LOG OF BORING CT/B-3
SITE INVESTIGATION REPORT
DEPARTMENT OF TRANSPORTATION
INTERSTATE 880
CYPRESS RECONSTRUCTION
OAKLAND, CALIFORNIA

FIGURE
B-3

TABLE 2
AREA 6, 7

DOT - CYPRESS

SUMMARY OF ANALYTICAL RESULTS - SOIL

METALS

UNITS / EPD No.	ANTIMONY mg/kg 6010	ARSENIC mg/kg 6010	BARIUM mg/kg 6010	BERYLLIUM mg/kg 6010	CADMIUM mg/kg 6010	CHROMIUM mg/kg 6010	COBALT mg/kg 6010	COPPER mg/kg 6010	LEAD mg/kg 6010	MERCURY mg/kg 6010	MOLYBDENUM mg/kg 6010	NICKEL mg/kg 6010	SELENIUM mg/kg 6010	SILVER mg/kg 6010	THALLIUM mg/kg 6010	VANADIUM mg/kg 6010	ZINC mg/kg 6010
OAKLAND ARMY BASE, CAN TRANSPORT SITE																	
Boring																	
CT/B-1-2	8.2	10	88	1	6.1	24	9.2	52	48	0.08	3	22	1.3*	ND	13	69	84
CT/B-1-4	8.2	17	160	0.60	5.0	25	5.8	18	61*	0.14	2.8	10	ND	ND	ND	38	70
CT/B-1-8.5	12	24	72	0.96	8.8	100	15	24	48	0.07	3.4	93	ND	ND	14	83	87
WET	-	-	-	-	-	-	-	-	1.1(5.0)mg/l	-	-	-	-	-	-	-	-
CT/B-2-2	5.3	16	100	0.72	5.9	42	9.1	42	390*	0.20	3.1	42	ND	ND	ND	48	160
CT/B-2-4	8.2	18	68	0.57	5	30	6.2	32	820*	0.21	2.7	28	ND	ND	12	31	98
WET	-	-	-	-	-	-	-	-	52(5.0)mg/l	-	-	-	-	-	-	-	-
CT/B-2-8.5	11	21	66	0.81	6.4	78	11	25	43	0.36	3.1	70	ND	ND	ND	59	84
CT/B-3-3	7.7	16	150	0.59	5.4	30	6.5	28	44	0.08	2.7	28	ND	ND	13	35	82
CT/B-3-6	11	17	41	1.2	8.4	29	8.6	26	44	0.09	3.3	23	1.7*	ND	17	88	87
WET	-	-	-	-	-	-	-	-	-	-	-	-	ND(1.0)mg/l	-	-	-	-
CT/B-3-7.5	8.9	24	70	0.88	8.7	78	13	26	44	0.15	2.8	62	1.3*	ND	17	60	70
TTLC mg/kg	500	500	10,000	75	100	2,500	8,000	2,500	1,000	20	3,500	2,000	100	500	700	2,400	5,000
STLC mg/L	15	5.0	100	0.75	1.0	560	80	25	5.0	0.2	350	20	1.0	5.0	7.0	24	250
Detection Limit	5.0	1.0	2.6	0.60	0.50	0.50	1.0	0.50	5.0	0.05	0.50	2.5	10	0.50	10	1.0	0.50

NOTES: ND = Not Detected at Detection Limit on Laboratory Data Sheets
TTLC = Total Threshold Limit Concentration (mg/kg)
STLC = Soluble Threshold Limit Concentration (mg/l)
* = Concentration values greater than 10x STLC values, according CCR Title 22
** = Concentration values greater than TTLC Values, according to CCR Title 2
Laboratory Analyses performed by CKY