APPENDIX E
Geotechnical Studies

GeoPentech

RODEO GROUNDS BERM REMOVAL STUDY

SOIL CHARACTERIZATION

For

Resource Conservation District of the Santa Monica Mountains
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1.0 INTRODUCTION

This report presents the results of GeoPentech's soil investigation for the Rodeo Grounds Berm Removal Study, in Los Angeles County, California. The investigation was completed under the agreement dated February 11, 2005 between the Resource Conservation District of the Santa Monica Mountains (RCDSMM) and GeoPentech. The Rodeo Grounds Berm site is located about 19 miles west of downtown Los Angeles. A general location map is shown on Figure 1

1.1 Project Overview

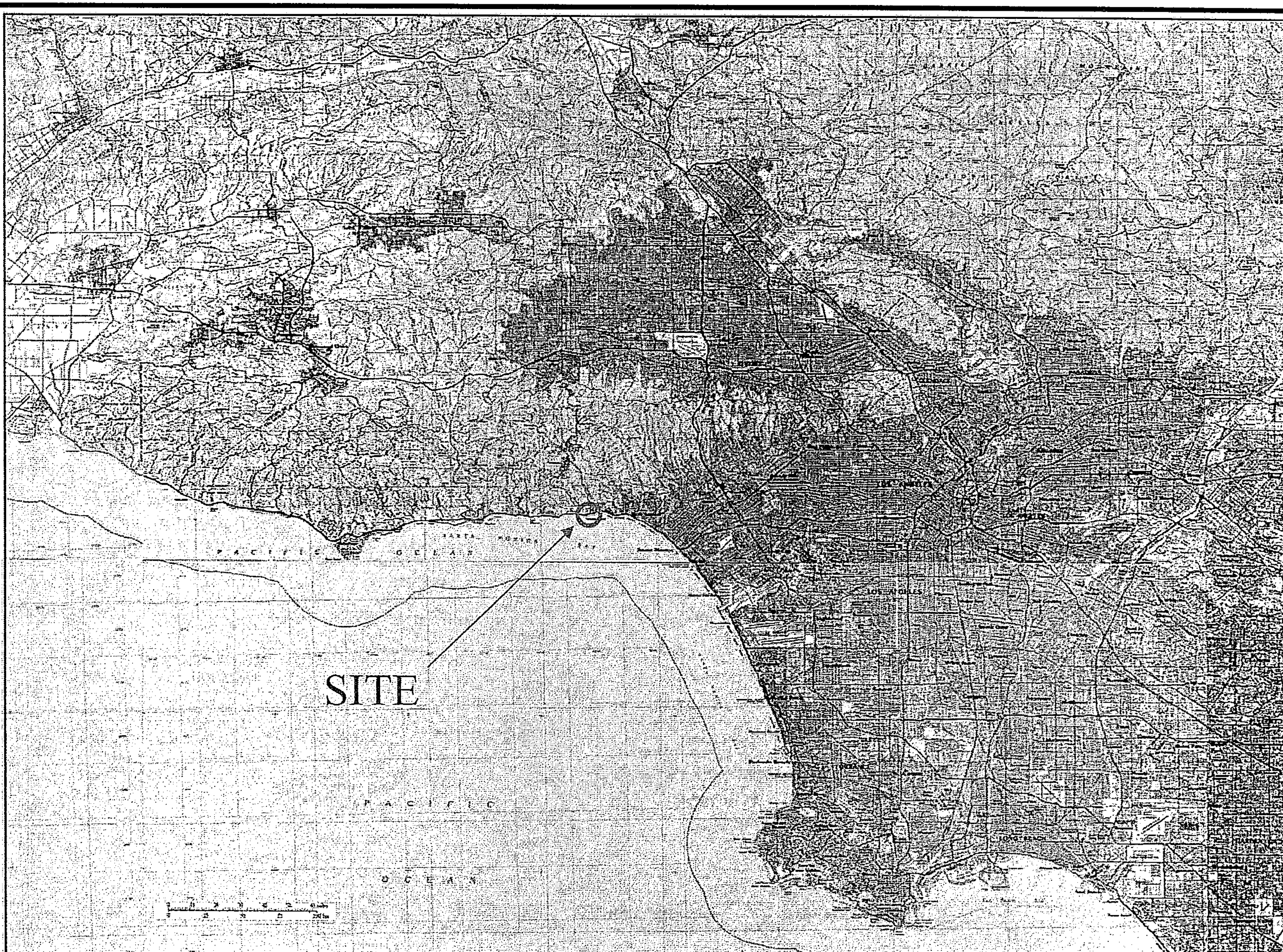
Our understanding of the project is based on our discussions with Ms. Rosi Dagit of the RCDSMM. It is our understanding that the Rodeo Grounds Berm has been identified as a significant constraint to the natural hydraulic processes of Topanga Creek and has impacted fish habitat upstream and downstream of the berm. The goal of the project is to remove the berm, which will restore the creek to its original condition and restore fish habitat.

The objective of the soil investigation was to collect subsurface data to characterize the proposed material to be removed in order to evaluate disposal options and costs.

1.2 Description of Berm

The Rodeo Grounds Berm is located on the west edge of Topanga Creek approximately 2,500 feet upstream from the Pacific Ocean. The source of the berm fill material and methods used to construct the berm are undocumented. According to conversations by Ms. Dagit with local residents, it appears that the berm was built in two stages. The berm was initially constructed in 1969 after a major flood event to protect residences living immediately downstream of Topanga Creek. Additional fill material was placed on the berm after another flood event in 1980. According to local residences, the sources of at least a portion of the berm fill material may have been imported from Topanga Canyon Boulevard and a Lincoln Boulevard road demolition in Marina Del Rey.

The berm is trapezoidal in shape, and a dirt road, Rodeo Grounds Road, passes over the top of the berm. The berm is approximately 1,000 feet long and varies in width between approximately 40 feet and 100 feet, as shown on Figure 2. According to GPS survey data collected by RCDSMM staff, the total surface area of the berm (from toe to toe) is

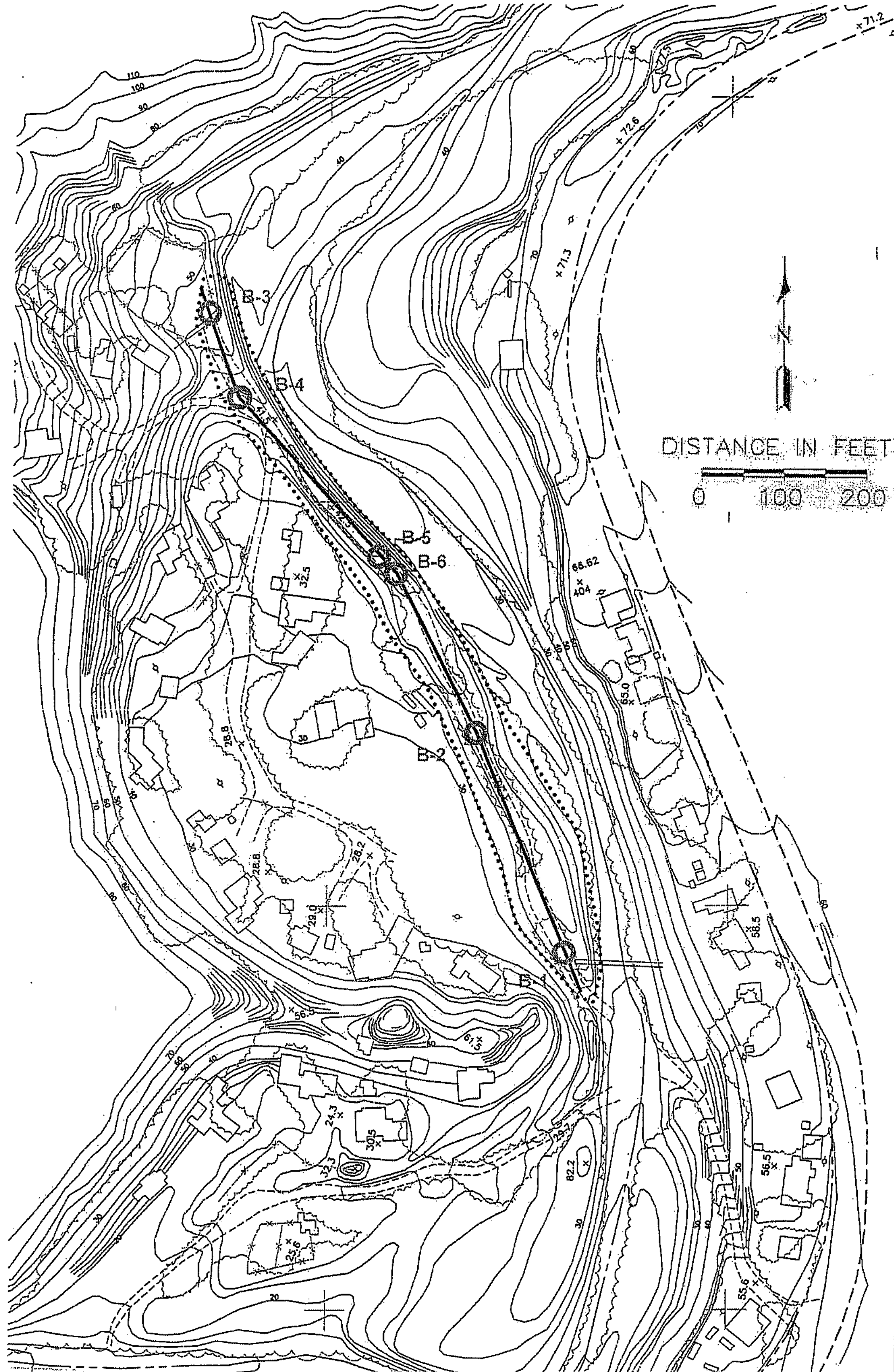


GeoPentech

SITE LOCATION

PROJECT: RODEO GROUNDS BERM STUDY

PROJECT #: 05015A | DATE: APR. 2005 | FIGURE: 1

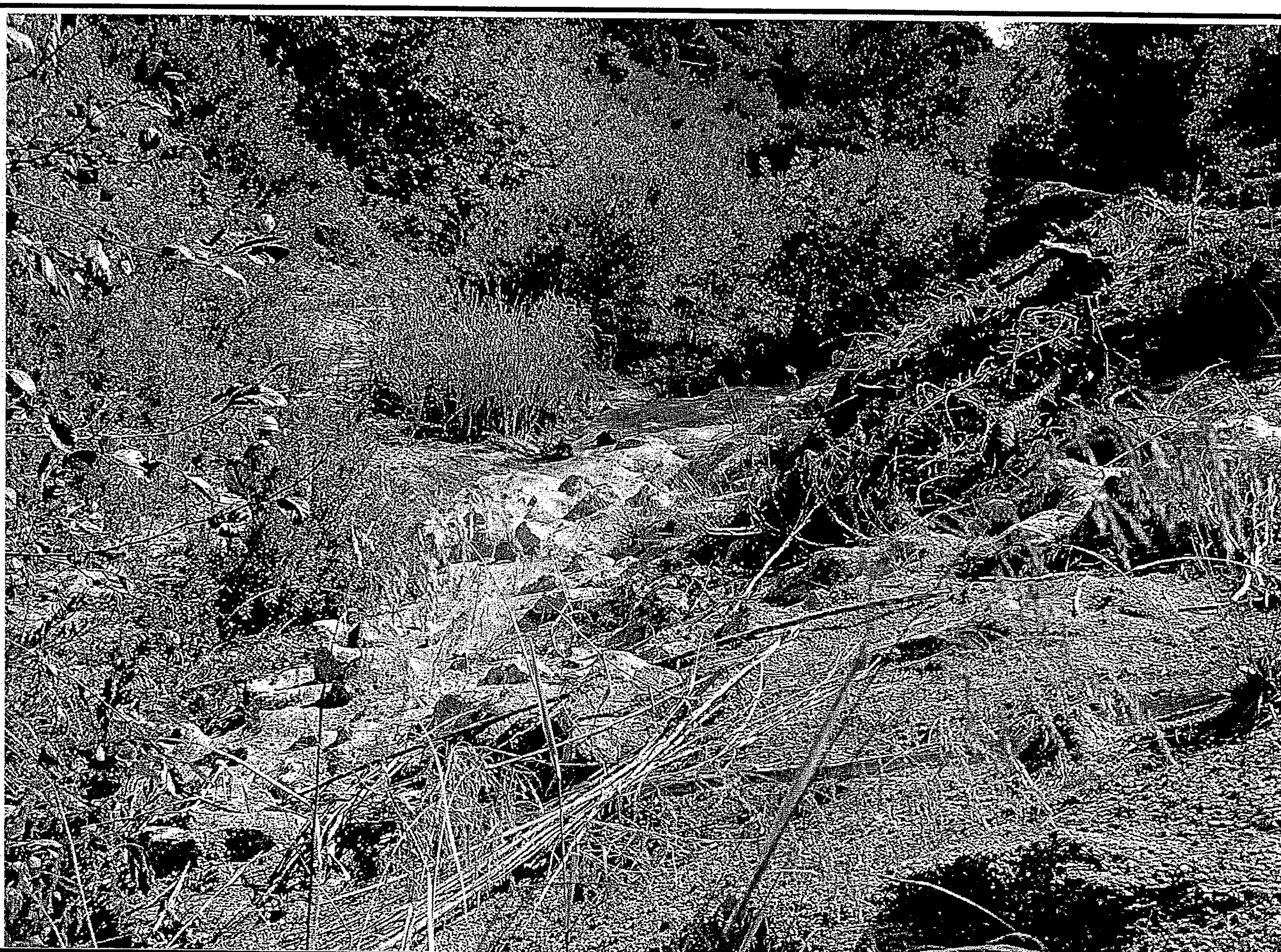


LEGEND

B-1 ◯ Borehole Location ·········· Approximate Berm Extents ———— Approximate Profile Location

GeoPentech	BOREHOLE LOCATION MAP	PROJECT: RODEO GROUNDS BERM STUDY		
		PROJECT #: 05015A	DATE: APR. 2005	FIG: 2

approximately 80,000 ft^2 (1.8 acres). Also, the east berm slope is covered with concreted in place boulders for erosion control, as shown on Figure 3.



GeoPentech	CONCRETED IN-PLACE BOULDERS ALONG EAST BERM SLOPE	PROJECT: RODEO GROUNDS BERM STUDY		
		PROJECT #: 05015A	DATE: APR. 2005	FIGURE: 3

2.0 SCOPE OF WORK

The following four tasks were performed as part of our soil investigation for the Rodeo Grounds Berm Removal Study:

Task 1: Performed a field investigation that included advancing six hollow stem auger boreholes.

Task 2: Performed chemical laboratory tests on soil samples collected during the field investigation.

Task 3: Developed a characterization of the site's soils, based on the results of Tasks 1 and 2. The characterization forms the basis for the evaluation of the soil disposal options and approximate costs.

Task 4: Prepared this report to present the results of the soil evaluation.

Results of the above tasks are summarized below.

3.0 FIELD INVESTIGATION

Six hollow stem auger boreholes (B-1 through B-6) were completed on February 17, 2005. The boreholes were located throughout and within the area of the proposed berm removal. The approximate locations of the boreholes and the approximate extents of the berm are shown on Figure 2.

3.1 Hollow Stem Auger Boreholes

The boreholes were conducted under the direct supervision of a geologist from Geopentech. The hollow-stem auger boreholes were advanced by Layne Christensen Drilling. The boreholes were advanced using an all-terrain CME 750 drill rig using an 8-inch outside diameter hollow-stem auger to depths ranging from about 6.5 feet to about 18.5 feet below existing grade (about elevation 18.5 feet to about 30 feet above sea level). The depths of the boreholes were targeted to extend to just below the base of the berm fill; however borehole B-5 hit refusal at a depth of 6.5 feet within the berm fill materials on an apparent sandstone boulder. As a result, borehole B-6 was drilled nearby to obtain additional deeper subsurface information. During drilling, subsurface conditions were logged and recorded. The soil materials were visually classified in accordance with the Unified Soil Classification System. A key to the log of the hollow-stem auger boreholes and the logs of the boreholes are presented in Attachment A.

Drive-samples were collected at between 2- to 5-foot intervals in the boreholes, using an 18-inch long modified California sampler. The modified California sampler was driven 18 inches or to refusal into the bottom of the borehole by repeatedly dropping a 140-pound hammer 30 inches. Samples collected by the California sampler were stored in brass tubes and sealed with vinyl caps. Samples collected during the drilling were labeled, stored, and transported to Calscience Environmental Laboratories, Inc. in Garden Grove, California for further examination and testing. Also, a bag sample of composited drill cuttings for the entire length of borehole was collected at each borehole location.

Upon completion of drilling the boreholes were backfilled with the excavated cuttings. Backfill in the borehole was compacted using a tamper attached to the drill rig. After the borehole was backfilled, the ground surface was restored.

3.2 Borehole Results

Two geologic units, "Fill" and "Creek Deposits", were encountered during the field investigation. These two units and the groundwater conditions are discussed below.

Fill

The fill was encountered from the ground surface to a depth of between about 12 and 14.5 feet below ground surface (about elevation 22.5 feet to 33.5 feet above sea level). The fill primarily consisted of loose to medium dense, moist, silty sand (SM) to sand (SP) with some layers of dense to very dense silty sand with gravel (SM) and silty clayey sand (SC-SM). Borehole B-3 drilled at the north end of the berm consisted of stiff to very stiff, moist sandy clay (CL) and loose, moist, clayey sand (SC). Also, an approximately 5-foot thick zone of fill material with fragments of asphalt was encountered in boreholes B-3, B-4, and B-6.

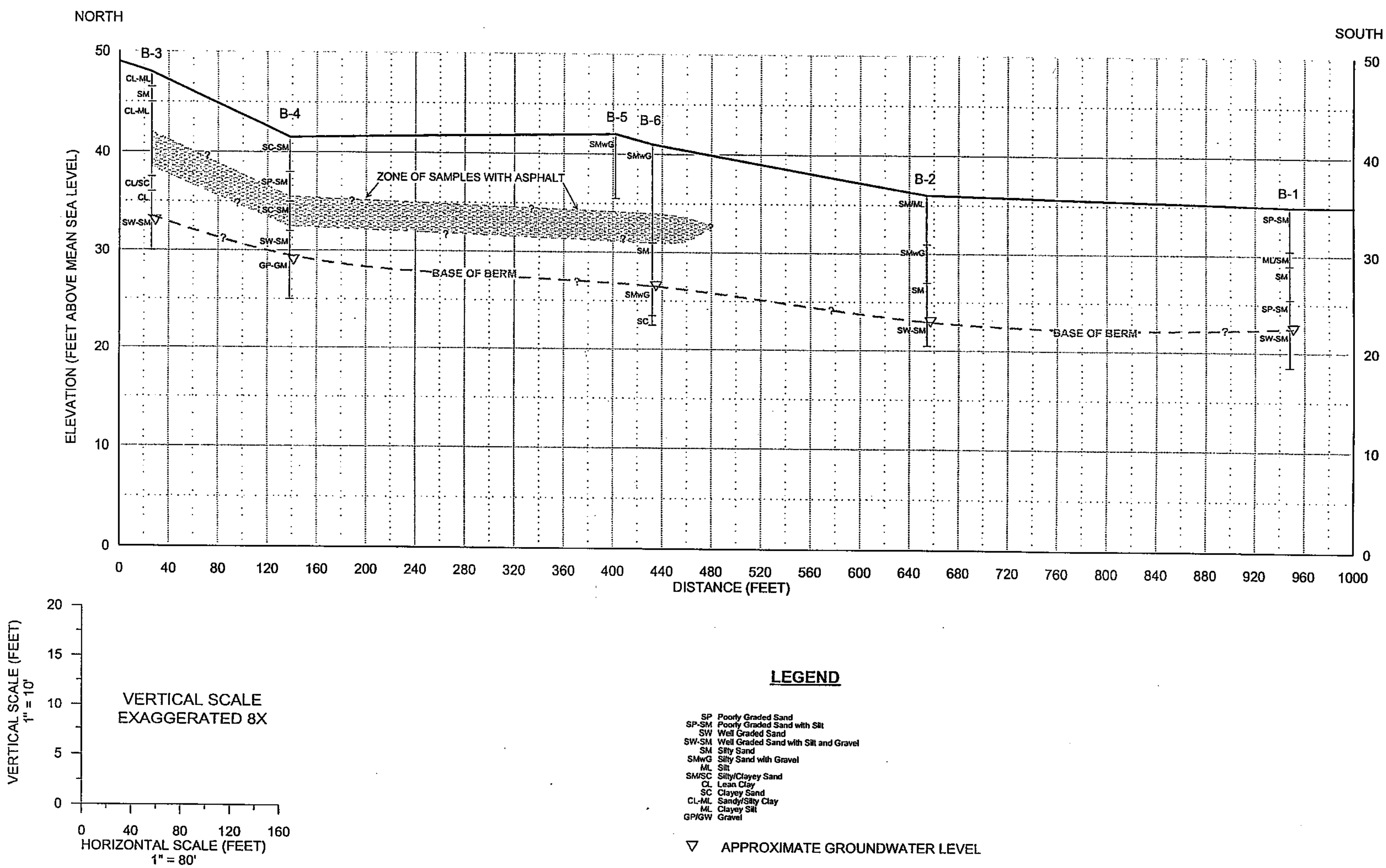
The borehole results are shown on the profile in Figure 4. This profile shows the distribution of soil types encountered in the boreholes, the groundwater elevation encountered in the boreholes, the estimated base of the berm fill, and the estimated zone of fill material with asphalt fragments.

Topanga Creek Deposits

The Topanga Creek Deposits were encountered below the Fill. The Creek Deposits primarily consisted of medium dense to dense, wet, well-graded sand to poorly graded gravel with silt and gravel (SW-SM to GP-GM). Within borehole B-6, the Creek Deposits consisted of loose, wet, silty sand with gravel (SM) and very dense, wet clayey sand (SC).

Groundwater

The groundwater surface was encountered in all the boreholes except B-5, which encountered refusal at a depth of 6.5 feet. Generally, the groundwater surface was encountered in the Creek Deposits at depths between approximately 12 and 14.5 feet below ground surface (about elevation 22.5 feet to 33.5 feet above sea level). The depth to groundwater generally correlated with the depth to the top of the Creek Deposits (or the base of the Fill).



LEGEND

SP	Poorly Graded Sand
SP-SM	Poorly Graded Sand with Silt
SW	Well Graded Sand
SW-SM	Well Graded Sand with Silt and Gravel
SM	Silty Sand
SMwG	Silty Sand with Gravel
ML	Silt
SM/SC	Silty/Clayey Sand
CL	Lean Clay
SC	Clayey Sand
CL-ML	Sandy/Silty Clay
ML	Clayey Silt
GP/GW	Gravel

▽ APPROXIMATE GROUNDWATER LEVEL

NOTE: SEE FIGURE 2 FOR LOCATION OF PROFILE.

GeoPentech	Project: RODEO GROUNDS BERM STUDY	Project No.: 05015A	GEOLOGIC PROFILE	Date: APR. 2005	Figure: 4

4.0 LABORATORY TESTING

The laboratory testing program performed for the Rodeo Grounds Berm site included chemical tests for waste characterization of the berm fill soil for disposal options. The chemical tests were performed in general accordance with applicable procedures of the Environmental Protection Agency (EPA).

4.1 Chemical Testing Procedures

Both the federal government (US EPA), as part of the Resource Conservation and Recovery Act (RCRA), and the state government (California Department of Health Services (DHS) / Department of Toxic Substances Control (DTSC)), as part of the California Code of Regulations (CCR) Title 22, have developed regulations for waste disposal in either municipal or hazardous waste landfills. These regulations focus on the leaching characteristics of the chemical compounds contained in the waste under conditions that are designated to simulate the environment of a municipal landfill, where water may pass through landfill waste and travel into the groundwater, carrying the soluble materials with it.

Two leaching test procedures are used by the state of California. These procedures are known as the Total Threshold Limit Concentration (TTLC) leaching test and the Soluble Threshold Limit Concentration (STLC) leaching test. The TTLC test can be performed relatively fast and involves 1.5 hours of extraction in strong acid. The STLC test takes longer to complete and involves 48 hours of extraction using a citric acid leaching solution. The federal leaching procedure is known as the Toxic Characteristic Leaching Procedure (TCLP) leaching test and involves 18 hours of extraction with an acetic acid leaching solution. In general, the California method (STLC) is a more aggressive test than the federal method (TCLP) and results in higher measured chemical concentrations. California has adopted stricter criteria regarding hazardous waste classification; therefore, material classified by California standards (STLC) as hazardous may be recognized in other states as non-hazardous following federal standards (TCLP). The federal and state hazardous waste regulatory limits using TTLC, STLC, and TCLP testing procedures are summarized on Table 1.

The TTLC analysis determines the total concentration of each target analyte in a sample and is usually performed first. When any target analyte exceeds the TTLC limit shown on Table 1, the waste is classified as hazardous, and further testing is not required. If the TTLC result is below the TTLC limit and above ten times the STLC limit, than the STLC test must be

TABLE 1
STATE (TITLE 22-TTLC, STLC) AND FEDERAL (RCRA-TCLP) HAZARDOUS WASTE CRITERIA

Inorganic Parameters/Metals (Methods: EPA 6010B, 7000 Series)			
	TTLC[a]	STLC	TCLP
Parameters	mg/kg	mg/l	mg/l
Antimony	500	15	
Arsenic	500	5	5
Barium	10,000[b]	100	100
Beryllium	75	0.75	
Cadmium	100	1	1
Chromium	2,500	5 (560)	5
Cobalt	8,000	80	
Copper	2,500	25	
Lead	1,000	5	5
Mercury	20	0.2	0.2
Molybdenum	3,500	350	
Nickel	2,000	20	
Selenium	100	1	1
Silver	500	5	5
Thallium	700	7	
Vanadium	2,400	24	
Zinc	5,000	250	
Chromium (VI)	500	5	
Fluoride Salts	18,000	180	
Asbestos	1%		
Volatiles (Method: EPA 8260B)			
Benzene			0.5
Carbon tetrachloride			0.5
Chlorobenzene			100
Chloroform			6
1,4-Dichlorobenzene			7.5
1,2-Dichloroethane			0.5
1,1-Dichloroethylene			0.7
Methyl ethyl ketone (MEK)			200
Tetrachloroethylene (PCE)			0.7
Trichloroethylene (TCE)	2,040	204	0.5
Vinyl chloride			0.2
[a] Values expressed as wet weight [b] Excluding barium sulfate			

Chlorophenoxy Acid Herbicides (Method: EPA 8151A)			
	TTLC[a]	STLC	TCLP
Compound	mg/kg	mg/l	mg/l
2,4-Dichlorophenoxyacetic acid	100	10	10
2,4,5-TP (Silvex)	10	1	1
Organochlorine Pesticides / PCBs (Method: EPA 8081A)			
Aldrin	1.4	0.14	
Chlordane	2.5	0.25	0.03
DDT/DDE/DDD	1	0.1	
Dieldrin	8	0.8	
Endrin	0.2	0.02	0.02
Heptachlor (& its Epoxide)	4.7	0.47	0.008
Kepone	21	2.1	
Lindane	4	0.4	0.4
Methoxychlor	100	10	10
Mirex	21	2.1	
Toxaphene	5	0.5	0.5
Semi-Volatiles (Method: EPA 8270C)			
o-Cresol			200
m-Cresol			200
p-Cresol			200
Cresols (Total)			200
2,4-Dinitrotoluene			0.13
Hexachlorobenzene			0.13
Hexachlorobutadiene			0.5
Hexachloroethane			3
Nitrobenzene			2
Pentachlorophenol	17	1.7	100
Pyridine			5
2,4,5-Trichlorophenol			400
2,4,6-Trichlorophenol			2
Miscellaneous (Methods: EPA 8280*, CADHS-LUFT/7420)**			
Dioxin (2,3,7,8-TCDD)*	0.01	0.001	
Organic Lead Compounds**	13		
See Sec. 22-66261.27.(a)(7) for Additional Toxicity Compound/Criteria.			
Title (26) 22 Toxicity Criteria Section 22-66261.24			

performed. If the result of the STLC test is above the STLC limit, the material is considered California classified hazardous waste, and if the result of the STLC test is below the STLC limit, the material is considered non-hazardous for that analyte.

If the TTLC result is below the TTLC limit and above twenty times the TCLP limit, than the TCLP test may be performed. If the TCLP test result is above the TCLP limit, than the material is considered federally classified hazardous waste, and if the result of the TCLP test is below the TCLP limit, the material is considered by federal classification as non-hazardous for that analyte. If the TTLC result is less than ten times the STLC or twenty times the TCLP than the material is considered non hazardous for that analyte.

For example, the TTLC, STLC, and TCLP for lead on Table 1 are 1,000 mg/kg, 5 mg/l, and 5 mg/l, respectively. If the TTLC result for lead is above 1,000 mg/kg than the material is considered hazardous waste. If the TTLC result is below 1,000 mg/kg and above ten times the STLC (10 x 5 mg/l) or 50, a STLC test must be performed. If the result of the STLC is above 5 mg/l, the material is classified as California hazardous waste. If the TTLC result is below 1,000 mg/kg and above twenty times the TCLP (20 x 5 mg/l) or 100, a TCLP test may be performed. If result of the TCLP test is above 5 mg/l the material is federally classified as hazardous waste. Otherwise, the material is classified as non-hazardous for lead.

4.2 Chemical Test Results

The chemical tests were performed at the laboratory facilities of Calscience Environmental Laboratories, Inc. in Garden Grove, California. A total of 10 samples were prepared for testing. Samples were analyzed for metals (EPA 6010B, EPA 7471A), volatile organics (EPA 8260B), semi-volatile organics (EPA 8270C), and total petroleum hydrocarbons (DHS LUFT). The sample locations and testing procedures are summarized in the Table 2. The data from the chemical laboratory testing are included in Appendix B. Appendix B contains the laboratory datasheets for the chemical test results as well as the quality control results.

The results of the chemical testing are summarized on Tables 3 and 4. Table 3 summarizes the compounds that were detected using TTLC procedures sorted by sample number, and Table 4 summarizes the compounds that were detected using TTLC procedures sorted by compound. As shown on Tables 3 and 4, the tested compound concentrations were below the TTLC hazardous waste criteria, where designated, shown on Table 1. With the exception of

TABLE 2
SAMPLE LOCATION AND TESTING PROCEDURES

BOREHOLE ID	DEPTH (FT)	SAMPLE ID	TEST PROCEDURES		
			TTLC	STLC (LEAD)	TCLP (LEAD)
B-1	3 - 3.5 and 6 - 6.5 (composite)	COMP(B1-CA-1B, B1-CA-2B)	X		
B-1	11 - 11.5	B1-CA-3B	X		
B-2	3 - 3.5 and 6 - 6.5 (composite)	COMP(B2-CA-1B, B2-CA-2B)	X		
B-2	9 - 9.5 and 12 - 12.5 (composite)	COMP(B2-CA-3B, B2-CA-4)	X	X	X
B-3	12 - 12.5	B3-CA-4B	X		
B-4	3.5 - 4	B4-CA-1B	X		
B-5	4 - 4.5	B5-CA-1B	X	X	X
B-6	4- 4.5	B6-CA-1B	X		
B-6	10 – 10.5 and 13 – 13.5 (composite)	COMP(B6-CA-3, B6-CA-4)	X	X	X
B-3, B-4, B-6	6 – 6.5, 6 – 6.5, and 7 – 7.5 (composite)	COMP(B3-CA-2B, B4-CA-2B, B6-CA-2B)	X	X	X

TABLE 3
DETECTED COMPOUNDS USING TTLC PROCEDURES SORTED BY SAMPLE ID

SAMPLE ID	COMPOUND NAME	TTLC CONCENTRATION	UNITS
COMP(B1-CA-1B, B1-CA-2B)			
COMP (B1-CA-1B, B1-CA-2B)	Arsenic	3.43	mg/kg
COMP (B1-CA-1B, B1-CA-2B)	Barium	87.4	mg/kg
COMP (B1-CA-1B, B1-CA-2B)	Beryllium	0.450	mg/kg
COMP (B1-CA-1B, B1-CA-2B)	Chromium (Total)	19.7	mg/kg
COMP (B1-CA-1B, B1-CA-2B)	Cobalt	9.14	mg/kg
COMP (B1-CA-1B, B1-CA-2B)	Copper	25.8	mg/kg
COMP (B1-CA-1B, B1-CA-2B)	Lead	10.1	mg/kg
COMP (B1-CA-1B, B1-CA-2B)	Nickel	29.5	mg/kg
COMP (B1-CA-1B, B1-CA-2B)	Vanadium	27.3	mg/kg
COMP (B1-CA-1B, B1-CA-2B)	Zinc	53.4	mg/kg
B1-CA-3B			
B1-CA-3B	Arsenic	2.41	mg/kg
B1-CA-3B	Barium	52.2	mg/kg
B1-CA-3B	Chromium (Total)	11.0	mg/kg
B1-CA-3B	Cobalt	5.65	mg/kg
B1-CA-3B	Copper	10.9	mg/kg
B1-CA-3B	Lead	3.25	mg/kg
B1-CA-3B	Nickel	20.7	mg/kg
B1-CA-3B	Vanadium	15.9	mg/kg
B1-CA-3B	Zinc	26.6	mg/kg
COMP(B2-CA-1B, B2-CA-2B)			
COMP (B2-CA-1B, B2-CA-2B)	Arsenic	4.71	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Barium	113	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Beryllium	0.417	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Cadmium	0.837	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Chromium (Total)	24.8	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Cobalt	9.28	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Copper	29.9	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Lead	109	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Mercury	0.103	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Molybdenum	0.284	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Nickel	25.2	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Silver	0.317	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Vanadium	33.3	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Zinc	107	mg/kg
COMP(B2-CA-3B, B2-CA-4)			
COMP (B2-CA-3B, B2-CA-4)	Arsenic	2.92	mg/kg
COMP (B2-CA-3B, B2-CA-4)	Barium	53.6	mg/kg
COMP (B2-CA-3B, B2-CA-4)	Chromium (Total)	12.2	mg/kg
COMP (B2-CA-3B, B2-CA-4)	Cobalt	6.63	mg/kg
COMP (B2-CA-3B, B2-CA-4)	Copper	20.6	mg/kg
COMP (B2-CA-3B, B2-CA-4)	Lead	9.19	mg/kg
COMP (B2-CA-3B, B2-CA-4)	Nickel	29.4	mg/kg
COMP (B2-CA-3B, B2-CA-4)	Vanadium	18.2	mg/kg
COMP (B2-CA-3B, B2-CA-4)	Zinc	41.6	mg/kg

TABLE 3
DETECTED COMPOUNDS USING TTLC PROCEDURES SORTED BY SAMPLE ID

SAMPLE ID	COMPOUND NAME	TTLC CONCENTRATION	UNITS
B3-CA-4B			
B3-CA-4B	1,2-Dichlorobenzene	5.3	ug/kg
B3-CA-4B	Arsenic	12.8	mg/kg
B3-CA-4B	Barium	130	mg/kg
B3-CA-4B	Beryllium	0.636	mg/kg
B3-CA-4B	Cadmium	0.591	mg/kg
B3-CA-4B	Chromium (Total)	34.3	mg/kg
B3-CA-4B	Cobalt	12.1	mg/kg
B3-CA-4B	Copper	31.6	mg/kg
B3-CA-4B	Lead	8.18	mg/kg
B3-CA-4B	Nickel	34.1	mg/kg
B3-CA-4B	Vanadium	48.2	mg/kg
B3-CA-4B	Zinc	78.6	mg/kg
B4-CA-1B			
B4-CA-1B	Arsenic	3.76	mg/kg
B4-CA-1B	Barium	117	mg/kg
B4-CA-1B	Beryllium	0.286	mg/kg
B4-CA-1B	Chromium (Total)	15.0	mg/kg
B4-CA-1B	Cobalt	5.85	mg/kg
B4-CA-1B	Copper	35.8	mg/kg
B4-CA-1B	Lead	1.93	mg/kg
B4-CA-1B	Nickel	7.38	mg/kg
B4-CA-1B	Silver	0.457	mg/kg
B4-CA-1B	Vanadium	21.4	mg/kg
B4-CA-1B	Zinc	37.9	mg/kg
B5-CA-1B			
B5-CA-1B	Arsenic	4.44	mg/kg
B5-CA-1B	Barium	103	mg/kg
B5-CA-1B	Beryllium	0.292	mg/kg
B5-CA-1B	Chromium (Total)	18.4	mg/kg
B5-CA-1B	Cobalt	7.97	mg/kg
B5-CA-1B	Copper	36.0	mg/kg
B5-CA-1B	Lead	163	mg/kg
B5-CA-1B	Nickel	18.0	mg/kg
B5-CA-1B	Silver	0.270	mg/kg
B5-CA-1B	Vanadium	29.3	mg/kg
B5-CA-1B	Zinc	94.6	mg/kg
B6-CA-1B			
B6-CA-1B	Arsenic	2.66	mg/kg
B6-CA-1B	Barium	35.6	mg/kg
B6-CA-1B	Beryllium	0.296	mg/kg
B6-CA-1B	Chromium (Total)	19.8	mg/kg
B6-CA-1B	Cobalt	6.12	mg/kg
B6-CA-1B	Copper	14.7	mg/kg
B6-CA-1B	Lead	5.77	mg/kg
B6-CA-1B	Nickel	22.8	mg/kg
B6-CA-1B	Vanadium	24.4	mg/kg
B6-CA-1B	Zinc	37.7	mg/kg

TABLE 3
DETECTED COMPOUNDS USING TTLC PROCEDURES SORTED BY SAMPLE ID

SAMPLE ID	COMPOUND NAME	TTLC CONCENTRATION	UNITS
COMP(B6-CA-3, B6-CA-4)			
COMP (B6-CA-3, B6-CA-4)	1,2,4-Trimethylbenzene	10	ug/kg
COMP (B6-CA-3, B6-CA-4)	Acetone	130	ug/kg
COMP (B6-CA-3, B6-CA-4)	Arsenic	5.64	mg/kg
COMP (B6-CA-3, B6-CA-4)	Barium	116	mg/kg
COMP (B6-CA-3, B6-CA-4)	Beryllium	0.342	mg/kg
COMP (B6-CA-3, B6-CA-4)	Chromium (Total)	31.9	mg/kg
COMP (B6-CA-3, B6-CA-4)	Cobalt	8.54	mg/kg
COMP (B6-CA-3, B6-CA-4)	Copper	44.0	mg/kg
COMP (B6-CA-3, B6-CA-4)	Lead	95.9	mg/kg
COMP (B6-CA-3, B6-CA-4)	Mercury	0.0977	mg/kg
COMP (B6-CA-3, B6-CA-4)	Molybdenum	3.26	mg/kg
COMP (B6-CA-3, B6-CA-4)	Nickel	21.9	mg/kg
COMP (B6-CA-3, B6-CA-4)	o-Xylene	5.3	ug/kg
COMP (B6-CA-3, B6-CA-4)	p/m-Xylene	13	ug/kg
COMP (B6-CA-3, B6-CA-4)	Silver	0.421	mg/kg
COMP (B6-CA-3, B6-CA-4)	Toluene	5.8	ug/kg
COMP (B6-CA-3, B6-CA-4)	Vanadium	31.6	mg/kg
COMP (B6-CA-3, B6-CA-4)	Zinc	93.3	mg/kg
COMP(B3-CA-2B, B4-CA-2B, B6-CA-2B)			
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	1,2,4-Trimethylbenzene	32	ug/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	1,3,5-Trimethylbenzene	12	ug/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	Arsenic	5.27	mg/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	Barium	120	mg/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	Beryllium	0.398	mg/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	Chromium (Total)	26.4	mg/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	Cobalt	10.0	mg/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	Copper	49.6	mg/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	Lead	113	mg/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	Nickel	24.9	mg/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	o-Xylene	12	ug/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	p/m-Xylene	24	ug/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	Toluene	15	ug/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	Vanadium	38.4	mg/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	Zinc	112	mg/kg

TABLE 4
DETECTED COMPOUNDS USING TTLC PROCEDURES SORTED BY COMPOUND NAME

SAMPLE ID	COMPOUND NAME	TTLC CONCENTRATION	UNITS
1,2,4-TRIMETHYLBENZENE			
COMP (B6-CA-3, B6-CA-4)	1,2,4-Trimethylbenzene	10	ug/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	1,2,4-Trimethylbenzene	32	ug/kg
1,2-DICHLOROBENZENE			
B3-CA-4B	1,2-Dichlorobenzene	5.3	ug/kg
1,3,5-TRIMETHYLBENZENE			
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	1,3,5-Trimethylbenzene	12	ug/kg
ACETONE			
COMP (B6-CA-3, B6-CA-4)	Acetone	130	ug/kg
ARSENIC			
B1-CA-3B	Arsenic	2.41	mg/kg
B6-CA-1B	Arsenic	2.66	mg/kg
COMP (B2-CA-3B, B2-CA-4)	Arsenic	2.92	mg/kg
COMP (B1-CA-1B, B1-CA-2B)	Arsenic	3.43	mg/kg
B4-CA-1B	Arsenic	3.76	mg/kg
B5-CA-1B	Arsenic	4.44	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Arsenic	4.71	mg/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	Arsenic	5.27	mg/kg
COMP (B6-CA-3, B6-CA-4)	Arsenic	5.64	mg/kg
B3-CA-4B	Arsenic	12.8	mg/kg
BARIUM			
B6-CA-1B	Barium	35.6	mg/kg
B1-CA-3B	Barium	52.2	mg/kg
COMP (B2-CA-3B, B2-CA-4)	Barium	53.6	mg/kg
COMP (B1-CA-1B, B1-CA-2B)	Barium	87.4	mg/kg
B5-CA-1B	Barium	103	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Barium	113	mg/kg
COMP (B6-CA-3, B6-CA-4)	Barium	116	mg/kg
B4-CA-1B	Barium	117	mg/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	Barium	120	mg/kg
B3-CA-4B	Barium	130	mg/kg
BERYLLIUM			
B4-CA-1B	Beryllium	0.286	mg/kg
B5-CA-1B	Beryllium	0.292	mg/kg
B6-CA-1B	Beryllium	0.296	mg/kg
COMP (B6-CA-3, B6-CA-4)	Beryllium	0.342	mg/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	Beryllium	0.398	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Beryllium	0.417	mg/kg
COMP (B1-CA-1B, B1-CA-2B)	Beryllium	0.450	mg/kg
B3-CA-4B	Beryllium	0.636	mg/kg
CADMIUM			
B3-CA-4B	Cadmium	0.591	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Cadmium	0.837	mg/kg

TABLE 4
DETECTED COMPOUNDS USING TTLC PROCEDURES SORTED BY COMPOUND NAME

SAMPLE ID	COMPOUND NAME	TTLC CONCENTRATION	UNITS
CHROMIUM (TOTAL)			
B1-CA-3B	Chromium (Total)	11.0	mg/kg
COMP (B2-CA-3B, B2-CA-4)	Chromium (Total)	12.2	mg/kg
B4-CA-1B	Chromium (Total)	15.0	mg/kg
B5-CA-1B	Chromium (Total)	18.4	mg/kg
COMP (B1-CA-1B, B1-CA-2B)	Chromium (Total)	19.7	mg/kg
B6-CA-1B	Chromium (Total)	19.8	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Chromium (Total)	24.8	mg/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	Chromium (Total)	26.4	mg/kg
COMP (B6-CA-3, B6-CA-4)	Chromium (Total)	31.9	mg/kg
B3-CA-4B	Chromium (Total)	34.3	mg/kg
COBALT			
B1-CA-3B	Cobalt	5.65	mg/kg
B4-CA-1B	Cobalt	5.85	mg/kg
B6-CA-1B	Cobalt	6.12	mg/kg
COMP (B2-CA-3B, B2-CA-4)	Cobalt	6.63	mg/kg
B5-CA-1B	Cobalt	7.97	mg/kg
COMP (B6-CA-3, B6-CA-4)	Cobalt	8.54	mg/kg
COMP (B1-CA-1B, B1-CA-2B)	Cobalt	9.14	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Cobalt	9.28	mg/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	Cobalt	10.0	mg/kg
B3-CA-4B	Cobalt	12.1	mg/kg
COPPER			
B1-CA-3B	Copper	10.9	mg/kg
B6-CA-1B	Copper	14.7	mg/kg
COMP (B2-CA-3B, B2-CA-4)	Copper	20.6	mg/kg
COMP (B1-CA-1B, B1-CA-2B)	Copper	25.8	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Copper	29.9	mg/kg
B3-CA-4B	Copper	31.6	mg/kg
B4-CA-1B	Copper	35.8	mg/kg
B5-CA-1B	Copper	36.0	mg/kg
COMP (B6-CA-3, B6-CA-4)	Copper	44.0	mg/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	Copper	49.6	mg/kg
LEAD			
B4-CA-1B	Lead	1.93	mg/kg
B1-CA-3B	Lead	3.25	mg/kg
B6-CA-1B	Lead	5.77	mg/kg
B3-CA-4B	Lead	8.18	mg/kg
COMP (B2-CA-3B, B2-CA-4)	Lead	9.19	mg/kg
COMP (B1-CA-1B, B1-CA-2B)	Lead	10.1	mg/kg
COMP (B6-CA-3, B6-CA-4)	Lead	95.9	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Lead	109	mg/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	Lead	113	mg/kg
B5-CA-1B	Lead	163	mg/kg
MERCURY			
COMP (B6-CA-3, B6-CA-4)	Mercury	0.0977	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Mercury	0.103	mg/kg
MOLYBDENUM			
COMP (B2-CA-1B, B2-CA-2B)	Molybdenum	0.284	mg/kg
COMP (B6-CA-3, B6-CA-4)	Molybdenum	3.26	mg/kg

TABLE 4
DETECTED COMPOUNDS USING TTLC PROCEDURES SORTED BY COMPOUND NAME

SAMPLE ID	COMPOUND NAME	TTLC CONCENTRATION	UNITS
NICKEL			
B4-CA-1B	Nickel	7.38	mg/kg
B5-CA-1B	Nickel	18.0	mg/kg
B1-CA-3B	Nickel	20.7	mg/kg
COMP (B6-CA-3, B6-CA-4)	Nickel	21.9	mg/kg
B6-CA-1B	Nickel	22.8	mg/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	Nickel	24.9	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Nickel	25.2	mg/kg
COMP (B2-CA-3B, B2-CA-4)	Nickel	29.4	mg/kg
COMP (B1-CA-1B, B1-CA-2B)	Nickel	29.5	mg/kg
B3-CA-4B	Nickel	34.1	mg/kg
o-XYLENE			
COMP (B6-CA-3, B6-CA-4)	o-Xylene	5.3	ug/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	o-Xylene	12	ug/kg
p/m-XYLENE			
COMP (B6-CA-3, B6-CA-4)	p/m-Xylene	13	ug/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	p/m-Xylene	24	ug/kg
SILVER			
B5-CA-1B	Silver	0.270	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Silver	0.317	mg/kg
COMP (B6-CA-3, B6-CA-4)	Silver	0.421	mg/kg
B4-CA-1B	Silver	0.457	mg/kg
TOLUENE			
COMP (B6-CA-3, B6-CA-4)	Toluene	5.8	ug/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	Toluene	15	ug/kg
VANADIUM			
B1-CA-3B	Vanadium	15.9	mg/kg
COMP (B2-CA-3B, B2-CA-4)	Vanadium	18.2	mg/kg
B4-CA-1B	Vanadium	21.4	mg/kg
B6-CA-1B	Vanadium	24.4	mg/kg
COMP (B1-CA-1B, B1-CA-2B)	Vanadium	27.3	mg/kg
B5-CA-1B	Vanadium	29.3	mg/kg
COMP (B6-CA-3, B6-CA-4)	Vanadium	31.6	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Vanadium	33.3	mg/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	Vanadium	38.4	mg/kg
B3-CA-4B	Vanadium	48.2	mg/kg
ZINC			
B1-CA-3B	Zinc	26.6	mg/kg
B6-CA-1B	Zinc	37.7	mg/kg
B4-CA-1B	Zinc	37.9	mg/kg
COMP (B2-CA-3B, B2-CA-4)	Zinc	41.6	mg/kg
COMP (B1-CA-1B, B1-CA-2B)	Zinc	53.4	mg/kg
B3-CA-4B	Zinc	78.6	mg/kg
COMP (B6-CA-3, B6-CA-4)	Zinc	93.3	mg/kg
B5-CA-1B	Zinc	94.6	mg/kg
COMP (B2-CA-1B, B2-CA-2B)	Zinc	107	mg/kg
COMP (B3-CA-2B, B4-CA-2B, B6-CA-2B)	Zinc	112	mg/kg

lead, these concentrations were also below ten times the STLC and below twenty times the TCLP hazardous waste criteria, where designated, as shown on Table 1.

As shown on Table 4, lead was detected in TTLC concentrations between 95.9 mg/kg and 163 mg/kg in samples COMP(B2-CA-1B, B2-CA-2B), COMP(B3-CA-2B, B4-CA-2B, B6-CA-2B), B5-CA-1B, and COMP(B6-CA-3, B6-CA-4). Because these lead concentrations were above 10 times the STLC and above 20 times the TCLP, these samples were tested for lead using STLC and TCLP procedures. The results of the STLC and TCLP tests for lead are presented in Table 5, and shown graphically on the profile on Figure 5. As shown on Table 5, lead was not detected in concentrations above 0.100 mg/L (detection limit) using TCLP procedures. However using STLC procedures, lead was detected in concentrations above hazardous waste levels (5 mg/L) in samples COMP(B2-CA-1B, B2-CA-2B), COMP(B3-CA-2B, B4-CA-2B, B6-CA-2B), and B5-CA-1B with a maximum STLC lead concentration of 6.17 mg/L. Because lead was detected below federal (TCLP) hazardous waste levels and above California (STLC) hazardous waste levels, this soil is considered non-RCRA, California hazardous waste for disposal purposes.

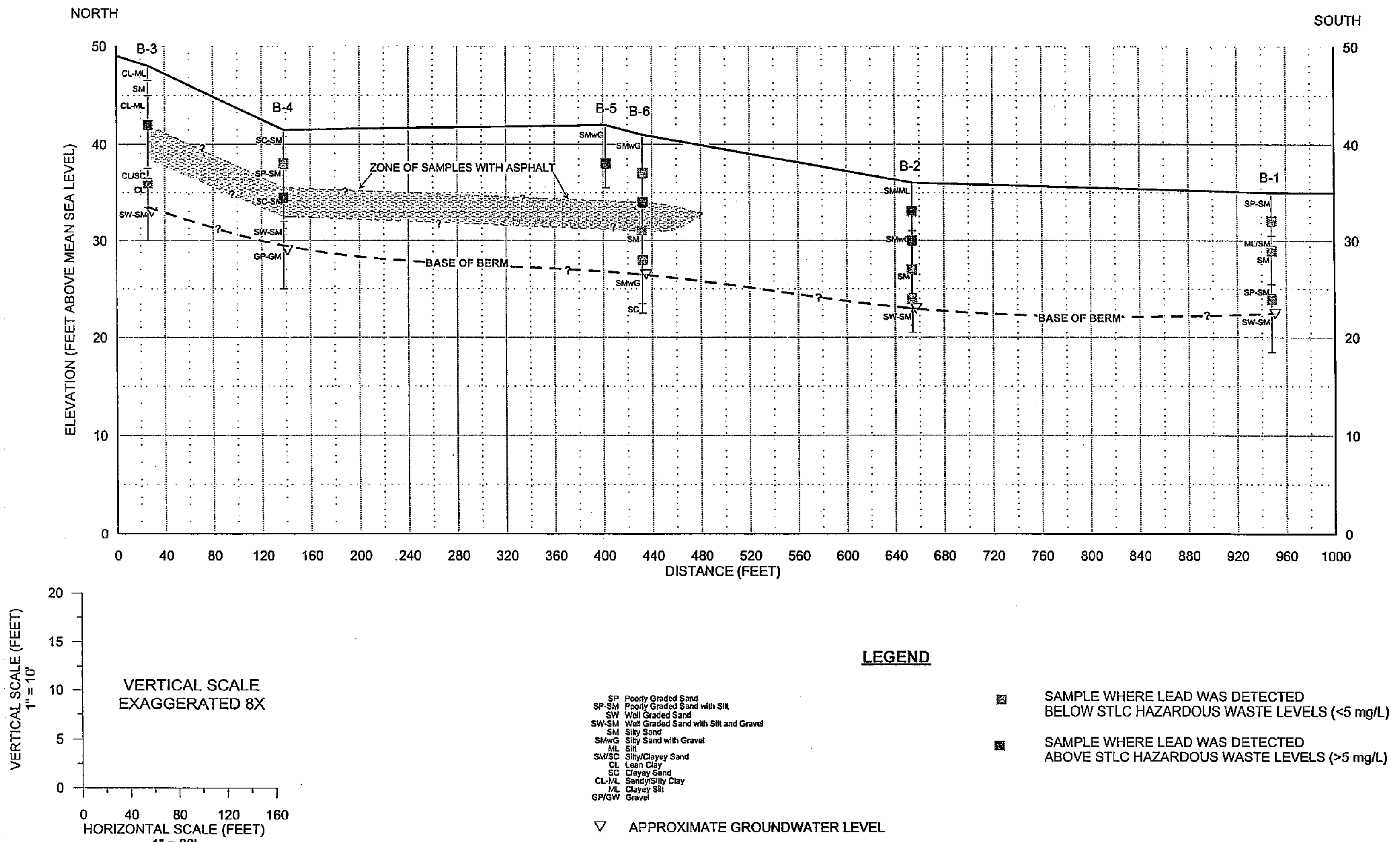
As shown on Figure 5; it appears the hazardous waste lead contamination is laterally continuous across the majority of the berm, with the exception of borehole B-1, which did not contain lead above hazardous waste levels. It also appears that the hazardous waste lead contamination is located within the upper approximately 8 feet of the berm.

It is possible that the lead contamination may be related to the source of the berm fill. Since at least a portion of the fill was imported from road demolitions or from soil adjacent to roads, it is likely that these materials were contaminated with lead prior to being imported and placed on the berm. The major source of lead in and around roads is due to the previous application of lead in gasoline. The lead is burned and enters the environment through the cars exhausts. The lead particles drop to the ground immediately and accumulate along and adjacent to the road.

TABLE 5

LEAD CONCENTRATION USING STLC AND TCLP TEST PROCEDURES

SAMPLE ID	CONCENTRATION		UNITS
	TCLP	STLC	
COMP(B2-CA-1B, B2-CA-2B)	<0.100	5.35	mg/L
B5-CA-1B	<0.100	6.07	mg/L
COMP(B6-CA-3, B6-CA-4)	<0.100	1.9	mg/L
COMP(B3-CA-2B, B4-CA-2B, B6-CA-2B)	<0.100	6.17	mg/L



NOTE: SEE FIGURE 2 FOR LOCATION OF PROFILE

GeoPentech	Project: RODEO GROUNDS BERM STUDY	Project No.: 05015A	GEOLOGIC PROFILE SHOWING DISTRIBUTION OF LEAD CONCENTRATION	Date: APR. 2005	Figure: 5

5.0 BERM FILL DISPOSAL OPTIONS AND COSTS

5.1 Approximate Disposal Volume and Weight

The total surface area of the trapezoidal Rodeo Grounds berm (from toe to toe) is approximately 80,000 ft^2. The total depth to the base of the berm based on the boreholes ranges between 12 and 14.5 feet below ground surface for an average of about 13 feet. The approximate volume of the berm fill is approximately the surface area of the berm multiplied by the berm depth divided by about two (because the berm is trapezoidal – not rectangular) or approximately 520,000 ft^3 (~19,000 yd^3). Assuming a unit weight of the berm fill soil of approximately 100 pounds per cubic foot, the total weight of the berm is approximately 26,000 tons.

At least a portion of the fill material is composed of non-RCRA, California hazardous waste. For the purposes of this evaluation, it is estimated that approximately two-thirds of the berm fill contains non-RCRA, California hazardous waste material, or approximately 17,000 tons. A more exact estimate of the quantity of hazardous waste material can be achieved by performing additional boreholes and chemical tests.

5.2 Disposal Options

It is envisioned that during berm removal that the hazardous and non-hazardous waste materials be stockpiled separately, and be disposed of at the appropriate facility that will accept the classified waste. Fill classified as non-hazardous will be accepted at minimal fees at the municipal landfill facilities operated by the Los Angeles County Sanitation District, for example the Puente Hills or Shoal Canyon landfills. It is noted that these landfills may have daily and weekly restrictions on the quantity of material that they accepted; therefore, it may be required that more than one landfill option be available.

Non-RCRA, California hazardous waste will not be accepted by the facilities operated by the Los Angeles County Sanitation District, and therefore, will be required to be disposed at a facility that will accept this waste. Appropriate facilities which have been identified include the Mecca II landfill in Riverside County, CA; the Kettleman Hills Facility in Kings County, CA; and the La Paz County Landfill in La Paz County, AZ.

5.3 Approximate Disposal Costs

Order of magnitude costs to transport and appropriately dispose of the fill material have been estimated based on discussions with various waste haulers. The unit rates have been approximated for hazardous and non-hazardous waste disposal; therefore, these costs may vary depending on the actual quantities of hazardous and non-hazardous fill materials found. For the purposes of this report, a total of 9,000 tons of non-hazardous and 17,000 tons of non-RCRA, California hazardous waste have been estimated. Based on this estimate, the approximate costs associated with hauling and disposal of the fill material are shown on the table below.

Material Classification	Approximate Weight (tons)	Approximate Transport and Disposal Rate ($/ton)	Approximate Cost ($)
Hazardous	17,000	65 to 70	1,105,000 to 1,190,000
Non-Hazardous	9,000	14 to 15	126,000 to 135,000

APPROXIMATE TOTAL COSTS: $1,231,000 to $1,325,000

The approximate total costs to haul and dispose of the berm fill material ranges between approximately $1,231,000 and $1,325,000. Again, these costs may vary depending on the actual hazardous versus non-hazardous materials identified. These costs include the majority of the expenses expected for the berm removal; however other costs associated with excavating and loading of the material, additional chemical testing, and site supervision were not taken into account. These additional costs may add an additional 10% to the total costs.

5.4 Berm Removal Plan

The following is an outline of a potential plan to remove the berm.

1. Prior to berm excavation, approximately 1 to 2 days of additional drilling and sampling would be performed throughout the berm. It is estimated that approximately 20 additional samples at approximately $250 per sample would be chemically tested to supplement existing data to better delineate the location of the lead contaminated

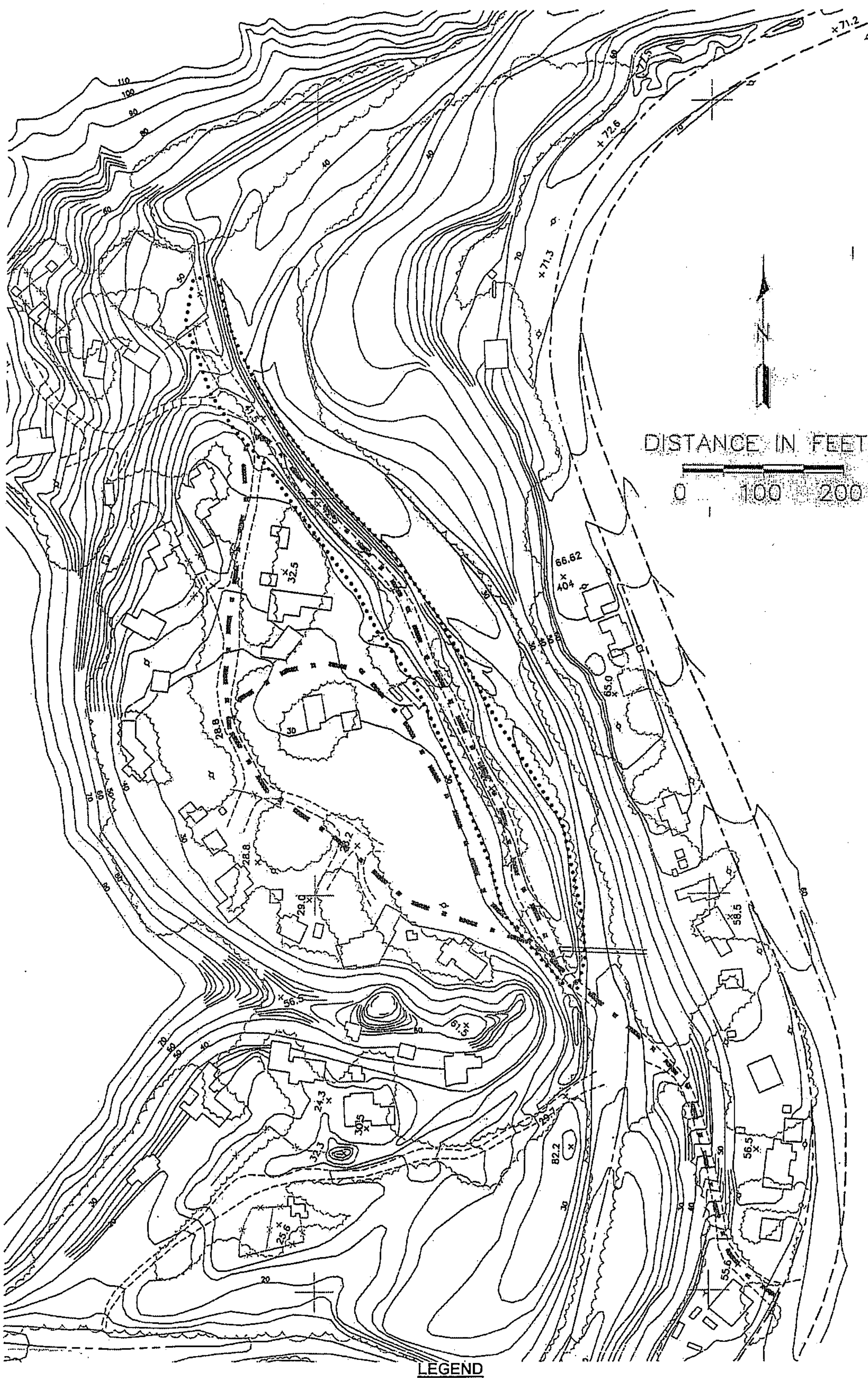
soil. The results would be used to more accurately identify the location of the hazardous and non-hazardous materials to satisfy regulatory requirements for appropriate disposal.

2. Mobilize excavation and loading equipment, which may include bulldozers, excavators, and loaders, to site. Prepare haul roads for haul truck access. Potential haul roads are shown on Figure 6. The proposed southern haul road follows the old road bed which has been covered by invasive exotic vegetation that will be removed. The existing dirt driveways will also be used as needed.

3. Excavate and load berm material onto haul trucks for transport and disposal. Excavation and removal of the berm will most likely proceed in layers from north to south. Block sections of berm material predetermined to be hazardous or non-hazardous from the sampling and testing program will be loaded and disposed separately. For example, based on the preliminary distribution of hazardous waste lead contamination shown on Figure 5, it appears that the upper 8 feet of berm is considered hazardous waste starting at the north end of the berm for a distance of approximately 700 feet. Based on this distribution, this hazardous material block would be removed first leaving the non-hazardous material, which would be removed last. Approximately 50 additional samples at approximately $50 per sample would be collected within the non-hazardous material prior to loading and transport to satisfy regulatory requirements for disposal. Also, the area within the protected root zone of the mature cottonwood tree on the berm may have some restrictions once excavation reaches that area, and it is determined if the tree can be salvaged or not.

   The proposed haul trucks would be able to transport approximately 24 tons of material per truck trip. Assuming approximately 26,000 tons of material, the berm removal requires approximately 1,100 truck trips to complete. Assuming approximately 50 truck trips per day, the berm excavation and removal will require approximately 22 working days to complete.

4. In the event that stockpiles of excavated berm material are left onsite, the stockpiles would be covered with plastic for erosion control. Stockpiling locations are nearby at the former Caltrans staging area on Topanga Canyon Blvd., located approximately a quarter mile north of the project site on the road shoulder.

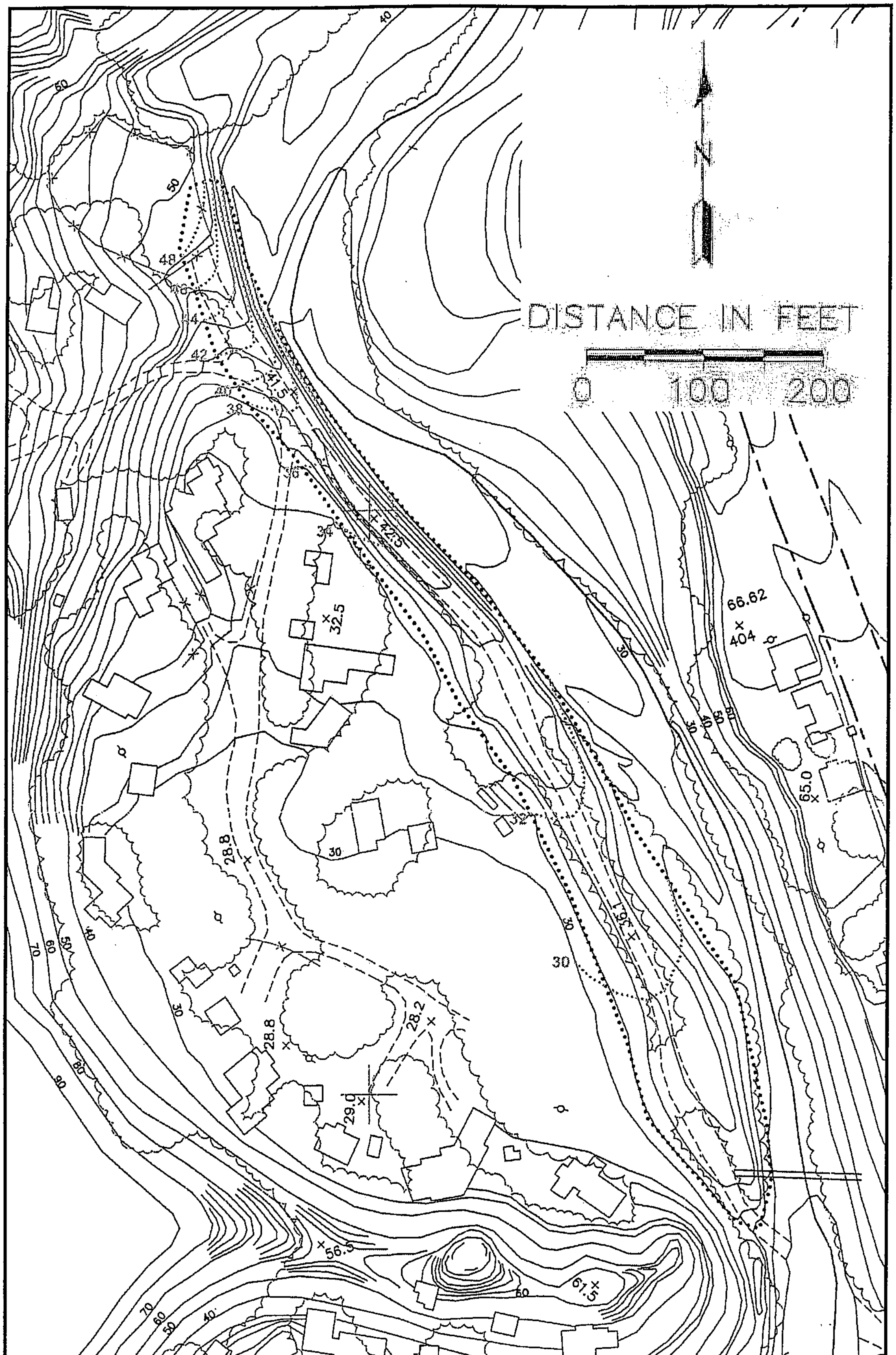


LEGEND

Approximate Berm Extents — Potential Haul Route

GeoPentech	POTENTIAL HAUL ROUTES	PROJECT: RODEO GROUNDS BERM STUDY		
		PROJECT #: 05015A	DATE: APR. 2005	FIG: 6

5. Erosion control measures will be installed during excavation to protect the creek channel from sedimentation or possible leaching of lead contaminated soils. These measures may include, but are not limited to, visquine barriers, erosion control fabric barriers and/or plastic covers.
6. After the berm has been removed, the berm footprint will be graded to match the approximate final grade configuration shown on Figure 7. The entire berm footprint would then be re-vegetated with native vegetation. The north end of the excavation area will be contoured to match the slope of the adjacent hillslope, stabilized with erosion control fabric and revegetated using riparian species approved by CA Department of Parks and Recreation, as well as meet any mitigation requirements for the CA Department of Fish and Game.



LEGEND

·········· Approximate Berm Extents ·····30····· Approximate Final Grade Contour with contour elevation

GeoPentech	APPROXIMATE FINAL GRADE MAP	PROJECT: RODEO GROUNDS BERM STUDY		
		PROJECT #: 05015A	DATE: APR. 2005	FIG: 7

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October 11, 2005

Ms. Rosi Dagat
Sr. Conservation Biologist
Resource Conservation District of the Santa Monica Mountains
122 N. Topanga Canyon Boulevard
Topanga, CA 90290

Ref: **Re: Rodeo Grounds Berm Removal Project**

Dear Ms. Dagat,

I would like to thank you for the opportunity to visit the Topanga State Park. It is truly a beautiful place. The passion you exude for the environment is extremely infectious and provides additional motivation to work with you on restoring this natural creek back to its rightful condition. During our visit, you expressed interest in obtaining some additional details with regard to project specifics. In an effort to meet your needs I have prepared the following comments.

After reviewing your initial scope of work, additional considerations should be given to your on-site transportation route, stockpile/load-out area, and sampling.

On-Site Transportation

The concept of a loop providing circular ingress/egress to the excavation area is well conceived for the removal of the berm. A dozer would be used to clear the pathway for this route. Due to the steep gradient of the existing road, material should be taken to a staging area for a more efficient and safer load-out. The excavation should proceed expeditiously with two excavators to load two thirty-ton articulating dump trucks at a time. Depending on cycle times, staging area space, sampling analytical turnaround, etc the material can be staged within three weeks. Water trucks would be needed to moisten the roads and reduce dust. (A flag person may be considered at the southern end of the truck loop that may become a bottleneck.)

Inner Transport Road

To avoid accessing any public roadways during the initial soil transport phase, an internal transport route, north of Topanga Canyon Road (running west to east), should be considered. This would allow for additional stockpile space, enhanced stockpile sampling and characterization while reducing intrusive impact to the adjacent public access road. High visible traffic fencing in conjunction with dust protective barriers and controls should be installed along the southern boundary (downhill gradient side) of the road.

Staging Area and Loadout

Once the stockpile sampling sizes, sampling turnaround times, transportation and disposal schedules, etc. have been identified, the size of the staging area can be determined. The staging area should be protected with a 40-mil poly sheeting or equivalent to prevent contamination from spreading to areas designated as clean. The construction of the inner road would also assist with moving truck loading operation towards the north and away from the shoulder of main access road. Please note that a traffic flag person should be considered to assist with metering the trucks in and out of the loading area. They would also provide for a safe navigation route onto the public access road. Two excavators/loaders may be utilized to load out the different types of material (CA Haz/Non-Haz). A decontamination pad, with wet decontamination capability, consisting of steel tread plates, sumps, pumps, brushes, hand wash, etc should also be implemented. Thoughts should be given to setting up a weighing operation. This would avoid overloading trucks, potentially receiving fines, excessive trans-loading costs, and reduce liability. Silt fencing may also be required to encapsulate stockpile areas.

Additional Pre-testing Characterization Sampling

Another item that may be considered would be to expand the delineation and characterization beyond the six borings that currently exist. This may prevent inadvertent mixing of potential non-hazardous material with lead impacted (CA Hazardous) material during stockpiling activities. This may yield significant reduction of overall projects costs. A pre-approved grid system by a regulatory agency may assist with this endeavor. Pre-profiling by sending a sample, in advance, to the identified disposal outlets is always a good idea. This will ensure that the waste streams have been adequately characterized and avoid any complications ahead of time.

Demolition Activities

During demolition activities, please make consideration to power supply (generators could be used) and water supply for dust control. Even though the area is semi-remote, residential structures are present, and consideration should be made to providing a utility survey/mark-out, especially if no utility drawings are available. It is imperative to ensure complete disconnect of gas/water/electric/sewer, etc. This should be performed prior to demolition activities. Prior to any excavation/demolition Dig Safe should be contacted.

Please note that Clean Harbors Environmental Services, through its' Remediation and Environmental Construction Division, has demonstrated experience, appropriate licenses and insurance to remediate all material required for the removal of the berm as well as post restoration of the site back to desired grade. In addition, Clean Harbors owns and operates a subtitle C landfill that can handle the CA Hazardous lead impacted material.

CleanHarbors
ENVIRONMENTAL SERVICES®

We can offer you tremendous value and efficiency by handling all facets of this project in a turnkey fashion. We are extremely interested in providing you with a competitive bid. Our statement of qualification package is available upon request.

Obviously there are a lot more considerations that can be made but hopefully I have addressed some of the issues we discussed during our site visit. Please feel free to contact me @ (310) 764-5851 Ext 201, if you have any additional questions.

Sincerely,

Michael S. Gray
Manager – West Coast Operations
Clean Harbors Environmental Services, Inc.
Remediation and Environmental Construction Division