San Francisco Regional Office

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Clayton
ENVIRONMENTAL
CONSULTANTS

November 30, 1999

Mr. Stephen Hill
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

Clayton Project No. 70-97203.00.700

Subject: Remediation and Risk Management Plan for the Properties at 5050, 5051, and 5200 Coliseum Way and 750-50th Avenue, Oakland, California.

Dear Mr. Hill:

Enclosed please find Clayton Group Services, Inc. (Clayton's) Remediation and Risk Management Plan for the properties at 5050, 5051, and 5200 Coliseum Way and 750-50th Avenue, located in Oakland, California. This document is submitted in response to the Tentative Site Cleanup Requirements issued by the RWQCB in March of 1999.

This submittal also provides the Feasibility Study and individual draft Soil Management Plans for the three properties. (5050 Coliseum Way and the contiguous 750-50th Avenue are treated as a single parcel). Please note that the detailed Soil Management Plans have been stamped "Draft" pending final review by the various property managers and owners who are involved with these individual properties.

We look forward to receiving your comments on these documents. If you or your staff have questions or would like to have a briefing on any aspect of these submittals please contact me at (925) 426-2600.

Sincerely,

Dwight R. Hoenig
Vice President, Western Regional Director
Environmental Risk Management and
Remediation
San Francisco Regional Office

DRW/daa

cc: Barney Chan, Alameda County Health Agency
Tim Colvig, Wulfsberg Reese Ferris & Sykes
Samuel Friedman, Millennium Holdings, Inc.

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Remediation and Risk Management Plan
at
5050, 5051, and 5200 Coliseum Way, and
750-50th Avenue
Oakland, California

For
LeMean Property Holdings Company

Clayton Project No. 70-97203.00.700

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1.0 INTRODUCTION

This remediation and risk management plan (RRMP) has been developed by Clayton Environmental Consultants a division of Clayton Group Services, Inc. , pursuant to a tentative order for Site Cleanup Requirements (SCR) issued by the San Francisco Regional Water Quality Control Board (RWQCB) to Millennium Holdings Inc. in March of 1999. The site consists of four parcels of land located at 750-50th Avenue, and 5050, 5051, and 5200 Coliseum Way in Oakland, California (Figure 1). These properties will be collectively referred to in this document as the Coliseum Way Properties. References to the 5050 Coliseum Way property include the 750-50th Avenue property, unless otherwise stated. To comply with the SCR, this report summarizes the site's history, previous remedial investigations, surface water impacts and groundwater trends, health risk assessment, and conclusions for the current and proposed future commercial/industrial use of the Coliseum Way Properties.

2.0 BACKGROUND

The site consists of four parcels, which include the 5050 Coliseum Way and 750-50th Avenue properties totaling approximately 6 acres. The 5051 Coliseum property is approximately 4.4 acres, and the 5200 Coliseum Way property is approximately 3 acres. The properties are relatively flat with elevations ranging from approximately 7 to 15 feet above mean sea level (amsl). The subject property is located in an industrial area of Oakland. The sites are approximately one half-mile east/northeast of San Leandro Bay. Regionally, groundwater flows west towards San Leandro Bay. The Coliseum Way Properties (Figure 1) are bounded to the northwest, southwest, and southeast by storm water drainage ditches, flumes, and culverts that flow to San Leandro Bay. The storm water channels drain a watershed area that encompasses a large industrial area in the City of Oakland. The channels around the site are tidally influenced.

The subject property has a long history of industrial usage. From approximately 1870 to 1903 the property was reportedly used for lead smelting from sulfide ores, from 1903 to 1917 the property was reportedly used for sulfuric and nitric acid production, which included the retorting of pyrite ores and sodium nitrate for the production of acids. The ore reduction process reportedly resulted in the deposition of approximately 15,000 cubic yards of slag and cinders onto the 5050 and 5200 Coliseum Way properties.

The site was used by various chemical manufacturing companies from 1917 to 1926. Little documentation exists for these operations; however, it may be assumed that similar smelting, acid production, and other possible chemical production works were employed.

A lithopone (paint pigment) manufacturing facility occupied the properties at 750-50th Avenue and 5050 Coliseum Way from approximately 1926 to 1963. In addition to the lithopone operations there was a history of storage and distribution of coal tar (used in roofing applications) in above ground storage tanks and drums located on the 5050 and 5200 properties.

Lithopone consists of a chemically co-precipitated pigment of barium sulfate and zinc sulfide used in the production of paint pigment. Processing residuals from lithopone production included various forms of insoluble sulfate residuals including barium sulfate, zinc sulfate, and black ash. These residuals were deposited as both dry filter cake and slurry deposits on portions of the 5051 and 5200 Coliseum Way properties. These deposits were reportedly buried by a cover of 4 to 8 feet of imported soil and other fill materials, which remain in place today. Aerial photographs indicate that other fill materials were deposited on the marshlands to raise the elevation above the tidally influenced zone at the 5051 and 5200 Coliseum Way properties during the period of industrial use.

The presence of the sulfide rich slag and cinders has given rise to a localized condition of low pH shallow groundwater on the 5050 Coliseum Way property. The acidic groundwater has solublized a suite of acid soluble metals, primarily zinc, associated with cadmium and barium. On the 5200 property, the primary metal in groundwater are arsenic and barium, and some localized zinc. The pH conditions of groundwater on the 5200 property are neutral to slightly basic.

In 1974, 5050 Coliseum Way and 750-50th Avenue parcels were redeveloped into a heavy truck maintenance facility occupied by Volvo/General Motors Truck Division. All of the areas adjacent to these facilities were paved for parking. These properties were purchased by Millennium Holdings in 1997. Both properties are currently under long term lease to the City of Oakland, which uses the facilities as a vehicle maintenance shop for City owned vehicles.

The parcel at 5200 Coliseum Way was redeveloped into a Self Storage site in 1977. The entire property is covered by building foundations or asphalt pavement, which remains in place to the present time. Millennium Holdings does not own this parcel, but has accepted responsibility for environmental issues related to the former lithopone manufacturing operations.

The 5051 Coliseum Way site is currently divided into a north area and south area by a cyclone fence. The north area is unpaved and was previously owned and used by PG&E for temporary storage of construction materials and soil. Two electrical transmission towers are located on this property. The south area is partially paved and used for weekend parking. An East Bay Municipal Utility District (EBMUD) sewer main crosses the southern portion of the site that connects to a sewer pump station located on the adjacent property to the southeast. Millennium Holdings purchased the 5051 Coliseum Way property in 1998.

The tidally influenced storm water drainage channels bordering the subject property (Figure 2) include an open and unlined channel that parallels the southeast property boundary of the 5051 and 5200 Coliseum Way properties. Two subsurface culverts, the Courtland Creek Culvert and the Second Line G Culvert, parallel the northwest property boundaries of the 5050 Coliseum Way property and the 750-50th Avenue property. The two culverts merge into an open concrete-lined channel south of the intersection of Coliseum Way and 50th Avenue. The open channel, sediment basin, and flume is

concrete-lined along the northwestern perimeter of the 5051 Coliseum Way property, and is open and unlined along the southwestern perimeter of the property, prior to flowing under Interstate 880 to San Leandro Bay.

Millennium Holdings Inc. has undertaken the responsibility for the investigation and remediation of 750-50th Avenue, 5050 and 5051 Coliseum Way, and the 5200 Coliseum Way property.[1]

3. SUMMARY OF REMEDIAL INVESTIGATION

Various environmental investigations have been conducted for the different parcels at the Coliseum Way Properties. A summary of the pertinent environmental investigations that have characterized the Coliseum Way Properties is provided below. For ease of discussion, the site has been divided into three areas to address the appropriate remediation and risk management issues.

3.1 SOIL AND GROUNDWATER CONDITIONS: 5050 COLISEUM WAY

Previous remedial investigations at the 5050 Coliseum Way property were conducted for Volvo/General Motors Truck Division and for Millennium Holdings. The key remedial investigations that pertain to this site include:

Remedial Investigation Report 5050 Coliseum Way and 750-50th Avenue Oakland, California (LF 1994A)	Levine*Fricke	9-19-94
Preliminary Remedial Alternatives Evaluation Report 5050 Coliseum Way and 750-50th Avenue Oakland, California (LF 1994B)	Levine*Fricke	11-23-94
Additional Remedial Investigation and Third Quarter 1998 Monitoring Report at Coliseum Way Properties 750-50th Avenue and 5050, 5051 and 5200 Coliseum Way, Oakland, California (Clayton 1998)	Clayton Environmental Consultants	11-5-98
Additional Remedial Investigation 1999 at 5050, 5051, and 5200 Coliseum Way and 750-50th Avenue, Oakland, California (Clayton 1999)	Clayton Environmental Consultants	5-25-99

Groundwater monitoring of the 5050 Coliseum Way property (including the 750-50th Avenue property) was conducted by Levine*Fricke between November 1991 and December 1995. In 1997, Clayton was retained to provide environmental consulting services to Millennium Holdings and resumed groundwater monitoring. Quarterly monitoring reports for sampling events have been submitted by Clayton since August 1997. Groundwater monitoring events have resulted in sampling and analyzing groundwater samples for 17 total metals, total dissolved solids, and petroleum hydrocarbons. Currently 23 monitoring wells exist on this site.

[1] On March 15, 1999, Millennium Holdings Inc. transferred ownership of the sites, consisting of 5050 Coliseum Way, 750 50th Avenue and 5051 Coliseum Way, to LeMean Property Holdings Corporation ("LeMean"). LeMean is the indirect subsidiary of Millennium Holdings Inc. Millennium Holdings Inc. has agreed to manage and perform the investigation and remedial action with respect to the discharge or release of hazardous substances at, on, in or under the sites and adjoining sites first occurring prior to the date of transfer. LeMean has granted Millennium Holdings Inc. access and easement rights for the purpose of performing its investigation and remedial action work. LeMean and Millennium Holdings Inc. shall have the exclusive right and responsibility to communicate with governmental authorities relating to the release or discharge of hazardous substances at the sites.

The Remedial Investigation Report by Levine*Fricke (LF-1994A) was prepared in response to a request by the Alameda County Health Care Services Agency to provide a remediation plan for the property. Levine*Fricke conducted a historical records review to establish the former use of the site. Findings of the remedial investigation were based on soil and groundwater data collected between 1991 and 1994 from 19 groundwater monitoring well borings (LF-1 through LF-17, LF-F1, and LFMW-1 through LFMW-4) and 44 soil borings (SB-1 through SB-21, SS-1 through SS-19, and B1 through B4). The sample locations are shown on Figures 2 and 3. The investigation evaluated total metals, petroleum products, semi-volatile organic compounds (SVOCs), sulfates, and total sulfur in soils. Groundwater analyses included metals, general minerals, total dissolved solids (TDS), sulfate, pH, and SVOCs. Other site characteristics included limited evaluations of total organic carbon content of one soil sample, and slug testing of six wells.

Levine*Fricke (LF 1994A) indicated that elevated concentrations of metals and low pH conditions in soil and groundwater existed beneath the site. Heavy petroleum hydrocarbons were also detected in soil and groundwater samples collected in the central portion of this property. The presence and distribution of the detected chemicals were related to past manufacturing, storage and disposal activities before the present facility was constructed.

Levine*Fricke also prepared a Preliminary Remedial Alternatives Evaluation Report (LF 1994 B) identifying up to eight remedial alternatives for the site for two areas of subsurface contamination. These alternatives ranged from monitoring groundwater only to variations on excavation and offsite disposal, groundwater extraction and treatment, neutralization of soil and groundwater, and cap repair. No option was recommended.

Levine*Fricke continued groundwater monitoring through 1995.

Clayton re-instituted quarterly groundwater monitoring for the 5050 property in August 1997. The RWQCB requested technical reports in a letter issued to Millennium Holdings, Inc. on February 11, 1998. Clayton prepared the Additional Remedial Investigation and Third Quarter 1998 Monitoring Report (Clayton 1998) for the Coliseum Way Properties to assist the RWQCB with its evaluation of the property.

Clayton's investigation of the 5050 Coliseum Way property included the collection of additional soil and groundwater samples from seven soil borings (CSB-1, and CSB-3 through CSB-8. CSB-1 was downgradient offsite and CSB-8 was a deep boring to 60 feet. Three additional groundwater monitoring wells were installed (CW-10, CW-12, and CW-13). CW-10 and CW-12 were located downgradient and offsite to monitor the potential for metals in groundwater to migrate offsite in the backfill material surrounding the culverts that border the northwest boundary of the property. Surface water samples were collected downgradient of the property to evaluate the potential for surface water impact from possible migration of metals in groundwater. The sample locations are shown on Figures 3 and 4. A risk assessment workplan was submitted for review by the RWQCB.

Clayton concluded that metals, and petroleum hydrocarbons have impacted shallow groundwater on portions of the site. Deep groundwater samples (CSB-8 at 25 feet and 45 feet) had elevated TDS and chloride concentrations indicative of trapped connate water; therefore, the groundwater below the waste layer zone is not considered a potential underground source of drinking water. No evidence of vertical migration of contaminants was found below approximately 20 feet deep. Groundwater samples collected from monitoring wells and downgradient surface water samples suggest that there is no significant migration of heavy metals in groundwater from the subject property; therefore, impact to the bay appeared to be minimal. Stormwater channels adjacent to the property drain a large industrial area of Oakland and metals in surface water samples collected at low tide were near basin plan objectives and likely have numerous upgradient unidentified sources.

Clayton prepared an Additional Remedial Investigation 1999 report date May 25, 1999. The RWQCB issued tentative Site Cleanup Requirements (SCR) on March 9, 1999. In response to the SCR, Clayton conducted a tracer study to evaluate the hydraulic conductivity between wells CW-13 and LF-12 and the downgradient wells CW-10 and CW-12 during a 51 day sample period. The sample period was extended through the end of June 1999. No dye was detected in the downgradient wells during the extended sampling period. Clayton also sampled surface waters for dyes and heavy metals along the northwest boundary, upgradient and downgradient of the site to determine if contaminants in groundwater had migrated along preferential pathways and were impacting surface waters. Clayton calculated mass loading of select heavy metals in the surface waters. An area-weighted TDS concentration was also calculated for the Coliseum Way Properties to assist in determining potential beneficial use of the groundwater.

The dye study indicated no hydraulic conduit existed between the wells LF-12 and CW-13 and the downgradient wells CW-10 and CW-12. Dye was detected in surface water samples collected at the downgradient Courtland Creek sample location (Figure 3). The dye was detected seven days after injection into nearby well CW-13 (well CW-13 is adjacent to the Courtland Creek culvert). Site observations indicate that groundwater entering the Courtland Creek culvert adjacent to the site was minimal, estimated at less than one gallon per minute during low tide (base flow conditions), and is a result of groundwater seeps from cracks along the base of the older portion of the Courtland Creek culvert walls. Mass loading by metals to surface waters in this section of the Courtland Creek was estimated at 2.6 pounds of zinc per year, 0.5 pounds of barium per year, and 0.3 pounds of arsenic per year. However, due to tidal influence in this area, the estimated mass loading of metals may be as little as one half of the amount estimated above. Clayton estimated that metals loading from unidentified upstream sources that flow by the subject property likely exceed 2,000 pounds of zinc per year and 1,000 pounds of barium per year from the adjacent Second Line G Culvert alone. These estimates do not include significant storm or flood events, which may increase these amounts. Therefore, Clayton concluded that metals loading to surface water from the 5050 Coliseum Way property is insignificant compared with the general storm water metals loading that is occurring from other upgradient unidentified sources.

Clayton calculated an area-weighted TDS concentration for all of the Coliseum Way Properties at 6,417.5 mg/L. The deep groundwater samples from boring CSB-8 collected between 25 and 45 feet bgs had TDS concentrations ranging from 15,000 to 25,000 milligram per liter (mg/L). These TDS values exceed the 3,000 mg/L guidelines established for potential underground sources of drinking water. Furthermore, the ratio of chloride content to TDS level in these samples offered additional evidence that the groundwater in this area is actually trapped connate water.

3.2 SOIL AND GROUNDWATER CONDITIONS: 5051 COLISEUM WAY

The remedial investigations at the 5051 Coliseum Way property were conducted for the Pacific Gas and Electric Company (PG&E) and for Millennium Holdings. Key remedial investigations that pertain to this site include:

Site Characterization Report 5051 Coliseum Way Oakland, California (Geomatrix 1996)	Geomatrix Consultants	6-96
Monitoring Well Sampling and Analysis at 5051 Coliseum Way Oakland, California (Clayton 1997A)	Clayton Environmental Consultants	10-2-97
Additional Remedial Investigation and Third Quarter 1998 Monitoring Report at Coliseum Way Properties 750-50th Avenue and 5050, 5051 and 5200 Coliseum Way, Oakland, California (Clayton 1998)	Clayton Environmental Consultants	11-5-98
Additional Remedial Investigation 1999 at 5050, 5051, and 5200 Coliseum Way and 750-50th Avenue, Oakland, California (Clayton 1999)	Clayton Environmental Consultants	5-25-99

Geomatrix Consultants prepared a Site Characterization Report for the 5051 Coliseum Way property in June 1996. The field investigation was conducted in three phases. The first phase, conducted in January 1995, resulted in the collection of soil and groundwater samples from seven soil borings (B-2 through B-8) with analysis for metals. The second phase conducted in June 1995 included additional soil and groundwater sampling from two soil borings (BA-4 and BA-5) and three groundwater monitoring wells (MWA-1 through MWA-3). Soil samples were analyzed for metals, total sulfur, and soluble sulfate. Groundwater samples were analyzed for metals, anions, and alkalinity. The third phase conducted in December 1995 included the advancement of six soil borings (B-9 through B-14), installation of five monitoring wells (MW-4 through MW-8), and the collection of groundwater elevation measurements from all eight existing wells on site. Soil samples were analyzed for metals only and groundwater samples were analyzed for metals, volatile organic compounds (EPA Method 8240, VOCs), and semi-volatile organic compounds (SVOCs; EPA Method 8270). The site characterization report included a summary of the findings of the field investigations conducted a the site, other consultants work on the adjacent Coliseum Way Properties and a review of historical photographs dating back to 1930.

Geomatrix identified three distinct soil layers at the site; an upper fill (ranging from 2 to 20 feet thick), a waste layer was identified in 16 of the 23 borings. The thickest waste accumulation was near Coliseum Way with a thickness of 7 ft. The deposit thins to the southwest to a accumulation of less then 0.5 feet. The waste deposit rests conformably on the native Bay Mud formation which is present throughout the area.

Analytical results were evaluated for each of the three soil layers. The upper fill soil results for metals exceeded total threshold limit concentrations (TTLC) for lead (5 samples) and zinc (2 samples) of the 33 samples collected. The anomalous results presented no clear pattern of distribution. Some samples collected near the base of the fill may reflect metal concentrations from the waste layer below.

Soil samples from the waste layer resulted in 18 of the 21 samples exceeding the California TTLC levels for one or more metals. Nine samples collected from the northern corner of the site exceeded the TTLC for arsenic, cadmium, copper, mercury, lead, antimony, and zinc. Six soil samples collected in the waste layer area near the north central portion of the property exceeded the TTLC for arsenic, cadmium, copper, lead, antimony, and zinc. Three of six soil samples collected in the eastern property area (referred to as the southern area by Geomatrix) exceeded the TTLC for barium. The soil pH ranged from acidic (4.5 to 6.2 standard units [SU]) in the northern waste layer area to basic (8.5 to 11.2 SU) in the eastern area.

A total of 27 samples were collected from the native soil zone. Only copper (4 samples), lead (one sample), and zinc (3 samples) exceeded the respective TTLC. These samples were collected within one foot of the overlying waste layer and may reflect metal concentrations that leached from the overlying waste materials.

Groundwater samples were analyzed for total metals and Geomatrix's data has been incorporated into Clayton's quarterly monitoring report tables. Geomatrix found that various groundwater samples exceeded the maximum contaminant level (MCL) established for drinking water standards for arsenic, barium, cadmium, nickel, lead, antimony, selenium, and thallium. Groundwater samples were also analyzed for VOCs and SVOCs. The only analyte detected was phenol at less than 0.052 mg/L in five of the eight groundwater samples. The pH of groundwater ranged from acidic near the northern portion of the site, basic near the eastern part of the site, and neutral in the southwestern part of the site where no waste layer was identified.

Geomatrix concluded that the former lithopone manufacturing operations used the 5051 Coliseum Way property for waste disposal. The waste layer identified beneath the fill material contains elevated concentrations of metals including arsenic, barium, cadmium, copper, lead, mercury, antimony, and zinc. The waste layer thins to the west covering approximately half of the property. The waste layer in the northern part likely corresponds to filter mud wastes from the zinc sulfate plant. The waste in the eastern part likely correspond to black ash sludge from the former baryte plant. These and other wastes appear to be mixed in some portions of this deposit and likely includes wastes from former smelting and acid manufacturing. The groundwater at the site has been impacted by metals in the same general areas as the identified subsurface waste layer with potential contaminant migration from the upgradient source areas.

Geomatrix conducted additional groundwater monitoring in December 1996. Clayton's Monitoring Well Sampling and Analysis at 5051 Coliseum Way report dated October 2, 1997, includes Geomatrix's groundwater results. Millennium Holdings, Inc. purchased

the site from PG&E in April 1998. Clayton has conducted quarterly monitoring of the wells at 5051 Coliseum Way since April of 1998.

Clayton's Additional Remedial Investigation and Third Quarter 1998 Monitoring Report at Coliseum Way Properties (Clayton 1998) resulted in the collection of additional soil and groundwater samples from one deep boring (CSB-9) drilled to a total depth of 60 feet. Soil and groundwater samples were analyzed for metals, TDS, chlorides, and pH. Select deep groundwater samples were collected from 25, 36, and 47 feet below the ground surface (bgs). The deep groundwater samples had TDS concentrations ranging from 26,000 to 35,000 mg/L. Continued quarterly groundwater monitoring of the wells included additional analyses for TDS and select samples were analyzed for petroleum hydrocarbons. Two additional offsite wells (CW-8 and CW-9) were installed on the East Bay Municipal Utility District (EBMUD) property to further define the groundwater gradient near the 54th Avenue Creek that parallels the southeast property boundary about 75 feet to the southeast. Sample locations are presented in Figure 3. Clayton conducted surface water sampling of the open storm water channels that surround the site to determine if the metals in groundwater on the site were impacting surface waters (Figure 3).

Clayton concluded that no contaminants had migrated below about 20 feet in depth. Elevated chloride and TDS concentrations in the deeper groundwater samples indicate trapped connate saline water during Bay Mud deposition and not downward migration of surficial contaminants. Groundwater elevations and apparent tidal influence the immediate area of well MW-4 indicate the possible presence of permeable materials that may allow groundwater to migrate to the weep holes along the base of the open storm water channel to the southwest. Surface water results indicated very low, but detectable concentrations of arsenic, barium, and zinc. The concentrations were generally found to be near basin plan objectives.

Clayton also prepared an Additional Remedial Investigation 1999 report that summarized weep water sampling from the storm water channel that borders the southwest property boundary. Clayton calculated the mass of metals loading for the storm channel upgradient of the site, and calculated an area-weighted TDS for the Coliseum Way Property.

Clayton concluded that zinc and cadmium in groundwater were impacting the surface waters from weep hole releases at low tide along the southwest property boundary; however, the release is considered minimal. Clayton calculated the metal mass loading rate at approximately 7.6 pounds of zinc and 0.1 pounds of cadmium per year. As previously mentioned, it is likely that zinc loading to the surface water from upgradient unidentified sources may exceed 2000 pounds per year. The area-weighted TDS concentration for the entire Coliseum Way Properties was calculated to be more than 6,400 mg/L and the elevated TDS in the deeper groundwater samples down to 47 feet bgs indicate that the local groundwater is not a potential source for drinking water.

3.3 SOIL AND GROUNDWATER CONDITIONS: 5200 COLISEUM WAY

The remedial investigations at the 5200 Coliseum Way property were conducted for Millennium Holdings. Key remedial investigations that pertain to this site include:.

Limited Soil and Groundwater Investigation, 5200 Coliseum Way, Oakland, California	Subsurface Consultants, Inc.	3-22-95
Limited Soil and Groundwater Investigation Coliseum Storage 5200 Coliseum Way, Oakland, California (Clayton 1997B)	Clayton Environmental Consultants	10-2-97
Additional Remedial Investigation and Third Quarter 1998 Monitoring Report at Coliseum Way Properties 750-50th Avenue and 5050, 5051 and 5200 Coliseum Way, Oakland, California (Clayton 1998)	Clayton Environmental Consultants	11-5-98
Additional Remedial Investigation 1999 at 5050, 5051, and 5200 Coliseum Way and 750-50th Avenue, Oakland, California (Clayton 1999)	Clayton Environmental Consultants	5-25-99

Subsurface Consultants, Inc. (SCI) prepared a Limited Soil and Groundwater Investigation for the 5200 Coliseum Way property, dated March 22, 1995, for the Coliseum Storage Associates. SCI's report was summarized in Geomatrix's 1995 report. SCI concluded that the 5200 Coliseum Way property was part of the former Volvo-GM site that included the former manufacturing and industrial site usage on both the 5050 and 5051 Coliseum Way properties. In 1963, the lithopone manufacturing facility was sold and a year later the site was demolished. The 5200 Coliseum Way property was reportedly filled with material from the demolition of the former manufacturing facilities that occupied the site and adjacent 5050 Coliseum Way property. The 5200 property was sold separately in 1973 and was developed as the mini-storage facility in 1978 and 1979. The SCI field investigation resulted in soil and grab groundwater samples being collected from six soil borings (1-6). The sample locations are shown on Figure 4. Grab groundwater results from three of the six borings reportedly exceeded the MCL for arsenic, barium, and cadmium. TPH as kerosene, polyaromatic hydrocarbons (PAHs), and benzene, toluene, ethylbenzene, and xylenes (BTEX) were reported in two groundwater samples near former tar storage areas at the central and northwest side of the property. Soil samples were reported to exceed TTLCs for barium, cadmium, copper, lead, and zinc. The contaminants were attributed to the former use of the site for industrial purposes.

Clayton prepared a Limited Soil and Groundwater Investigation report for Millennium Holdings, Inc., dated October 2, 1997. The purpose of the investigation was to characterize the fill materials and groundwater quality at the 5200 Coliseum Way property. The field investigation resulted in the installation of five groundwater-monitoring wells (CW-1 through CW-5) on September 26 and 27, 1996. Sample locations are shown on Figure 3. Soil samples were analyzed for metals, pH, sulfate, total sulfur, and select samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline, diesel, and oil, VOCs, and SVOCs. Groundwater samples were analyzed for metals, cations and anions, and SVOCs. Two groundwater samples (CW-4 and CW-5) were analyzed for TPH-g and BTEX.

Clayton concluded that the upper 10 to 12 feet of soils consisted of imported fill materials consisting of a variety of construction debris and industrial process residues. The process residues included slag, cinders, ash deposits, and coarse grained "black sand" deposits. Beneath the fill materials, to the total depth drilled of 15 feet, were dark gray to black Bay Muds. Hydrocarbon odors and sheens were noted in soil cuttings from CW-4 and CW-5 below about nine feet in depth. Groundwater samples from wells CW-4 and CW-5 contained heavy-range hydrocarbons and SVOCs, apparently from the former tar storage activities at this site. However, gasoline-range hydrocarbons were also detected. The significant metal found in groundwater was barium and the pH of the groundwater samples ranged from neutral to basic (7.2 to 10.2 SU).

Clayton's Additional Remedial Investigation and Third Quarter 1998 Monitoring Report at Coliseum Way Properties (Clayton 1998) resulted in the installation of two additional groundwater monitoring wells (CW-6 and CW-7) adjacent to the subject property along the 54th Avenue Creek on Alameda County property. Soil and groundwater samples were collected to further characterize the site and determine the flow gradient along the southeast property boundary. Soil samples were found to exceed TTLCs for arsenic, barium, cadmium, lead, and zinc. Groundwater exceeded the MCLs for arsenic, barium, cadmium, nickel, and zinc in one or both wells. Clayton also analyzed two surface water samples from the 54th Avenue Creek for metals of concern (arsenic, barium, cadmium, and zinc). Surface water results for metals of concern, primarily zinc and barium were nearly the same as the results from samples collected in the open and unlined storm channel near the 5051 Coliseum Way property that is more tidally influenced. The 54th Avenue creek drains a small upgradient area to the northeast; however, numerous small industrial shops exist in this area that may also contribute to the metals detected in the surface waters.

Even though some elevated metals in soils were found in the well borings, Clayton concluded that groundwater results and surface water results did not suggest that there is significant migration of heavy metals in groundwater from the 5200 Coliseum Way property to surface waters. The groundwater flow gradient for the 5200 Coliseum Way property indicated a slight groundwater mound around wells CW-4 and CW-5. The predominant groundwater gradient is to the southwest and southeast. The pH in groundwater ranges from neutral to basic and the groundwater is primarily impacted with petroleum hydrocarbons in the southwest corner, by arsenic and barium across most of the site, and by zinc in a small area of the northeast corner of the site.

Clayton's Additional Remedial Investigation 1999 included the collection of four additional grab-groundwater samples (borings CSB-10 through CSB-13) along the northeast side of the 54th Avenue Creek on the adjacent Alameda County property. Figure 4 shows the sample locations. Grab-groundwater samples were collected from first encountered groundwater and analyzed for metals and TDS. Metals detected above MCLs included arsenic, barium, cadmium, chromium, lead, mercury, nickel, and zinc. TDS concentrations ranged from 2,400 to 4,100 mg/L, with an average concentration of 3,175 mg/L.

Clayton concluded that the metals concentrations in groundwater indicated a decreasing trend with distance from the site. The decreasing trend of metal concentrations in groundwater further suggests that the metals in solution will not migrate a significant distance.

4.0 GROUNDWATER TREND ANALYSIS

The remedial investigations summarized above, indicate that the Coliseum Way Properties have been contaminated by the former industrial and manufacturing activities conducted on the three properties. These historical industrial processes resulted in the disposal of heavy metal bearing process wastes, slag materials, acids, petroleum hydrocarbons, and other imported waste materials that remain on these properties.

These wastes and residues appear to be vertically contained by the Bay Muds below and imported fill materials, which based on PH measurements, the fill materials appear to have a large buffering capacity to neutralize the acidic conditions found in the vicinity of the slag deposits.

The groundwater at the site has a regional gradient to the southwest with some radial flow toward the surrounding storm channels that drain the region. Groundwater monitoring, begun in 1991 on the 5050 Coliseum Way property, has been conducted on a quarterly basis to further establish the chemical trends and potential migration pathways at the site. Quarterly monitoring events conducted by Clayton since April 1998 have included groundwater sampling for the three Coliseum Way Properties referenced above and prior groundwater monitoring results by others have been incorporated in the data tables to assess the contaminant trends across the site. Concentrations for metals of concern in groundwater have been contoured for arsenic, barium, cadmium, and zinc in Clayton's quarterly groundwater monitoring reports for sampling events beginning in April 1998. Clayton has conducted extensive perimeter, and offsite groundwater and surface water sampling to determine if contaminants were migrating offsite and impacting surface waters. Although the regional groundwater gradient is to the west, in the direction of San Leandro Bay, the lateral extent of contaminated groundwater appears largely limited to those areas where metal-containing wastes were originally deposited

Clayton identified three specific areas where contaminated groundwater may have the potential to migrate offsite. Metals concentrations for wells in these three areas are presented in Appendix A to show the groundwater trends in these areas.

4.1 5050 COLISEUM WAY

The first area of concern is the soluble metals plume in acidic groundwater conditions on the 5050 Coliseum property in the area of wells LF-11 and LF-12 that appears to extend downgradient to well CW-13. Groundwater in this area is contaminated from the former disposal of sulfide rich ores and slag from the smelting of ore and the manufacture of sulfuric acid and other possible industrial wastes. The ore wastes appear to maintain the acidic groundwater conditions that have ranged as low as 3.4 SU. The acidic groundwater is believed to be responsible for solublizing the various metals, primarily

zinc and cadmium in this area, contained in the original waste materials deposited on the property. The contaminant plume extends to the northwest property boundary and appears to be contained by the subsurface culverts and native soils surrounding the site where the pH in groundwater becomes neutral to basic. Clayton conducted monitoring of perimeter and offsite wells and conducted a groundwater dye study in an attempt to identify preferential pathways for metals that may migrate offsite to surface waters. No significant preferential pathways were identified, particularly along the backfill material surrounding the culverts along 50th Avenue. Elevated concentrations of metals in groundwater extend to the downgradient well CW-13 but do not extend to the downgradient wells CW-10 and CW-12 located across Coliseum way.

Metal concentrations and pH levels were plotted for each sampling event for wells LF-11 (a well near the center of the source area) and LF-12 (a well at the northwest perimeter of the property). The data indicate that while the pH of groundwater has not changed appreciably with time at these sample locations, the concentrations of cadmium and zinc have decreased significantly since 1993 when sampling began (Appendix A). The most dramatic case is the decrease in zinc concentrations in well LF-11 by almost an order of magnitude in only six years (from 47,000 mg/L to 7,000 mg/L). This trend was also observed in well CW-13; however, the number of data points is small and the data is not conclusive. The decrease in metal concentrations in these wells appears to be significant and indicates that the metals impact to surface water in the Courtland Creek culvert is de-minimis.

Clayton identified a small release where groundwater from the site reaches the surface water in the Courtland Creek culvert near well CW-13 (Clayton 1999). Clayton considers this release to be of minimal significance. Clayton estimated the groundwater release in the culvert at less than one gallon per minute and zinc loading to surface water at this location was estimated at 2.6 pounds per year. However, since the area is tidally influenced, Clayton estimates that the zinc loading at this location is likely to be on the order of 1.3 pounds per year.

What type of monitoring in this area? They need monitoring!

4.2 5051 COLISEUM WAY

The second area of concern is the area near well MW-4 on the 5051 Coliseum Way property. Groundwater in this area is apparently hydraulically connected to the storm water channel since the groundwater elevation in well MW-4 has been shown to be tidally influenced. Water level monitoring of this well in 1996 (PV Technologies, Inc. letter report dated April 23,1997) indicated that the groundwater level may fluctuate as much as one foot during tide changes. Clayton identified metal impacts to surface water from groundwater at this site by sampling the weep holes at the base of the concrete storm channel wall along the northwest property boundary (Clayton 1999). Clayton estimated that the groundwater release to surface water along the concrete channel wall at less than one gallon per minute. The mass loading from metal releases from the weep holes was estimated at about 7.6 pounds of zinc and 0.1 pounds of cadmium per year.

The groundwater trends for well MW-4 are presented in Appendix A. The concentrations for zinc over the last four years have ranged from 420 to 1400 mg/L, with an average

concentration of approximately 650 mg/L. There does not appear to be any significant change in the pH or the metals concentrations with time. Even though the metals release to surface water appears to be of minimal significance at this location, a release has been identified to surface water with no indication that the release will decrease with time. Therefore, Clayton is proposing a remedial action to divert groundwater away from the storm water channel. Continued quarterly groundwater monitoring is proposed for five monitoring wells and weep holes for one year to confirm the effectiveness of this action. The proposed remedial actions are described in detail in Clayton's 1999 Feasibility Study under separate cover. (Appendix C)

4.3 5200 COLISEUM WAY

The third area of concern are the elevated metals in soil and groundwater along the southeast property boundary of 5200 Coliseum Way. Although soil and groundwater samples collected offsite, in the vicinity of the 54th Avenue Creek indicate the presence of elevated metal concentrations, the surface water samples collected in this area (Clayton 1998) do not suggest that a significant release is occurring. Groundwater trends were evaluated for metals in wells CW-1 and CW-3 (Appendix A). Metal concentrations in CW-1 and CW-3, indicate an increase in arsenic concentrations and a possible decrease in barium concentrations; however, the data points are limited and the concentrations vary somewhat making the data trends inconclusive. Based on these findings, Clayton recommends continued quarterly groundwater monitoring from the four perimeter wells (CW-1, CW-2, CW-6, and CW-7) for a period of two years to properly assess groundwater trends in this area.

5.0 RISK ASSESSMENT

On February 18, 1998, the RWQCB issued a letter requiring, among other items, a risk assessment to determine if the contaminants detected at the Site pose a threat to human health. In response to that letter, a Risk Assessment Workplan was prepared and submitted to the RWQCB in November 1998. After the workplan was approved, a Health Risk Assessment Report (HRA) was subsequently prepared and submitted in February 1999.

The HRA addressed properties located at 5050/750-50th Avenue, 5051 Coliseum Way, and 5200 Coliseum Way. To evaluate potential health impacts from metals in soil, the HRA evaluated data from each of the three separate properties. To evaluate potential impacts from volatile and semi-volatile organic compounds (VOCs and SVOCs) in the soil and groundwater, data from all three properties were evaluated as one data set resulting in a site wide risk. This approach avoided the arbitrary grouping of data from groundwater wells that collect groundwater from more than one property over time and provided a better depiction of the potential risks and movement of VOCs and SVOCs.

To determine the potential impacts to public health that the contaminants may pose, two distinct exposure scenarios were evaluated as part of the HRA. The first scenario assumed that the Site remains in its current state and that exposures only occur if construction and excavation activities take place. The second scenario assumes that the

properties remain industrial as zoned, and that additional buildings are constructed on each of the properties. The HRA findings for both scenarios are summarized below.

The carcinogenic risks and the noncarcinogenic hazards for the construction and commercial/industrial scenarios have been calculated as follows:

Commercial/Industrial Scenario: (Entire Site)

Noncarcinogenic Hazards	0.0766
Carcinogenic Risks	1.21 E-06

Construction Scenario:

5050 Coliseum Way

Noncarcinogenic Hazards	2.1959
Carcinogenic Risks	2.1 E-05

5051 Coliseum Way

Noncarcinogenic Hazards	1.9348
Carcinogenic Risks	6.8 E-06

5200 Coliseum Way

Noncarcinogenic Hazards	25.3635
Carcinogenic Risks	1.9 E-05

In the letter approving the Health Risk Assessment, the RWQCB indicated that an individual excess lifetime cancer risk of greater then 1E-04 is generally considered unacceptable carcinogenic risk, and a Hazard Index of greater then 1.0 is considered an unacceptable exposure to non-carcinogens.

For these properties, the RWQCB found the carcinogenic risks for future on-site commercial/industrial occupants are within acceptable levels. Construction worker scenarios require appropriate management plans to prevent unacceptable exposure of construction workers who could unknowingly excavate or become exposed to contaminated soils. The RWQCB approved the HRA for the Coliseum Way Properties in a letter dated July 26, 1999 providing that Remediation and Risk Management Plan (RRMP) accompany soil management plans specifying appropriate health and safety measures for construction workers. Clayton has prepared a separate soil management plan for each of the Coliseum Way Properties under separate covers (Appendix B).

6.0 CONCLUSIONS

The former commercial /industrial use of the Coliseum Way Properties has resulted in the disposal of hazardous wastes on all three properties. Environmental investigations of these properties have highlighted the following environmental and health and safety concerns associated with these properties:

- The presence of heavy metals in soils and wastes previously deposited on-site pose a limited but potential risk to future site workers who may have need or opportunity to excavate or otherwise expose these deposits which are currently covered with clean soil or capped by foundations and asphalt concrete.

- Previous industrial activities have impacted the shallow groundwater resources on these properties. However, the extent of these impacts is largely limited to the original site of deposition. It does not appear that there has been significant downward migration into the underlying Bay Mud formation, and there is no identified underground source of drinking water beneath these properties.

- Surface water investigations have found that small quantities of heavy metals are released through the "weep holes" which were placed in the storm water channel wall, which forms the northwestern boarder of the 5150 Coliseum Way property. The mass loading of metals to San Leandro Bay which is associated with this release has been estimated at approximately 7.6 pounds per year. (Zinc loading to the surface water from upgradient, unidentified sources may exceed 2000 pounds per year)

To resolve these three issues, Clayton is recommending the following site specific actions:

- 5050 Coliseum Way and 750- 50th Avenue: A permanent deed restriction will be placed on these parcels which limits the future use to industrial and commercial uses. The deed restriction will reference an attached Soil Management Plan which will spell out specific health, safety and procedural requirements for handling contaminated soils and waste.

- 5051 Coliseum Way: This property will have a similar deed restriction and Soil Management Plan placed on the permanent deed. In addition, to address the continuing migration of heavy metals to San Leandro Bay, Clayton is recommending a site specific remedial action which will limit the migration of on-site heavy metals which may be transported through the weep holes in the storm water channel. A detailed description of the recommended remedial action can be found in the attached Feasibility Study.

- 5200 Coliseum Way: This property will have a similar, site specific deed restriction and Soil Management Plan placed on the permanent deed for this parcel. In addition, Clayton recommends a two year program of continued quarterly groundwater monitoring for the four perimeter walls. This monitoring program will focus on the anomalous arsenic and barium values which have been detected in shallow groundwater adjacent to parcel.

7.0 LIMITATIONS

The information and opinions rendered in this report are exclusively for use by LeMean Property Holdings Company. Clayton Environmental Consultants, Inc. will not distribute or publish this report without the consent of LeMean Property Holdings Company, except as required by law or court order. The information and opinions included in this report were given in response to a specific scope of work and should be considered and implemented only in light of that particular scope of work. The services provided by Clayton in completing this project have been provided in a manner consistent with the normal standards of the profession. No other warranty, expressed or implied, is made.

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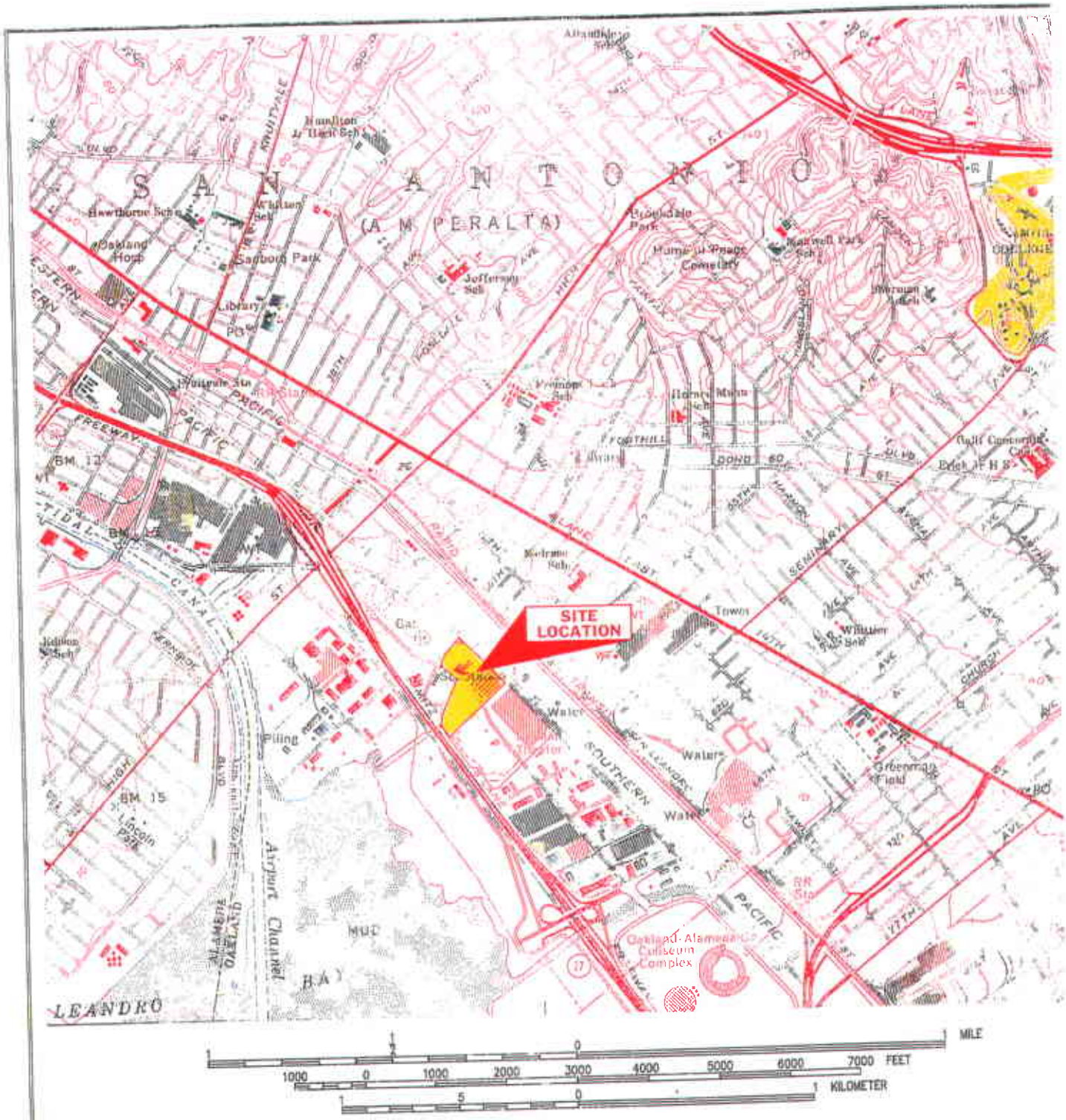
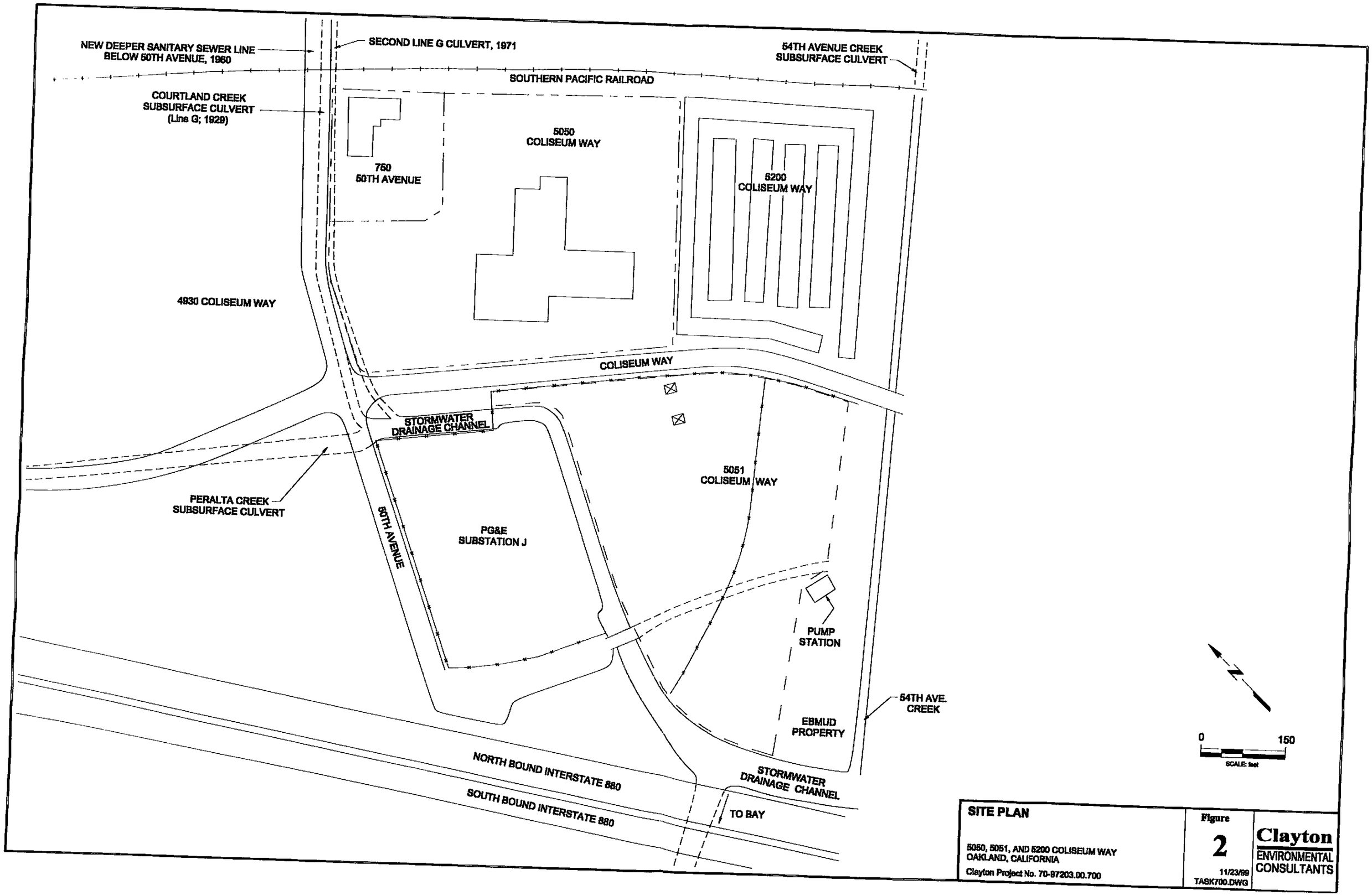
San Francisco Regional Office



Portion of 7.5-Minute Oakland East, California Quadrangle Map
United States Department of the Interior
Geological Survey
1959
Photorevised 1980

N

SITE LOCATION MAP Coliseum Way Properties Oakland, California Client: Lempres & Wulfsberg Clayton Project No. 70-97203.00.300	Figure 1 97203-6-18	Clayton ENVIRONMENT CONSULTAN



SITE PLAN

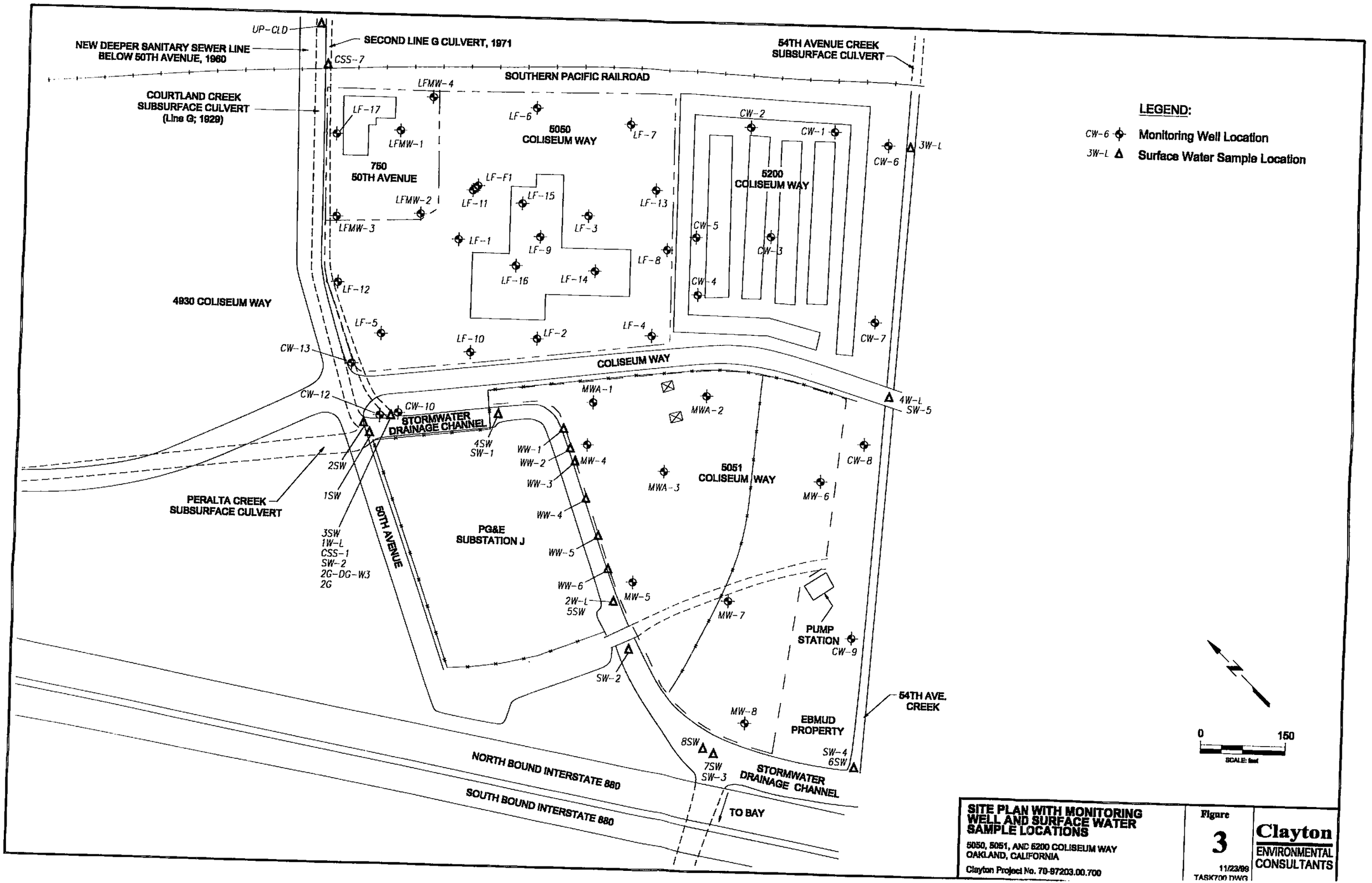
5050, 5051, AND 5200 COLISEUM WAY
OAKLAND, CALIFORNIA

Clayton Project No. 70-97203.00.700

Figure **2**

11/23/99
TASK700.DWG

Clayton
ENVIRONMENTAL CONSULTANTS



SITE PLAN WITH MONITORING WELL AND SURFACE WATER SAMPLE LOCATIONS

5050, 5051, AND 5200 COLISEUM WAY
OAKLAND, CALIFORNIA

Clayton Project No. 70-97203.00.700

Figure 3

11/23/99
TASK700.DWG

Clayton ENVIRONMENTAL CONSULTANTS

NEW DEEPER SANITARY SEWER LINE BELOW 50TH AVENUE, 1960

SECOND LINE G CULVERT, 1971

54TH AVENUE CREEK SUBSURFACE CULVERT

SOUTHERN PACIFIC RAILROAD

COURTLAND CREEK SUBSURFACE CULVERT (Line G; 1929)

5050 COLISEUM WAY

750 50TH AVENUE

5200 COLISEUM WAY

4930 COLISEUM WAY

COLISEUM WAY

STORMWATER DRAINAGE CHANNEL

5051 COLISEUM WAY

PERALTA CREEK SUBSURFACE CULVERT

50TH AVENUE

PG&E SUBSTATION J

PUMP STATION

54TH AVE. CREEK

EBMUD PROPERTY

NORTH BOUND INTERSTATE 880

SOUTH BOUND INTERSTATE 880

STORMWATER DRAINAGE CHANNEL

TO BAY

LEGEND:

CSB-13 • Soil Boring Location

0 150

SCALE: feet

SITE PLAN WITH SOIL BORING LOCATIONS

5050, 5051, AND 5200 COLISEUM WAY
OAKLAND, CALIFORNIA

Clayton Project No. 70-97203.00.700

Figure 4

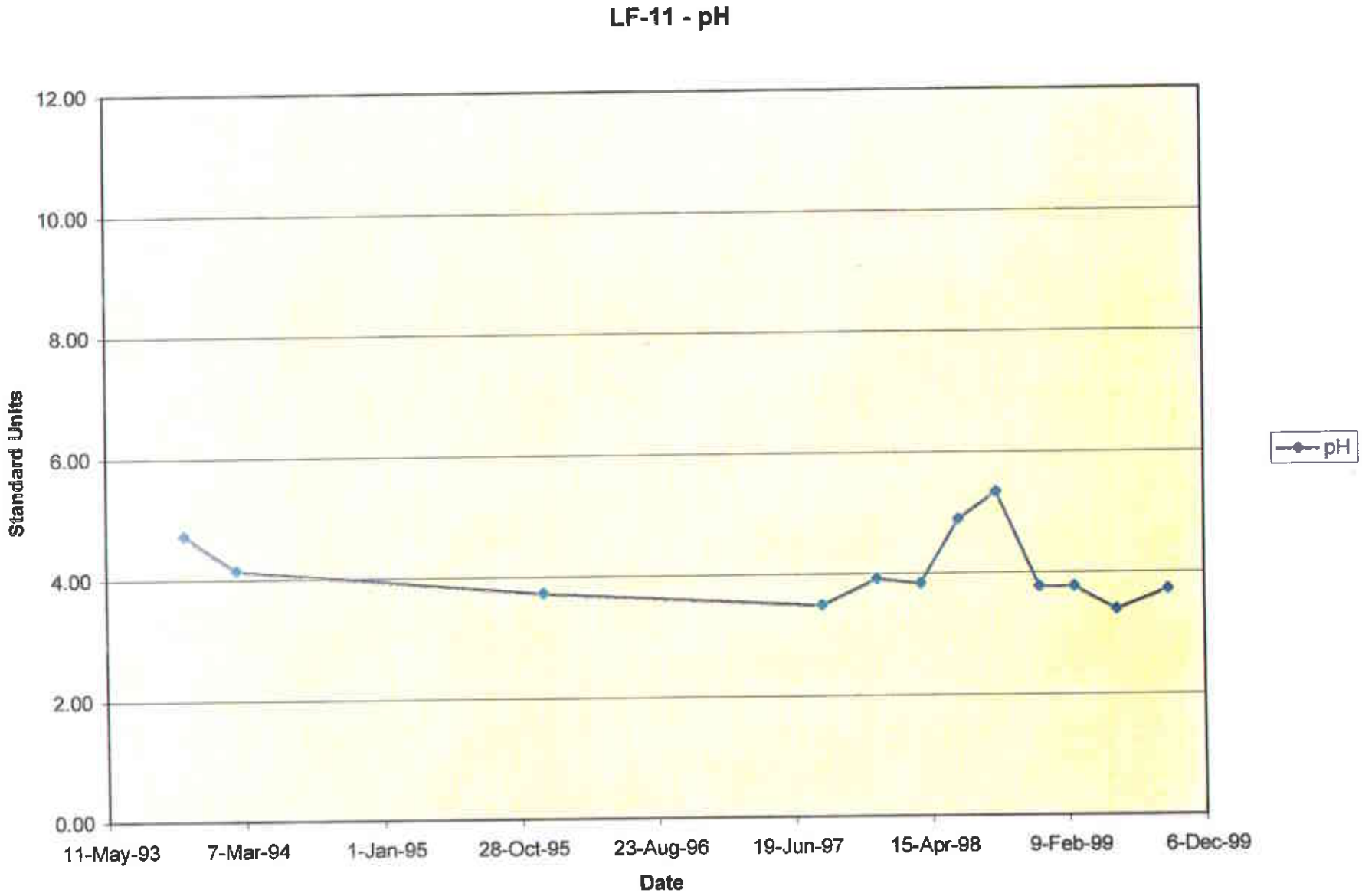
11/23/99
TASK700.DWG

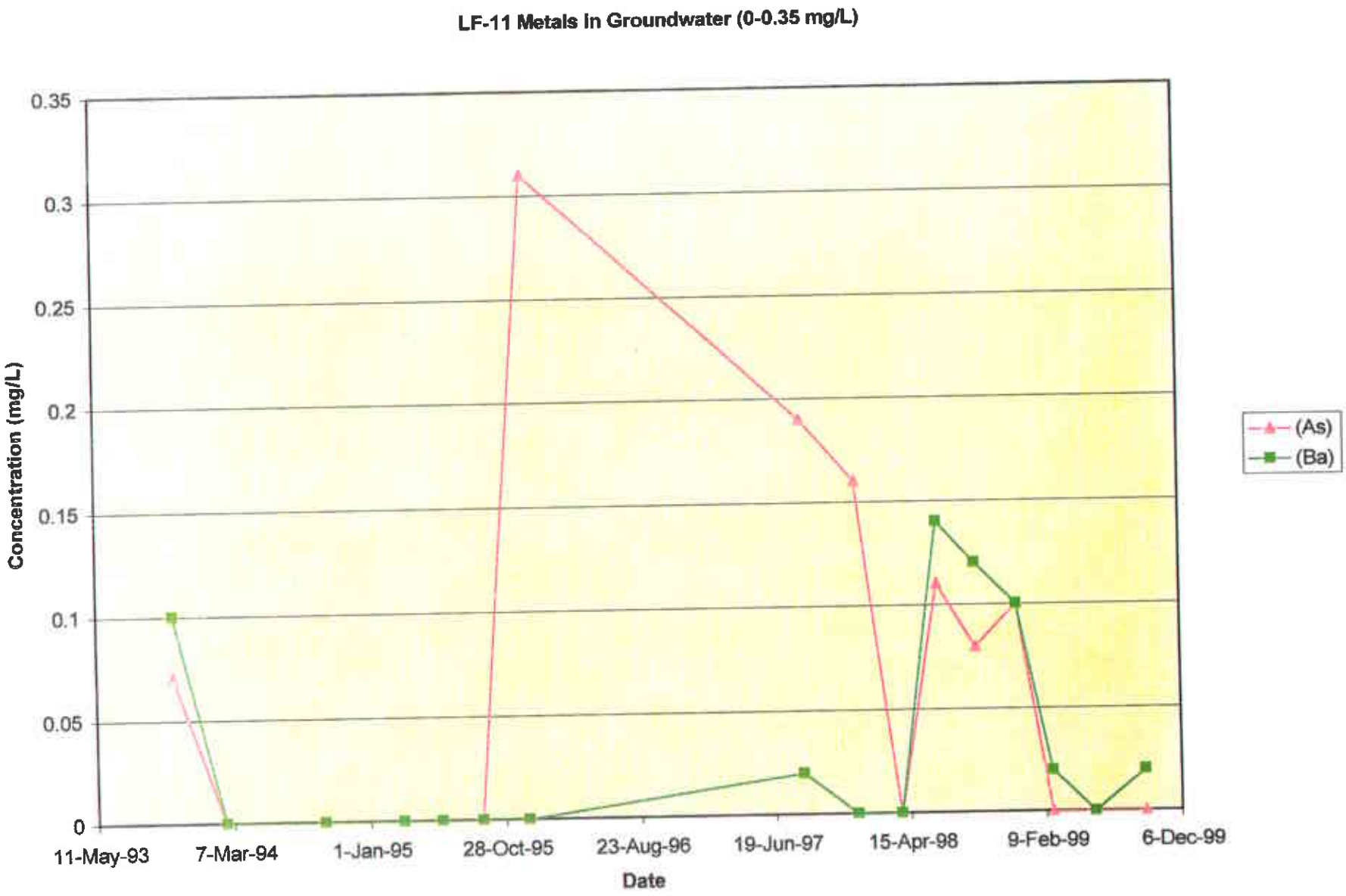
Clayton ENVIRONMENTAL CONSULTANTS

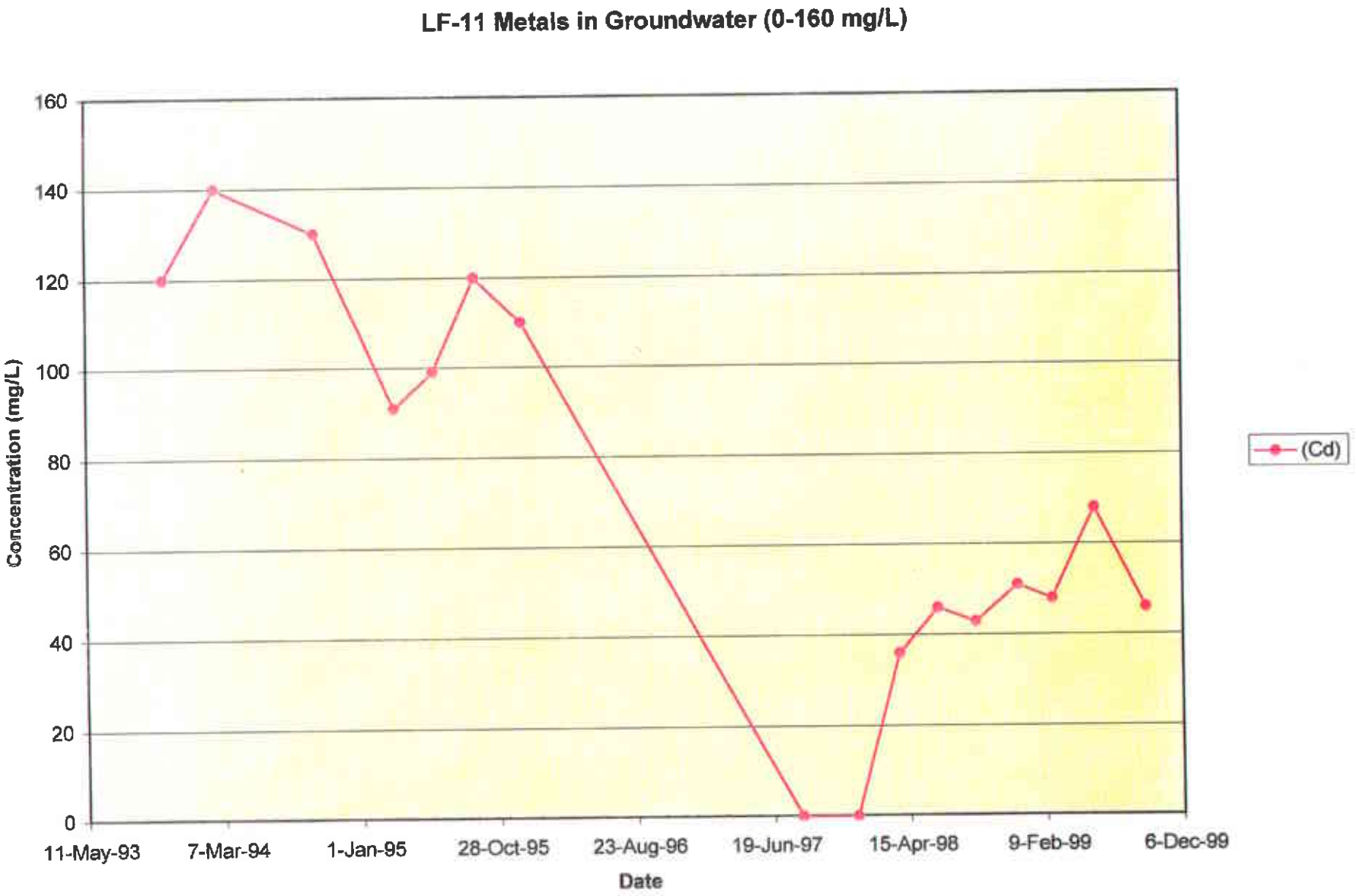
Clayton
ENVIRONMENTAL
CONSULTANTS

APPENDIX A

GROUNDWATER DATA TRENDS

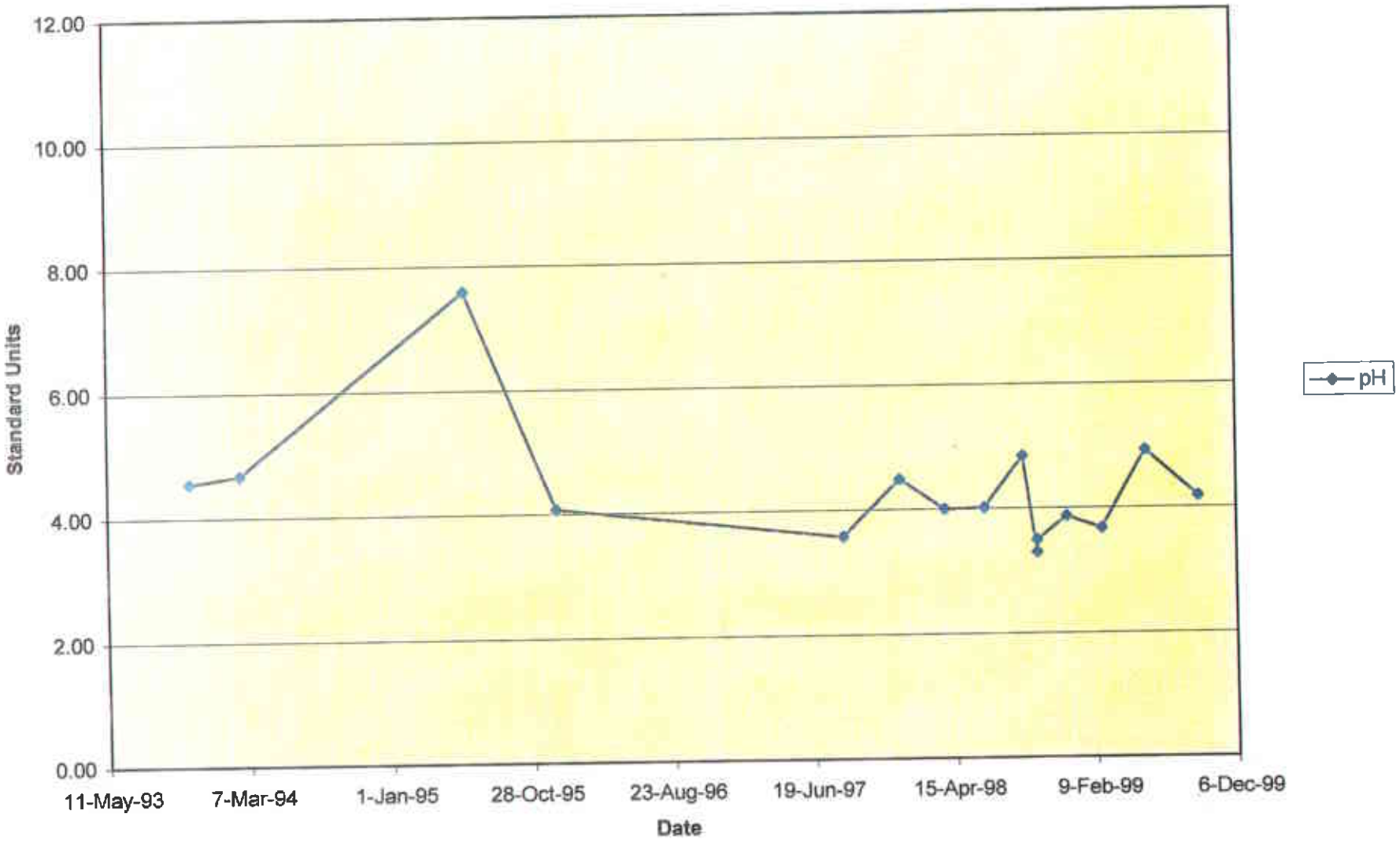

LF-11 - pH
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Standard Units
11-May-93
7-Mar-94
1-Jan-95
28-Oct-95
23-Aug-96
19-Jun-97
15-Apr-98
9-Feb-99
6-Dec-99
Date
pH

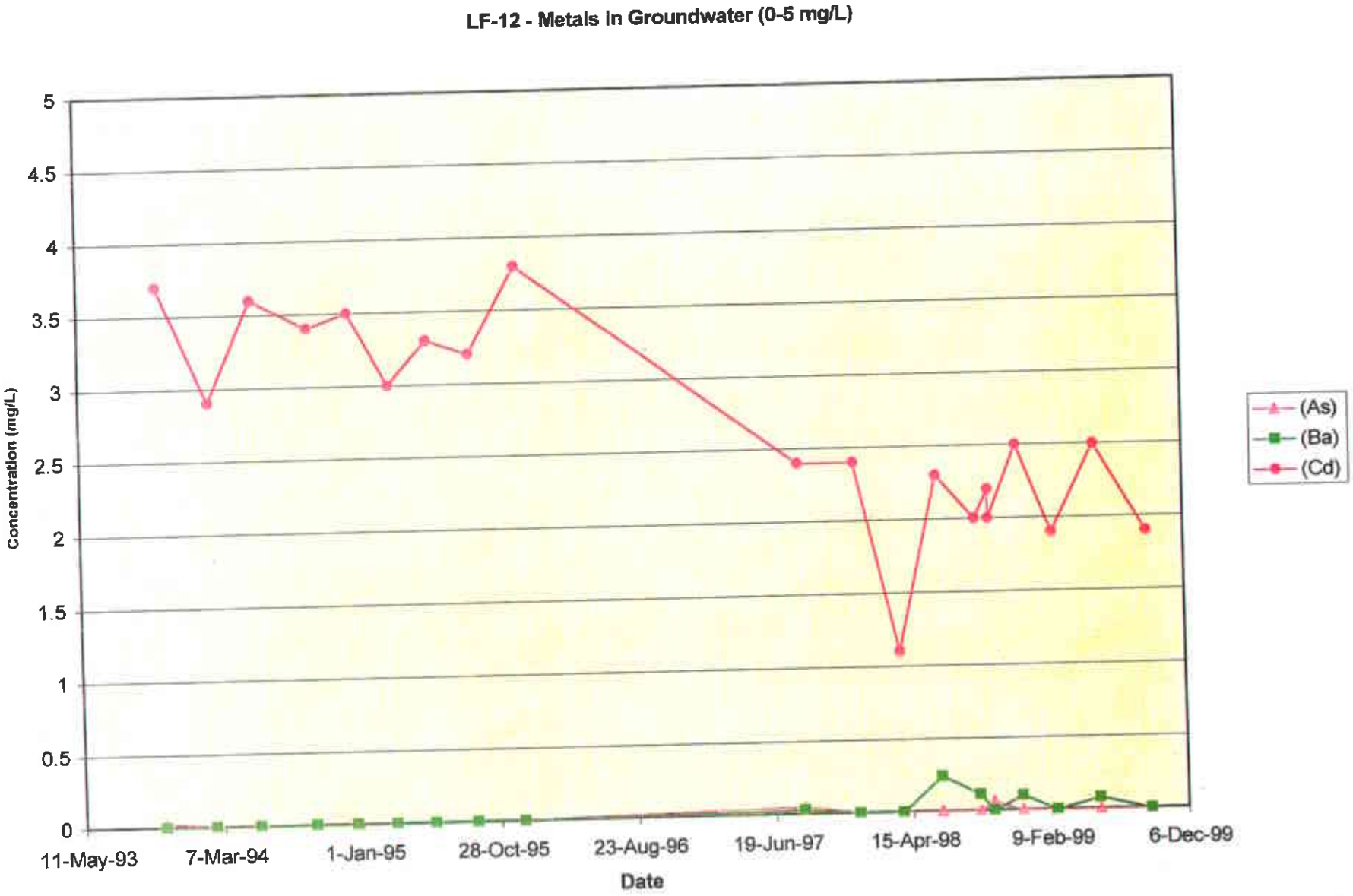

LF-11 Metals In Groundwater (0-0.35 mg/L)
Concentration (mg/L)
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
11-May-93
7-Mar-94
1-Jan-95
28-Oct-95
23-Aug-96
19-Jun-97
15-Apr-98
9-Feb-99
6-Dec-99
Date
(As)
(Ba)

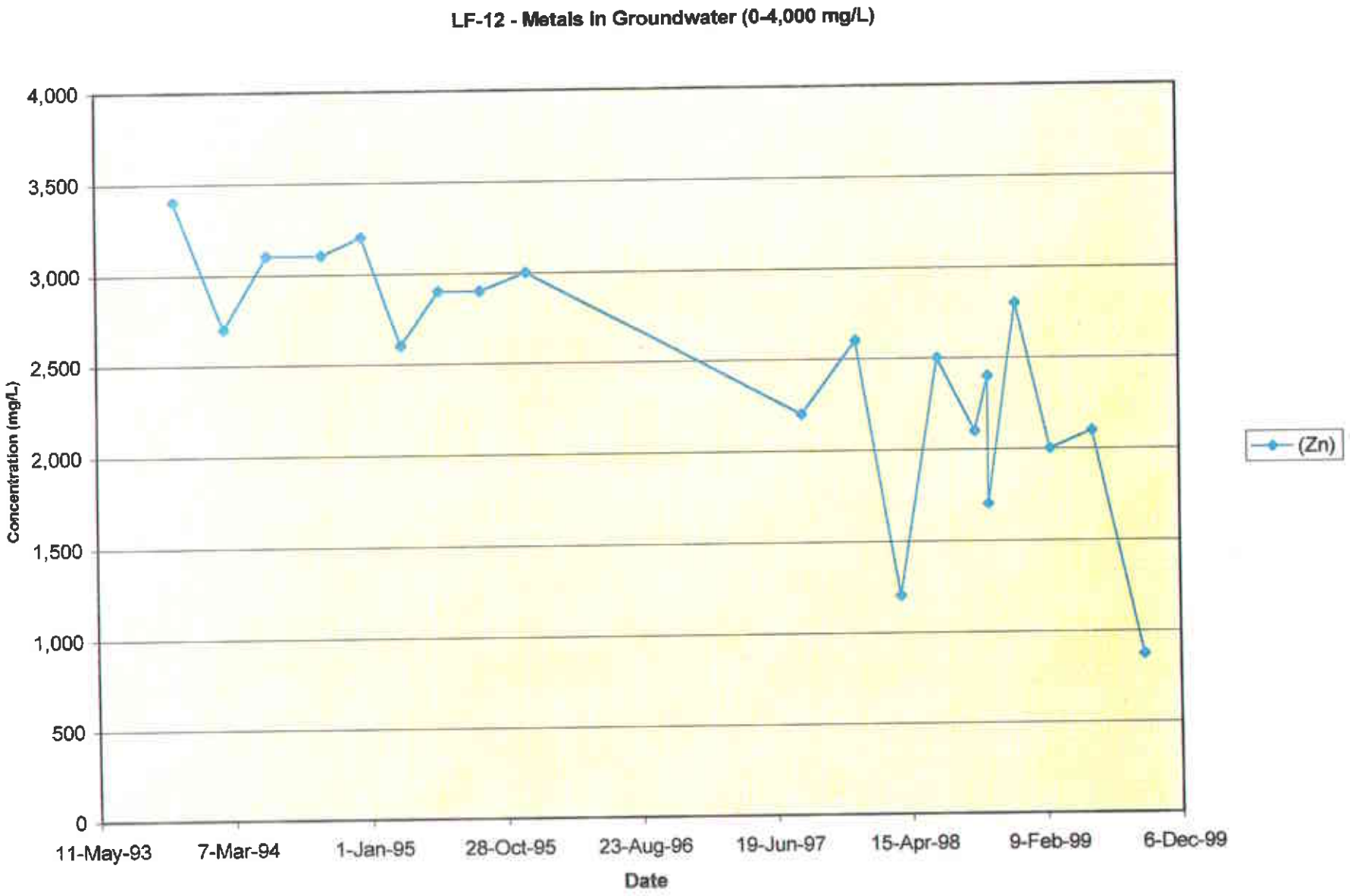

LF-11 Metals in Groundwater (0-160 mg/L)
160
140
120
100
80
60
40
20
0
Concentration (mg/L)
11-May-93
7-Mar-94
1-Jan-95
28-Oct-95
23-Aug-96
19-Jun-97
15-Apr-98
9-Feb-99
6-Dec-99
Date
(Cd)

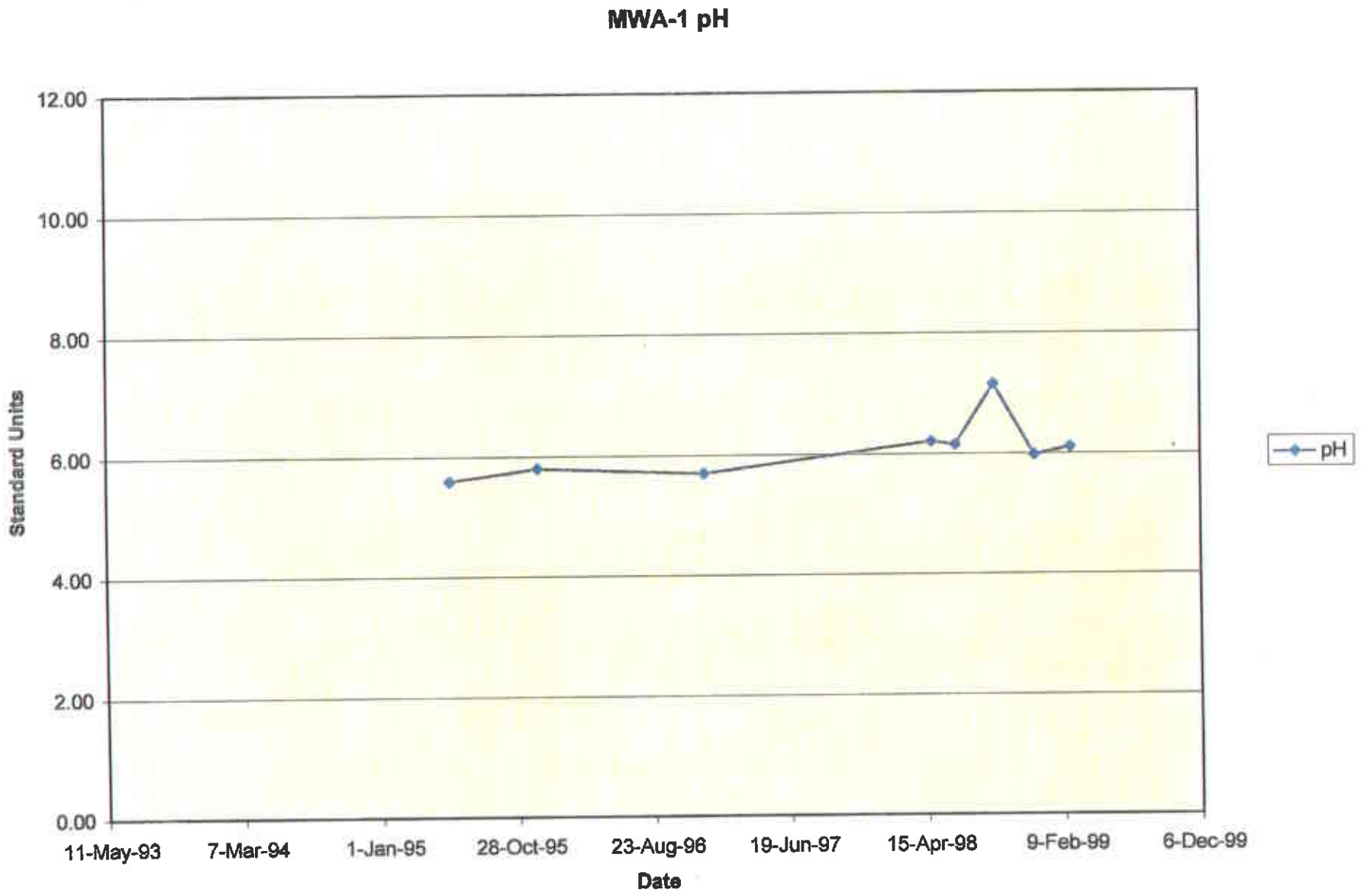
LF-11 - Zinc in Groundwater (0-50,000 mg/L)

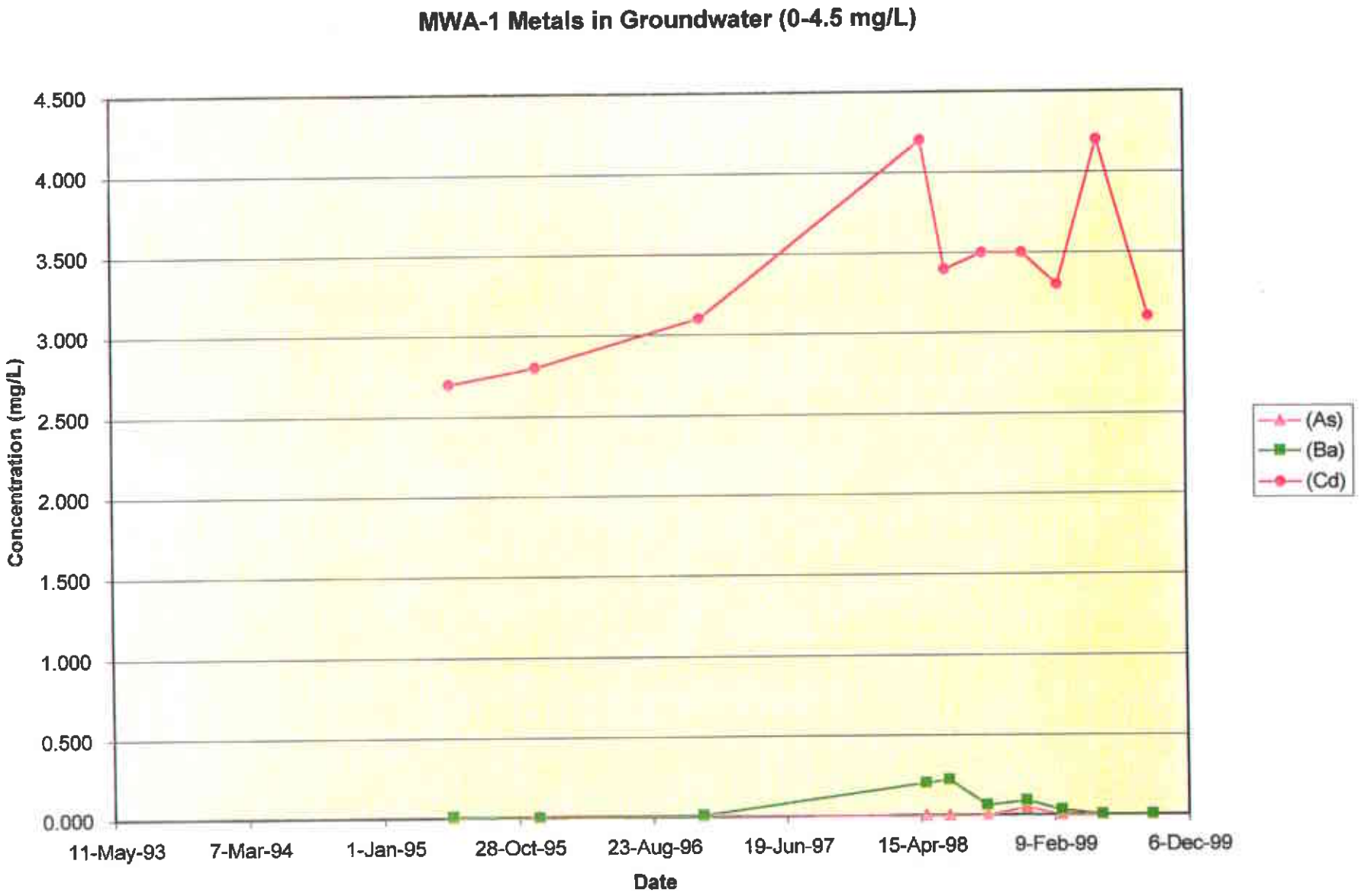
LF-12 - pH

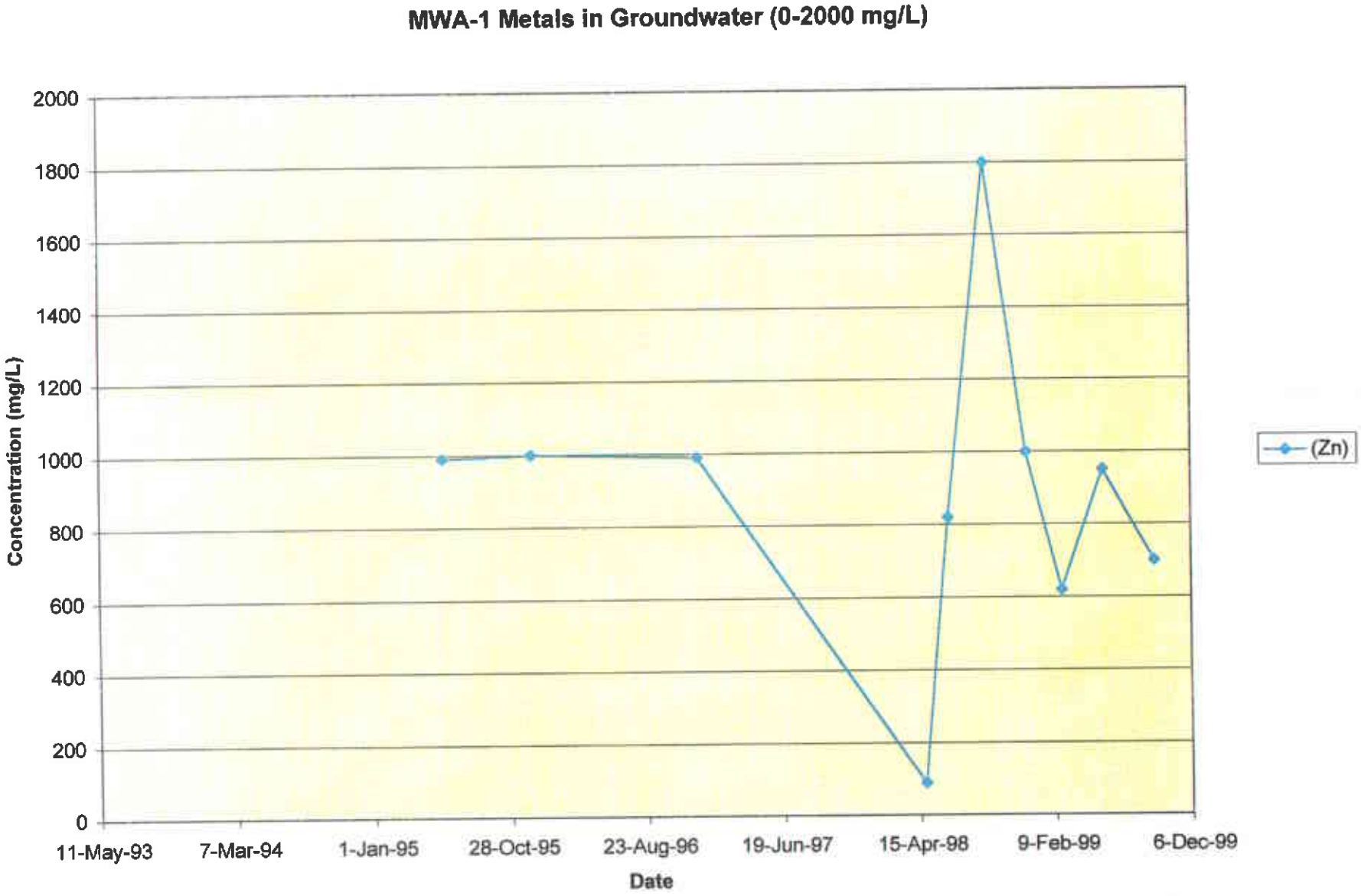

12.00
10.00
8.00
6.00
4.00
2.00
0.00
Standard Units
11-May-93
7-Mar-94
1-Jan-95
28-Oct-95
23-Aug-96
19-Jun-97
15-Apr-98
9-Feb-99
6-Dec-99
Date
pH

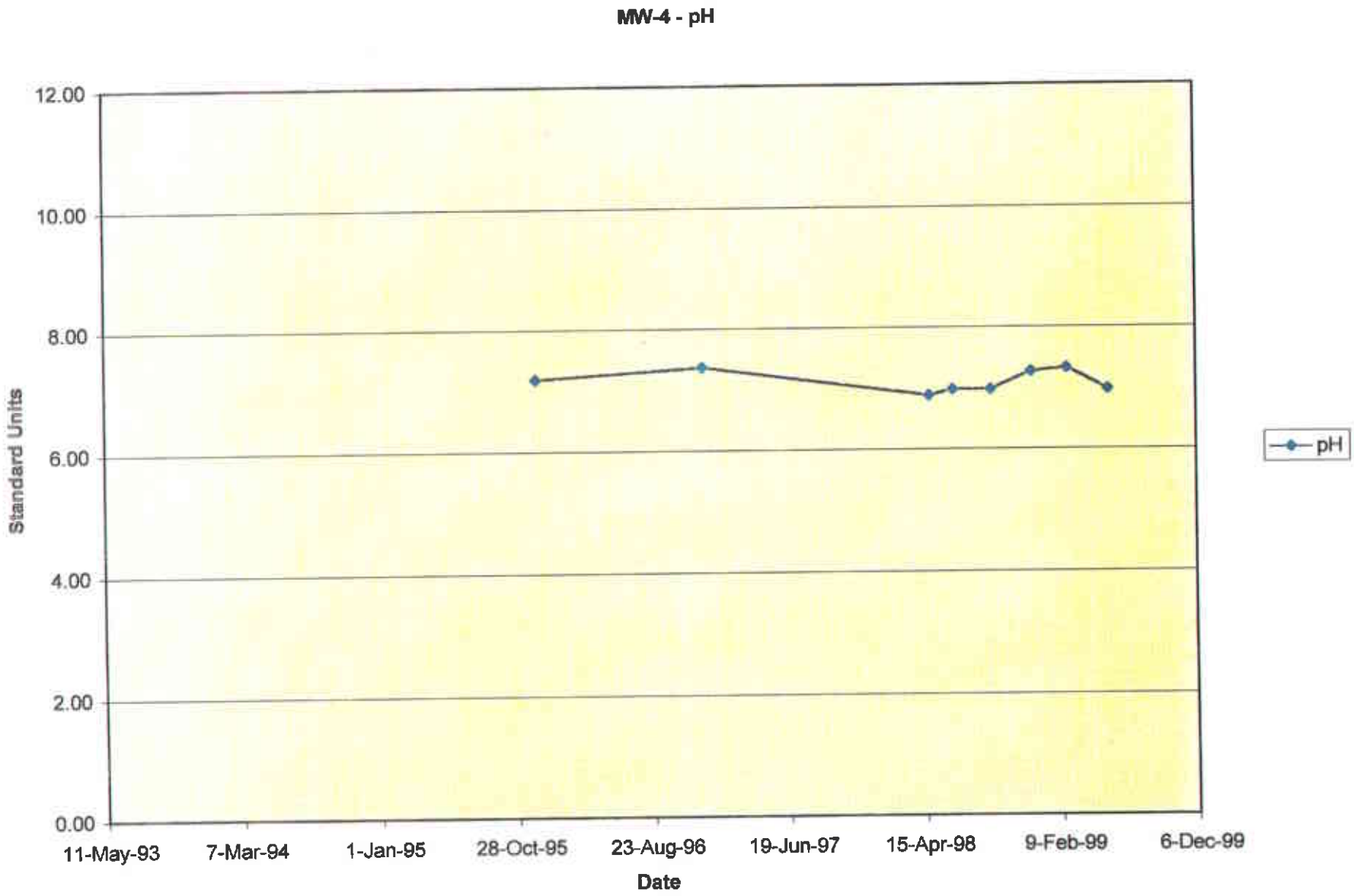

LF-12 - Metals in Groundwater (0-5 mg/L)
Concentration (mg/L)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
11-May-93
7-Mar-94
1-Jan-95
28-Oct-95
23-Aug-96
19-Jun-97
15-Apr-98
9-Feb-99
6-Dec-99
Date
(As)
(Ba)
(Cd)

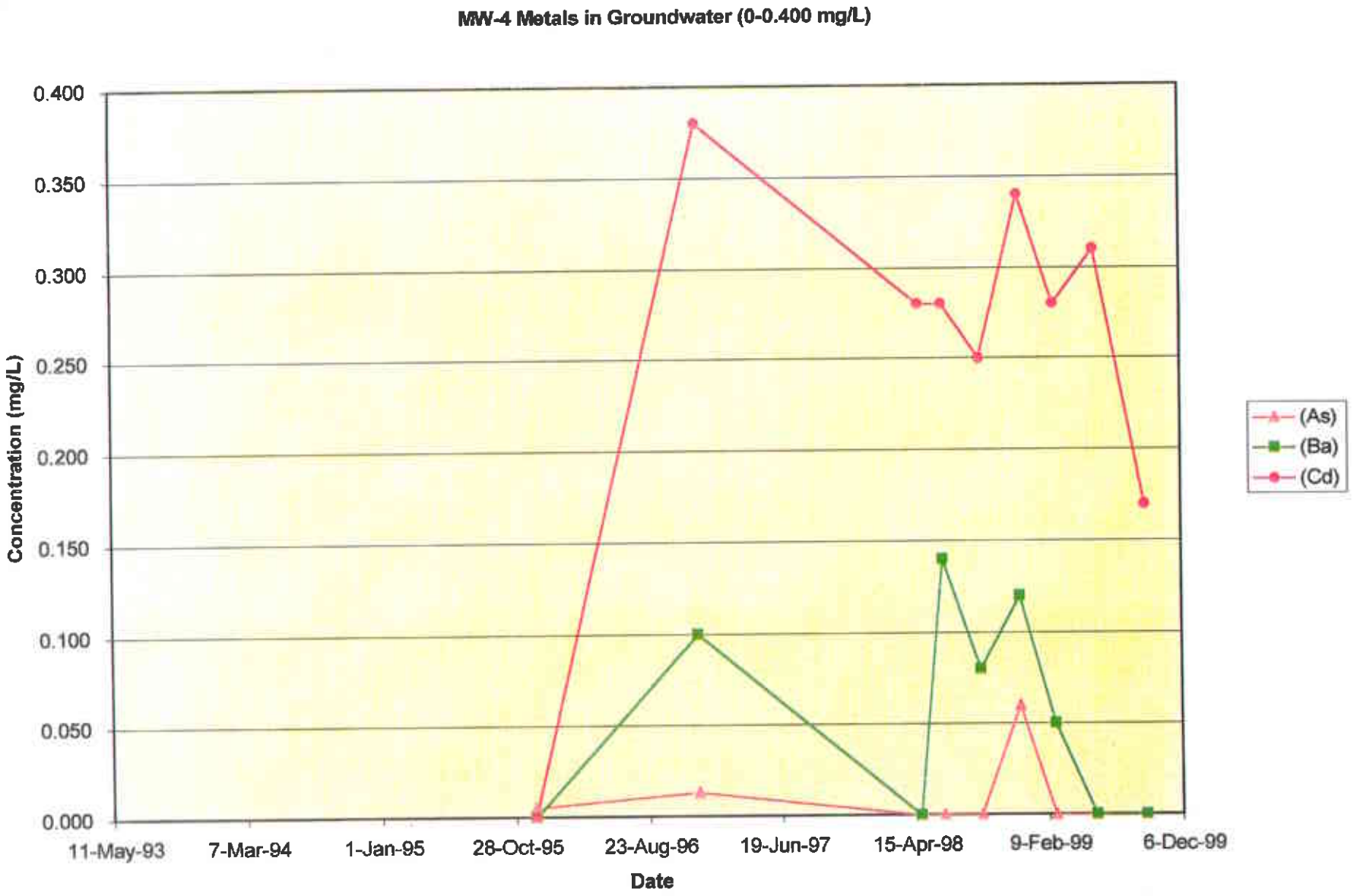

LF-12 - Metals in Groundwater (0-4,000 mg/L)
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Concentration (mg/L)
11-May-93
7-Mar-94
1-Jan-95
28-Oct-95
23-Aug-96
19-Jun-97
15-Apr-98
9-Feb-99
6-Dec-99
Date
(Zn)

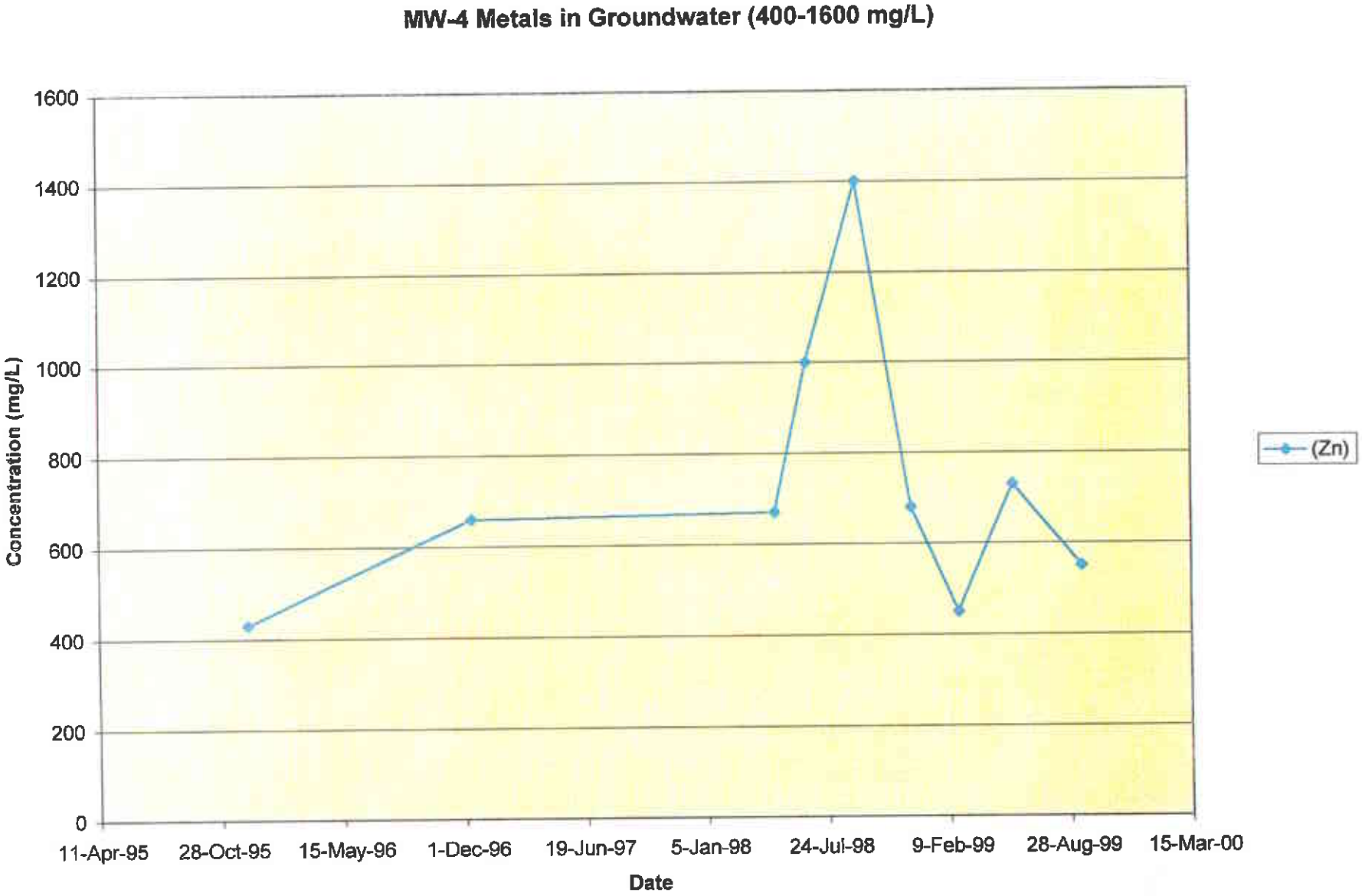

MWA-1 pH
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Standard Units
11-May-93
7-Mar-94
1-Jan-95
28-Oct-95
23-Aug-96
19-Jun-97
15-Apr-98
9-Feb-99
6-Dec-99
Date
pH

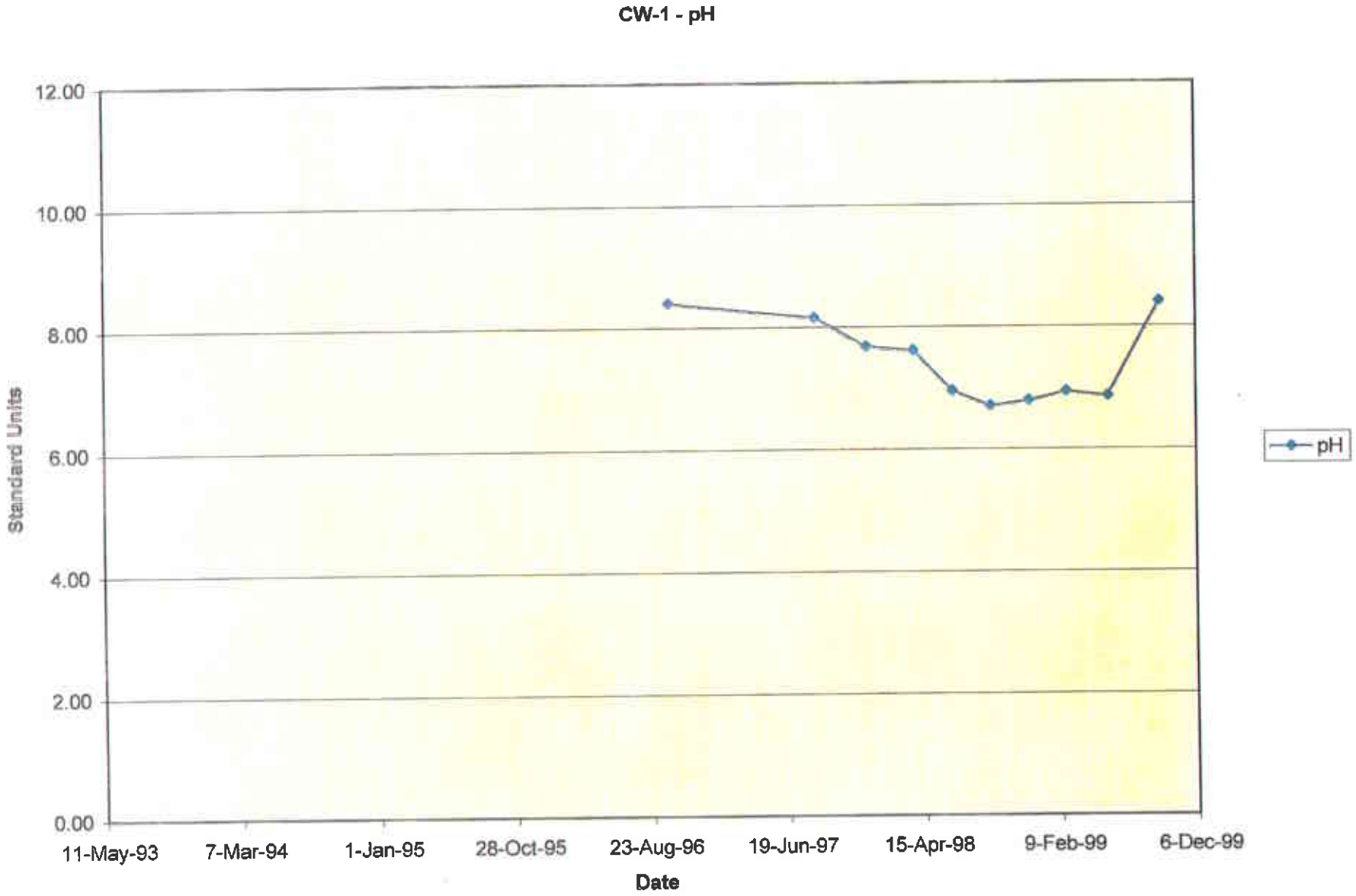

MWA-1 Metals in Groundwater (0-4.5 mg/L)
Concentration (mg/L)
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
11-May-93
7-Mar-94
1-Jan-95
28-Oct-95
23-Aug-96
19-Jun-97
15-Apr-98
9-Feb-99
6-Dec-99
Date
(As)
(Ba)
(Cd)

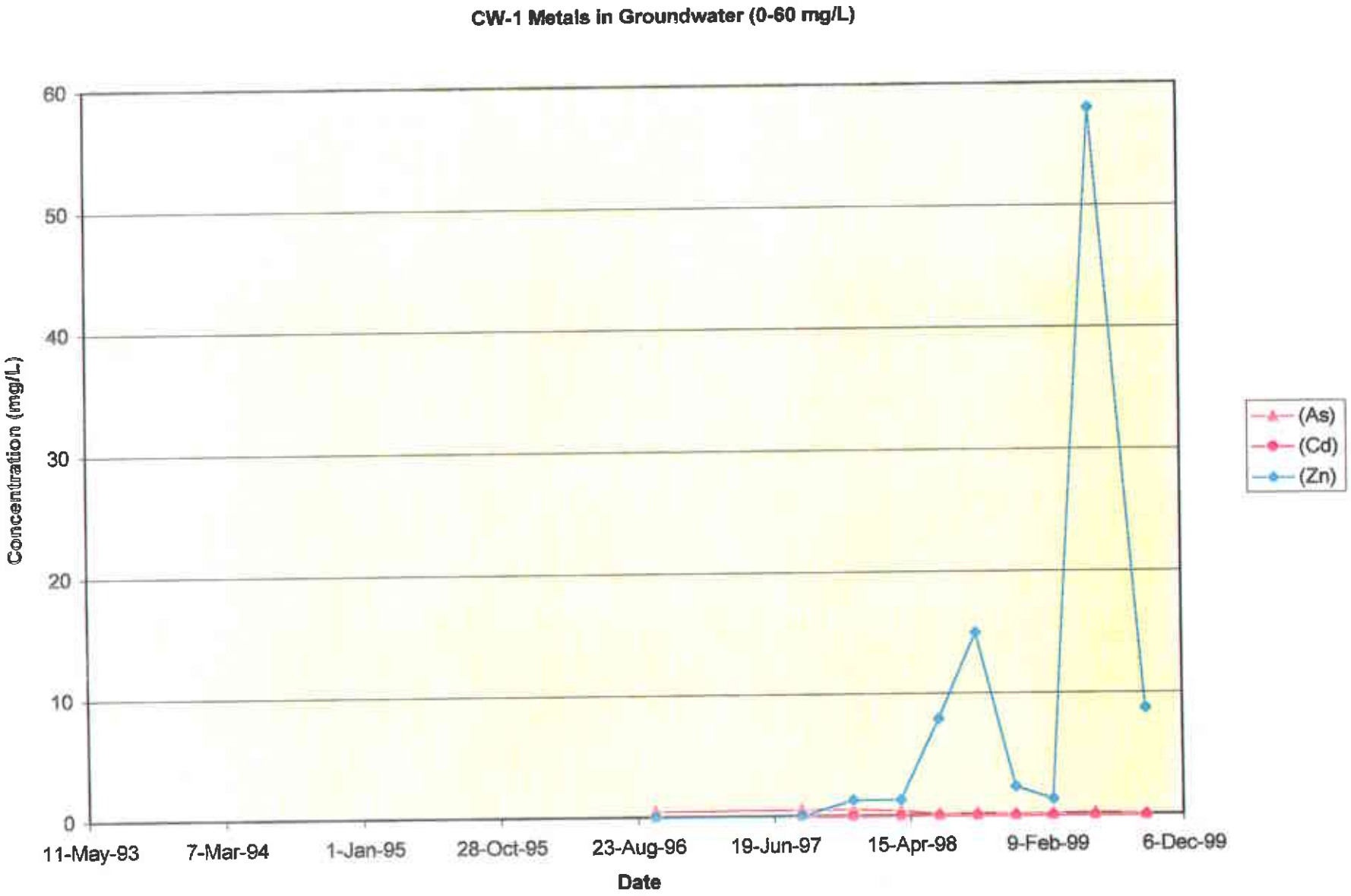

MWA-1 Metals in Groundwater (0-2000 mg/L)
Concentration (mg/L)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
11-May-93
7-Mar-94
1-Jan-95
28-Oct-95
23-Aug-96
19-Jun-97
15-Apr-98
9-Feb-99
6-Dec-99
Date
(Zn)

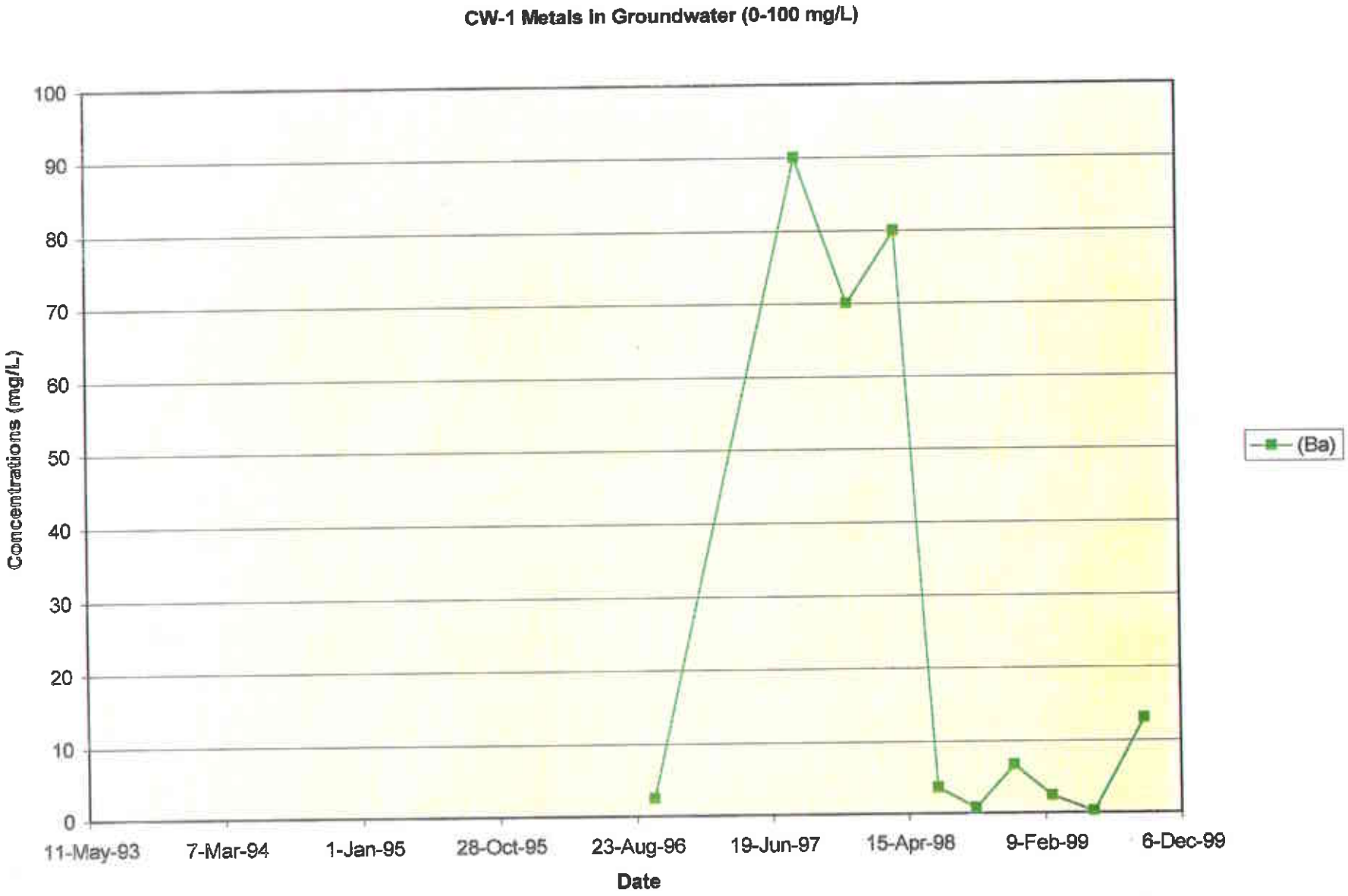

MW-4 - pH
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Standard Units
11-May-93
7-Mar-94
1-Jan-95
28-Oct-95
23-Aug-96
19-Jun-97
15-Apr-98
9-Feb-99
6-Dec-99
Date
pH

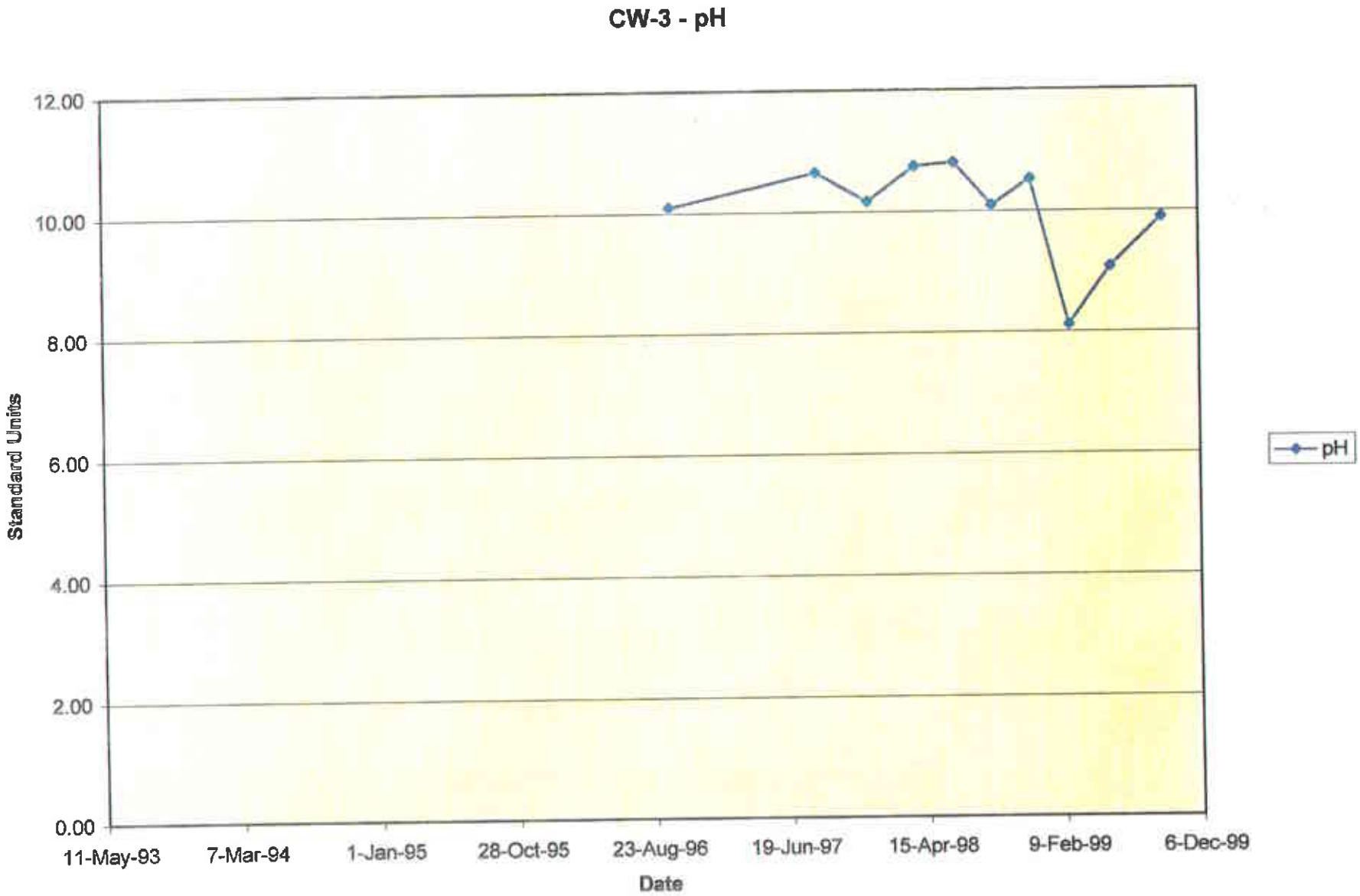

MW-4 Metals in Groundwater (0-0.400 mg/L)
Concentration (mg/L)
0.400
0.350
0.300
0.250
0.200
0.150
0.100
0.050
0.000
11-May-93
7-Mar-94
1-Jan-95
28-Oct-95
23-Aug-96
19-Jun-97
15-Apr-98
9-Feb-99
6-Dec-99
Date
(As)
(Ba)
(Cd)

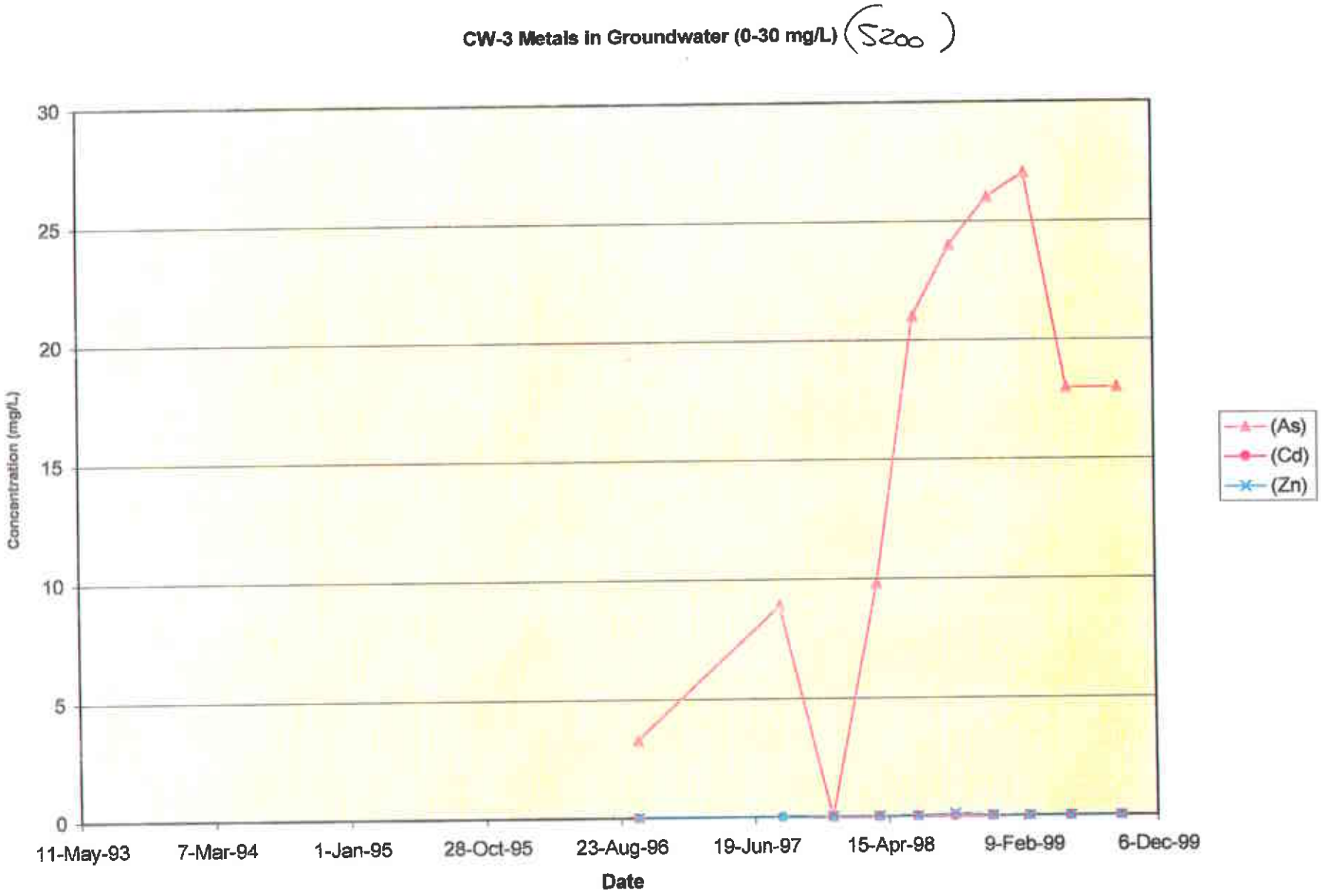

MW-4 Metals in Groundwater (400-1600 mg/L)
Concentration (mg/L)
1600
1400
1200
1000
800
600
400
200
0
11-Apr-95
28-Oct-95
15-May-96
1-Dec-96
19-Jun-97
5-Jan-98
24-Jul-98
9-Feb-99
28-Aug-99
15-Mar-00
Date
(Zn)

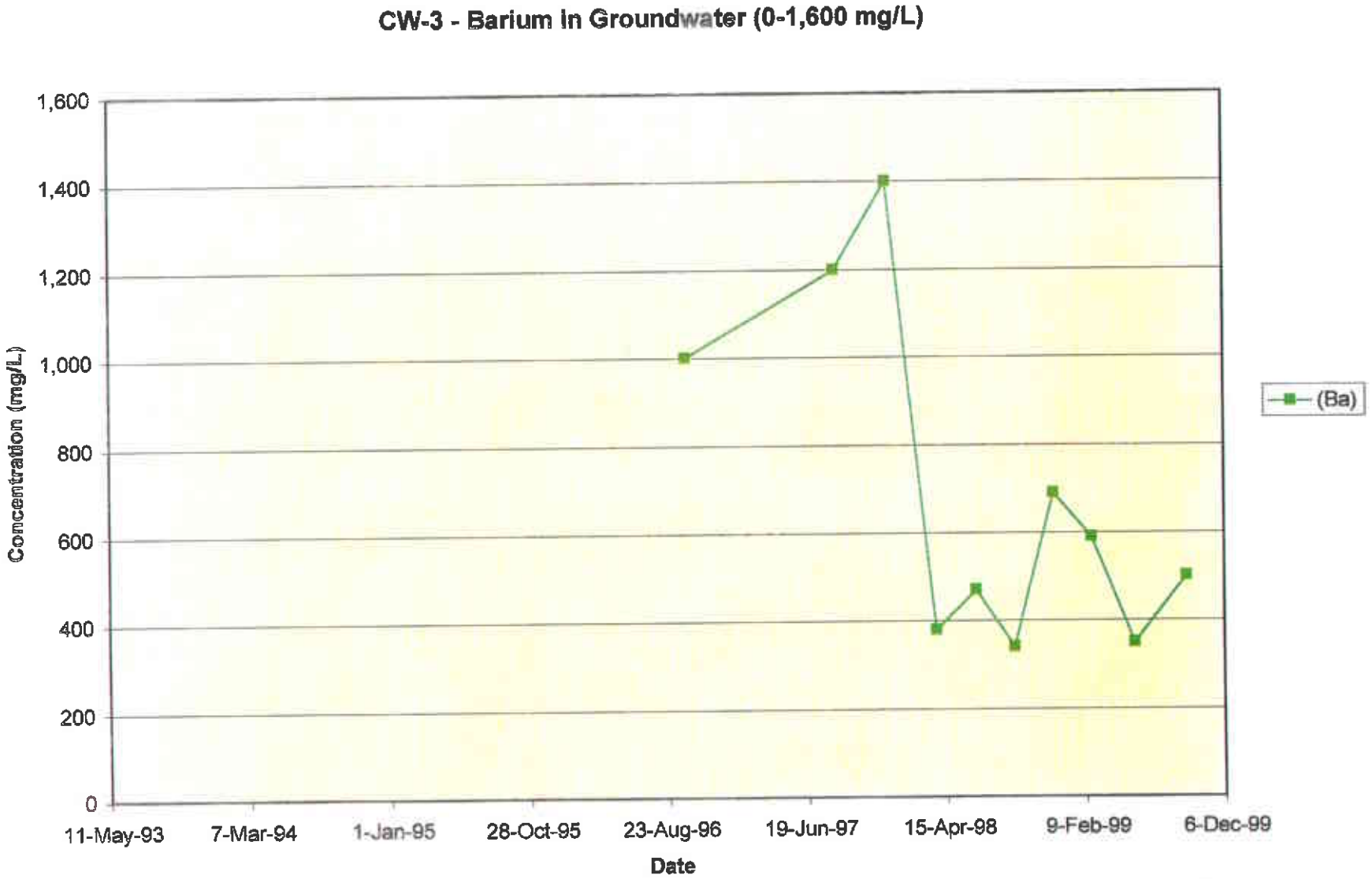

CW-1 - pH
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Standard Units
11-May-93
7-Mar-94
1-Jan-95
28-Oct-95
23-Aug-96
19-Jun-97
15-Apr-98
9-Feb-99
6-Dec-99
Date
pH


CW-1 Metals in Groundwater (0-60 mg/L)
Concentration (mg/L)
60
50
40
30
20
10
0
11-May-93
7-Mar-94
1-Jan-95
28-Oct-95
23-Aug-96
19-Jun-97
15-Apr-98
9-Feb-99
6-Dec-99
Date
(As)
(Cd)
(Zn)


CW-1 Metals in Groundwater (0-100 mg/L)
Concentrations (mg/L)
100
90
80
70
60
50
40
30
20
10
0
11-May-93
7-Mar-94
1-Jan-95
28-Oct-95
23-Aug-96
19-Jun-97
15-Apr-98
9-Feb-99
6-Dec-99
Date
(Ba)


CW-3 - pH
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Standard Units
11-May-93
7-Mar-94
1-Jan-95
28-Oct-95
23-Aug-96
19-Jun-97
15-Apr-98
9-Feb-99
6-Dec-99
Date
pH


CW-3 Metals in Groundwater (0-30 mg/L) (S200)
30
25
20
15
10
5
0
Concentration (mg/L)
11-May-93
7-Mar-94
1-Jan-95
28-Oct-95
23-Aug-96
19-Jun-97
15-Apr-98
9-Feb-99
6-Dec-99
Date
(As)
(Cd)
(Zn)


CW-3 - Barium in Groundwater (0-1,600 mg/L)
1,600
1,400
1,200
1,000
800
600
400
200
0
Concentration (mg/L)
11-May-93
7-Mar-94
1-Jan-95
28-Oct-95
23-Aug-96
19-Jun-97
15-Apr-98
9-Feb-99
6-Dec-99
Date
(Ba)

APPENDIX B

SOIL MANAGEMENT PLANS

Clayton
ENVIRONMENTAL
CONSULTANTS

Soil Management Plan
5050 Coliseum Way and 750 – 50th Avenue
Oakland, California

For
LeMean Property Holdings, Corporation

Clayton Project No. 97203
November 30, 1999

DRAFT

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Figures

EXECUTIVE SUMMARY

This Soil Management Plan (SMP) provides background information as well as administrative and technical requirements that govern the future handling and management of waste residuals and contaminated soil located in the subsurface on an industrial property located at 5050 Coliseum Way and 750 – 50th Avenue in Oakland, California. The property is approximately 6 acres in size and is currently covered by building foundations, concrete surfaces, and asphalt paved parking lots.

This plan has been written at the request of the California Regional Water Quality Control Board (RWQCB) and will be a referenced and permanently attachment to a deed for this property.

The environmental condition of this property has been extensively investigated. These investigations indicated the presence of waste residuals and chemical compounds in subsurface soil and groundwater at the Site. The most notable compounds or constituents of concern include arsenic, barium, cadmium, some petroleum hydrocarbons, and zinc.

The nature and extent of the waste residuals and contaminated soil have been investigated and a health risk assessment has been performed. The health risk assessment considered two exposure scenarios: one for construction workers and one for commercial/industrial on-site occupants. The risk assessment indicated that potential risks for on-site commercial/industrial occupants are within acceptable levels and that potential noncarcinogenic risks to construction workers (if subsurface waste residuals and contaminated soil were encountered and disturbed) exceeded typically acceptable risk levels.

The RWQCB found the risk assessment acceptable, provided that steps be taken to reduce risk levels for construction workers. This Soil Management Plan presents the information needed to reduce those risks to acceptable levels. This plan provides protocols to be followed during any future construction or other activities that may encounter or expose the waste residuals or contaminated soil in the subsurface at the Site.

The requirements of this plan only apply to possible subsurface construction activities at the site and impose no restriction on the development or reconstruction of this Site for commercial or industrial uses. Implementation of the technical and procedural requirements of this plan should prevent negative impacts to health or the environment which could be associated with the known constituents of concern which are present at the Site.

1.0 INTRODUCTION

Clayton Environmental Consultants, a division of Clayton Group Services, Inc. (Clayton) has prepared this Soil Management Plan (SMP) for the property located at 5050 Coliseum Way and 750 – 50th Avenue in Oakland, California ("the Site"). The Site location is shown on Figure 1. The Site has also been referred to as the Volvo-GM site in previous investigations and reports. The Site includes two of the four properties that are sometimes collectively referred to as the Coliseum Way properties. The other two adjacent properties, 5051 Coliseum Way and 5200 Coliseum Way, were historically associated with the Site. Figure 2 shows the Site and the two other Coliseum Way properties.

This SMP is based on information provided in several reports previously submitted to the California Regional Water Quality Control Board (RWQCB). The major reports are listed in Section 3.0. In consideration of the data and information generated for this site, including the health risk assessment (described in Section 4.0), the RWQCB staff has agreed with the risk assessment that showed the potential risks for on-site commercial/industrial occupants are within acceptable levels and that the potential noncarcinogenic risks for on-site construction workers who may encounter or expose subsurface waste residuals or contaminated soil exceed acceptable levels.

To address the potential construction related risk, the RWQCB has required the filing of a permanent SMP to establish proper environmental protocols for potential construction activities on the site. Such construction activities could include excavation, handling and disposal of the contaminated soils and waste residuals that are known to exist at the site.

This SMP is to be referenced in the deed for this site in the form of a Covenant and Environmental Restriction, with the intention that these provisions are to "Run With the Land," and will be binding on all future purchasers, lessees, subleases, or possessors of this site.

2.0 SITE SETTING AND BACKGROUND

The Site is located in an industrial area of Oakland, California with numerous industrial sites generally surrounding the Site. The Site is rectangular in shape and is approximately 6 acres in size. A portion of the Southern Pacific Railroad is located along the northeastern border, 50th Avenue and a subsurface culvert are located along the northwestern border, Coliseum Way is located along the southwestern border, and another property (currently a self storage business) is located along the southeastern border of the Site.

The topography of the site is generally flat; the elevation of the Site and the area around the Site ranges from approximately 7 –15 feet above mean sea level. The Site is approximately 0.5 miles east/northeast of the San Leandro Bay. Regionally, groundwater flows west toward the San Leandro Bay.

The Site has a long history of industrial usage. Historical highlights of the Site usage are summarized below. More detailed information about the site history can be obtained by reviewing the various reports referenced in Section 3.0.

From approximately 1870 to about 1903, the property was used for lead smelting. From 1903 to around 1917, pyrite ores were retorted at the Site for the production of sulfuric acid. The ore reduction process resulted in the on-site deposition of approximately 15, 000 cubic yards of pyrite slag and cinders, a portion of this slag was deposited on the adjacent property that is now 5200 Coliseum Way. The site was used by various chemical manufacturing companies from 1917 to 1926. Little documentation exists for these operations; however, it may be assumed that similar smelting, acid production, and other possible chemical production works were employed.

A lithopone (paint pigment) manufacturing facility occupied the properties at 750-50th Avenue and 5050 Coliseum Way (as well as 5200 Coliseum Way) from approximately 1926 to 1963. Residuals from lithopone production included various forms of insoluble sulfate solid residuals that were deposited as both dry filter cake and slurry deposits on the adjacent 5051 and 5200 Coliseum Way properties. The residuals included various metals, barium sulfate and zinc sulfate. There were several storage tanks on the property at various points in history including a sulfuric acid tank, motor oil tanks, a waste oil tank, and black ash tanks. In addition to the lithopone operations, there was a history of storage and distribution of coal tar (use in roofing applications) in above ground storage tanks and drums located on the Site and on the 5200 property.

In 1964, the Site buildings and structures were demolished, regrading occurred, and the Site remained vacant for approximately 10 years. Starting in 1972, the Site was used for vehicle maintenance. The existing buildings were constructed and the remainder of the property was paved in 1974. This site usage continued until 1992. From 1992 until June 1994, the Site was vacant. In June 1994, it was leased for use as a service center for municipal equipment.

Subsequent environmental investigations, completed under the direction of the ACWD and the RWQCB, have indicated that waste residuals and contaminated soils remain in the subsurface of the Site.

3.0 SUMMARY OF ENVIRONMENTAL SITE INVESTIGATIONS

Numerous soil and groundwater investigations have been completed on this Site. These investigations have evaluated a variety of potential release sources and the nature and extent of impacts from those sources. A summary of the pertinent environmental investigations that have characterized the Site to date is provided below. Figures 3 and 4 show the sampling locations associated with these investigations. Additional information is available in the reports listed below.

Remedial Investigation Report 5050 Coliseum Way and 750-50th Avenue Oakland, California (LF 1994A)	Levine*Fricke	9-19-94

Preliminary Remedial Alternatives Evaluation Report 5050 Coliseum Way and 750-50th Avenue Oakland, California (LF 1994B)	Levine*Fricke	11-23-94
Additional Remedial Investigation and Third Quarter 1998 Monitoring Report at Coliseum Way Properties 750-50th Avenue and 5050, 5051 and 5200 Coliseum Way, Oakland, California (Clayton 1998)	Clayton Environmental Consultants	11-5-98
Additional Remedial Investigation 1999 at 5050, 5051, and 5200 Coliseum Way and 750-50th Avenue, Oakland, California (Clayton 1999)	Clayton Environmental Consultants	5-25-99
Remediation and Risk Management Plan, LeMean Holdings Properties Located at 750-50th Avenue, 5050,5051, and 5200 Coliseum Way, Oakland, California	Clayton Environmental Consultants	11-30-99

Groundwater monitoring on the 5050 Coliseum Way property (including the 750-50th Avenue property) was conducted by Levine*Fricke between November 1991 and December 1995. In 1997, Clayton was retained to provide environmental consulting services to Millennium Holdings and resumed groundwater monitoring. Quarterly monitoring reports for sampling events have been submitted by Clayton since August 1997. Groundwater monitoring events have resulted in sampling and analyzing groundwater samples for 17 total metals, total dissolved solids, and petroleum hydrocarbons.

The Remedial Investigation Report by Levine*Fricke (LF-1994A) was prepared in response to a request by the Alameda County Health Care Services Agency. Levine*Fricke conducted a historical records review to establish the former use of the site. Findings of the remedial investigation were based on soil and groundwater data collected between 1991 and 1994 from 19 groundwater monitoring well borings and 44 soil borings. The investigation evaluated total metals, petroleum products, semi-volatile organic compounds (SVOCs), sulfates, and total sulfur in soils. Groundwater analyses included metals, general minerals, total dissolved solids (TDS), sulfate, pH, and SVOCs. Other site characteristics included limited evaluations of total organic carbon content of one soil sample, and slug testing of six wells.

Conclusions reached by Levine*Fricke (LF 1994A) were that elevated concentrations of metals and low pH conditions in soil and groundwater exist beneath the site. Heavy petroleum hydrocarbons were also detected in a limited area of soil and groundwater. The presence and distribution of the detected chemicals appeared to be related to past manufacturing and disposal activities and grading of the property before the present facility was constructed. Levine*Fricke also prepared a Preliminary Remedial Alternatives Evaluation Report (LF 1994 B) that identified a range of remedial alternatives. No option was recommended.

The RWQCB requested technical reports in a letter issued to Millennium Holdings, Inc. on February 11, 1998. Clayton prepared the Additional Remedial Investigation and Third Quarter 1998 Monitoring Report (Clayton 1998) for the Coliseum Way Properties to assist the RWQCB with its evaluation of the property.

Clayton's investigation of the 5050 Coliseum Way property included the collection of additional soil and groundwater samples. Three additional groundwater monitoring wells were installed, two of which were located downgradient and offsite to monitor the potential for metals in groundwater to migrate offsite in the backfill material surrounding the culverts that border the northwest boundary of the property. Surface water samples were collected downgradient of the property to evaluate the potential for surface water impact from possible migration of metals in groundwater. A risk assessment workplan was submitted for review by the RWQCB.

Clayton concluded that metals, and petroleum hydrocarbons have impacted shallow groundwater on portions of the Site. Deep groundwater samples (at 25 feet and 45 feet) had elevated TDS and chloride concentrations indicative of trapped connate water; therefore, the groundwater below the waste layer zone is not considered a beneficial drinking water source. No evidence of vertical migration of contaminants was found below approximately 20 feet deep. Groundwater samples collected from monitoring wells and downgradient surface water samples suggest that there is no significant migration of heavy metals in groundwater from the subject property; therefore, impact to the bay appeared to be minimal. Storm water channels adjacent to the property drain a large industrial area of Oakland and metals in surface water samples collected at low tide were near basin plan objectives and likely have numerous upgradient unidentified sources.

Clayton prepared an Additional Remedial Investigation 1999 report dated May 25, 1999. The RWQCB issued tentative Site Cleanup Requirements (SCR) on March 9, 1999. In response to the SCR, Clayton conducted a dye tracer study to evaluate the hydraulic conductivity between wells CW-13 and LF-12 and the downgradient wells CW-10 and CW-12. No dye was detected in the downgradient wells. Clayton also sampled surface waters for dyes and heavy metals along the northwest boundary, and upgradient and downgradient of the Site to determine if contaminants in groundwater had traveled through preferential pathways and were impacting surface waters. Clayton calculated mass loading of select heavy metals in the surface waters. An area-weighted TDS concentration was also calculated for the Coliseum Way Properties to assist in determining potential beneficial uses of groundwater.

The dye study indicated no hydraulic conduit existed between the wells tested. Dye was detected in surface water samples collected at the downgradient Courtland Creek sample location. Mass loading calculations were performed from which Clayton concluded that metals loading to surface water from the 5050 Coliseum Way property is insignificant compared with the general storm water metals loading that is occurring from other upgradient unidentified sources.

Clayton also calculated an area-weighted TDS concentration for the Coliseum Way Properties at 6,417.5 mg/L. The deep groundwater samples collected between 25 and 45 feet bgs had TDS concentrations ranging from 15,000 to 25,000 milligrams per liter (mg/L). These TDS exceed the guidelines established for potential underground sources of drinking water. Furthermore, the ratio of chloride content to TDS level in these samples offered additional evidence that the groundwater in this area is actually trapped connate water.

4.0 HEALTH RISK ASSESSMENT

On February 18, 1998, the RWQCB issued a letter requiring, among other items, a risk assessment to determine if the contaminants detected at the Site pose a threat to human health. In response to that letter, a Risk Assessment Workplan was prepared and submitted to the RWQCB in November 1998. After the workplan was approved, a Health Risk Assessment Report (HRA) was subsequently prepared and submitted in February 1999.

The HRA addressed properties located at 5050/750-50th Avenue, 5051 Coliseum Way, and 5200 Coliseum Way. To evaluate potential health impacts from metals in soil, the HRA evaluated data from each of the three separate properties. To evaluate potential impacts from volatile and semi-volatile organic compounds (VOCs and SVOCs) in the soil and groundwater, data from all three properties were evaluated as one data set resulting in a site wide risk. This approach avoided the arbitrary grouping of data from groundwater wells that collect groundwater from more than one property over time and provided a better depiction of the potential risks and movement of VOCs and SVOCs.

To determine the potential impacts to public health that the contaminants may pose, two distinct exposure scenarios were evaluated as part of the HRA. The first scenario assumed that the Site remains in its current state and that exposures only occur if construction and excavation activities take place. The second scenario assumes that the properties remain industrial as zoned, and that additional buildings are constructed on each of the properties. The HRA findings for both scenarios are summarized below.

The calculated average carcinogenic risk (presented as an Individual Excess Lifetime Cancer Risk) and calculated average noncarcinogenic Hazard Index for the construction scenario at the Site were 2.1E-05 and 2.1959 respectively.

The calculated carcinogenic risk (presented as an Individual Excess Lifetime Cancer Risk) and noncarcinogenic Hazard Index for the on-site commercial/industrial scenario at the Site were 1.21 E-06 and 0.0766 respectively.

As stated by the RWQCB, an individual excess lifetime cancer risk greater than 1E-04 is generally considered an unacceptable carcinogenic risk and a Hazard Index of greater than 1.0 is considered unacceptable exposure to noncarcinogens. The construction worker scenario indicated unacceptable noncarcinogenic hazards. The risks for on-site commercial/industrial occupants are within acceptable levels.

The RWQCB approved the HRA for the Coliseum Properties in a letter dated July 26, 1999 providing that Remediation and Risk Management Plan (RRMP) accompany soil management plans with appropriate health and safety measures for construction workers. This document was prepared to comply with that requirement.

5.0 FUTURE MANGEMENT ACTIVITIES AND MITIGATION OF RISK

Future excavation and grading of the site will be limited to that which is performed in a manner protective of the health and safety of on-site construction workers, the public and the environment. The following guidelines are to govern any future site work, or use of this property, that will significantly disturb or expose the constituents of concern.

- In any area which has been impacted by hazardous chemicals it is prudent to take precautions against worker exposure. For this reason, future excavation and construction activities which will disturb subsurface soils shall be undertaken in accordance with a written Health and Safety Plan which conforms to the applicable State and Federal Guidelines, specifically, California Code of Regulations Title 8, Section 5192, and, Title 29 of the Code of Federal Regulations Section 1910. 120. This plan is to be prepared to address the specific site activities and to minimize potential exposures to the construction workers. The plan will be signed by a California Certified Industrial Hygienist.

- Any excavation into subsurface soil which causes exposure of contaminated soil shall be restricted to that specified in a written scope of work and shall be approved in advance by the staff of the RWQCB. (Or a successor agency.) Unless specific approval is provided by the RWQCB (or successor agency), the current surface conditions (i.e., a relatively level topography with the surface covered by building foundations, concrete surfaces, and/or asphalt paving) will be maintained. Surficial maintenance activities, such as patching or repairing paving, where contaminated soils are not encountered, will not require agency approval.

- Any soils excavated at the site will be handled and/or disposed of, according to applicable State, and Federal laws and regulations. (It should be noted that based on current analytical data, some of the site soils will most likely exceed federal hazardous waste characteristic levels.) Further, some soil and waste previously excavated from portions of the Site were managed as federal Hazardous Waste.

- If groundwater is encountered during excavation, it will be handled and disposed of according to applicable State, and Federal laws and regulations.

- To prevent potential degradation of deeper aquifers at the site, any deep excavation or drilling will be performed according to a written scope of work which shall be submitted to the RWQCB no less then 30 days prior to commencing activities. All on-site work shall be done according to applicable Alameda County, State, and Federal laws and regulations governing such activities.

- A copy of this SMP shall be maintained by the owner, with additional copies maintained on site on site where they may be accessed by current and future tenants.
- The land use at the site shall remain industrial or commercial, unless appropriate measures are taken to mitigate potential risk to the public, according to applicable environmental regulation and agency approvals.
- A deed restriction, with a copy of this RMP appended, shall be imposed on the property and submitted to the RWQCB and all other interested and applicable government agencies.

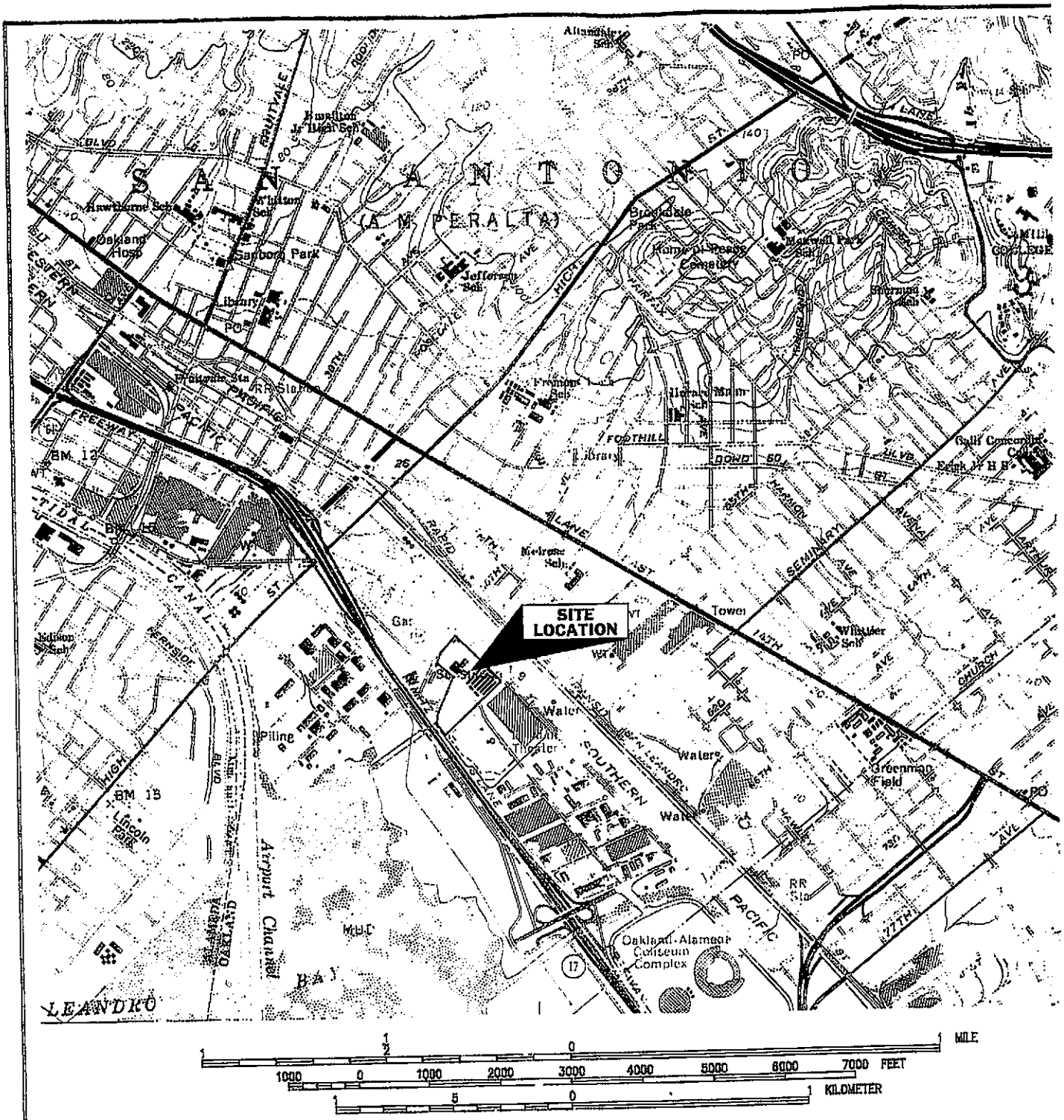
Report prepared by: _____

Auto Text Signature

Report reviewed by: _____

Auto Text Signature

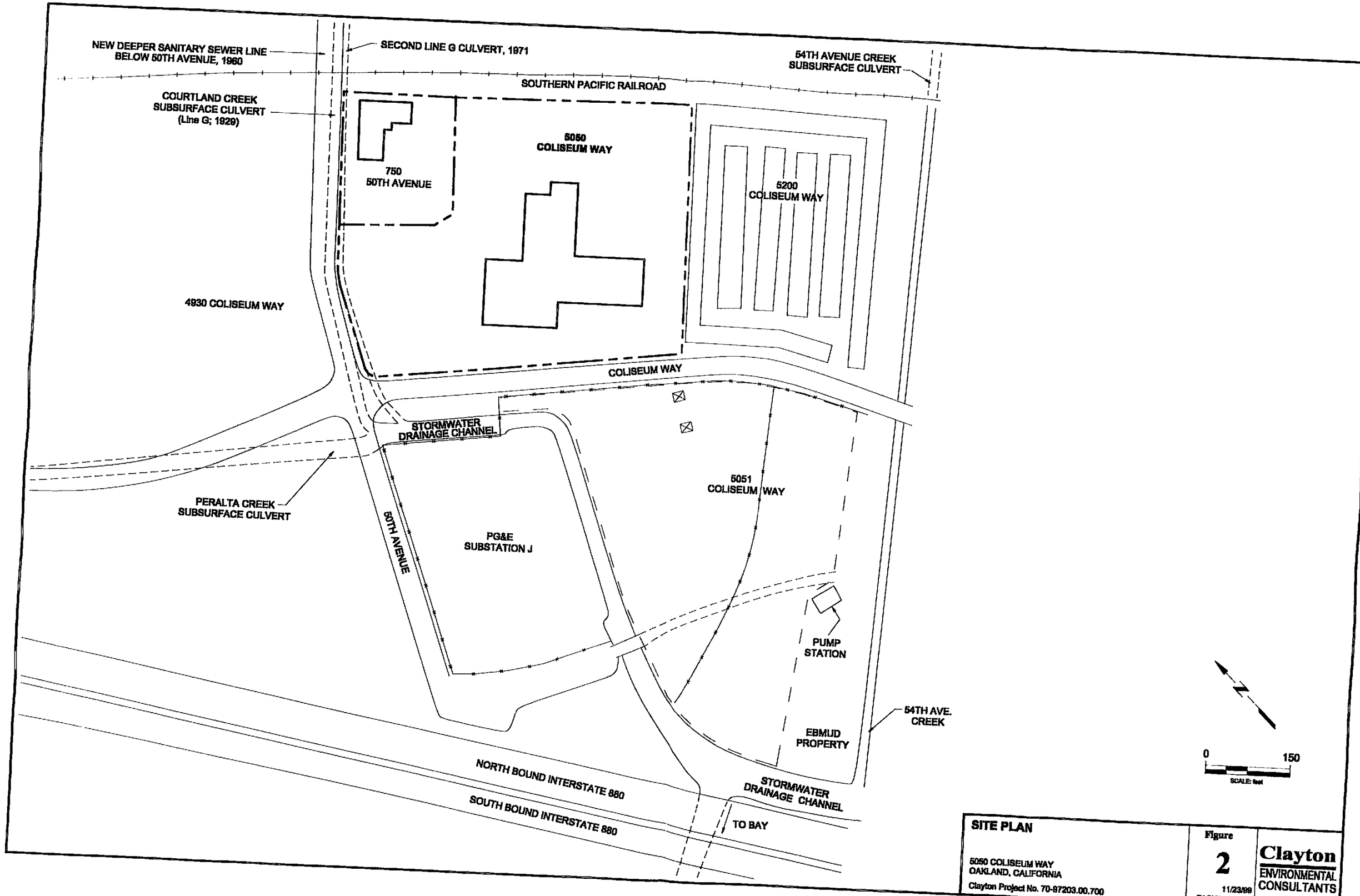
November 30, 1999



Portion of 7.5-Minute Oakland East, California Quadrangle Map
United States Department of the Interior
Geological Survey
1959
Photorevised 1980

N

SITE LOCATION MAP Coliseum Way Properties Oakland, California Client: Lempres & Wulfsberg Clayton Project No. 70-97203.00.300	Figure 1 97203-0-18	Clayton ENVIRONMENTAL CONSULTANTS



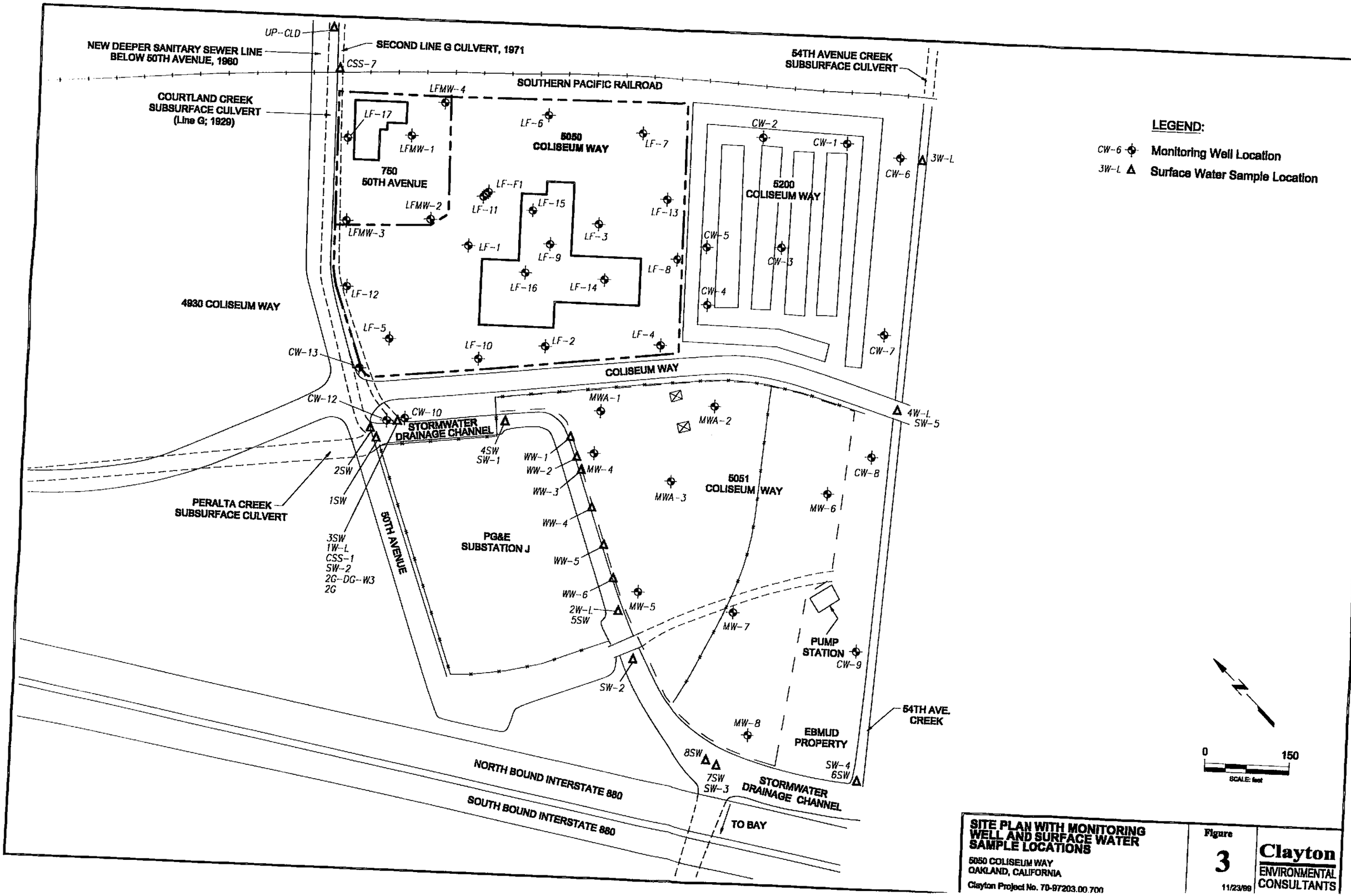
SITE PLAN

5050 COLISEUM WAY
OAKLAND, CALIFORNIA

Clayton Project No. 70-97203.00.700

Figure
2
11/23/99
TASK700.DWG

Clayton
ENVIRONMENTAL CONSULTANTS



SITE PLAN WITH MONITORING WELL AND SURFACE WATER SAMPLE LOCATIONS

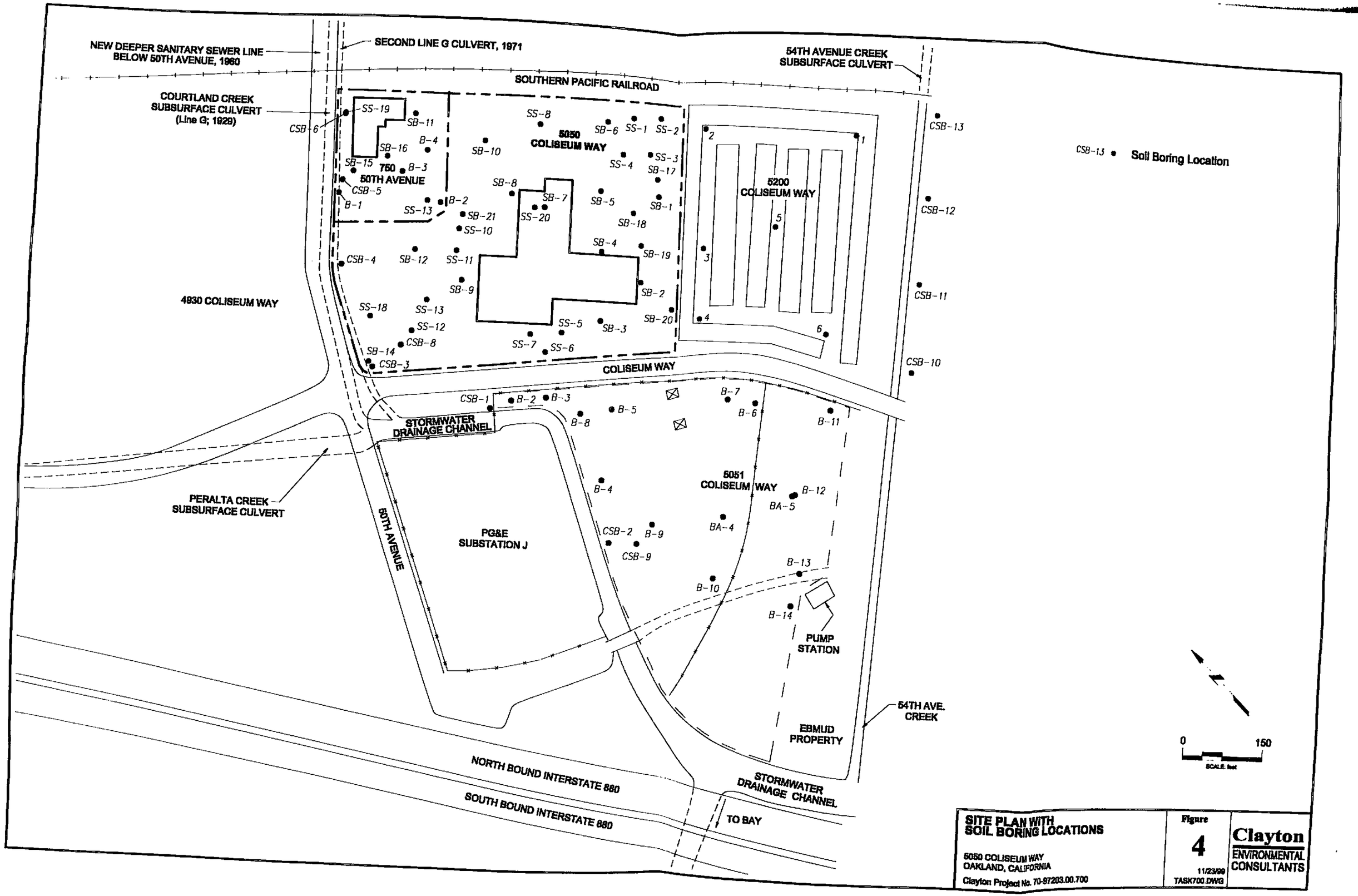
5050 COLISEUM WAY
OAKLAND, CALIFORNIA

Clayton Project No. 70-97203.00.700

Figure 3

11/23/99

Clayton ENVIRONMENTAL CONSULTANTS


NEW DEEPER SANITARY SEWER LINE BELOW 50TH AVENUE, 1960
SECOND LINE G CULVERT, 1971
54TH AVENUE CREEK SUBSURFACE CULVERT
SOUTHERN PACIFIC RAILROAD
COURTLAND CREEK SUBSURFACE CULVERT (Line G; 1929)
CSB-13 • Soil Boring Location
5050 COLISEUM WAY
750 50TH AVENUE
5200 COLISEUM WAY
4930 COLISEUM WAY
COLISEUM WAY
STORMWATER DRAINAGE CHANNEL
5051 COLISEUM WAY
PERALTA CREEK SUBSURFACE CULVERT
50TH AVENUE
PG&E SUBSTATION J
PUMP STATION
EBMUD PROPERTY
54TH AVE. CREEK
NORTH BOUND INTERSTATE 880
SOUTH BOUND INTERSTATE 880
STORMWATER DRAINAGE CHANNEL
TO BAY
0
150
SCALE: feet
SITE PLAN WITH SOIL BORING LOCATIONS
5050 COLISEUM WAY
OAKLAND, CALIFORNIA
Clayton Project No. 70-97203.00.700
Figure
4
11/23/99
TASK700.DWG
Clayton
ENVIRONMENTAL CONSULTANTS

Clayton
ENVIRONMENTAL
CONSULTANTS

Soil Management Plan
5051 Coliseum Way
Oakland, California

For
LeMean Property Holdings, Inc.

Clayton Project No. 97203
November 30, 1999

DRAFT

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Figures

EXECUTIVE SUMMARY

This Soil Management Plan (SMP) provides background information as well as administrative and technical requirements that govern the future handling and management of waste residuals and contaminated soil located in the subsurface on an industrial property located at 5051 Coliseum Way in Oakland, California. The property is approximately 4.4 acres in size.

This plan has been written at the request of the California Regional Water Quality Control Board (RWQCB) and will be a referenced and permanently attachment to a deed for this property.

The environmental condition of this property has been extensively investigated. These investigations indicated the presence of waste residuals and chemical compounds in subsurface soil and groundwater at the Site. The most notable compounds or constituents of concern include arsenic, barium, cadmium, lead, and zinc.

The nature and extent of the waste residuals and contaminated soil have been investigated and a health risk assessment has been performed. The health risk assessment considered two exposure scenarios: one for construction workers and one for commercial/industrial on-site occupants. The risk assessment indicated that potential risks for on-site commercial/industrial occupants are within acceptable levels and that potential noncarcinogenic risks to construction workers (if subsurface waste residuals and contaminated soil were encountered and disturbed) exceeded typically acceptable risk levels.

The RWQCB found the risk assessment acceptable, provided that steps be taken to reduce risk levels for construction workers. This Soil Management Plan presents the information needed to reduce those risks to acceptable levels. This plan provides protocols to be followed during any future construction or other activities that may encounter or expose the waste residuals or contaminated soil in the subsurface at the Site.

The requirements of the SMP only apply to possible subsurface construction activities at the site and impose no restriction on the development or reconstruction of this Site for commercial or industrial uses. Implementation of the technical and procedural requirements of the plan should prevent negative impacts to health or the environment which could be associated with the known constituents of concern which are present at the Site.

1.0 INTRODUCTION

Clayton Environmental Consultants, a division of Clayton Group Services, Inc. (Clayton) has prepared this Soil Management Plan (SMP) for the property located at 5051 Coliseum Way in Oakland, California ("the Site"). The Site location is shown on Figure 1. The Site is one of four properties that are sometimes collectively referred to as the Coliseum Way Properties. The other adjacent properties, 5050 Coliseum Way (including 750-50th Avenue) and 5200 Coliseum Way, were historically associated with the Site. Figure 2 shows the Site and the two other Coliseum Way Properties.

This SMP is based on information provided in several reports previously submitted to the California Regional Water Quality Control Board (RWQCB). The major reports are listed in Section 3.0. In consideration of the data and information generated for this site, including the health risk assessment (described in Section 4.0), the RWQCB staff has agreed with the risk assessment that showed the potential risks for on-site commercial/industrial occupants are within acceptable levels and that the potential noncarcinogenic risks for on-site construction workers who may encounter or expose subsurface waste residuals or contaminated soil exceed acceptable levels.

To address the potential construction related risk, the RWQCB has required the filing of a permanent SMP to establish proper environmental protocols for potential construction activities on the site. Such construction activities could include excavation, handling and disposal of the contaminated soils and waste residuals that are known to exist at the site.

This SMP is to be referenced in the deed for this site in the form of a Covenant and Environmental Restriction, with the intention that these provisions are to "Run With the Land," and will be binding on all future purchasers, lessees, subleases, or possessors of this site.

2.0 SITE SETTING AND BACKGROUND

The Site is located in an industrial area of Oakland, California with numerous industrial sites generally surrounding the Site. The Site is somewhat triangular in shape and is approximately 4.4 acres in size. Coliseum Way is located along the northeastern border, a storm water drainage canal is located along the western border, and an adjacent narrow parcel owned by the East Bay Municipal Utility District (EBMUD) borders the southeast property boundary. The EBMUD parcel is paralleled by the 54th Avenue creek to the southeast. Northwest of the Site and across the drainage canal is PG&E's Substation J; southwest of the Site and across the drainage canal is Interstate 880.

The topography of the site is generally flat; the elevation of the Site and the area around the Site ranges from approximately 7 –15 feet above mean sea level. The Site is approximately 0.5 miles east/northeast of the San Leandro Bay. Regionally, groundwater flows west toward the San Leandro Bay.

According to information summarized in the 1996 Geomatrix report referenced below, historic aerial photos through the 1940's show that the site was a tidal marshland. The photos taken between 1946 and 1963 showed discharges to the 5051 property from the lithopone facility at 5050 Coliseum Way and discharges of both solid and slurry waste materials that originated on the 5050 and 5200 Coliseum Way property. By 1953, the photo showed a roadway across the west central portion of the Site. According to the Geomatrix report, the 1966 photo showed the Site to have been graded and filled. Currently, the Site is not developed though the southern portion is paved and used for parking. The 5051 Coliseum Way property was subsequently acquired by Pacific Gas and Electric Co. (PG&E). PG&E used this parcel for the storage and management of soil and fill materials. The previously deposited waste layers are currently capped with 4 to 8 feet of undifferentiated soil and fill materials. More detailed information about the Site history can be obtained by reviewing the various reports referenced in Section 3.0.

The adjacent properties have a long history of industrial usage. From the approximately 1870 to about 1903, the properties at 5050 and 5200 Coliseum Way were used for lead smelting. From 1903 to around 1917, pyrite ores were retorted at those properties for the production of sulfuric acid. The ore reduction process resulted in the deposition of approximately 15, 000 cubic yards of pyrite slag and cinders on portions of the properties at 5050 and 5200 Coliseum Way.

A lithopone (paint pigment) manufacturing facility occupied the adjacent properties at 750-50th Avenue, 5050 Coliseum Way, and 5200 Coliseum Way from approximately 1926 to 1963. Residuals from lithopone production included various forms of insoluble sulfate solid residuals that were deposited as both dry filter cake and slurry deposits on the site as well as portions of the adjacent 5200 Coliseum Way property. The residuals included various metals, barium sulfate and zinc sulfate. In addition to the lithopone operations, there was a history of storage and distribution of coal tar (use in roofing applications) in above ground storage tanks and drums located on the 5050 and 5200 properties.

In 1963, the lithopone manufacturing facility was sold and a year later the site was demolished. In 1964, the lithopone facility buildings and structures were demolished, regrading occurred, and the former site of the lithopone facility remained vacant for approximately 10 years.

Subsequent environmental investigations, completed under the direction of the Alameda County Department of Environmental Health and the RWQCB, have indicated that the previously deposited waste residuals and contaminated soils remain in the subsurface of this site.

3.0 SUMMARY OF ENVIRONMENTAL SITE INVESTIGATIONS

Numerous soil and groundwater investigations have been completed on this Site. These investigations have evaluated a variety of potential release sources and the nature and extent of impacts from those sources. A summary of the pertinent environmental investigations that have characterized the Site to date is provided below. Figures 3 and 4

show the sampling locations associated with these investigations. Additional information is available in the reports listed below:

Site Characterization Report 5051 Coliseum Way Oakland, California (Geomatrix 1996)	Geomatrix Consultants	6-96
Monitoring Well Sampling and Analysis at 5051 Coliseum Way Oakland, California (Clayton 1997A)	Clayton Environmental Consultants	10-2-97
Additional Remedial Investigation and Third Quarter 1998 Monitoring Report at Coliseum Way Properties 750-50th Avenue and 5050, 5051 and 5200 Coliseum Way, Oakland, California (Clayton 1998)	Clayton Environmental Consultants	11-5-98
Additional Remedial Investigation 1999 at 5050, 5051, and 5200 Coliseum Way and 750-50th Avenue, Oakland, California (Clayton 1999)	Clayton Environmental Consultants	5-25-99
Remediation and Risk Management Plan LeMean Holdings Properties Located at 750-50th Avenue, 5050, 5051 and 5200 Coliseum Way, Oakland California.	Clayton Environmental Consultants	11-30-99

Geomatrix Consultants prepared a Site Characterization Report for the 5051 Coliseum Way property in June 1996. The field investigation was conducted in three phases. The first phase resulted in the collection of soil and groundwater samples from seven soil borings with analysis for metals. The second phase included additional soil and groundwater sampling from two soil borings and three groundwater monitoring wells. Soil samples were analyzed for metals, total sulfur, and soluble sulfate. Groundwater samples were analyzed for metals, anions, and alkalinity. The third phase included the advancement of six soil borings, installation of five monitoring wells, and the collection of groundwater elevation measurements from all wells on site. Soil samples were analyzed for metals only and groundwater samples were analyzed for metals, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs). The Geomatrix report also included a summary of the findings of the field investigations conducted a the site, other consultants work on the adjacent Coliseum Way Properties, and a review of historical photographs dating back to 1930.

Geomatrix identified three distinct soil layers at the site; an upper fill (ranging from 2 to 20 feet thick), a waste layer (identified in 16 of the 23 borings, thickest near Coliseum Way and thinning to the southwest from 0.5 to 7 feet thick where identified), and native soils (Bay Muds) from the former marshland that existed at the site prior to filling. Analytical results were evaluated for each of the three soil layers and the groundwater at the Site.

Geomatrix concluded that the former lithopone manufacturing operations used the 5051 Coliseum Way property for waste disposal. The waste layer identified beneath the fill

material contains elevated concentrations of metals including arsenic, barium, cadmium, copper, lead, mercury, antimony, and zinc. The waste layer thins to the west covering only about half of the property. The waste layer in the northern part likely corresponds to filter mud wastes from the zinc sulfate plant. The wastes in the eastern part likely corresponds to black ash sludge from the former baryte plant. These and other wastes appear to be mixed in some portion of the deposit and likely include waste from former smelting and acid manufacturing. The groundwater at the site has been impacted by metals in the same general areas as the identified subsurface waste layer with potential contaminant migration from upgradient sources.

Geomatrix conducted additional groundwater monitoring in December 1996. Clayton's Monitoring Well Sampling and Analysis at 5051 Coliseum Way report dated October 2, 1997, includes Geomatrix's groundwater results. Clayton has conducted quarterly monitoring of the wells at 5051 Coliseum Way since April of 1998.

Clayton's Additional Remedial Investigation and Third Quarter 1998 Monitoring Report at Coliseum Way Properties (Clayton 1998) resulted in the collection of additional soil and groundwater samples from one boring (CSB-9) drilled to a total depth of 60 feet. Soil and groundwater samples were analyzed for metals, TDS, chlorides, and pH. The deep groundwater samples had TDS concentrations ranging from 26,000 to 35,000 mg/L. Continued quarterly groundwater monitoring of the wells included additional analyses for TDS and select samples were analyzed for petroleum hydrocarbons. Two additional adjacent and offsite wells (CW-8 and CW-9) were installed on the East Bay Municipal Utility District (EBMUD) property to further define the groundwater gradient near the 54th Avenue Creek that parallels the southeast property boundary about 75 feet to the southeast. Sample locations are presented in Figure 3. Clayton conducted surface water sampling of the open storm water channels that surround the site to determine if the metals in groundwater on the site was impacting surface waters.

Clayton concluded that no contaminants migrated below about 20 feet deep. Elevated chloride and TDS concentrations in the deeper groundwater samples indicate trapped connate saline water during Bay Mud deposition and not downward migration of surficial contaminants. Groundwater elevations and apparent tidal influence the immediate area of well MW-4 indicate the possible presence of permeable materials that may allow groundwater migrate to the weep holes along the base of the open storm water channel to the southwest. Surface water results indicated detectable concentrations of arsenic, barium, and zinc; however, the concentrations were generally found to be near basin plan objectives.

Clayton also prepared an Additional Remedial Investigation 1999 report that summarized weep water sampling from the storm water channel that borders the southwest property boundary, calculated metals mass loading for the storm channel upgradient of the site, and calculated an area-weighted TDS for the Coliseum Way Property.

Clayton concluded that zinc and cadmium in groundwater were impacting the surface waters from weep hole releases at low tide along the southwest property boundary; however, the release is considered minimal. Clayton calculated the metal mass loading

rate at approximately 7.6 pounds of zinc and 0.1 pounds of cadmium per year. (The proposed remedial actions to address this release are detailed in the Feasibility Study attached to the Remediation and Risk Management Plan for these properties.)

The area-weighted TDS concentration for the entire Coliseum Way Properties was calculated to be more than 6,400 mg/L and the elevated TDS in the deeper groundwater samples down to 47 feet bgs indicate that the local groundwater is not a potential source for drinking water.

4.0 HEALTH RISK ASSESSMENT

On February 18, 1998, the RWQCB issued a letter requiring, among other items, a risk assessment to determine if the contaminants detected at the Site pose a threat to human health. In response to that letter, a Risk Assessment Workplan was prepared and submitted to the RWQCB in November 1998. After the workplan was approved, a Health Risk Assessment Report (HRA) was subsequently prepared and submitted in February 1999.

The HRA addressed properties located at 5051 Coliseum Way, 5050/750-50th Avenue, and 5200 Coliseum Way. To evaluate potential health impacts from metals in soil, the HRA evaluated data from each of the three separate properties. To evaluate potential impacts from volatile and semi-volatile organic compounds (VOCs and SVOCs) in the soil and groundwater, data from all three properties were evaluated as one data set resulting in a site wide risk. This approach avoided the arbitrary grouping of data from groundwater wells that collect groundwater from more than one property over time and provided a better depiction of the potential risks and movement of VOCs and SVOCs.

To determine the potential impacts to public health that the contaminants may pose, two distinct exposure scenarios were evaluated as part of the HRA. The first scenario assumed that the Site remains in its current state and that exposures only occur if construction and excavation activities take place. The second scenario assumes that the properties remain industrial as zoned, and that additional buildings are constructed on each of the properties. The HRA findings for both scenarios are summarized below.

The calculated average carcinogenic risk (presented as an Individual Excess Lifetime Cancer Risk) and calculated average noncarcinogenic Hazard Index for the construction scenario at the Site were 6.8E-06 and 1.9348 respectively.

The calculated carcinogenic risk (presented as an Individual Excess Lifetime Cancer Risk) and noncarcinogenic Hazard Index for the on-site commercial/industrial scenario at the Site were 1.21 E-06 and 0.0766 respectively.

As stated by the RWQCB, an individual excess lifetime cancer risk greater than 1E-04 is generally considered an unacceptable carcinogenic risk and a Hazard Index of greater than 1.0 is considered unacceptable exposure to noncarcinogens. The construction worker scenario indicated unacceptable noncarcinogenic hazards. The risks for on-site commercial/industrial occupants are within acceptable levels.

The RWQCB approved the HRA for the Coliseum Properties in a letter dated July 26, 1999 providing that Remediation and Risk Management Plan (RRMP) accompany soil management plans with appropriate health and safety measures for construction workers. This document was prepared to comply with that requirement.

5.0 FUTURE MANGMENT ACTIVITIES AND MITIGATION OF RISK

Future excavation and grading of the site will be limited to that which is performed in a manner protective of the health and safety of on-site construction workers, the public and the environment. The following guidelines are to govern any future site work, or use of this property, that will significantly disturb or expose the constituents of concern.

- In any area which has been impacted by hazardous chemicals it is prudent to take precautions against worker exposure. For this reason, future excavation and construction activities which will disturb subsurface soils shall be undertaken in accordance with a written Health and Safety Plan which conforms to the applicable State and Federal Guidelines, specifically, California Code of Regulations Title 8, Section 5192, and, Title 29 of the Code of Federal Regulations Section 1910. 120. This plan is to be prepared to address the specific site activities and to minimize potential exposures to the construction workers. The plan will be signed by a California Certified Industrial Hygienist.

- Any excavation into subsurface soil which causes exposure of contaminated soil shall be restricted to that specified in a written scope of work and shall be approved in advance by the staff of the RWQCB (or a successor agency.) Unless specific approval is provided by the RWQCB (or successor agency), the current surface conditions (i.e., a relatively level topography with the surface covered by 4 to 8 feet of soil) will be maintained. It should be noted that, with agency approval, the future development of this parcel may incorporate building foundations or other structures which will prevent direct contact or migration of contaminated soils.

- Any soils excavated at the site will be handled and/or disposed of, according to applicable State, and Federal laws and regulations. (It should be noted that based on current analytical data, some of the site soils will most likely exceed federal hazardous waste characteristic levels.) Further, some soil and waste previously excavated from portions of the Site were managed as federal Hazardous Waste.

- Any physical structures (ie. barriers, cut-off walls etc.) that are installed on the property for the purpose of preventing migration of contaminated soil or groundwater will be maintained on this property and shall not be altered or removed without approval of the Regional Water Quality Control Board, or a successor agency.

- If groundwater is encountered during excavation, it will be handled and disposed of according to applicable State, and Federal laws and regulations.

- To prevent potential degradation of deeper aquifers at the site, any deep excavation or drilling will be performed according to a written scope of work which shall be

submitted to the RWQCB no less then 30 days prior to commencing activities. All on-site work shall be done according to applicable Alameda County, State, and Federal laws and regulations governing such activities.

- A copy of this SMP shall be maintained by the owner, with additional copies maintained on site where they may be accessed by current and future tenants.

- The land use at the site shall remain industrial or commercial, unless appropriate measures are taken to mitigate potential risk to the public, according to applicable environmental regulation and agency approvals.

- A deed restriction, with a copy of this RMP appended, shall be imposed on the property and submitted to the RWQCB and all other interested and applicable government agencies.

Report prepared by: _____

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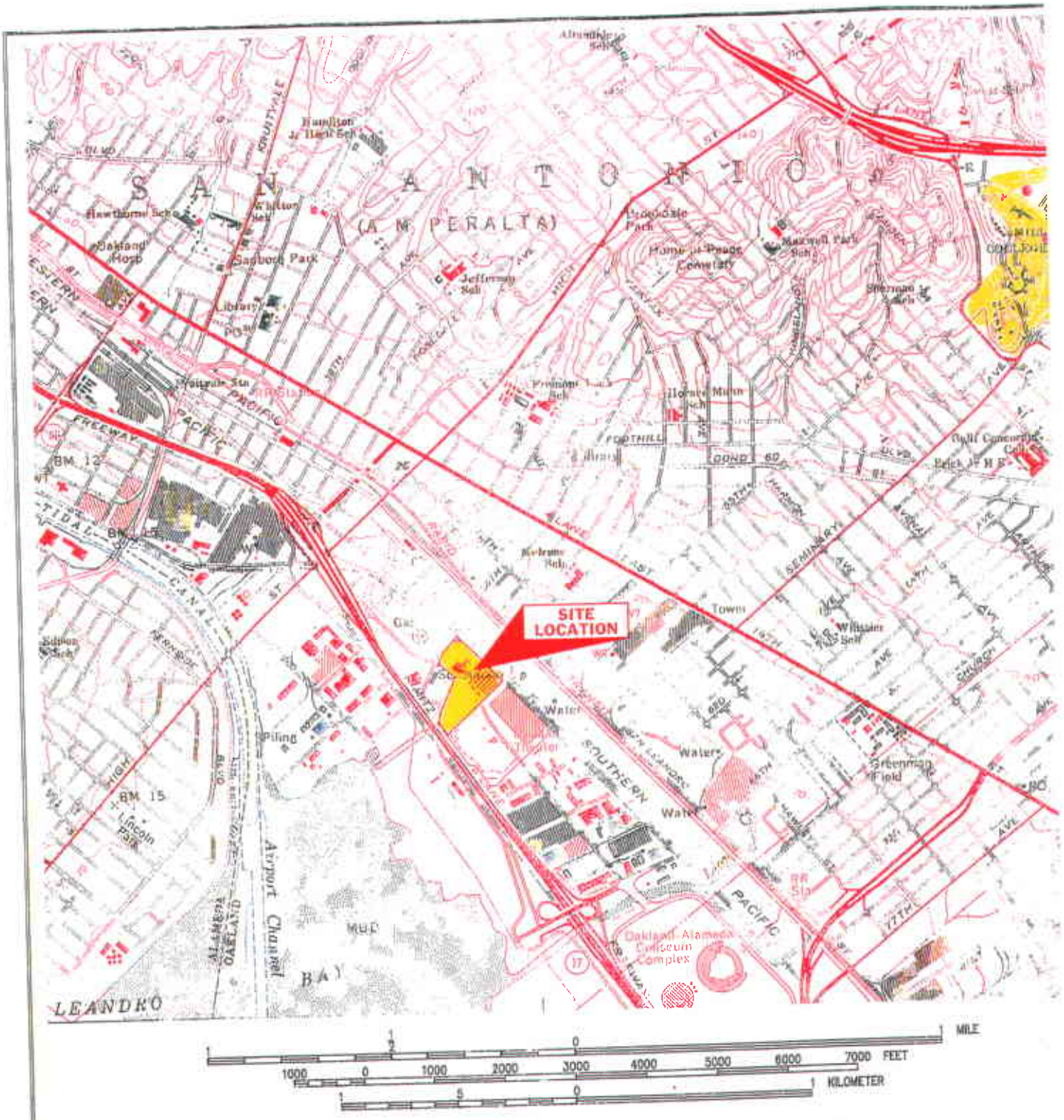
Report reviewed by: _____

Auto Text Signature

November 30, 1999



Portion of 7.5-Minute Oakland East, California Quadrangle Map
United States Department of the Interior
Geological Survey
1959
Photorevised 1980

N

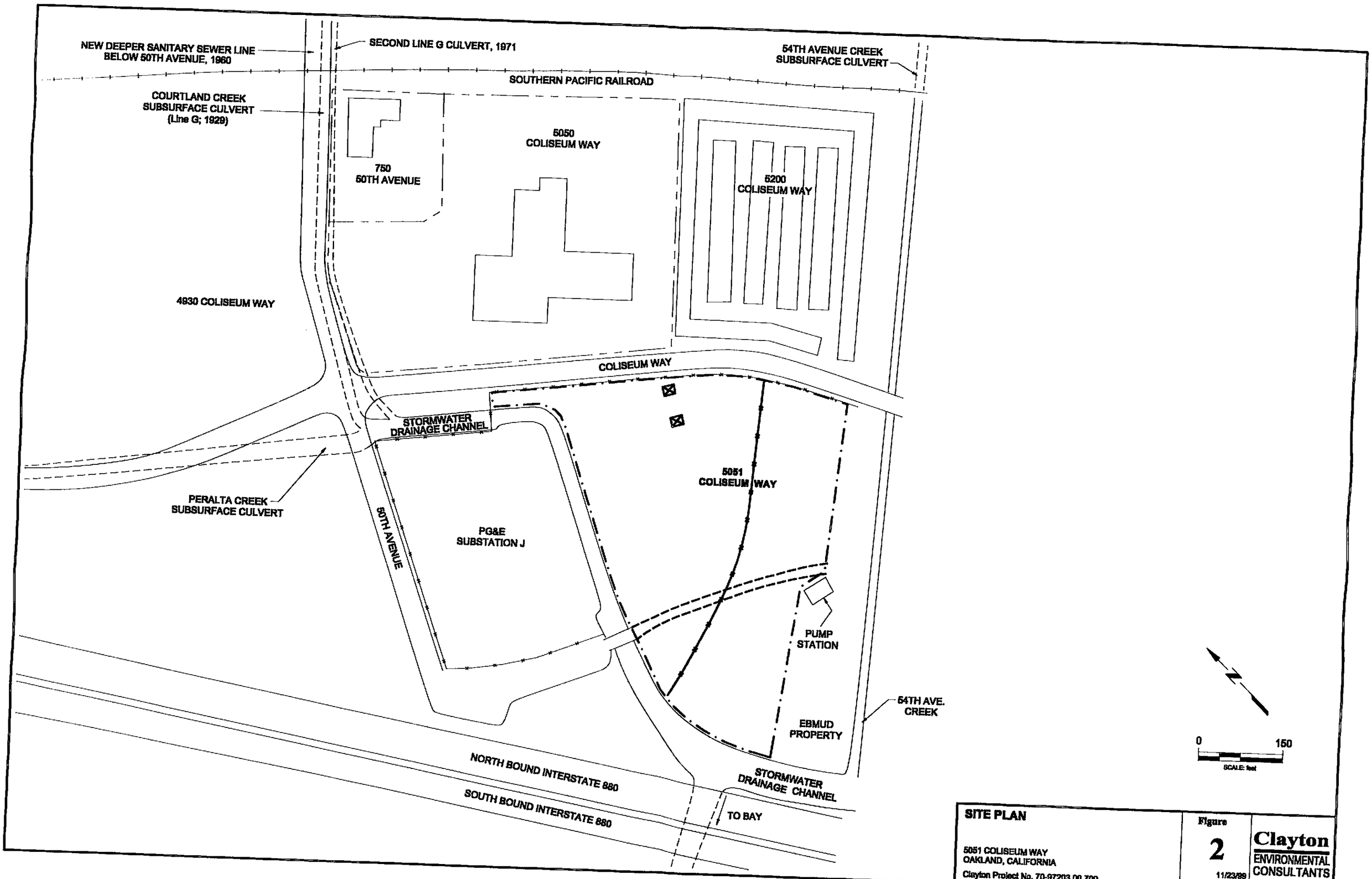
SITE LOCATION MAP
Coliseum Way Properties
Oakland, California

Client: Lempres & Wulfsberg
Clayton Project No. 70-97203.00.300

Figure 1

97203-0-10

Clayton ENVIRONMENT CONSULTAN



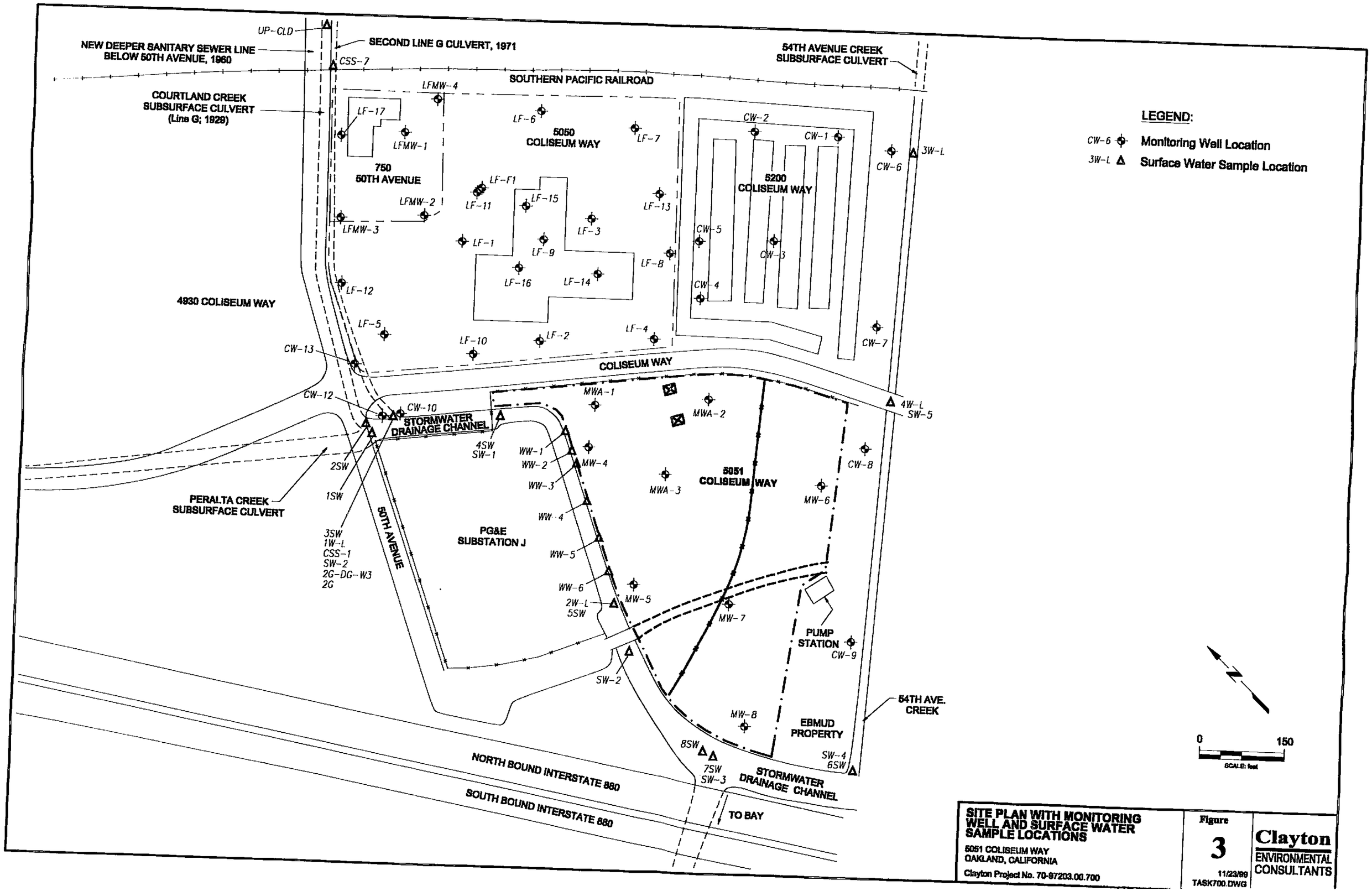
SITE PLAN

5051 COLISEUM WAY
OAKLAND, CALIFORNIA
Clayton Project No. 70-97203.00.700

Figure 2

11/23/89

Clayton ENVIRONMENTAL CONSULTANTS



SITE PLAN WITH MONITORING WELL AND SURFACE WATER SAMPLE LOCATIONS

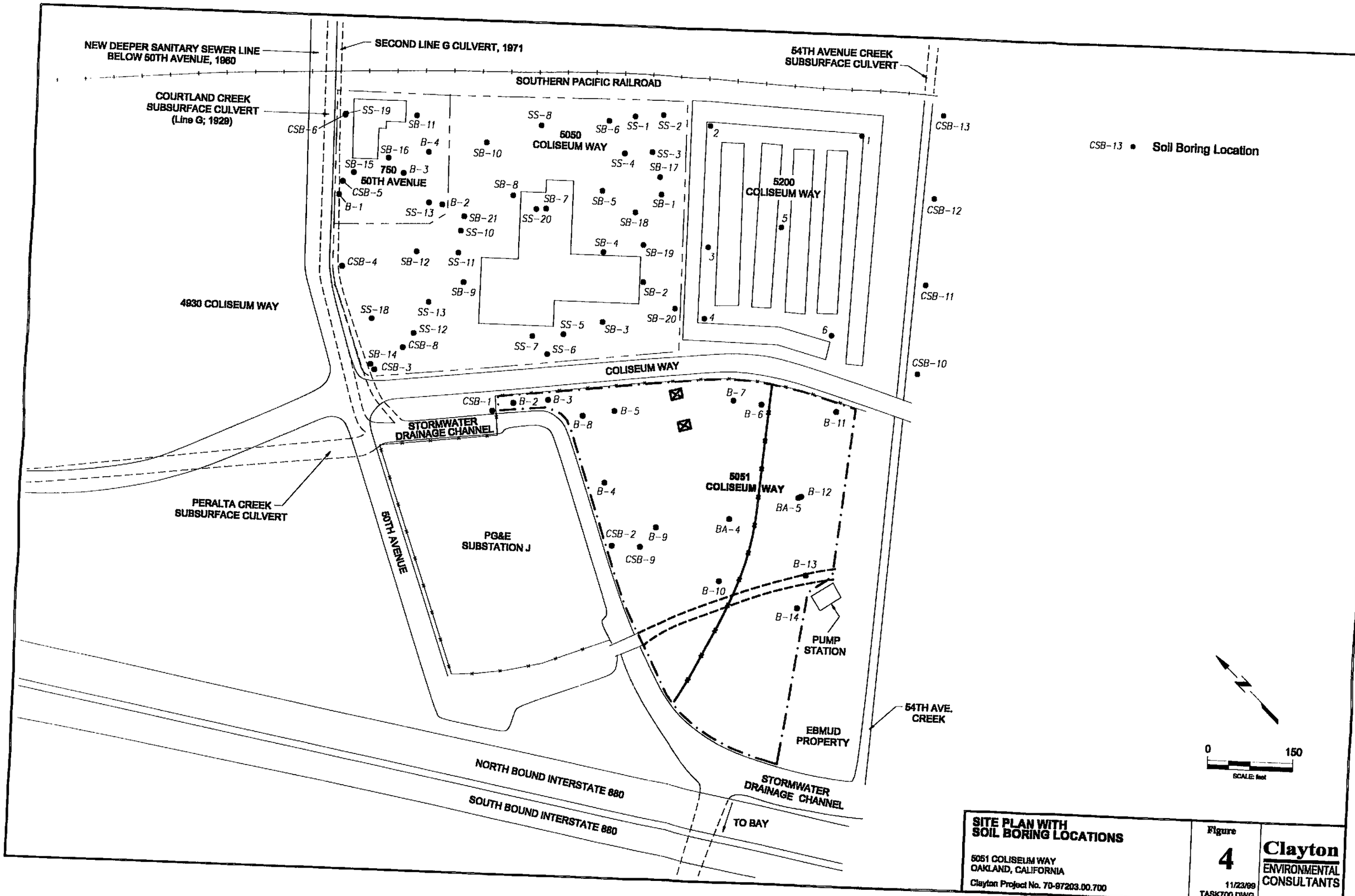
5051 COLISEUM WAY
OAKLAND, CALIFORNIA

Clayton Project No. 70-97203.00.700

Figure 3

11/23/99
TASK700.DWG

Clayton ENVIRONMENTAL CONSULTANTS



SITE PLAN WITH SOIL BORING LOCATIONS

5051 COLISEUM WAY
OAKLAND, CALIFORNIA

Clayton Project No. 70-97203.00.700

Figure 4

11/23/99
TASK700.DWG

Clayton ENVIRONMENTAL CONSULTANTS

Clayton
ENVIRONMENTAL
CONSULTANTS

Soil Management Plan
5200 Coliseum Way
Oakland, California

For
LeMean Property Holdings, Inc.

Clayton Project No. 97203
November 30, 1999

DRAFT

CONTENTS

Figures

EXECUTIVE SUMMARY

This Soil Management Plan (SMP) provides background information as well as administrative and technical requirements that govern the future handling and management of waste residuals and contaminated soil located in the subsurface on an industrial property located at 5200 Coliseum Way in Oakland, California. The property, approximately 3 acres is currently covered by building foundations and asphalt paving.

This plan has been written at the request of the California Regional Water Quality Control Board (RWQCB) and will be a referenced and permanently attachment to a deed for this property.

The environmental condition of this property has been extensively investigated. These investigations indicated the presence of waste residuals and chemical compounds in subsurface soil and groundwater at the Site. The most notable compounds or constituents of concern include arsenic, barium, cadmium, lead, some petroleum hydrocarbons, and zinc.

The nature and extent of the waste residuals and contaminated soil have been investigated and a health risk assessment has been performed. The health risk assessment considered two exposure scenarios: one for construction workers and one for commercial/industrial on-site occupants. The risk assessment indicated that potential risks for on-site commercial/industrial occupants are within acceptable levels and that potential noncarcinogenic risks to construction workers (if subsurface waste residuals and contaminated soil were encountered and disturbed) exceeded typically acceptable risk levels.

The RWQCB found the risk assessment acceptable, provided that steps be taken to reduce risk levels for construction workers. This Soil Management Plan presents the information needed to reduce those risks to acceptable levels. This plan provides protocols to be followed during any future construction or other activities that may encounter or expose the waste residuals or contaminated soil in the subsurface at the Site.

The requirements of the SMP only apply to possible subsurface construction activities at the site and impose no restriction on the development or reconstruction of this Site for commercial or industrial uses. Implementation of the technical and procedural requirements of the plan should prevent negative impacts to health or the environment which could be associated with the known constituents of concern which are present at the Site.

1.0 INTRODUCTION

Clayton Environmental Consultants, a division of Clayton Group Services, Inc. (Clayton) has prepared this Soil Management Plan (SMP) for the property located at 5200 Coliseum Way in Oakland, California ("the Site"). The Site location is shown on Figure 1. The Site is one of four properties that are sometimes collectively referred to as the Coliseum Way Properties. The other two adjacent properties, 5050 Coliseum Way (including 750-50th Avenue) and 5051 Coliseum Way, were historically associated with the Site. Figure 2 shows the Site and the other Coliseum Way Properties.

This SMP is based on information provided in several reports previously submitted to the California Regional Water Quality Control Board (RWQCB). The major reports are listed in Section 3.0. In consideration of the data and information generated for this site, including the health risk assessment (described in Section 4.0), the RWQCB staff has agreed with the risk assessment that showed the potential risks for on-site commercial/industrial occupants are within acceptable levels and that the potential noncarcinogenic risks for on-site construction workers who may encounter or expose subsurface waste residuals or contaminated soil exceed acceptable levels.

To address the potential construction related risk, the RWQCB has required the filing of a permanent SMP to establish proper environmental protocols for potential construction activities on the site. Such construction activities could include excavation, handling and disposal of the contaminated soils and waste residuals that are known to exist at the site.

This SMP is to be referenced in the deed for this site in the form of a Covenant and Environmental Restriction, with the intention that these provisions are to "Run With the Land," and will be binding on all future purchasers, lessees, subleases, or possessors of this site.

2.0 SITE SETTING AND BACKGROUND

The Site is located in an industrial area of Oakland, California with numerous industrial sites generally surrounding the Site. The Site is rectangular and is approximately 3 acres. A portion of the Southern Pacific Railroad is located along the northeastern border, a vehicle maintenance facility at 5050 Coliseum Way is located along the northwestern border, Coliseum Way is located along the southwestern border, and a drainage canal is located along the southeastern border of the Site.

The topography of the site is generally flat; the elevation of the Site and the area around the Site ranges from approximately 7 –15 feet above mean sea level. The Site is approximately 0.5 miles east/northeast of the San Leandro Bay. Regionally, groundwater flows west toward the San Leandro Bay.

The Site has a long history of industrial usage. This Site was previously a portion of the property located at 5050 Coliseum Way and was associated with the operations that occurred at the 5050 property. The following summary describes operations that

occurred on both the Site and the 5050 Coliseum Way property. More detailed information about the site history can be obtained by reviewing the various reports referenced in Section 3.0.

From approximately 1870 to about 1903, the property was used for lead smelting. From 1903 to about 1917, pyrite ores were retorted at the Site for the production of sulfuric acid. The ore reduction process resulted in the deposition of approximately 15, 000 cubic yards of pyrite slag and cinders on the Site and on a portion of the adjacent property at 5050 Coliseum Way.

A lithopone (paint pigment) manufacturing facility occupied the adjacent properties at 750-50th Avenue, 5050 Coliseum Way, and 5051 Coliseum Way from approximately 1926 to 1963. Residuals from lithopone production included various forms of insoluble sulfate solid residuals that were deposited as both dry filter cake and slurry deposits on the Site as well as a portion of the adjacent 5051 Coliseum Way property. The residuals included various metals, barium sulfate and zinc sulfate. In addition to the lithopone operations, there was a history of storage and distribution of coal tar (use in roofing applications) in above ground storage tanks and drums located on the Site and on the 5050 property.

In 1963, the lithopone manufacturing facility was sold and a year later the site was demolished. In 1964, the Site buildings and structures were demolished, regrading occurred, and the Site remained vacant for approximately 10 years. The 5200 Coliseum Way property was reportedly filled with material from the demolition of the former manufacturing facilities that occupied the Site and the adjacent 5050 Coliseum Way property. The 5200 Coliseum Way property was sold separately in 1973 and was developed as the mini-storage facility in 1978 and 1979. The entire property is currently covered by building foundations or asphalt paving.

Subsequent environmental investigations, completed under the direction of the Alameda County Department of Environmental Health and the RWQCB, have indicated that waste residuals and contaminated soils remain in the subsurface of the Site.

3.0 SUMMARY OF ENVIRONMENTAL SITE INVESTIGATIONS AND REMEDIAL ACTIONS

Numerous soil and groundwater investigations have been completed on this Site. These investigations have evaluated a variety of potential release sources and the nature and extent of impacts from those sources. A summary of the pertinent environmental investigations that have characterized the Site to date is provided below. Figures 3 and 4 show the sampling locations associated with these investigations. Additional information is available in the reports listed below.

Limited Soil and Groundwater Investigation, 5200 Coliseum Way, Oakland, California	Subsurface Consultants, Inc.	3-22-95

Limited Soil and Groundwater Investigation Coliseum Storage 5200 Coliseum Way, Oakland, California (Clayton 1997B)	Clayton Environmental Consultants	10-2-97
Additional Remedial Investigation and Third Quarter 1998 Monitoring Report at Coliseum Way Properties 750-50th Avenue and 5050, 5051 and 5200 Coliseum Way, Oakland, California (Clayton 1998)	Clayton Environmental Consultants	11-5-98
Additional Remedial Investigation 1999 at 5050, 5051, and 5200 Coliseum Way and 750-50th Avenue, Oakland, California (Clayton 1999)	Clayton Environmental Consultants	5-25-99
Remediation and Risk Management Plan LeMean Holdings Properties Located at 750-50th Avenue, 5050, 5051, and 5200 Coliseum Way, Oakland, California	Clayton Environmental Consultants	11-30-99

The 1995 Subsurface Consultants, Inc. (SCI) report was summarized in the 1995 Geomatrix report. The SCI field investigation resulted in soil and grab groundwater samples being collected from six soil borings. Grab groundwater results from three of the six borings reportedly exceeded the Maximum Contaminant Level (MCL) for arsenic, barium, and cadmium. Total petroleum hydrocarbons (TPH) as kerosene, polyaromatic hydrocarbons (PAHs), and benzene, toluene, ethylbenzene, and xylenes (BTEX) were reported in two groundwater samples near former tar storage areas at the central and northwest side of the property. Soil samples were reported to exceed Total Threshold Limit Concentrations (TTLCs) for barium, cadmium, copper, lead, and zinc. The contaminants were attributed to the former use of the site for industrial purposes.

Clayton prepared a Limited Soil and Groundwater Investigation report dated October 2, 1997. The purpose of the investigation was to characterize the fill materials and groundwater quality at the 5200 Coliseum Way property. The investigation resulted in the installation of five groundwater monitoring wells. Soil samples were analyzed for metals, pH, sulfate, total sulfur, and select samples were analyzed for TPH as gasoline, diesel, and oil, VOCs, and SVOCs. Groundwater samples were analyzed for metals, cations and anions, and SVOCs; two were analyzed for TPH-g and BTEX.

Clayton concluded that the upper 10 to 12 feet of soils consisted of imported fill materials consisting of a variety of construction debris and industrial process residues. The process residues included slag, cinders, ash deposits, and coarse grained "black sand" deposits. Beneath the fill materials to the total depth drilled of 15 feet were dark gray to black Bay Muds. Hydrocarbon odors and sheens were noted in soil cuttings from wells at about nine feet in depth; groundwater samples from these same wells (CW-4 and CW-5) contained heavy-range hydrocarbons and SVOCs, apparently from the former tar storage activities at this site. However, gasoline-range hydrocarbons were also detected. The significant metal found in groundwater was barium and the pH of the groundwater samples ranged from neutral to basic (7.2 to 10.2 SU).

Clayton's Additional Remedial Investigation and Third Quarter 1998 Monitoring Report at Coliseum Way Properties (Clayton 1998) resulted in the installation of two additional groundwater monitoring wells adjacent to the subject property along the 54th Avenue Creek on Alameda County property. Soil and groundwater samples were collected. Soil samples were found to exceed total threshold limit concentrations (TTLCs) for arsenic, barium, cadmium, lead, and zinc. Groundwater exceeded the maximum contaminant levels (MCLs) for arsenic, barium, cadmium, nickel, and zinc in one or both wells. Clayton also analyzed two surface water samples from the 54th Avenue Creek; the results for metals of concern, primarily zinc and barium were nearly the same as the results from samples collected in the open, unlined, and more tidally influenced storm channel near the 5051 Coliseum Way property. The 54th Avenue creek drains a small upgradient area to the northeast where numerous small industrial shops may also contribute to the metals detected in the surface waters.

Groundwater results and surface water results did not suggest that there is any significant migration of heavy metals in groundwater from the 5200 Coliseum Way property to surface waters. The predominant groundwater gradient is to the southwest and southeast. The pH in groundwater ranges from neutral to basic and the groundwater is primarily impacted with petroleum hydrocarbons in the southwest corner, by arsenic and barium across most of the site, and by zinc in a small area of the northeast corner of the site.

Clayton's Additional Remedial Investigation 1999 included the collection of four additional grab-groundwater samples along the northeast side of the 54th Avenue Creek on the adjacent Alameda County property which were analyzed for metals and TDS. Metals detected above MCLs included arsenic, barium, cadmium, chromium, lead, mercury, nickel, and zinc. TDS concentrations ranged from 2,400 to 4,100 mg/L, with an average concentration of 3,175 mg/L.

Clayton concluded that the metals concentrations in groundwater indicated a decreasing trend with distance from the site.

4.0 HEALTH RISK ASSESSMENT

On February 18, 1998, the RWQCB issued a letter requiring, among other items, a risk assessment to determine if the contaminants detected at the Site pose a threat to human health. In response to that letter, a Risk Assessment Workplan was prepared and submitted to the RWQCB in November 1998. After the workplan was approved, a Health Risk Assessment Report (HRA) was subsequently prepared and submitted in February 1999.

The HRA addressed properties located at 5200 Coliseum Way, 5050/750-50th Avenue, and 5051 Coliseum Way. To evaluate potential health impacts from metals in soil, the HRA evaluated data from each of the three separate properties. To evaluate potential impacts from volatile and semi-volatile organic compounds (VOCs and SVOCs) in the soil and groundwater, data from all three properties were evaluated as one data set resulting in a site wide risk. This approach avoided the arbitrary grouping of data from

groundwater wells that collect groundwater from more than one property over time and provided a better depiction of the potential risks and movement of VOCs and SVOCs.

To determine the potential impacts to public health that the contaminants may pose, two distinct exposure scenarios were evaluated as part of the HRA. The first scenario assumed that the Site remains in its current state and that exposures only occur if construction and excavation activities take place. The second scenario assumes that the properties remain industrial as zoned, and that additional buildings are constructed on each of the properties. The HRA findings for both scenarios are summarized below.

The calculated average carcinogenic risk (presented as an Individual Excess Lifetime Cancer Risk) and calculated average noncarcinogenic Hazard Index for the construction scenario at the Site were 1.9E-05 and 25.3635 respectively.

The calculated carcinogenic risk (presented as an Individual Excess Lifetime Cancer Risk) and noncarcinogenic Hazard Index for the on-site commercial/industrial scenario at the Site were 1.21 E-06 and 0.0766 respectively.

As stated by the RWQCB, an individual excess lifetime cancer risk greater than 1E-04 is generally considered an unacceptable carcinogenic risk and a Hazard Index of greater than 1.0 is considered unacceptable exposure to noncarcinogens. The construction worker scenario indicated unacceptable noncarcinogenic hazards. The risks for on-site commercial/industrial occupants are within acceptable levels.

The RWQCB approved the HRA for the Coliseum Properties in a letter dated July 26, 1999 providing that Remediation and Risk Management Plan (RRMP) accompany soil management plans with appropriate health and safety measures for construction workers. This document was prepared to comply with that requirement.

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Future excavation and grading of the site will be limited to that which is performed in a manner protective of the health and safety of on-site construction workers, the public and the environment. The following guidelines are to govern any future site work, or use of this property, that will significantly disturb or expose the constituents of concern.

- In any area which has been impacted by hazardous chemicals it is prudent to take precautions against worker exposure. For this reason, future excavation and construction activities which will disturb subsurface soils shall be undertaken in accordance with a written Health and Safety Plan which conforms to the applicable State and Federal Guidelines, specifically, California Code of Regulations Title 8, Section 5192, and, Title 29 of the Code of Federal Regulations Section 1910. 120. This plan is to be prepared to address the specific site activities and to minimize potential exposures to the construction workers. The plan will be signed by a California Certified Industrial Hygienist.

- Any excavation into subsurface soil which causes exposure of contaminated soil shall be restricted to that specified in a written scope of work and shall be approved in advance by the staff of the RWQCB (or a successor agency.) Unless specific approval is provided by the RWQCB (or successor agency), the current surface conditions (i.e., a relatively level topography with the surface covered by building foundations, concrete surfaces, and/or asphalt paving) will be maintained. Surficial maintenance activities, such as patching or repairing when contaminated soils are not encountered, will not require agency approval.

- Any soils excavated at the site will be handled and/or disposed of, according to applicable State, and Federal laws and regulations. (It should be noted that based on current analytical data, some of the site soils will most likely exceed federal hazardous waste characteristic levels. Further, some soil and waste previously excavated from portions of the Site were managed as federal Hazardous Waste.

- If groundwater is encountered during excavation, it will be handled and disposed of according to applicable State, and Federal laws and regulations.

- To prevent potential degradation of deeper aquifers at the site, any deep excavation or drilling will be performed according to a written scope of work which shall be submitted to the RWQCB no less then 30 days prior to commencing activities. All on-site work shall be done according to applicable Alameda County, State, and Federal laws and regulations governing such activities.

- A copy of this SMP shall be maintained by the owner, with additional copies maintained on site on site where they may be accessed by current and future tenants.

- The land use at the site shall remain industrial or commercial, unless appropriate measures are taken to mitigate potential risk to the public, according to applicable environmental regulation and agency approvals.

- A deed restriction, with a copy of this RMP appended, shall be imposed on the property and submitted to the RWQCB and all other interested and applicable government agencies.

Report prepared by: _____

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Report reviewed by: _____

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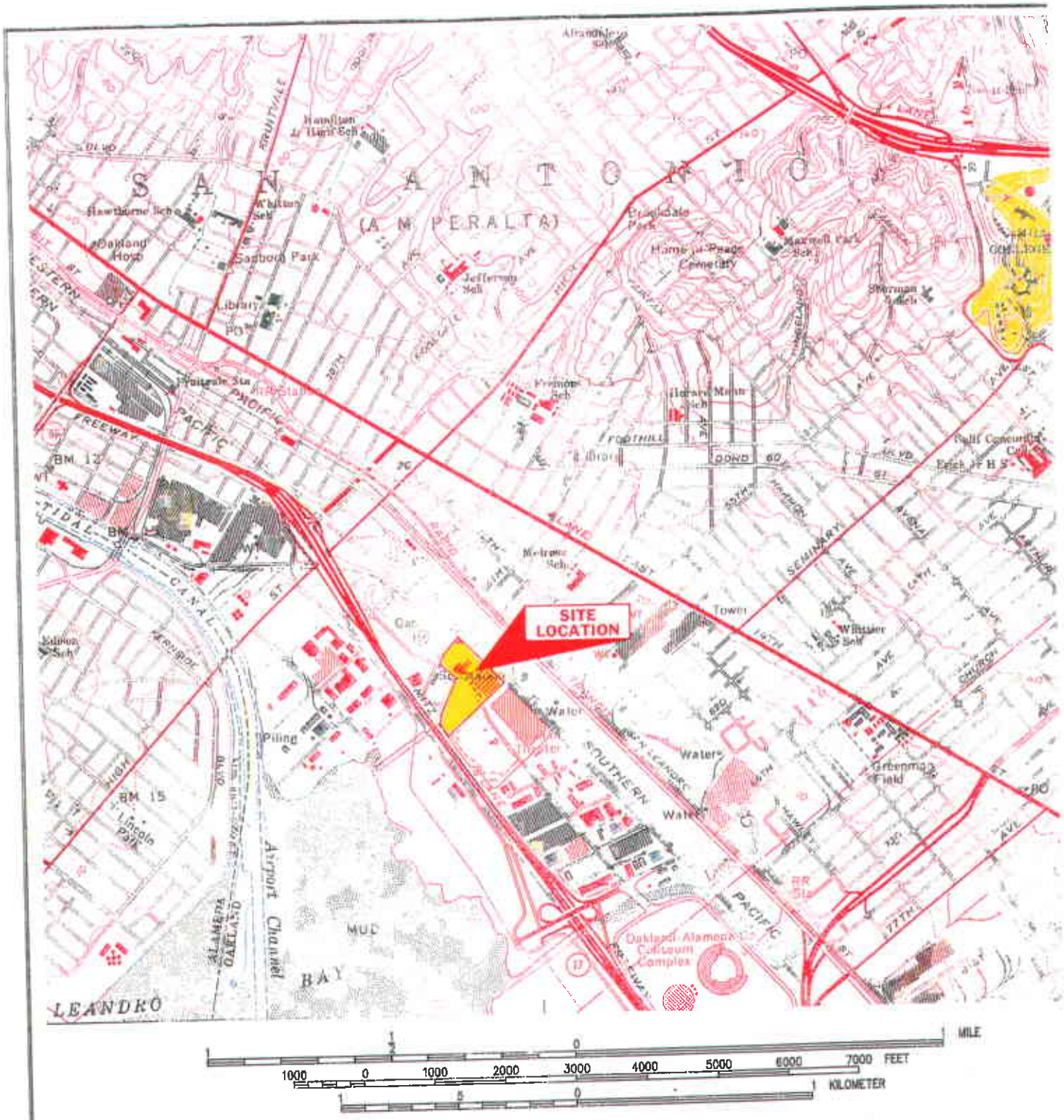
November 30, 1999



Portion of 7.5-Minute Oakland East, California Quadrangle Map
United States Department of the Interior
Geological Survey
1959
Photorevised 1980

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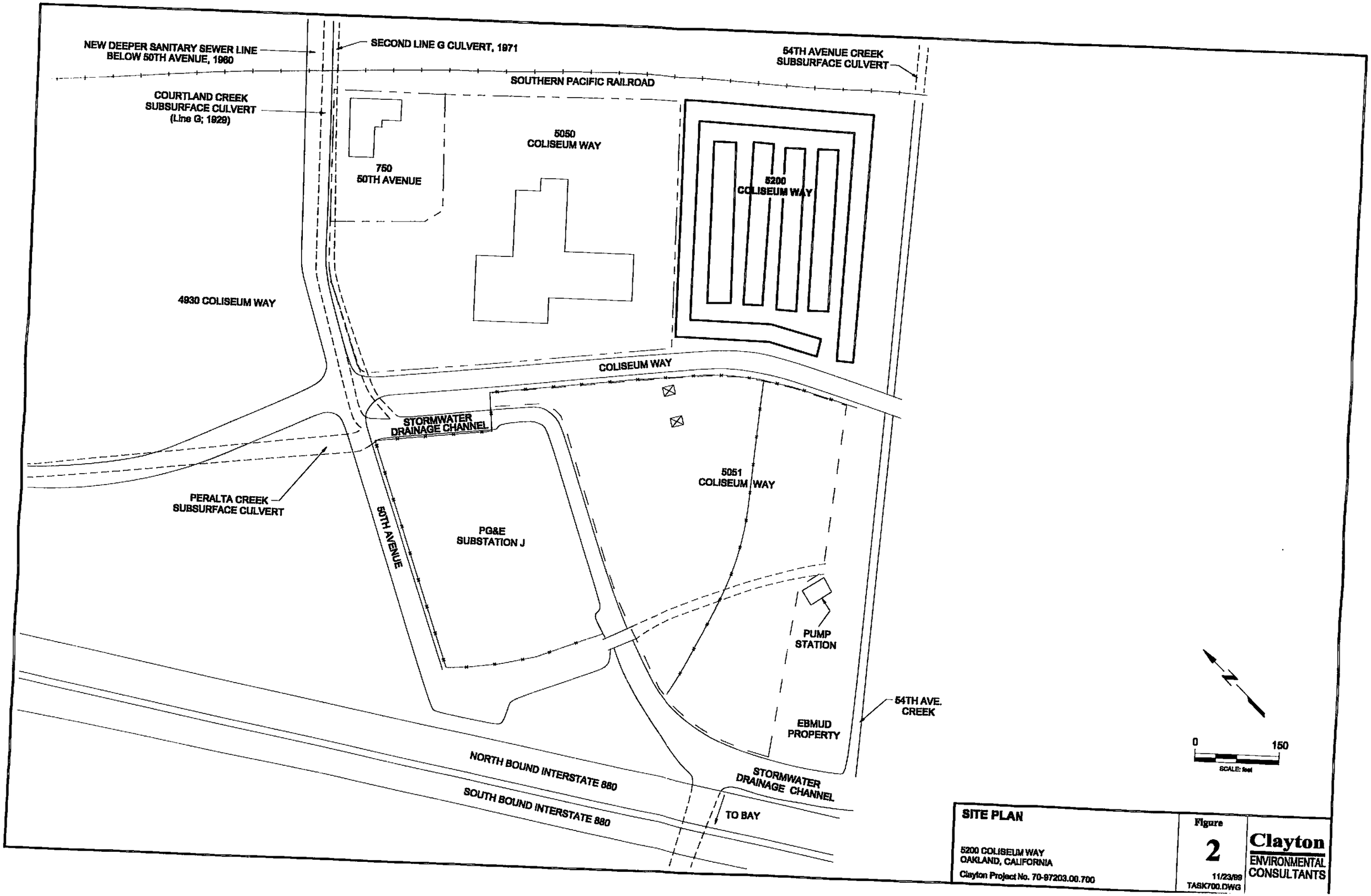
SITE LOCATION MAP
Coliseum Way Properties
Oakland, California

Client: Lempres & Wulfsberg
Clayton Project No. 70-97203.00.300

Figure 1

97203-0-10

Clayton ENVIRONMENT CONSULTAN



SITE PLAN

5200 COLISEUM WAY
OAKLAND, CALIFORNIA

Clayton Project No. 70-97203.00.700

Figure **2**

11/23/99
TASK700.DWG

Clayton
ENVIRONMENTAL CONSULTANTS

UP-CLD
NEW DEEPER SANITARY SEWER LINE BELOW 50TH AVENUE, 1960
SECOND LINE G CULVERT, 1971
CSS-7
54TH AVENUE CREEK SUBSURFACE CULVERT
SOUTHERN PACIFIC RAILROAD
COURTLAND CREEK SUBSURFACE CULVERT (Line G; 1929)
LFMW-4
LF-17
LFMW-1
LF-6
5050 COLISEUM WAY
LF-7
750 50TH AVENUE
CW-2
CW-1
3W-L
CW-6
5200 COLISEUM WAY
LF-F1
LF-11
LF-15
LFMW-2
LF-13
LFMW-3
LF-3
CW-5
CW-3
LF-1
LF-9
LF-8
LF-16
LF-14
CW-4
4930 COLISEUM WAY
LF-12
LF-5
LF-10
LF-2
LF-4
CW-7
CW-13
COLISEUM WAY
MWA-1
CW-12
CW-10
4W-L
SW-5
MWA-2
STORMWATER DRAINAGE CHANNEL
4SW
SW-1
WW-1
WW-2
MW-4
2SW
WW-3
5051 COLISEUM WAY
CW-8
MWA-3
MW-6
1SW
WW-4
PERALTA CREEK SUBSURFACE CULVERT
PG&E SUBSTATION J
3SW
1W-L
CSS-1
SW-2
2G-DG-W3
2G
WW-5
WW-6
MW-5
2W-L
5SW
MW-7
PUMP STATION
CW-9
SW-2
50TH AVENUE
54TH AVE. CREEK
MW-8
EBMUD PROPERTY
8SW
7SW
SW-3
SW-4
6SW
STORMWATER DRAINAGE CHANNEL
NORTH BOUND INTERSTATE 880
SOUTH BOUND INTERSTATE 880
TO BAY

LEGEND:

CW-6 Monitoring Well Location

3W-L Surface Water Sample Location

0 150

SCALE: feet

SITE PLAN WITH MONITORING WELL AND SURFACE WATER SAMPLE LOCATIONS

5200 COLISEUM WAY
OAKLAND, CALIFORNIA

Clayton Project No. 70-97203.00.700

Figure 3

11/23/99

Clayton ENVIRONMENTAL CONSULTANTS

NEW DEEPER SANITARY SEWER LINE BELOW 50TH AVENUE, 1960

SECOND LINE G CULVERT, 1971

54TH AVENUE CREEK SUBSURFACE CULVERT

SOUTHERN PACIFIC RAILROAD

COURTLAND CREEK SUBSURFACE CULVERT (Line G; 1929)

CSB-13 ● Soil Boring Location

5050 COLISEUM WAY

5200 COLISEUM WAY

750 50TH AVENUE

4930 COLISEUM WAY

COLISEUM WAY

STORMWATER DRAINAGE CHANNEL

5051 COLISEUM WAY

PERALTA CREEK SUBSURFACE CULVERT

50TH AVENUE

PG&E SUBSTATION J

PUMP STATION

EBMUD PROPERTY

54TH AVE. CREEK

NORTH BOUND INTERSTATE 880

SOUTH BOUND INTERSTATE 880

TO BAY

0 150

SCALE: feet

SITE PLAN WITH SOIL BORING LOCATIONS

5200 COLISEUM WAY
OAKLAND, CALIFORNIA

Clayton Project No. 70-97203.00.700

Figure 4

11/23/99
TASK700.DWG

Clayton ENVIRONMENTAL CONSULTANTS

APPENDIX C

FEASABILITY STUDY

San Francisco Regional Office

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Clayton
ENVIRONMENTAL
CONSULTANTS

Feasibility Study
at
Coliseum Way Properties
5050, 5051, and 5200 Coliseum Way, and
750-50th Avenue
Oakland, California

For
LeMean Property Holdings Corporation

Clayton Project No. 70-97203.00.700
November 30, 1999

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CONTENTS

EXECUTIVE SUMMARY

The Coliseum Way Properties consist of four adjacent parcels at 5050, 5051, 5200 Coliseum Way and 750-50th Avenue, located in Oakland, California (Figure 1). For ease of discussion, Clayton has grouped these parcels into three properties. References to the 5050 Coliseum Way property will also include the contiguous 750-50th Avenue parcel. The 5051 and 5200 Coliseum Way properties will be discussed separately. These three properties have a history of industrial use from the 1870s to the present. Industrial uses included the smelting of lead, the manufacture of acids and lithopone (paint pigments), the storage and use of petroleum hydrocarbons, and recently, fleet vehicle maintenance.

The past industrial uses of the property resulted in the on-site disposal of waste ores, waste slag, and metal bearing solid waste. The storage of petroleum hydrocarbons in underground storage tanks has also impacted shallow groundwater on portions of these properties. Previous remedial investigations by Clayton and others have characterized the environmental issues on these properties. These studies revealed three areas where there exists a potential for surface water impacts stemming from the migration of contaminated groundwater to adjacent surface water channels. In addition, Clayton has completed a Health Risk Assessment, which identified potential health risks to current and future occupants and workers at these sites.

To address these issues, Clayton prepared this Feasibility Study, which evaluated a focused suite of remedial measures intended to minimize, or eliminate, the potential health and environmental risks associated with the residual contaminants. This study evaluated the benefits, costs, and implementation issues associated with these alternatives.

Based on that evaluation, Clayton recommends the filing of permanent deed restrictions, which will limit the future use of these properties to industrial or commercial use. These deed restrictions are to "run with the land" and include "Soil Management Plans", which prescribe technical, safety, and regulatory requirements for the future management of the contaminated soil and waste which remain in the subsurface of these properties.

In addition, Clayton recommends a limited remedial action consisting of the installation of a groundwater diversion wall to be installed on the 5051 Coliseum Way property. This action will ultimately limit the migration of heavy metals, which are being released to San Leandro Bay through the migration of contaminated groundwater and sediment into the adjacent storm water channel. In additional to this remedial project, Clayton also recommends the continued monitoring of the "weep holes" in the storm water channel and the monitoring of a series of groundwater monitoring wells adjacent to the diversion.

Clayton also recommends continued groundwater monitoring on and adjacent to the 5200 Coliseum Way property. This monitoring is recommended to confirm the attenuation of metals migration in the shallow groundwater along the southeast boundary of that parcel.

1.0 PROBLEM DEFINITION

The Coliseum Way Properties consist of four adjacent parcels at 5050, 5051, 5200 Coliseum Way and 750-50th Avenue, located in Oakland, Alameda County, California (Figure 1). For ease of discussion, these parcels will be grouped into three properties. References to 5050 Coliseum Way will include the 750-50th Avenue parcel. The 5051 and 5200 Coliseum Way properties will be discussed separately.

These three properties have a history of industrial use from the 1870s to the present. From the 1870s to about 1963, the properties were used for various manufacturing processes, which included the smelting of lead, the manufacture of acids and lithopone (paint pigments), and the use of petroleum hydrocarbons and other chemicals. From 1963 to 1974 the property sat fallow. The existing structures had been demolished. In 1974, the 5050 Coliseum Way and 750-50th Avenue properties were developed into a truck maintenance center by Volvo/GM. In 1977, the 5200 Coliseum Way property was developed into a Self-Storage facility. In 1997, Millennium Holdings, Inc. purchased the 5050 Coliseum Way and 750-50th Avenue properties. These properties are now leased to the City of Oakland as a vehicle maintenance center. Millennium also assumed the environmental responsibility for the 5200 Coliseum Way property. In 1998, Millennium purchased the 5051 Coliseum Way property from PG&E, which had been previously used for the stockpiling and management of soil, construction materials, and equipment.

Several environmental investigations have been conducted on these properties. These studies have confirmed the presence of buried industrial residual waste products ("chemicals of concern") left in the soil and groundwater on each of these properties. Clayton has summarized the findings from these investigations in its Remediation and Risk Management Plan dated November 30, 1999.

Specifically, these investigations identified metal-containing waste ore and slag deposits, lithopone process waste residuals, petroleum products, and other waste materials on all of these parcels. Clayton, and Ratech Resources, have prepared a Health Risk Assessment (HRA) dated February 22, 1999, which identified the potential environmental health risks, which could, under certain exposure scenarios impact current or future occupants and workers at these properties.

1.1 POTENTIAL HEALTH RISKS

The health risk assessment concluded that there are no current toxicological risks associated with these properties because all of the wastes are currently covered or capped by existing buildings, parking lots, and fill materials. In this condition there is no complete "pathway for exposure." Furthermore, the assessment concluded, and the RWQCB concurred, that there were no unacceptable carcinogenic risks associated with the continued industrial or commercial use of any these properties. However, the potential non-carcinogenic risks to a hypothetical future worker, who may become exposed to the buried waste deposits, does exceed a calculated "hazard index" of 1.0. This scenario could arise assuming that a future construction project were to expose the

chemicals of concern, and that exposure resulted in a prolonged direct contact with these materials. This potential exposure can be prevented by either the direct remediation of the contaminated soils and waste, or by the imposition of institutional and management controls which will prevent the exposure of future occupants and workers to these chemicals of concern.

1.2 ENVIRONMENTAL CONCERNS

As previously stated, environmental investigations have demonstrated that on-site groundwater has been impacted with industrial wastes and heavy metals which give rise to both acidic and basic groundwater conditions. In several on-site monitoring wells there are anomalous levels of metals, which are carried in solution by pH impacted shallow groundwater. Recent investigations by Clayton have included both on-site and off-site soil and groundwater analysis. These investigations demonstrated that the vertical and lateral extent of migration of contaminated groundwater is very limited, and in most areas, does not extend beyond the original areas of waste deposition. It has been further demonstrated through evaluation of total dissolved solids (TDS) of the shallow water quality that there are no potential sources of drinking water in this area.

Recent surface water samplings by Clayton, indicate the potential for heavy metals to migrate from the subject properties into the adjacent storm water channels, which empty into San Leandro Bay. These studies have shown that a combined total of approximately ten pounds of heavy metals per year are discharged from the properties into the adjacent storm water channels. The majority of this discharge (7.6 pounds) migrates through the weep holes in the storm water channel wall adjacent to the 5051 Coliseum Way property. For this reason Clayton has concluded, and the RWQCB has concurred, that the greatest environmental concern associated with these properties is the potential for heavy metals to migrate into the marine environment of San Leandro Bay.

The following sections evaluate a suite of remediation alternatives, which have the potential to mitigate both the health and environmental concerns associated with these properties.

2.0 IDENTIFIED ALTERNATIVES

Remedial alternatives were considered for each of the properties. Sample locations and soil borings from the previous investigations are provided in Figure 2 and the soil analytical results are included in Tables 1 through 4.

Options to allow in-situ management, incorporating deed restrictions on future use, and the imposition of Soil Management Plans are presented. As an alternative, removal and/or on-site treatment options, which in some cases would preclude the need for deed restrictions, were also evaluated.

2.1 5050 COLISEUM WAY

Remedial investigations by Clayton and Levine*Fricke identified subsurface waste layers from previous industrial activities and metals-containing groundwater that has migrated to the northwestern property boundary. The metals of concern in groundwater, zinc and cadmium, appear to attenuate rapidly at the margins of the waste layers and do not appear to be migrating off site. However, one area of concern was identified by a dye study, where groundwater weeps were identified in the Courtland Creek Culvert near well CW-13. Clayton collected surface water samples in this area and calculated the metals loading to surface water from this weep. Clayton estimated the groundwater release in the culvert at less than one gallon per minute. Due to tidal influences the zinc loading to surface water at this location is estimated at 1.3 pounds of zinc per year. This is considered to be a very minor impact compared to the annual storm water loading from other dischargers in this basin. (Clayton collected numerous storm water samples in this area, which indicated that up to 2,000 pounds of zinc flows past the site from upstream sources.) In addition, Clayton evaluated the trends in metals concentrations in groundwater across the area. The metals concentrations appear to have decreased nearly an order of magnitude in the last six years, suggesting that the release at this specific site should continue to decline over time and does not warrant remediation at this location.

Therefore, Clayton's feasibility assessment for this property includes two options to deal with the potential health impacts on this property: A) In-situ Management or, B) Excavation and Off-site Disposal.

2.1.1 Option A – In-situ Management at 5050 Coliseum Way includes the following elements:

- Implementation of the HRA recommendations (Separate cover – 2-22-99)
- Implementation of a Soil Management Plan (Separate cover – 11-30-99)
- Filing of a Deed Restriction identifying the capped waste layers and groundwater impacts and referencing the Soil Management Plan.

what about monitoring? this is a hazwaste site (landfill)

2.1.2 Option B – Removal of Waste Layers at 5050 Coliseum Way envisions the following elements:

- Implementation of the HRA and SMP recommendations for excavation and offsite disposal of contaminated waste layers until agency site closure is granted.
- Excavation and offsite disposal of the waste layers on this site is assumed for the North Area and South Area shown on Figure 3. This option evaluated the excavation of up to 43,875 cubic yards of soil, soil stabilization for disposal assuming 50 percent is RCRA hazardous, and off-site disposal at a Class I landfill. The detailed project elements cost estimates for this option are presented in Tables A and B-3A (Appendix A). Under this scenario, the Soil Management Plans and Deed Restrictions prepared for the site would not be required once agency closure of the site was granted.

On the basis of cost, implementability, and effectiveness, Option A is recommended for this property.

2.2 5051 COLISEUM WAY

Remedial investigations by Clayton (1997, 1998, and 1999) and Geomatrix (1996) found that metals-containing groundwater has migrated to the northwestern property boundary and appears to be impacting the surface water in the open stormwater channel west of well MW-4. Water samples collected from the weep holes at the base of the concrete channel wall were tested and found to contain heavy metals, most notably zinc. Zinc loading to the surface water at this location was estimated at 7.6 pounds per year (Clayton 1999). Past industrial waste disposal practices apparently resulted in the deposition of a subsurface waste layer on the northeastern half of the property (Figure 3). The property was reportedly capped with 4 to 8 feet of imported fill material bringing the property to its current elevation in the late 1960s. Groundwater monitoring reports document that the groundwater in well, MW-4 is tidally influenced indicating a hydraulic conductivity with the surface water in the adjacent storm water channel. The trend of the elevated metals concentrations in groundwater in this area does not suggest that the concentrations are changing appreciably over time. The following options are intended to address both the health and environmental concerns posed by this parcel.

2.2.1 Option A – In-situ Management at 5051 Coliseum Way

This option includes the following four elements:

- Implementation of the HRA recommendations (Separate cover – 2-22-99)
- Implementation of a Soil Management Plan (Separate cover – 11-30-99)
- Filing an appropriate Deed Restriction identifying the capped waste layers and groundwater impacts
- Installation of a groundwater diversion wall, 350 feet in length, along the northwest property boundary (Figure 4). The cost estimate for installation of the groundwater diversion wall (sheetpile wall) and one year of quarterly groundwater monitoring for up to five monitoring wells and the weep holes is presented in the Remedial Cost Estimate Summary – Table A (Appendix A).

only 1 yr? monitoring

As a part of this feasibility study, Clayton subcontracted with Treadwell and Rollo, Inc., Environmental & Geotechnical Consultants, to evaluate the stability of the storm channel concrete walls. This evaluation was conducted to determine if the existing concrete walls could withstand an increase in the height of groundwater if the weep holes were plugged to contain the metals in groundwater at the site. Treadwell and Rollo's findings that the walls could not withstand the additional loading were reported in a letter dated August 31, 1999. This finding essentially eliminated the option of plugging the weep holes as a remediation alternative.

On September 27 and 28, 1999, Clayton advanced 25 soil borings to evaluate the feasibility of installing a groundwater diversion wall parallel to the storm water channel. The borings were advanced to depths ranging from 15 to 20 feet deep along a line extending about 350 lineal feet south of Coliseum Way and about 40 feet back from the storm channel wall. The Geoprobe borings were drilled essentially along the proposed alignment of the groundwater diversion wall shown on Figure 4. Based on the findings of the boring program, Clayton finds that the installation of a sheetpile wall to a depth of at least 15 feet is technically feasible and appears to be the most practical method of constructing a low permeability barrier to divert metals impacted groundwater to the south, away from the storm channel weep holes. This diversion wall is intended to promote migration of contaminated groundwater into the western portions of the property where they would be further attenuated by migration through the on-site soils. In addition, the sheetpile wall will also add structural stability to the unconsolidated site soils and the storm water canal in the event of a significant seismic event.

To insure that the diversion wall is limiting groundwater migration in this area Clayton proposes to continue groundwater monitoring in select wells on this property. Clayton also proposes to monitor and sample water from the adjacent weep holes during a one-year period on a quarterly basis. Construction of the diversion wall may require the destruction of well MW-4. If so, Clayton proposes to monitor wells MWA-1 and MW-4 or its replacement well and three other wells to be installed along the upgradient side of the wall.

2.2.2 Option B –Direct Remediation of Waste Layers at 5051 Coliseum Way

Clayton considered three possible alternatives for the direct remediation of the waste and contaminated soils on this property. (It should be noted that each of these options, with the exception of the excavation alternative, would still require the filing of a permanent deed restriction and Soil Management Plan.)

- As an option to remediate metals and petroleum contaminated groundwater, a pump and treat system has been considered which includes the installation of up to 9 extraction wells, installation of an electrochemical treatment system, oil/water separator, filters, associated plumbing, permits, feasibility study, and maintenance. A detailed cost estimate and projected costs for 30 years are presented in Tables A and B-2b (Appendix A).

- As an alternate option to remediate metals contamination in soil, implementation of in-situ pH neutralization has also been evaluated and a cost estimate prepared. The neutralization process is projected to treat up to 69,000 cubic yards of soil in-situ with admixtures of approximately 20 per cent by volume of Portland cement and limestone reagents. The cost estimate for this remedial action is presented in Tables A and B-4 (Appendix A).

- The final remedial option considered for this site was excavation and offsite disposal of the on-site waste layer (Figure 3). This remedial action would require the excavation of up to 69,200 cubic yards, soil stabilization for disposal assuming half of

the waste material is RCRA hazardous, off-site disposal, backfilling and compaction, and repaving of the parking lot area. The cost estimate for this remedial action is presented in Tables A and B-3A (Appendix A).

It should be noted that if the offsite disposal alternative were implemented and agency closure was granted, then the Soil Management Plans presented in Clayton's Remediation and Risk Management Plan (RRMP) would no longer be required for this site. The other in-situ alternatives would still require imposition of the Deed Restrictions and Soil Management Plans to insure protection of public health.

On the basis of feasibility, cost and effectiveness, Option A is recommended for this property.

2.3 5200 COLISEUM WAY

Remedial investigations by Clayton (1996, 1998, and 1999) and Subsurface Consultants, Inc. (1995) identified subsurface waste layers from previous industrial activities, which have impacted shallow groundwater. The metals of concern in groundwater, barium and arsenic, appear to attenuate rapidly at the margins of the waste layers and do not appear to be readily migrating off site. Clayton collected grab-groundwater samples from four soil borings (CSB-10 through CSB-13) and found elevated metals in the groundwater samples (Clayton 1999). Clayton also sampled the surface water in the 54th Avenue Creek in 1998 adjacent to the property and found minimal impacts to adjacent surface water. Trends in groundwater concentrations were evaluated for wells CW-1 and CW-3 (RRMP) and no attenuation of metal concentrations were apparent since groundwater monitoring began at the site in 1996. Arsenic concentrations in groundwater show an apparent increase in well CW-3 with time. The surface water results from the 54th Avenue Creek currently indicate that no remedial action is warranted in this area; however, due to the apparent increase in arsenic in well CW-3, Clayton proposes that groundwater monitoring of the perimeter wells (CW-1, CW-2, CW-6 and CW-7) be continued for two more years. Therefore, Clayton's feasibility assessment for this property includes two options, (A) managing the waste layers in-situ or, (B) removal of the waste layers to eliminate the need for Deed Restrictions, Management Plans and continued monitoring.

GW S/B monitored indefinitely !

2.3.1 Option A – In-situ Management at 5200 Coliseum Way

- Implementation of the HRA recommendations (Separate cover – 2-22-99)
- Implementation of a Soil Management Plan (Separate cover – 11-30-99)
- File a Deed Restriction identifying the capped waste layers and groundwater impacts
- Quarterly groundwater monitoring of four perimeter wells for two years to determine the metals concentration trends in groundwater. The cost estimate for continued groundwater monitoring is presented in the Remediation Cost Estimate Summary – Table A (Appendix A).

2.3.2 Option B – Removal of Waste Layers at 5200 Coliseum Way

- Implementation of the HRA and SMP recommendations for excavation and offsite disposal of contaminated waste layers until agency site closure is granted.

- As an alternative remedial action, excavation and offsite disposal of the waste layers was evaluated for waste layers that essentially cover the entire property (Figure 3). This remedial action assumes that 77,750 cubic yards of soil would be excavated, treated for disposal assuming that 50 percent is RCRA hazardous, and disposed of at a Class I landfill. The cost estimate for this option is presented in Tables A and B-3b (Appendix A). Please note that Clayton has not calculated the cost of removing and replacing the existing structures currently on the property. The environmental management plans prepared for the site would not be required assuming agency closure of the site.

On the basis of cost, and implementability, Option A is recommended for this property.

3.0 SOIL MANAGEMENT PLANS

Clayton has prepared property specific Soil Management Plans (SMP) for each of the Coliseum Way Properties located at 5050, 5051, and 5200 Coliseum Way. Each SMP has been written at the request of the California Regional Water Quality Control Board (RWQCB) and will be referenced and permanently attached to the deed for these properties. The nature and extent of the waste residuals and contaminated soil have been investigated and a health risk assessment has been performed. The RWQCB found the risk assessment acceptable provided that steps be taken to reduce risk levels for construction workers. This Soil Management Plan presents the information needed to reduce those risks to acceptable levels.

The SMP provides protocols to be followed for future construction or other activities that may encounter or expose the waste residuals or contaminated soil in the subsurface at the site. The protocols require any subsurface construction work to be conducted under a Health and Safety Plan certified by a California Certified Industrial Hygienist in accordance with a Work Plan approved by the RWQCB (or successor agency). In addition, the SMP specifies that appropriate soil cover, such as building foundations, concrete paving, asphalt paving, or imported fill, should remain in place after completion of any construction unless an alternative is specifically approved by the RWQCB.

The requirements of the SMP apply to the significant intrusion, excavation and/or subsurface construction activities at the site but impose no other restriction on the development or reconstruction of this site for commercial or industrial uses.

4.0 DEED RESTRICTIONS

Enduring Deed restrictions are proposed for each parcel, 5050, 5051, 5200 Coliseum Way and 750-50th Avenue, with continued notification of tenants and future owners

regarding the subsurface hazards, agency notifications, and the requirement for preparation and adherence to site specific health and safety plans. Upon approval of the RWQCB, the Deed restrictions will be filed with the Alameda County Recorders Office. They will be maintained until such time that the RWQCB or successor agency provides site closure and determines that there is no continuing risk to health or safety due to exposure to the subsurface waste materials.

5.0 REMEDIAL ACTIONS SCHEDULE

Clayton's proposed limited remedial measures are limited to the 5051 and the 5200 Coliseum Way Properties.

5.1 REMEDIATION SCHEDULE – 5051 COLISEUM WAY

As previously presented, Clayton proposes the installation of a groundwater diversion wall extending approximately 350 lineal feet south of Coliseum Way paralleling the storm water channel along the northwest property boundary to a depth of between 15 and 20 feet below the ground surface. Clayton has obtained bids for the construction of such a sheetpile wall and estimates that the wall can be installed in approximately one to two weeks once construction of the wall has been approved by the RWQCB and construction and equipment permits have been obtained from the City of Oakland. Clayton will also install additional groundwater monitoring wells after the sheetpile diversion wall has been installed and initiate a quarterly monitoring of the wells and weep holes.

Note: Installation of the sheetpile diversion wall is dependent on scheduling and obtaining the necessary low-clearance heavy equipment to work under the high-power overhead lines. It is assumed that the fieldwork can be scheduled within one month of authorization to proceed; however, scheduling could take an additional one to two months to schedule the equipment. Installation of the additional groundwater monitoring wells can be scheduled within one week of completion of the wall and quarterly monitoring can be initiated within two weeks of their installation. Since Clayton has proposed monitoring up to five wells and the weep holes for one year, confirmation of the effectiveness of the diversion wall will not be confirmed for more than a year. At the end of the year, Clayton will make recommendation for termination of the monitoring program if the groundwater findings indicate that there is no significant impact from this property which causes the receiving water body to exceed applicable Bay and Estuarine standards for metals.

I don't agree

5.2 REMEDIATION SCHEDULE – 5200 COLISEUM WAY

Clayton has proposed continued quarterly groundwater monitoring for four perimeter wells for two years. This monitoring will be continued on the present well sampling schedule. The two-year monitoring and reporting will begin once the RWQCB approves this recommendation. If the monitoring indicates that the metals concentrations are stable or have decreased within this time frame, then Clayton will recommend no additional monitoring. If the groundwater concentrations indicate an unstable condition

I don't agree

with the possibility of a significant release to the surface water channel, then a recommendation for investigation or remedial action will be submitted to the RWQCB.

6.0 SUMMARY

Clayton prepared this feasibility study to address the health and environmental concerns identified in the various remedial investigations conducted at the Coliseum Way Properties. Clayton's recommendation is for site specific remedial actions on the 5051 parcel with continued on-site, in-situ management of the residual waste and contaminated soils on these properties. The continued health and environmental safety at these properties will be insured by the filing of permanent deed restrictions and Soil Management Plans that will endure as long as the wastes remain in place, and a potential hazard exists.

Report prepared by: _____

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San Francisco Regional Office

November 30, 1999

TABLE 1
SOIL ANALYTICAL RESULTS - METALS, pH, SULFATE AND SULFUR
5050, 5051, and 5200 COLISEUM WAY AND 750 50TH STREET
OAKLAND, CALIFORNIA

Sample Identification	Sample Depth	Sample Date	Antimony	Arsenic	Barium	Cadmium	Copper	Lead	Mercury	Zinc	pH
TTLCs			**500**	**500**	**10,000**	**100**	**2,500**	**350**	**20**	**5,000**	
5050 Coliseum Way											
LF-1-2.5	2.5	31-Oct-91	NA	270	470	20	NA	**8,600**	NA	4,600	NA
LF-1-7.5	7.5	31-Oct-91	NA	11	560	**110**	NA	120	NA	**31,000**	NA
LF-1-21	21.0	31-Oct-91	NA	2	89	38	NA	13	NA	**16,000**	NA
LF-2-2.5	2.5	29-Oct-91	NA	54	3,200	60	NA	**24,000**	NA	**6,900**	NA
LF-2-5.5	5.5	29-Oct-91	NA	29	76	<20	NA	<200	NA	300	NA
LF-2-7.5	7.5	29-Oct-91	NA	160	84	0.9	NA	**530**	NA	580	NA
LF-2-15.5	15.5	29-Oct-91	NA	5	30	0.6	NA	6	NA	460	NA
LF-3-2.5	2.5	30-Oct-91	NA	5	270	0.4	NA	20	NA	97	NA
LF-3-7	7.0	30-Oct-91	NA	14	4,200	<20	NA	<200	NA	<200	NA
LF-3-15	15.0	30-Oct-91	NA	3	230	<0.2	NA	7	NA	280	NA
LF-4-2	2.0	29-Oct-91	NA	<1	220	0.8	NA	77	NA	140	NA
LF-4-3.5	3.5	29-Oct-91	NA	34	60,000	30	NA	**850**	NA	**5,100**	NA
LF-4-15	15.0	29-Oct-91	NA	3	140	<0.2	NA	11	NA	49	NA
LF-5-2	2.0	29-Oct-91	NA	5	82	0.4	NA	8	NA	110	NA
LF-5-3.5	3.5	29-Oct-91	NA	97	1,600	<20	NA	**1,000**	NA	2,700	NA
LF-5-11	11.0	29-Oct-91	NA	2	80	<0.2	NA	4	NA	27	NA
LF-5-15	15.0	29-Oct-91	NA	5	28	<0.2	NA	6	NA	34	NA
LF-6-2	2.0	28-Oct-91	NA	10	100	0.6	NA	19	NA	120	NA
LF-6-9	9.0	28-Oct-91	NA	200	200	11	NA	**360**	NA	1,100	NA
LF-6-15.5	15.5	28-Oct-91	NA	5	51	0.3	NA	6	NA	380	NA
LF-7-2	2.0	28-Oct-91	NA	63	67,000	<0.2	NA	52	NA	72	NA
LF-7-4	4.0	28-Oct-91	NA	12	92,000	0.4	NA	67	NA	200	NA
LF-7-10	10.0	28-Oct-91	NA	4	140	<0.2	NA	5	NA	20	NA
LF-7-15.5	15.5	28-Oct-91	NA	4	150	0.2	NA	7	NA	57	NA
LF-8-2.5	2.5	25-Oct-93	<1	21	270	0.5	12	37	0.34	150	7.8
LF-8-5.0	5.0	25-Oct-93	42	**660**	59,000	64	650	**5,000**	2.6	**17,000**	8.6
LF-8-10.0	10.0	25-Oct-93	<1	7	350	5.9	120	16	0.09	1,200	7.1
LF-8-14.5	14.5	25-Oct-93	NA	NA	NA	NA	NA	NA	NA	NA	7.8
LF-9-4.5	4.5	27-Oct-93	11	30	1,400	5.9	130	**920**	0.33	1,100	7.1
LF-9-11.0	11.0	27-Oct-93	81	310	170	17	1,700	**14,000**	0.7	**8,400**	7.2
LF-9-15.0	15.0	27-Oct-93	NA	NA	NA	NA	NA	NA	NA	240	NA
LF-10-3.0	3.0	26-Oct-93	4	37	500	5.2	140	**350**	0.67	2,800	8.5
LF-10-4.5	4.5	26-Oct-93	<1	7	360	0.4	18	4	<0.06	220	8.3
LF-10-7.5	7.5	26-Oct-93	6	27	130	<0.1	170	130	6.2	300	7.1
LF-10-15.0	15.0	26-Oct-93	NA	NA	NA	NA	NA	NA	NA	NA	7.5
LF-11-2.5	2.5	25-Oct-93	12	200	170	27	460	**3,100**	0.88	1,800	4.8
LF-11-5.0	5.0	25-Oct-93	65	350	280	110	460	**14,000**	0.97	4,500	5.2
LF-11-7.5	7.5	25-Oct-93	<1	2	74	12	15	5	0.27	4,600	4.0
LF-11-12.5	12.5	25-Oct-93	<10	3	110	44	23	<10	<0.06	**19,000**	7.4
LF-11-25.0	25.0	25-Oct-93	<1	1	110	<0.1	27	2	0.17	61	9.2

TABLE 1
SOIL ANALYTICAL RESULTS - METALS, pH, SULFATE AND SULFUR
5050, 5051, and 5200 COLISEUM WAY AND 750 50TH STREET
OAKLAND, CALIFORNIA

Sample Identification	Sample Depth	Sample Date	Antimony	Arsenic	Barium	Cadmium	Copper	Lead	Mercury	Zinc	pH
TTLCs			**500**	**500**	**10,000**	**100**	**2,500**	**350**	**20**	**5,000**	
LF-12B-2.5	2.5	28-Oct-93	9	11	4,200	5.5	690	**980**	0.58	1,500	8.1
LF-12B-5.0	5.0	28-Oct-93	4	70	4,200	6.4	76	**420**	9.4	1,800	8.1
LF-12B-7.5	7.5	28-Oct-93	<1	10	350	7.3	620	82	0.49	1,400	5.8
LF-12B-15.0	15.0	28-Oct-93	NA	NA	NA	NA	NA	NA	NA	1,100	
LF-13-2.5	2.5	30-Nov-93	NA	**1000**	20,000	NA	NA	NA	NA	NA	8.4
LF-13-5.0	5.0	30-Nov-93	NA	**2600**	4,600	NA	NA	NA	NA	NA	NA
LF-13-7.0	7.0	30-Nov-93	NA	53	130	NA	NA	NA	NA	NA	10.3
LF-14-1.5	1.5	06-Dec-93	<1	<1	340	0.2	18	17	0.11	55	8.5
LF-14-2-7	2-7	06-Dec-93	43	**1200**	16,000	**150**	1,700	**14,000**	6.8	**19,000**	NA
LF-14-12.5	12.5	06-Dec-93	<1	<1	760	0.9	140	10	<0.06	1,200	5.3
LF-14-19.5	19.5	06-Dec-93	NA	NA	NA	NA	NA	NA	NA	NA	6.3
LF-15-11.0	11.0	02-Dec-93	<1	<1	150	<0.1	17	3	0.12	410	4.7
LF-15-13.5	13.5	02-Dec-93	<1	2	100	0.8	23	6	0.24	570	4.5
LF-16-1.5-3.5	1.5-3.5	03-Dec-93	<1	2	1,300	2.4	27	100	0.15	240	8
LF-16-8.0	8.0	03-Dec-93	13	210	470	12	260	**1,300**	0.57	3,600	11
LF-16-13.0	13.0	03-Dec-93	<1	27	1,100	2.6	530	120	0.07	940	4.5
LF-16-15.5	15.5	03-Dec-93	NA	NA	NA	NA	NA	NA	NA	NA	4.3
LF-16-25.0	25.0	03-Dec-93	<1	1	64	0.1	28	5	<0.06	58	7.7
LF-17-2.5	2.5	06-Dec-93	<1	12	440	0.7	54	70	0.13	240	7.5
LF-17-5.5	5.5	06-Dec-93	1	5	120	0.5	13	17	0.18	51	7.5
LF-17-12.0	12.0	06-Dec-93	<1	<1	160	<0.1	17	5	<0.06	30	8.2
LF-F1-1.0	1.0	06-Dec-93	<1	20	1,600	7.5	84	**460**	0.22	2,000	8.1
SB-1-5.0	5.0	01-Nov-93	45	**18000**	19,000	56	550	**450**	9.9	4,800	7.9
SB-1-7.0	7.0	01-Nov-93	1	**3300**	1,800	6.7	89	77	0.62	2,700	NA
SB-1-9.5	9.5	01-Nov-93	<1	5	450	0.2	14	6	0.08	440	9.3
SB2-2.5	2.5	22-Oct-93	<1	4	200	<0.1	25	11	0.14	72	7.1
SB2-7.5	7.5	22-Oct-93	<10	21	190	3	1,300	20	<0.06	710	4.7
SB2-12.5	12.5	22-Oct-93	<1	3	92	0.4	13	4	<0.06	1,500	4.7
SB-3-2.5	2.5	01-Nov-93	2	8	2,300	2.3	46	160	<0.06	410	7.8
SB-3-4.5	4.5	01-Nov-93	33	280	4,300	**240**	1,800	**4,000**	9.6	**26,000**	8.1
SB-3-7.0	7.0	01-Nov-93	11	140	240	15	400	**1,400**	0.77	**9,900**	7.4
SB-3-15.0	15.0	01-Nov-93	NA	NA	NA	NA	NA	NA	NA	210	
SB-4-2.5	2.5	01-Nov-93	<1	4	290	<0.1	13	14	0.13	41	7.6
SB-4-7.5	7.5	01-Nov-93	<10	440	46	25	**2,400**	**410**	0.29	1,500	4.1
SB-4-12.0	12.0	01-Nov-93	<1	<3	69	<0.1	15	6	<0.06	1,600	4.5
SB-5-9.5	9.5	28-Oct-93	7	86	640	2.3	200	**580**	0.13	920	8.2
SB-5-12.5	12.5	28-Oct-93	NA	NA	NA	NA	NA	NA	NA	NA	8.4

TABLE 1
SOIL ANALYTICAL RESULTS - METALS, pH, SULFATE AND SULFUR
5050, 5051, and 5200 COLISEUM WAY AND 750 50TH STREET
OAKLAND, CALIFORNIA

Sample Identification	Sample Depth	Sample Date	Antimony	Arsenic	Barium	Cadmium	Copper	Lead	Mercury	Zinc	pH
TTLCs			**500**	**500**	**10,000**	**100**	**2,500**	**350**	**20**	**5,000**	
SB-6-2.5	2.5	01-Nov-93	49	270	15,000	31	1,000	**9,400**	3.8	**15,000**	8.5
SB-6-7.0	7.0	01-Nov-93	<1	6	190	4.5	1,500	19	0.17	290	6.6
SB-6-12.0	12.0	01-Nov-93	<1	<3	70	2.9	32	3	<0.06	1,400	5.7
SB-7-2.5	2.5	28-Oct-93	<1	3	170	0.2	17	35	0.09	58	6.5
SB-7-11.5	11.5	28-Oct-93	12	310	230	17	**3,300**	**4,600**	0.45	**16,000**	7.7
SB-7-15.0	15.0	28-Oct-93	NA	NA	NA	NA	NA	NA	NA	46	6.8
SB-8-2.5	2.5	22-Oct-93	1	2	260	0.1	12	12	0.11	58	6.5
SB-8-5.0	5.0	22-Oct-93	30	29	410	7	**2,400**	**14,000**	0.26	**7,500**	6.5
SB-8-10.0	10.0	22-Oct-93	<1	42	270	<0.1	22	24	0.11	530	5
SB8-15.0	15.0	22-Oct-93	NA	NA	NA	NA	NA	NA	NA	NA	6.6
SB-9-2.5	2.5	26-Oct-93	44	**1600**	380	53	470	**2,300**	4.7	**7,700**	6.8
SB-9-7.5	7.5	26-Oct-93	11	260	110	**880**	280	240	4.5	3,000	5.1
SB-9-12.5	12.5	26-Oct-93	<1	4	91	26	34	5	0.13	**9,400**	4
SB-10-5.0	5.0	29-Oct-93	23	**1600**	75	9.3	460	**2,200**	0.77	**11,000**	7.9
SB-10-7.0	7.0	29-Oct-93	<1	3	150	<0.1	15	6	<0.06	140	5.9
SB-10-10.0	10.0	29-Oct-93	<1	4	100	<0.1	12	6	0.09	260	7.6
SB-11-2.5	2.5	22-Oct-93	<1	14	340	0.5	34	**540**	0.34	210	7.7
SB-11-7.5	7.5	22-Oct-93	<1	14	64	<0.1	15	4	0.11	24	7.7
SB-11-12.5	12.5	22-Oct-93	<1	10	380	1.1	26	34	0.07	1,500	6.2
SB-12-2.0	2.0	26-Oct-93	46	**1400**	110	65	1,700	**5,600**	4.2	**9,200**	6.8
SB-12-5.0	5.0	26-Oct-93	180	**830**	69	27	740	**17,000**	5.9	**12,000**	5.8
SB-12-12.0	12.0	26-Oct-93	<1	6	67	3	22	5	<0.06	2,700	4.3
SB-13-2.5	2.5	26-Oct-93	54	33	2,000	6.1	130	**1,100**	0.69	3,100	3.9 7.3
SB-13-7.5	7.5	26-Oct-93	35	100	770	8.7	280	**490**	5.8	2,700	5.8
SB-13-10.0	10.0	26-Oct-93	<1	2	55	5.1	75	12	0.47	**5,000**	4.8
SB-13-15.0	15.0	26-Oct-93	NA	NA	NA	NA	NA	NA	NA	3,600	5.2
SB-14-2.0	2.0	28-Oct-93	<1	43	250	1.4	17	41	0.91	200	8.6
SB-14-5.0	5.0	28-Oct-93	<1	8	410	0.3	12	20	0.08	160	8.7
SB-14-10	10.0	28-Oct-93	2	180	480	1.3	84	190	0.89	950	8.5
SB-15-3.5	3.5	29-Oct-93	<1	17	4,200	3.7	64	120	0.2	1,500	11.2
SB-15-6.0	6.0	29-Oct-93	2	11	1,700	1.2	240	160	0.06	570	10.2
SB-15-11.0	11.0	29-Oct-93	<1	4	1,200	1	31	20	0.1	790	8.2
SB-16-5.0	5.0	01-Nov-93	<10	99	110	9	**3,100**	180	0.24	2,500	5
SB-16-6.5	6.5	01-Nov-93	<1	19	130	<0.1	17	40	<0.06	23	7.6
SB-17-2.0	2.0	30-Nov-93	2	8	3,100	1.3	31	59	0.17	610	8.4
SB-17-5.0	5.0	30-Nov-93	<1	19	38,000	<0.1	36	29	<0.06	32	11.4
SB-17-6.5	6.5	30-Nov-93	<1	130	29,000	0.9	41	210	0.14	170	12
SB-17-12.0	12.0	30-Nov-93	<1	1	120	<0.1	14	3	<0.06	25	9.7

TABLE 1
SOIL ANALYTICAL RESULTS - METALS, pH, SULFATE AND SULFUR
5050, 5051, and 5200 COLISEUM WAY AND 750 50TH STREET
OAKLAND, CALIFORNIA

Sample Identification	Sample Depth	Sample Date	Antimony	Arsenic	Barium	Cadmium	Copper	Lead	Mercury	Zinc	pH
TTLCs			**500**	**500**	**10,000**	**100**	**2,500**	**350**	**20**	**5,000**	
SB-18-1.5	1.5	30-Nov-93	<1	4	1,100	0.5	11	36	0.17	97	8.8
SB-18-2.5	2.5	30-Nov-93	2	34	3,200	**390**	170	**920**	0.11	**8,100**	7
SB-18-5.0	5.0	30-Nov-93	<1	32	1,400	**210**	73	72	0.07	**7,000**	7.5
SB-18-7.0	7.0	30-Nov-93	<1	13	240	0.2	480	46	0.09	130	7.8
SB-19-2.5	2.5	30-Nov-93	95	**680**	1,600	**310**	**2,000**	**12,000**	8.3	**32,000**	7.9
SB-19-5.0B	5.0	30-Nov-93	88	**500**	200	**1400**	**3,600**	**11,000**	62	**60,000**	6.6
SB-19-10.0	10.0	30-Nov-93	2	44	1,100	26	630	320	0.14	3,400	6.8
SB-20-2.5	2.5	02-Dec-93	<1	<1	100	<0.1	8	10	<0.06	45	6.2
SB-20-9.5	9.5	02-Dec-93	<10	190	150	**330**	200	100	<0.06	**38,000**	6.5
SB-20-16.0	16.0	02-Dec-93	<1	<1	110	<0.1	11	4	<0.06	140	5.1
SB-21-2.5	2.5	01-Dec-93	35	**870**	180	17	500	**6,900**	0.25	**8,400**	5.4
SB-21-7.5	7.5	01-Dec-93	<1	2	62	9.6	17	6	0.07	**9,100**	4.2
SB-21-11.5	11.5	01-Dec-93	<1	<1	59	35	17	5	<0.06	**19,000**	4.1
SB-21-17.5	17.5	01-Dec-93	<1	2	71	44	17	4	<0.06	**16,000**	4
SB-21-24.5	24.5	01-Dec-93	<1	3	24	11	22	5	<0.06	1,100	5
SB-21-34.5	34.5	01-Dec-93	<1	<1	470	0.4	28	6	<0.06	130	5.8
SB-21-42.0	42.0	01-Dec-93	<1	<1	190	<0.1	28	8	<0.06	57	7.1
SB-21-49.5	49.5	01-Dec-93	<1	7	100	0.1	19	4	<0.06	52	6.7
											6.8
SS-1-2.5	2.5	01-Nov-93	3	190	**14,000**	<0.1	39	50	<0.06	270	8.3
SS-2-2.0	2.0	01-Nov-93	4	460	6,100	8.3	88	340	0.46	3,000	10.3
SS-3-2.0	2.0	01-Nov-93	3	100	3,000	6.4	180	**1,400**	0.4	2,400	8.6
SS-4-1.5	1.5	01-Nov-93	3	35	4,400	2	84	**560**	0.5	1,000	8.2
SS-5-1.5	1.5	02-Nov-93	<1	70	2,000	2.4	51	200	0.49	380	8.3
SS-6-2.0	2.0	02-Nov-93	48	370	830	56	2,300	**2,600**	2.4	**11,000**	7.8
SS-7-2.0	2.0	02-Nov-93	<1	<3	460	0.2	36	8	<0.06	96	7.9
SS-8-2.0	2.0	01-Nov-93	14	500	600	7.2	340	**2,900**	1	**18,000**	8.2
SS-10-2.5	2.5	01-Nov-93	43	100	450	7.4	690	**5,600**	1.6	3,800	6.9
SS-11-2.0	2.0	01-Nov-93	10	160	98	49	370	220	0.79	**13,000**	9.9
SS-12-2.5	2.5	02-Nov-93	7	56	2,500	12	130	**530**	0.5	2,000	7.8
SS-13-2.0	2.0	01-Nov-93	<1	<3	490	1.1	27	56	0.33	850	7.8
SS-13-2.5	2.5	01-Nov-93	<1	19	1,500	3	35	200	0.15	1,500	7.5
SS-18-2.0	2.0	02-Nov-93	49	640	900	62	460	**2,700**	3.8	**7,900**	7.4
SS-19-2.5	2.5	27-Oct-93	<1	9	1,600	0.3	46	48	0.17	160	7.8
ATT Data											
B1	5.0		ND	13.9	**9,540**	0.44	129	5	0.16	1,480	NA
B1	10.0		ND	7.7	1,240	0.32	31	3	0.24	107	NA
B2	10.0		ND	7.3	48	52.9	28	1	0.048	**14,900**	NA
B3	5.0		ND	4.2	13	6.1	9	4	0.031	1,630	NA
B3	10.0		ND	9.5	105	2.9	21	4	0.16	2,110	NA
B4	5.0		ND	9.4	100	20.2	22	12	0.029	3,290	NA
B4	10.0		ND	8.1	65	4	19	5	0.046	3,500	NA

TABLE 1
SOIL ANALYTICAL RESULTS - METALS, pH, SULFATE AND SULFUR
5050, 5051, and 5200 COLISEUM WAY AND 750 50TH STREET
OAKLAND, CALIFORNIA

Sample Identification	Sample Depth	Sample Date	Antimony	Arsenic	Barium	Cadmium	Copper	Lead	Mercury	Zinc	pH
TTLCs			**500**	**500**	**10,000**	**100**	**2,500**	**350**	**20**	**5,000**	
*LF*MW1	5.0		6.4	21.6	103	0.56	31	**527**	0.17	918	NA
*LF*MW1	10.0		ND	10.8	124	1.1	26	8	4.3	897	NA
*LF*MW2	5.0		ND	14.2	31	11.3	96	2	0.055	3,800	NA
*LF*MW2	10.0		ND	7.4	79	38.5	28	4	0.05	**14,000**	NA
*LF*MW3	10.0		ND	7.4	110	2.4	51	6	0.064	1,480	NA
*LF*MW4	10.0		ND	8.3	79	ND	9	4	0.11	24	NA
CSB-1	6.0	09/21/98	21	590	2,600	3.7	310	**1,700**	0.5	2,700	6.6
CSB-1	8.0	09/21/98	<1	8	91	<0.4	76	9	<0.1	60	5.1
CSB-3	5.0	07/23/98	< 1	3	9	< 0.4	5	3	< 0.1	18	-
CSB-4	4.0	07/24/98	3	8	86	< 0.4	55	27	0.2	120	-
CSB-5	4.0	07/24/98	3	8	420	< 0.4	60	37	0.2	180	-
CSB-6	4.0	07/24/98	2	5	91	< 0.4	7	9	0.2	65	-
CSB-8	5.0	07/29/98	< 1	53	48	3.3	11	1	< 0.1	1,100	8.0
CSB-8	10.0	07/29/98	2	1.6	160	**100**	< 1	< 0.1	< 0.1	29	8.2
CSB-8	15.0	07/29/98	3	8.1	67	< 0.4	35	< 1	< 0.1	48	8.8
CSB-8	19.5	07/29/98	2	2	27	< 0.4	16	< 1	< 0.1	40	8.5
CSB-8	20.0	07/29/98	1	4	73	< 0.4	18	< 1	< 0.1	46	8.4
CSB-8	25.0	07/29/98	1	3	39	0.4	14	2	0.2	31	8.0
CSB-8	30.0	07/29/98	2	2	360	0.9	28	< 1	< 0.1	52	7.2
CSB-8	35.0	07/29/98	2	1	69	< 0.4	23	< 1	< 0.1	36	7.5
CSB-8	40.0	07/29/98	2	3	230	< 0.4	16	< 1	< 0.1	34	7.4
CSB-8	45.0	07/29/98	3	5	200	< 0.4	21	< 1	< 0.1	48	7.2
CSB-8	50.0	07/29/98	22	3	85	< 0.4	17	< 1	< 0.1	30	7.3
CSB-8	55.0	07/29/98	2	2	130	< 0.4	14	< 1	< 0.1	30	7.4
CSB-8	60.0	07/29/98	2	1	96	< 0.4	17	< 1	< 0.1	39	7.5
CW-10	11.0	09/21/98	1	11	410	0.8	48	9	0.1	56	8.6
CW-12	11.0	09/21/98	1	5	120	< 0.4	21	6	0.2	56	8.3
CW-13	5.0	07/23/98	2	6.9	126	< 0.4	35	24	0.2	103	-
5051 Coliseum Way											
B-2	4.0	1/23/95	<10	270	250	11	1,600	**5,600**	0.88	1,600	4.5
B-3	4.0	1/23/95	490	370	1,200	**280**	**3,600**	**7,300**	1.1	**18,000**	6
B-4	11.5	1/23/95	<10	6	1,200	<2	85	25	<0.06	**46,000**	6.1
BA-4	2.0	6/1/95	<1	5.5	190	<0.2	22	66	0.09	93	7.8
BA-4	2.0	6/1/95	<0.4	4.55	128	0.71	11	**796**	0.119	256	7.93
BA-4	6.5	6/1/95	<0.41	3.09	1,213	1.48	21	28	0.103	82	8.09
BA-4	6.5	6/1/95	<1	3	300	<0.2	33	30	0.09	110	8.2
BA-4	8.0	6/1/95	1	1.3	1,900	0.7	580	27	0.09	400	8
BA-4	8.0	6/1/95	<0.39	1.86	**15,700**	3.8	244	22	0.0376	555	8.39
BA-4	9.5	6/1/95	<0.44	0.876	112	0.422	9	<4.4	0.0357	13	7.59
BA-4	9.5	6/1/95	<1	2.1	370	<0.2	28	5	<0.06	40	7.5
BA-4	12.0	6/1/95	<0.38	0.287	103	0.487	24	5	0.0685	24	9.39
B-5	11.5	1/23/95	26	500	950	**2100**	**3,300**	**6,800**	**65**	**51,000**	5.9
BA-5	4.0	6/1/95	5	10	550	5.3	350	**540**	2.5	2,200	8.1
BA-5	4.0	6/1/95	<0.4	7.69	506	12.7	386	**883**	0.776	3,620	8.48
BA-5	8.0	6/1/95	6	3.5	2,900	5.1	120	**350**	1.3	1,500	9
BA-5	8.0	6/1/95	<0.45	2.08	6,990	2.37	143	45	0.247	2,050	9.44
BA-5	9.0	6/1/95	<1	2.3	1,800	<0.2	64	4	<0.06	61	8.5
BA-5	9.0	6/1/95	<1	1.3	**29,000**	<0.2	250	84	<0.06	470	11.2
BA-5	9.0	6/1/95	<0.49	3.49	546	0.945	13	6	0.0276	21	8.58

TABLE 1
SOIL ANALYTICAL RESULTS - METALS, pH, SULFATE AND SULFUR
5050, 5051, and 5200 COLISEUM WAY AND 750 50TH STREET
OAKLAND, CALIFORNIA

Sample Identification	Sample Depth	Sample Date	Antimony	Arsenic	Barium	Cadmium	Copper	Lead	Mercury	Zinc	pH
TTLCs			**500**	**500**	**10,000**	**100**	**2,500**	**350**	**20**	**5,000**	
BA-5	10.0	6/1/95	<1	3.3	460	<0.2	51	5	<0.06	30	9
BA-5	10.0	6/1/95	<0.5	2.41	498	0.492	91	6	0.0458	54	8.88
BA-5	13.0	6/1/95	<0.44	0.913	225	0	22	6	0.0666	22	9.21
BA-5	16.0	6/1/95	<0.32	3.51	7,560	0.591	27	11	0.123	37	9.01
B-6	6.5	1/23/95	<1	23	**100,000**	1.36	62	56	2.3	780	11.2
B-7	6.5	1/23/95	850	930	1,400	4.6	850	**24,000**	0.83	**25,000**	8.2
B-8	7.5	1/23/95	190	220	150	42	930	**1,400**	0.25	**23,000**	6.2
B-9	2.0	12/5/95	2	5.2	110	**750**	22	73	<0.06	83	NA
B-9	7.0	12/5/95	1	7.3	180	<0.2	35	140	0.23	110	NA
B-9	11.5	12/5/95	2	4.8	280	<0.2	82	**590**	0.81	440	NA
B-9	16.5	12/5/95	<1	<0.5	91	0.9	18	5	<0.06	34	NA
B-9	19.5	12/5/95	<1	4.3	68	<0.2	13	7	0.08	30	NA
B-10	2.0	12/5/95	<1	4.1	100	<0.2	110	98	0.12	230	NA
B-10	6.0	12/5/95	<1	1.4	91	<0.2	21	54	<0.06	82	NA
B-10	10.0	12/5/95	1	18	290	13	44	340	0.26	**5,900**	NA
B-10	13.0	12/5/95	<1	3.8	72	<0.2	11	4	<0.06	14	NA
B-10	16.0	12/5/95	<1	2.1	130	3.1	15	4	0.07	21	NA
B-11	0.5	12/5/95	<10	<1	1,700	10	100	**3,000**	<0.6	1,900	NA
B-11	5.0	12/5/95	<1	<0.5	**39,000**	<0.2	90	16	<0.06	78	NA
B-11	8.0	12/5/95	2	3.1	94	0.2	150	14	<0.06	780	NA
B-11	12.5	12/5/95	<1	2	35	<0.2	11	4	<0.06	25	NA
B-11	16.0	12/5/95	<1	6.4	110	<0.2	26	8	<0.06	31	NA
B-12	17.0	12/5/95	<1	<0.5	40	<0.2	16	6	<0.06	37	NA
B-12	20.0	12/5/95	<1	1.2	240	<0.2	24	6	<0.06	35	NA
B-12	24.5	12/5/95	<1	<0.5	77	<0.2	38	6	<0.06	46	NA
B-13	1.0	12/6/95	1	4	390	<0.2	46	110	0.31	170	NA
B-13	13.0	12/6/95	<1	3.9	220	<0.2	29	74	0.17	92	NA
B-13	18.0	12/6/95	<1	4.5	280	0.3	51	170	<0.06	120	NA
B-13	22.0	12/6/95	<1	<0.5	44	<0.2	24	5	<0.06	45	NA
B-14	2.0	12/6/95	1	4.9	390	0.5	74	170	0.33	230	NA
B-14	7.0	12/6/95	<1	6.2	140	<0.2	29	20	<0.06	60	NA
B-14	9.5	12/6/95	<1	2.6	210	0.1	25	61	<0.06	87	NA
B-14	13.0	12/6/95	<1	<0.5	98	<0.2	15	6	<0.06	23	NA
B-14	16.0	12/6/95	<1	3.2	180	<0.2	27	6	0.06	41	NA
MWA-1	1.0	5/31/95	1	7.5	530	1.3	120	170	4.8	330	7.9
MWA-1	1.5	5/31/95	<0.41	39.5	416	3.31	60	**380**	0.355	552	8.17
MWA-1	2.0	5/31/95	<1	2.9	410	0.6	36	130	0.22	190	7.1
MWA-1	3.0	5/31/95	0.797	9.04	157	7.48	145	**1,870**	0.0263	1,190	6.45
MWA-1	6.0	5/31/95	7	6.6	210	9.4	140	**3,900**	0.12	1,900	7.3
MWA-1	7.5	5/31/95	31.5	13	199	12.2	962	**18,600**	4.4	**8,620**	2.41
MWA-1	8.0	5/31/95	5	11	570	4.9	62	**1,600**	18	1,000	7
MWA-1	8.5	5/31/95	610	5.2	920	**190**	**3,800**	**15,000**	20	**30,000**	5.7
MWA-1	8.5	5/31/95	61.5	125	1,480	**361**	**2,790**	**10,500**	5.99	**55,800**	5.06
MWA-1	9.0	5/31/95	110	1500	120	49	1,900	**30,000**	**57**	**17,000**	5.8
MWA-1	10.0	5/31/95	<1	5.1	170	75	53	75	<0.06	**9,700**	5.2
MWA-1	10.0	5/31/95	<0.46	39.2	61	19.9	37	128	0.264	**7,330**	5.58
MWA-1	11.5	5/31/95	<0.47	2.54	36	0.617	23	14	0.0511	3,520	5.68
MWA-1	13.0	5/31/95	<0.45	3.95	58	1.07	12	18	0.0867	428	8.07
MWA-1	14.5	5/31/95	<0.46	3.41	35	0.74	17	12	0.0577	37	8.73
MWA-1	17.0	5/31/95	<0.43	2.63	22	0.491	10	7	0.103	17	8.15

TABLE 1
SOIL ANALYTICAL RESULTS - METALS, pH, SULFATE AND SULFUR
5050, 5051, and 5200 COLISEUM WAY AND 750 50TH STREET
OAKLAND, CALIFORNIA

Sample Identification	Sample Depth	Sample Date	Antimony	Arsenic	Barium	Cadmium	Copper	Lead	Mercury	Zinc	pH
TTLCs			**500**	**500**	**10,000**	**100**	**2,500**	**350**	**20**	**5,000**	
MWA-2	5.5	5/31/95	54.3	806	3,060	**148**	1,670	**16,700**	0.624	**35,900**	7.39
MWA-2	6.0	5/31/95	830	1200	1,200	**180**	1,800	**29,000**	3.1	**41,000**	7.8
MWA-2	9.5	5/31/95	0.587	<0.22	170	1.33	10	20	0.0746	409	7.24
MWA-2	10.0	5/31/95	<1	5.2	150	0.2	54	10	<0.06	600	6.9
MWA-2	11.5	5/31/95	2	4.2	1,700	5.6	35	250	<0.06	390	8.6
MWA-2	11.5	5/31/95	0.591	0.617	1,540	4.94	27	236	0.0734	563	8.57
MWA-2	13.5	5/31/95	<0.44	<0.22	105	0.801	9	16	0.0584	37	8.72
MWA-2	14.5	5/31/95	<0.36	0.51	129	1.55	20	20	0.0571	53	8.36
MWA-3	4.5	5/31/95	<0.36	0.249	800	3.72	258	**1,620**	0.266	810	7.65
MWA-3	5.0	5/31/95	3	6.7	850	2.1	180	**3,300**	0.35	940	7.8
MWA-3	9.5	5/31/95	<0.41	0.322	98	8.91	37	207	0.18	**5,030**	7.23
MWA-3	10.0	5/31/95	<1	12	120	5.2	63	95	0.32	2,700	7.6
MWA-3	10.5	5/31/95	38.8	147	715	35.7	<0.47	**36,300**	6.63	**38,100**	6.28
MWA-3	11.0	5/31/95	55	290	750	33	**4,100**	**19,000**	6.5	**42,000**	6.2
MWA-3	11.5	5/31/95	300	660	340	25	**2,700**	**42,000**	18	**36,000**	6.1
MWA-3	11.5	5/31/95	51.1	297	357	29.8	**2,960**	**12,600**	11.9	**26,800**	6.01
MWA-3	12.0	5/31/95	99	380	580	55	**4,000**	**8,000**	3.4	**42,000**	6.1
MWA-3	12.5	5/31/95	<0.41	8.06	18	2.84	30	19	0.0345	**6,580**	5.86
MWA-3	13.0	5/31/95	<1	13	64	5.1	34	12	<0.06	**10,000**	5.7
MWA-3	13.5	5/31/95	<0.36	1.41	28	0.466	95	11	0.0437	3,790	5.96
MWA-3	15.0	5/31/95	<0.49	1.26	8	0.521	12	<4.9	0.106	1,640	6.22
MW-4	1.0	12/7/95	<1	3.6	61	<0.2	13	12	<0.06	29	NA
MW-4	8.5	12/7/95	<10	2.2	1,900	56	110	**350**	0.13	**27,000**	NA
MW-4	10.5	12/7/95	<10	10	130	3	140	24	2.4	**54,000**	NA
MW-4	14.0	12/7/95	<1	0.6	860	<0.2	13	4	0.21	1,800	NA
MW-4	15.5	12/7/95	<1	3.7	1,000	<0.2	17	6	0.14	1,100	NA
MW-5	1.0	12/7/95	<1	3	190	<0.2	27	21	<0.06	58	NA
MW-5	10.5	12/7/95	<1	3	320	3.8	28	68	<0.06	830	NA
MW-5	13.5	12/7/95	<1	7.5	64	0.6	22	10	<0.06	2,500	NA
MW-5	17.5	12/7/95	<1	<0.5	250	<0.2	18	16	0.19	53	NA
MW-6	1.0	12/7/95	2	4.2	200	<0.2	36	110	0.09	130	NA
MW-6	7.5	12/7/95	<10	12	780	14	520	**1,300**	2.3	**29,000**	NA
MW-6	9.5	12/7/95	<1	6.5	**25,000**	1.3	410	80	<0.06	2,000	NA
MW-6	13.0	12/7/95	<1	0.6	150	<0.2	19	7	<0.06	34	NA
MW-6	16.0	12/7/95	<1	1.4	76	<0.2	26	7	<0.06	45	NA
MW-7	1.0	12/7/95	<1	4.9	100	<0.2	14	24	<0.06	42	NA
MW-7	5.5	12/7/95	1	0.6	320	<0.2	48	33	0.15	69	NA
MW-7	10.5	12/7/95	<1	12	580	1.1	39	130	3.8	180	NA
MW-7	13.5	12/7/95	<1	9.7	67	0.7	11	4	0.06	17	NA
MW-7	16.5	12/7/95	<1	2.6	150	<0.2	15	6	0.13	28	NA
MW-8	1.0	12/8/95	<1	2.6	200	<0.2	23	220	0.23	98	NA
MW-8	8.5	12/8/95	<1	1.8	140	<0.2	17	48	0.11	56	NA
MW-8	10.0	12/8/95	<1	1.1	86	0.6	14	7	<0.06	53	NA
MW-8	15.5	12/8/95	<1	<0.5	120	<0.2	30	5	<0.06	35	NA

TABLE 1
SOIL ANALYTICAL RESULTS - METALS, pH, SULFATE AND SULFUR
5050, 5051, and 5200 COLISEUM WAY AND 750 50TH STREET
OAKLAND, CALIFORNIA

Sample Identification	Sample Depth	Sample Date	Antimony	Arsenic	Barium	Cadmium	Copper	Lead	Mercury	Zinc	pH
TTLCs			**500**	**500**	**10,000**	**100**	**2,500**	**350**	**20**	**5,000**	
CSB-9	5.0	07/29/98	2	3	160	< 0.4	16	14	< 0.1	47	8.1
CSB-9	10.0	07/29/98	4	10	22	< 0.4	23	31	< 0.1	74	10.6
CSB-9	15.0	07/29/98	< 1	6	63	3	15	30	<0.1	3,200	6.7
CSB-9	20.0	07/29/98	< 1	2	110	< 0.4	12	< 1	< 0.1	140	8.3
CSB-9	25.0	07/29/98	1	< 1	17	< 0.4	16	< 1	< 0.1	30	6.8
CSB-9	30.0	07/29/98	2	<1	76	< 0.4	19	< 1	< 0.1	40	8.3
CSB-9	35.0	07/29/98	2	4	310	< 0.4	22	< 1	< 0.1	40	8.5
CSB-9	40.0	07/29/98	2	< 1	86	< 0.4	23	< 1	< 0.1	33	8.3
CSB-9	45.0	07/29/98	2	3	170	< 0.4	21	< 1	< 0.1	45	7.7
CSB-9	50.0	07/29/98	2	3	110	< 0.4	22	< 1	< 0.1	34	8.0
CSB-9	55.0	07/29/98	2	4	120	< 0.4	23	3	< 0.1	73	8.0
CSB-9	60.0	07/29/98	2	3	38	< 0.4	17	< 1	< 0.1	36	7.3
CW-8	5.0	07/23/98	3	4	1,400	0.7	52	120	0.5	220	-
CW-9	5.0	07/23/98	2	3	130	< 0.4	15	24	0.1	62	-
5200 Coliseum Way											
CW-1	6.5	9/26/96	320	890	240	**200**	**5,400**	**23,000**	<0.1	**37,000**	5.7
CW-1	8.0	9/26/96	19	97	800	**200**	**5,500**	**4,000**	<0.1	**65,000**	5.9
CW-1	9.0	9/26/96	<1	31	**111,000**	2.9	100	54	<0.1	1,200	11
CW-1	11.0	9/26/96	<1	2	540	0.8	24	17	<0.1	78	9.3
CW-2	3.5	9/26/96	51	210	2,000	29	420	**1,700**	<0.1	**8,700**	8.3
CW-2	5.0	9/26/96	48	290	1,800	28	390	**1,900**	<0.1	**11,000**	8.6
CW-2	7.5	9/26/96	<1	4	**190,000**	<0.4	13	13	<0.1	390	10.8
CW-2	9.5	9/26/96	3	170	**33,000**	1	58	110	<0.1	1,100	8.6
CW-3	3.5	9/26/96	79	310	**11,000**	60	560	**3,700**	<0.1	**8,600**	9
CW-3	6.0	9/26/96	<1	2	**72,000**	14	58	150	<0.1	**6,700**	10.9
CW-3	9.0	9/26/96	<1	15	**75,000**	<0.4	32	14	<0.1	59	11.1
CW-3	11.0	9/26/96	<1	77	**41,000**	<0.4	120	42	<0.1	400	10.5
CW-4	5.5	9/27/96	120	210	**14,000**	**230**	**4,300**	**4,200**	<0.1	**23,000**	8.6
CW-4	7.5	9/27/96	<1	<1	2,200	2.2	22	26	<0.1	1,100	9
CW-4	11.5	9/27/96	37	87	1,200	<0.4	79	200	<0.1	56	10.4
CW-4	12.5	9/27/96	12	120	230	4.9	100	**490**	<0.1	**9,900**	10
CW-5	7.5	9/27/96	3	68	2,900	51	310	**810**	<0.1	**8,100**	8.8
CW-5	11.0	9/27/96	10	85	420	4.9	470	**1,400**	<0.1	2,200	8.9
CW-5 SLAG	3.0-4.0	10/1/96	<5	60	52	12	1,200	**10,000**	<0.1	**27,000**	NA
CW-6	6.0	09/21/98	<1	**570**	3.900	**120**	1.100	**4,300**	4.1	**21,000**	9.7
CW-7	6.0	09/21/98	<1	140	**53,000**	59	270	**5,500**	0.3	**84,000**	10
CW-7	16.0	09/21/98	1	5	160	<0.4	20	5	0.1	37	9.5

Notes:
1. All results in milligrams per kilogram (mg/kg).
2. NA - not analyzed
3. <0.1 = not detected above laboratory repoirting limit.
4. All sample depths are feet below ground surface.

TABLE 2
SOIL ANALYTICAL RESULTS FOR HYDROCARBONS
5050, 5051, and 5200 COLISEUM WAY AND 750 50TH STREET
OAKLAND, CALIFORNIA
(units in milligrams per kilogram - mg/Kg)

Sample ID	Sample Depth	Sample Date	TPH	TOG	TPHo	TPHd	TPHg	Benzene	Ethyl-benzene	Toluene	Xylenes
LF-1-2.5	2.5	10/31/91	1,700	2,200	NA	NA	NA	NA	NA	NA	NA
LF-1-5.5	5.5	10/31/91	<10	<10	NA	<1	NA	<0.001	<0.001	<0.001	<0.001
LF-1-7.5	7.5	10/31/91	<10	<10	NA	NA	NA	NA	NA	NA	NA
LF-1-10.5	10.5	10/31/91	<10	<10	NA	<1	NA	<0.001	<0.001	<0.001	<0.003
LF-8-5.0	5.0	10/25/93	370	460	NA	53	<0.2	NA	NA	NA	NA
LF-8-7.5	7.5	10/25/93	1,200	1,400	NA	3,000	<20	NA	NA	NA	NA
LF-8-10.0	10.0	10/25/93	120	170	NA	490	<80	NA	NA	NA	NA
lF-8-12.5	12.5	10/25/93	<10	<10	NA	NA	NA	NA	NA	NA	NA
LF-9-4.5	4.5	10/27/93	150	180	NA	<1	<0.2	NA	NA	NA	NA
LF-10-4.0	4.0	10/26/93	270	350	130	<1	<0.5	NA	NA	NA	NA
LF-13-7.0	7.0	11/30/93	<10	10	<5	<1	<0.2	<0.005	<0.005	<0.005	<0.005
LF-14-1.5	1.5	12/6/93	220	230	110	<1	<0.2	<0.005	<0.005	<0.005	<0.005
LF-14-4.5	4.5	12/6/93	<10	<10	<5	<1	<0.2	<0.005	<0.005	<0.005	<0.005
LF-14-12.5	12.5	12/6/93	<10	<10	NA	NA	NA	NA	NA	NA	NA
LF-15-11.0	11.0	12/2/93	<10	<10	<5	<1	<0.2	<0.005	<0.005	<0.005	<0.005
LF-16-1.5-3	1.5-3.5	12/3/93	20	30	NA	NA	NA	NA	NA	NA	NA
LF-16-5.0	5.0	12/3/93	240	350	310	<1	<0.2	NA	NA	NA	NA
LF-16-8.0	8.0	12/3/93	160	210	260	<1	<0.2	NA	NA	NA	NA
SB-1-7.0	7.0	11/1/93	1,300	1,600	2,500	2,900	<20	0.044	0.045	0.076	0.11
SB-1-9.5	9.5	11/1/93	<10	<10	NA	NA					
SB-2-15.0	15.0	10/22/93	10	40	NA	<1	0.2	NA	NA	NA	NA

TABLE 2
SOIL ANALYTICAL RESULTS FOR HYDROCARBONS
5050, 5051, and 5200 COLISEUM WAY AND 750 50TH STREET
OAKLAND, CALIFORNIA
(units in milligrams per kilogram - mg/Kg)

Sample ID	Sample Depth	Sample Date	TPH	TOG	TPHo	TPHd	TPHg	Benzene	Ethyl-benzene	Toluene	Xylenes
SB-7-11.5	11.5	10/28/93	20	50	NA	NA	NA	NA	NA	NA	NA
SB-17-5.0	5.0	11/30/93	810	1,200	110	130	1.3	<0.005	<0.005	<0.005	<0.005
SB-17-6.5	6.5	11/30/93	800	1,100	1,500	1,800	4.4	0.043	0.035	0.044	0.19
SB-17-9.5	9.5	11/30/93	20	30	17	8	<0.2	<0.005	<0.005	<0.005	<0.005
SB-18-7.0	7.0	11/30/93	<10	20	10	<1	<0.2	<0.005	<0.005	<0.005	<0.005
SB-19-7.5	7.5	11/30/93	50	230	120	<1	<0.2	<0.005	<0.005	<0.005	<0.005
SB-19-10.0	10.0	11/30/93	40	110	340	<1	0.2	<0.005	<0.005	0.005	<0.005
SB-20-9.5	9.5	12/2/93	30	40	38	19	<0.2	<0.005	<0.005	<0.005	<0.005
SB-21-7.5	7.5	12/1/93	<10	<10	<5	<1	<0.2	NA	NA	NA	NA
SB-21-10	10.0	12/3/93	<10	<10	<5	<1	<0.2	<0.005	<0.005	<0.005	<0.005
SB-21-11.5	11.5	12/1/93	<10	<10	NA	NA					
SS-20-2.0	2.0	12/6/93	<10	<10	<5	<1	<0.2	<0.005	<0.005	<0.005	<0.005
5200 Coliseum Way											
CW-2	9.5	9/26/96	510	NA	390	<100	NA	<0.5	<0.5	<0.5	<0.5
CW-4	5.5	9/27/96	780	NA	690	<100	NA	<0.005	<0.005	<0.005	<0.005
CW-4	7.5	9/27/96	22	NA	17	<5	NA	<0.005	<0.005	<0.005	<0.005
CW-4	11.5	9/27/96	37	NA	5	<40	NA	0.15	0.12	0.014	0.159
CW-4	12.5	9/27/96	10,000	NA	3,700	<7,000	NA	<3	4	<3	9
CW-5	7.5	9/27/96	130	NA	40	<90	NA	4	8	12	30
CW-5	11.0	9/27/96	22,000	NA	8,700	<10,000	NA	<3	3	<3	7
CSB-3	5.0	07/23/98	---	---	18	< 4	<0.3	< 0.005	< 0.005	< 0.005	< 0.005

TABLE 2
SOIL ANALYTICAL RESULTS FOR HYDROCARBONS
5050, 5051, and 5200 COLISEUM WAY AND 750 50TH STREET
OAKLAND, CALIFORNIA
(units in milligrams per kilogram - mg/Kg)

Sample ID	Sample Depth	Sample Date	TPH	TOG	TPHo	TPHd	TPHg	Benzene	Ethyl-benzene	Toluene	Xylenes
CSB-4	4.0	07/23/98	---	---	46	<5	0.4	< 0.005	< 0.005	< 0.005	0.007
CSB-5	4.0	07/23/98	---	---	36	< 3	<0.3	< 0.005	< 0.005	< 0.005	< 0.005
CSB-6	4.0	07/23/98	---	---	12	<2	<0.3	< 0.005	< 0.005	< 0.005	< 0.005
CW-8	5.0	07/23/98	---	---	270	< 30	<0.3	< 0.005	< 0.005	< 0.005	< 0.005
CW-9	5.0	07/23/98	---	---	490	< 30	0.6	< 0.005	< 0.005	< 0.005	< 0.005
CW-13	5.0	07/23/98	---	---	64	<5	<0.3	<0.0005	<0.0005	<0.0005	<0.0005

NA - not analyzed
TPHd - Total petroleum hydrocarbons as diesel (EPA Method 3550)
TPHo - Total petroluem hydrocarbons as oil (EPA Method 3550)
TOG - Total oil and grease (Standard Method 5520ef)
Hydrocarbons - Total hydrocarbons (Standard Method 5520f)

TABLE 3
SOIL ANALYTICAL RESULTS FOR VOCs
5050, 5051, and 5200 COLISEUM WAY AND 750 50TH STREET
OAKLAND, CALIFORNIA

VOCs													
Sample ID	Sample Depth	Sample Date	Acetone	Benzene	Ethyl-benzene	Methylene Chloride	Naphthalene	Styrene	Toluene	1,2,4- Tri-methylbenzene	1,3,5- Tri-methylbenzene	o-Xylene	p,m-Xylene
5200 Collseum Way													
CW-2	9.5	9/26/96	<2	<0.5	<0.5	0.7	9.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CW-4	5.5	9/27/96	0.07	<0.005	<0.005	0.007	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
CW-4	7.5	9/27/96	<0.02	<0.005	<0.005	<0.005	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
CW-4	11.5	9/27/96	<0.02	0.15	0.12	0.006	0.009	<0.005	0.014	<0.005	<0.005	0.049	0.11
CW-4	12.5	9/27/96	<10	<3	4	<3	240	<3	<3	6	3	3	6
CW-5	7.5	9/27/96	<10	4	8	<3	2,100	6	12	16	7	11	19
CW-5	11.0	9/27/96	<10	<3	3	<3	260	<3	<3	4	<3	3	4

TABLE 4
SOIL ANALYTICAL RESULTS FOR SVOCs
5050, 5051, and 5200 COLISEUM WAY AND 750 50TH STREET
OAKLAND, CALIFORNIA

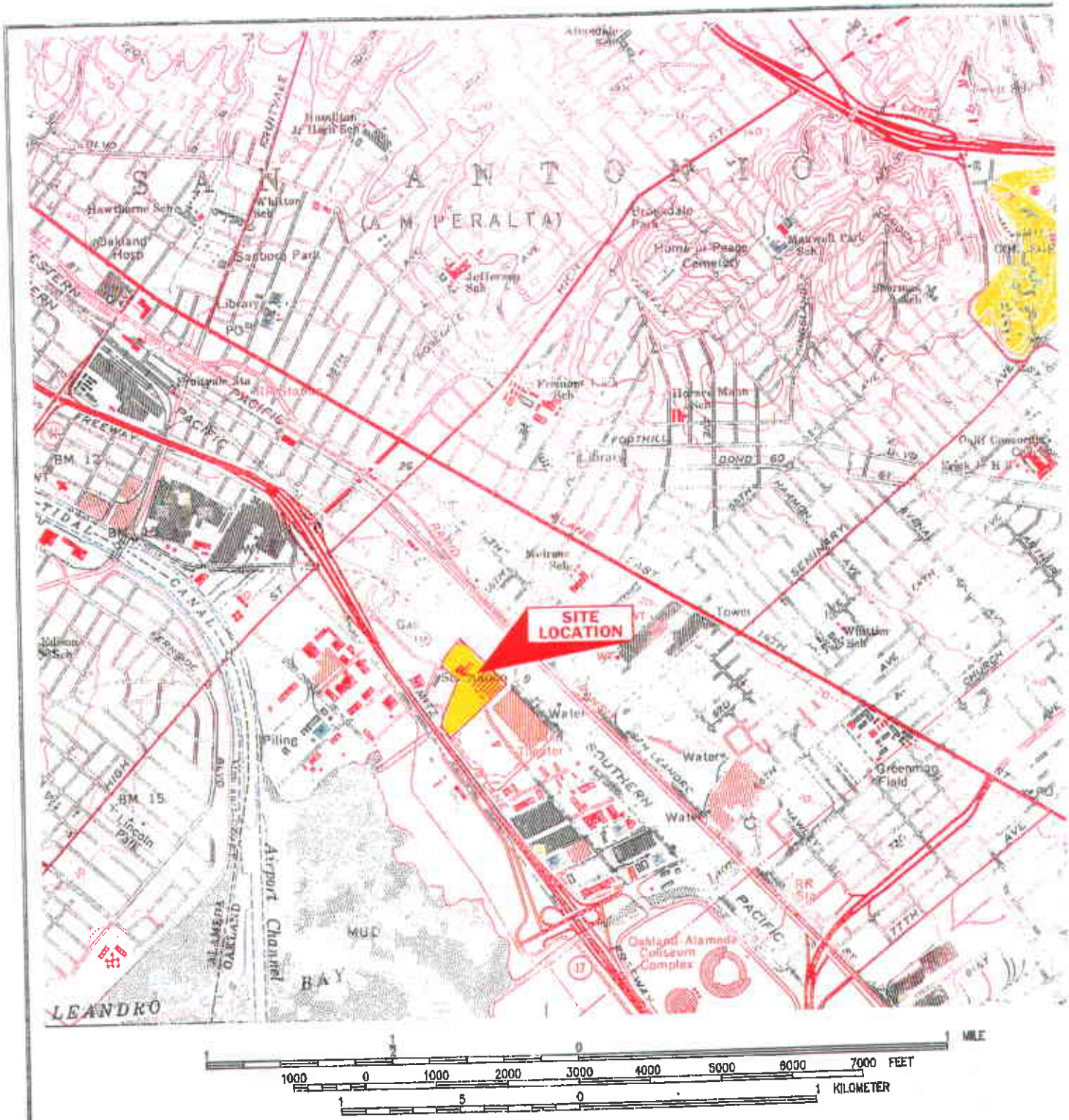
Sample ID	Sample Depth	Sample Date	2-Methyl-napthth-alene	Acena-phthene	Acena-phthelene	Anthracene	Benzo (a)-anthracene	Benzo (a)-pyrene	Benzo (b)-fluor-anthene	Benzo (k)-fluor-anthene
5050 Coliseum Way										
LF-8-5.0	5.0	10/25/93	<1.7	<1.7		<1.7	<1.7	<1.7	<1.7	<1.7
LF-8-7.5	7.5	10/25/93	11	110		71	19	10	16	<8.3
LF-9-4.5	4.5	10/27/93	0.34	0.36		0.35	0.79	1.10	1.80	0.66
LF-14-12.5	12.5	12/6/93	<0.33	<0.33		<0.33	<0.33	<0.33	<0.33	<0.33
SB-1-7.0	7.0	11/1/93	3.3	<1.7		<1.7	<1.7	<1.7	<1.7	<1.7
SB-2-15.0	15.0	10/22/93	<0.33	<0.33		<0.33	<0.33	<0.33	<0.33	<0.33
SB-15-6	6.0	10/29/93	<0.33	<0.33		<0.33	<0.33	<0.33	<0.33	<0.33
SB-17-6.5	6.5	11/30/93	0.37	<0.33		<0.33	<0.33	<0.33	<0.33	<0.33
SB-18-7.0	7.0	11/30/93	<0.33	<0.33		<0.33	<0.33	<0.33	<0.33	<0.33
SB-19-7.5	7.5	11/30/93	<0.33	<0.33		<0.33	<0.33	<0.33	<0.33	<0.33
SB-19-10.0	10.0	11/30/93	<0.83	<0.83		<0.83	<0.83	<0.83	<0.83	<0.83
SB-20-9.5	9.5	12/2/93	<0.33	<0.33		<0.33	<0.33	0.73	0.74	0.36
5200 Coliseum Way										
CW-2	9.5	9/26/96	20	20	<10	40	80	70	50	40
CW-4	5.5	9/27/96	0.8	0.60	<0.2	1.6	2.9	2.9	2.5	1.5
CW-4	7.5	9/27/96	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
CW-4	11.5	9/27/96	470	200	58	2,400	150	110	110	130
CW-4	12.5	9/27/96	290	210	6	70	40	15	19	7
CW-5	7.5	9/27/96	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
CW-5	11.0	9/27/96	250	310	6	190	60	26	28	18

TABLE 4
SOIL ANALYTICAL RESULTS FOR SVOCs
5050, 5051, and 5200 COLISEUM WAY AND 750 50TH STREET
OAKLAND, CALIFORNIA

Sample ID	Sample Depth	Sample Date	Benzo (ghi)-perylene	Bis (2-ethylhexyl) phthalate	Chrysene	Dibenzo (a,h) anthracene	Dibenzo-furan	Fluor-anthene	Fluorene	Ideno (1,2,3-cd) pyrene
5050 Coliseum Way										
LF-8-5.0	5.0	10/25/93		<1.7	<1.7		<1.7	<1.7	<1.7	<1.7
LF-8-7.5	7.5	10/25/93		<8.3	21		67	110	88	<8.3
LF-9-4.5	4.5	10/27/93		2.00	1.20		0.51	2.40	0.63	0.33
LF-14-12.5	12.5	12/6/93		<0.33	<0.33		<0.33	<0.33	<0.33	<0.33
SB-1-7.0	7.0	11/1/93		<1.7	<1.7		<1.7	<1.7	<1.7	<1.7
SB-2-15.0	15.0	10/22/93		<0.33	<0.33		<0.33	<0.33	<0.33	<0.33
SB-15-6	6.0	10/29/93		<1.1	<0.33		<0.33	<0.33	<0.33	<0.33
SB-17-6.5	6.5	11/30/93		<0.33	<0.33		<0.33	<0.33	<0.33	<0.33
SB-18-7.0	7.0	11/30/93		<0.66	<0.33		<0.33	<0.33	<0.33	<0.33
SB-19-7.5	7.5	11/30/93		<0.33	<0.33		<0.33	<0.33	<0.33	<0.33
SB-19-10.0	10.0	11/30/93		<0.83	<0.83		<0.83	<0.83	<0.83	<0.83
SB-20-9.5	9.5	12/2/93		<0.33	0.46		<0.33	1.30	<0.33	<0.33
5200 Coliseum Way										
CW-2	9.5	9/26/96	20		80	<10	<10	160	20	20
CW-4	5.5	9/27/96	0.8		3.4	0.3	0.4	5.0	0.4	1.3
CW-4	7.5	9/27/96	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
CW-4	11.5	9/27/96	39		240	15	160	540	350	47
CW-4	12.5	9/27/96	2		50	1	110	170	140	4
CW-5	7.5	9/27/96	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
CW-5	11.0	9/27/96	6		90	11	140	250	230	8

TABLE 4
SOIL ANALYTICAL RESULTS FOR SVOCs
5050, 5051, and 5200 COLISEUM WAY AND 750 50TH STREET
OAKLAND, CALIFORNIA

Sample ID	Sample Depth	Sample Date	Naphth-alene	N-Nitro-diphenyl-amine	Phena-threne	Phenol	Pyrene	2,4-Dimethyl-phenol	2-Methyl-phenol	4-Methyl-phenol
5050 Coliseum Way										
LF-8-5.0	5.0	10/25/93	<1.7		<1.7	<1.7	<1.7			
LF-8-7.5	7.5	10/25/93	27		160	<8.3	69			
LF-9-4.5	4.5	10/27/93	1.10		3.00	<0.33	1.90			
LF-14-12.5	12.5	12/6/93	<0.33		<0.33	<0.33	<0.33			
SB-1-7.0	7.0	11/1/93	<1.7		<1.7	<1.7	<1.7			
SB-2-15.0	15.0	10/22/93	<0.33		<0.33	<0.33	<0.33			
SB-15-6	6.0	10/29/93	<0.33		<0.33	<0.33	<0.33			
SB-17-6.5	6.5	11/30/93	<0.33		<0.33	0.95	<0.33			
SB-18-7.0	7.0	11/30/93	<0.33		<0.33	<0.33	<0.33			
SB-19-7.5	7.5	11/30/93	<0.33		<0.33	<0.33	<0.33			
SB-19-10.0	10.0	11/30/93	<0.83		<0.83	<0.83	<0.83			
SB-20-9.5	9.5	12/2/93	<0.33		0.65	<0.33	1.40			
5200 Coliseum Way										
CW-2	9.5	9/26/96	30	20	100	<10	270	<10	<10	<10
CW-4	5.5	9/27/96	1.1	<0.2	5.0	<0.2	8.0	<0.2	<0.2	<0.2
CW-4	7.5	9/27/96	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
CW-4	11.5	9/27/96	1,200	<4	1,300	<4	600	6	7	11
CW-4	12.5	9/27/96	320	<1	460	<1	160	<1	<1	<1
CW-5	7.5	9/27/96	<0.2	<0.2	<0.2	<0.2	<0.2	13	3	0.4
CW-5	11.0	9/27/96	470	<1	690	5	280	<1	<1	<1



Portion of 7.5-Minute Oakland East, California Quadrangle Map
United States Department of the Interior
Geological Survey
1959
Photorevised 1980

N

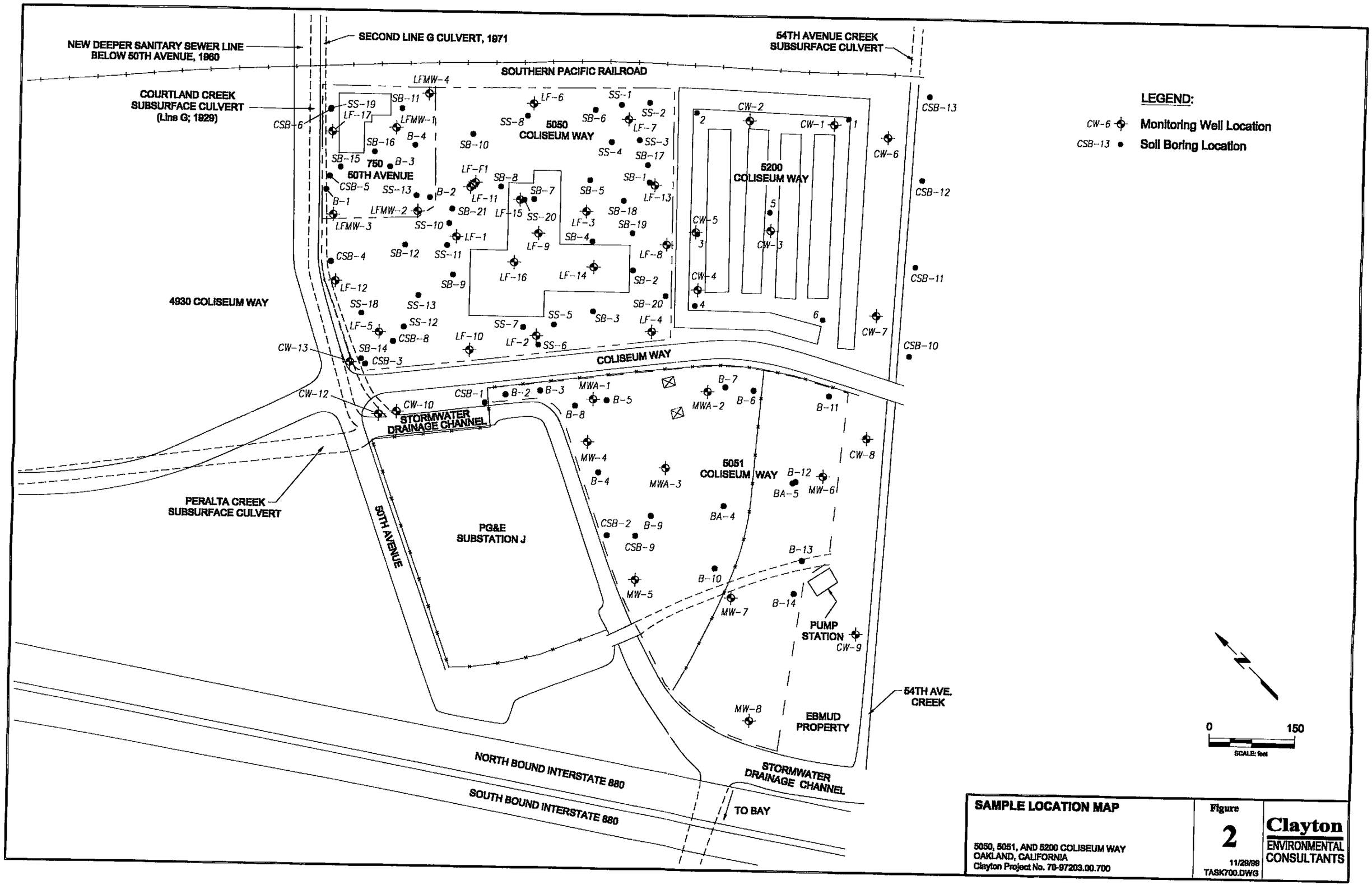
SITE LOCATION MAP
Coliseum Way Properties
Oakland, California

Client: Lempres & Wulfsberg
Clayton Project No. 70-97203.00.300

Figure 1

97203-0-16

Clayton
ENVIRONMENTAL CONSULTANTS



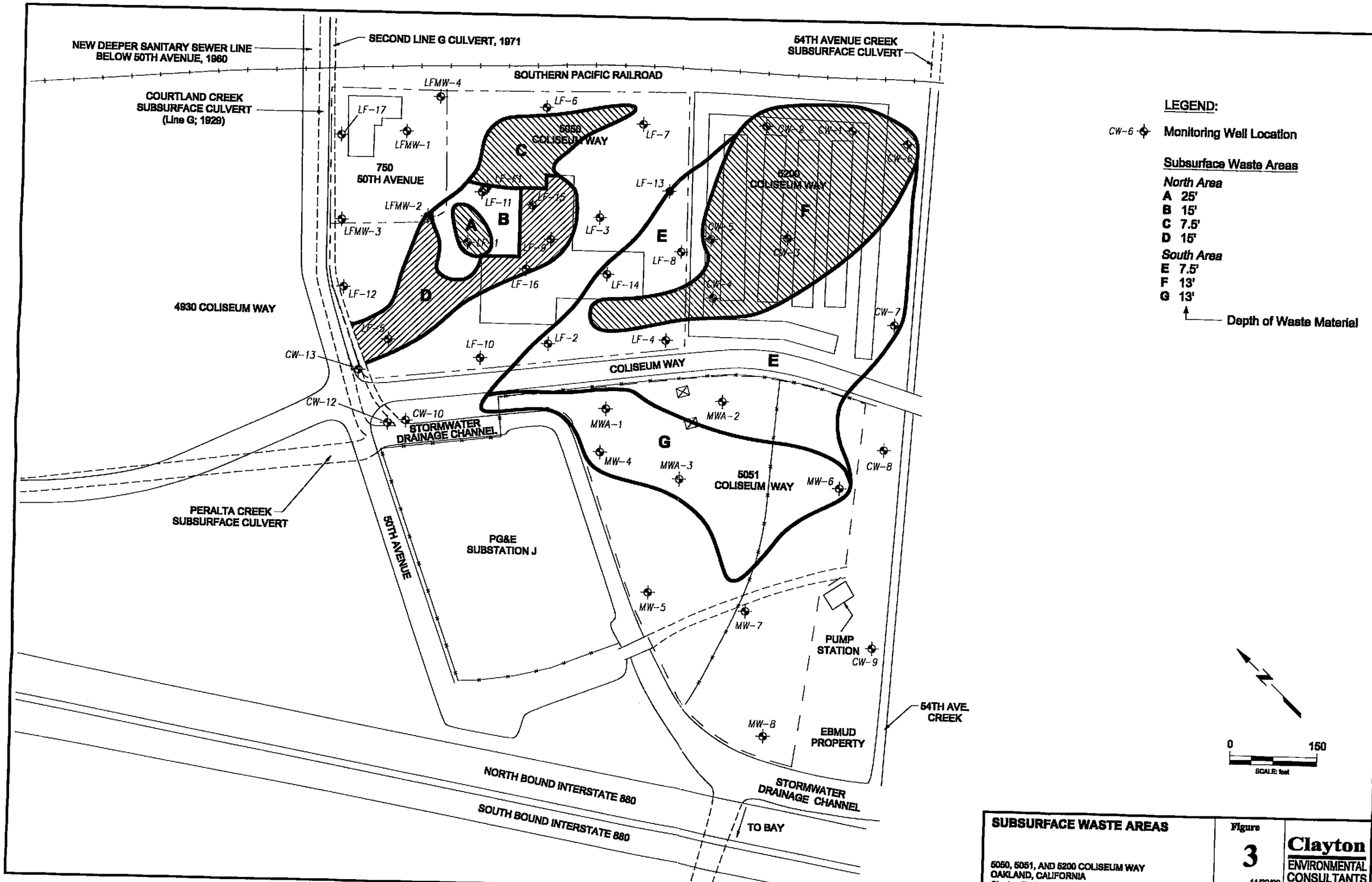
SAMPLE LOCATION MAP

5050, 5051, AND 5200 COLISEUM WAY
OAKLAND, CALIFORNIA
Clayton Project No. 70-97203.00.700

Figure 2

11/28/88
TASK700.DWG

Clayton ENVIRONMENTAL CONSULTANTS



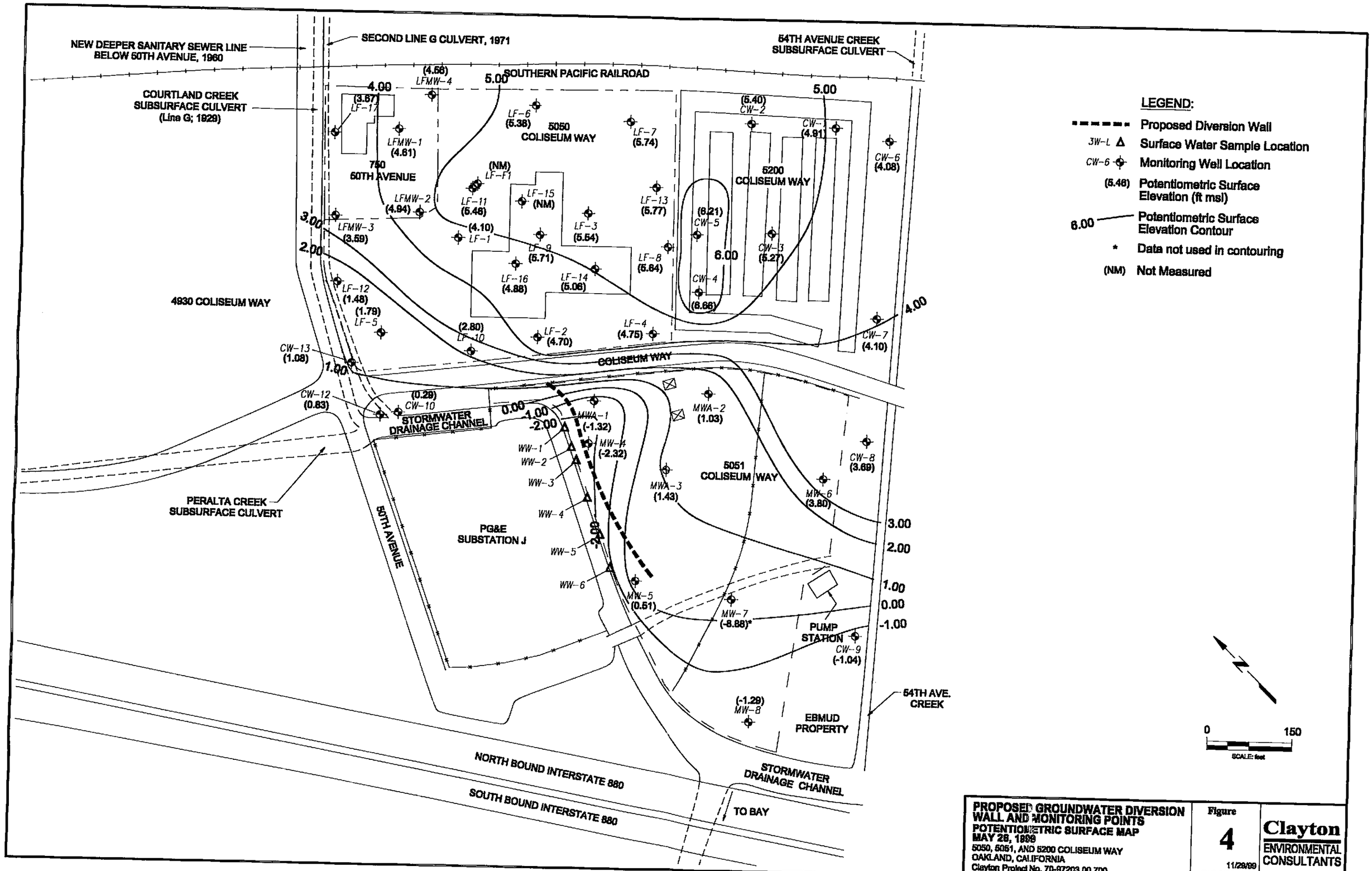
SUBSURFACE WASTE AREAS

5050, 5051, AND 5200 COLISEUM WAY
OAKLAND, CALIFORNIA
Clayton Project No. 70-97203.00.700

Figure 3

11/29/99
TASK700.DWG

Clayton ENVIRONMENTAL CONSULTANTS



PROPOSED GROUNDWATER DIVERSION WALL AND MONITORING POINTS
POTENTIOMETRIC SURFACE MAP
MAY 26, 1999
5050, 5051, AND 5200 COLISEUM WAY
OAKLAND, CALIFORNIA
Clayton Project No. 70-97203.00.700

Figure 4

11/29/99
TASK700.DWG

Clayton ENVIRONMENTAL CONSULTANTS

APPENDIX A

REMEDIAL OPTIONS AND COST ESTIMATES

TABLE A
Remedial Cost Estimate Summary

SITE - OPTION	DESCRIPTION	REFERENCE	COSTS	TOTAL
5050				
A	**Implementation of Recommendations for HRA, RRMP, SMP, FS, and Deed Notification**			N/A
B	**Excavation, Off-site Disposal from Areas A, B, C, D, E, & F**			$25,167,726
	A. Permitting and regulatory negotiation B. Excavation in Areas A, B, C, D, E, & F, soil treatment and disposal at a Class I landfill C. Backfilling, compaction, regrading and repaving. D. Engineering Costs	Table B-3A	$21,463,806 $3,282,747	
5051				
A	**Implementation of Recommendations for HRA, RRMP, SMP, FS, and Deed Notification**			N/A
	Installation of Groundwater Diversion Wall and Quarterly Monitoring of weep holes and up to five wells for One Year			$250,000
	A. Project initiation for 350 lineal foot sheetpile wall 15-20 feet deep and up to 4 additional wells, contracts, construction permits, and scheduling B. Permitting and regulatory negotiation C. One-year quarterly monitoring and reporting			
B	**Alternative 1: Groundwater Extraction and Treatment with 30-year Monitoring**	Table B-2b		$6,060,122
	A. Preparation of a feasibility study (including risk assessment and remedial action plan B. Permitting and regulatory negotiation C. Installation of groundwater extraction and treatment system D. 30-year operations and maintenance, monitoring and reporting, assuming hazardous sludge disposal.			

TABLE A
Remedial Cost Estimate Summary

SITE - OPTION	DESCRIPTION	REFERENCE	COSTS	TOTAL
5051				
B	**Alternative 2: In-Situ pH Neutralization of Soil**	Table B-4		$10,117,736
	A. Engineering design, construction management, and health and safety monitoring. B. Construction to include mobilization, mixing of Portland cement and lime in soil.			
	Alternative 3: Excavation, Off-site Disposal from Areas E, & G			$36,361,083
	A. Permitting and regulatory negotiation B. Excavation in Areas E, & G, soil treatment and disposal at a Class I landfill C. Backfilling, compaction, regrading and repaving. D. Engineering Costs	Table B-3c	$31,196,291 $4,742,620	
5200				
A	**Implementation of Recommendations for HRA, RRMP, SMP, FS, and Deed Notification**			N/A
	Continued Groundwater Monitoring of Four Perimeter Wells (CW-1, CW-2, CW-6 & CW-7) for two years			$25,000
	A. Includes quarterly monitoring and sampling with quarterly reporting			
B	**Excavation, Off-site Disposal from Areas E, & F**			$45,945,295
	A. Permitting and regulatory negotiation B. Excavation in Areas A, B, C, D, E, & F, soil treatment and disposal at a Class I landfill C. Backfilling, compaction, regrading and repaving. D. Engineering Costs	Table B-3b	$39,531,258 $5,992,295	

TABLE B-2b
Groundwater Extraction and Treatment System
5051 Colisieum Way

	Description	Quantity	Unit	Unit Cost	Total Cost (1994 $'s)	Total Cost (1999 $'s)
II.	Engineering Costs					
A.	Health and safety plan	1	lump sum	$2,000	$2,000	$2,553
B.	Lab treatability study	1	lump sum	$5,000	$5,000	$6,381
C.	Hydrogeologic modelling	1	lump sum	$20,000	$20,000	$25,526
D.	Risk assessment	1	lump sum	$20,000	$20,000	$25,526
E.	Feasibility study	1	lump sum	$30,000	$30,000	$38,288
F.	Remedial action plan	1	lump sum	$25,000	$25,000	$31,907
G.	Engineering design	1	lump sum	$30,000	$30,000	$38,288
H.	Construction Management	1	lump sum	$25,000	$25,000	$31,907
I.	Permitting, regulatory interface	1	lump sum	$60,000	$60,000	$76,577
J.	Project management	1	lump sum	$20,000	$20,000	$25,526
K.	System start-up	1	lump sum	$20,000	$20,000	$25,526
L	Contingency	15%		$257,000	$38,550	$49,201
			Subtotal:		$295,550	$377,205
III.	Annual O&M Costs					
A.	Est. utility costs ($1.00/1,000 gallon)	1600000	gallons	$0.0010	$1,600	$2,042
B.	Scale control chemical test (est)	6	drums	$1,500	$9,000	$11,487
C.	Sludge disposal	134	tons	$180	$24,120	$30,784
D.	Quarterly reporting	4	each	$3,000	$12,000	$15,315
E.	GW monitoring	4	quarter	$6,500	$26,000	$33,183
F.	O&M site visits	52	weeks	$864	$44,928	$57,341
G.	Monthly major maintenance visit	12	month	$575	$6,900	$8,806
H.	Parts and materials	1	lump sum	$3,500	$3,500	$4,467
I.	Laboratory analysis	1	lump sum	$11,000	$11,000	$14,039
J.	5-year evaluation report ($20,000/5 yrs.	1	lump sum	$4,000	$4,000	$5,105
K.	NPDES/BAAQMD permit renewal fees	1	lump sum	$2,000	$2,000	$2,553
L.	Project Management	1	lump sum	$10,000	$10,000	$12,763
M.	Contingency	15%		$155,048	$23,257	$29,683
			Annual Cost:		$178,305	$227,568
	30-Year O&M Costs with annual 4% inflation adjustments:				$10,000,236	$12,763,117
	30-Year Present Value Cost w/ 6% discount rate:				$3,993,404	$5,096,709
			ESTIMATED 30-YEAR COST:		$4,748,264	$6,060,122

Notes

This cost estimate relied on previous work by Levine*Fricke, modified to reflect current site knowledge.

1. For disposal purposes, treatment system sludge was considered hazardous.
2. An annual inflation factor of 5% was added to Levine Fricke unit costs to reflect present value.

TABLE B-2b
Groundwater Extraction and Treatment System
5051 Colisieum Way

	Description	Quantity	Unit	Unit Cost	Total Cost (1994 $'s)	Total Cost (1999 $'s)
I.	Construction Costs					
A.	Extraction System					
1	Extraction well installation	9	each	$5,000	$45,000	$57,433
2	Well pump and well head equipment	9	each	$2,500	$22,500	$28,716
3	Extraction trenching w/ pipe	1000	linear foot	$50	$50,000	$63,814
4	Air compressor	1	lump sum	$7,500	$7,500	$9,572
B.	Treatment System					
1	Concrete pad	1	lump sum	$8,000	$8,000	$10,210
2	Fencing	1	lump sum	$15,000	$15,000	$19,144
3	Awning	1	lump sum	$10,000	$10,000	$12,763
4	Electrochemical Treatment unit	1	lump sum	$110,000	$110,000	$140,391
5	Oil/water separator	1	lump sum	$10,000	$10,000	$12,763
6	Tax and delivery on major equipment	12%		$120,000	$14,400	$18,378
7	System piping	1	lump sum	$7,000	$7,000	$8,934
8	Equalization tank, secondary & seismic	1	lump sum	$3,500	$3,500	$4,467
9	Pressure gauges, valves/ports, flow mete	1	lump sum	$5,000	$5,000	$6,381
10	Bag filter	1	each	$800	$800	$1,021
11	Flow metering system-electronic	1	each	$3,000	$3,000	$3,829
12	pH metering system-electronic	1	each	$3,000	$3,000	$3,829
13	Transfer pump	2	each	$1,500	$3,000	$3,829
14	Discharge piping	100	linear foot	$50	$5,000	$6,381
15	Pipe supports	1	lump sum	$1,700	$1,700	$2,170
16	Electrical service	1	lump sum	$10,000	$10,000	$12,763
17	Field electrical wiring	1	lump sum	$5,000	$5,000	$6,381
18	Electrical control panel design/fab	1	lump sum	$15,000	$15,000	$19,144
C.	Contractor Installation	1	lump sum	$45,000	$45,000	$57,433
D.	Contingency	15%		$399,400	$59,910	$76,462
			Subtotal:		$459,310	$586,209

TABLE B-3A
Excavation, Off-Site Hauling and Disposal
5050 Coliseum Way

	Description	Quantity	Unit	Unit Cost	Total Cost (1994 $'s)	Total Cost (1999 $'s)
I.	Construction Costs					
A.	Mobilization and demobilization	1	lump sum	$20,000	$20,000	$25,526
B.	Asphalt removal and hauling	101500	sq. ft	$0.65	$65,975	$84,203
C.	Asphalt disposal	4,060	ton	$4.10	$16,646	$21,245
D.	Removal of electrical utilities	1	lump sum	$15,000	$15,000	$19,144
E.	Removal of storm drain, sewer	1	lump sum	$35,000	$35,000	$44,670
F.	Temporary power	1	lump sum	$25,000	$25,000	$31,907
G.	Temporary sanitary tank	1	lump sum	$5,500	$5,500	$7,020
H.	Shoring					
	Piers (@20' intervals, 20' deep)	38	each	$5,000	$190,000	$242,493
	Soldier piles	11150	sq. ft	$25	$278,750	$355,763
I.	Dewatering	70	day	$500	$35,000	$44,670
J.	Disposal of water	472320	gallon	$1	$472,320	$602,813
K.	Excavation to 7.5'	15775	cu. yd	$8	$126,200	$161,067
L.	Excavation:to 15 feet	23500	cu. yd	$10	$157,750	$201,333
M.	Excavation: to 25 feet	4600	cu. yd	$12	$55,200	$70,451
N.	Soil stabilization (UTS)	32900	ton	$45	$1,480,500	$1,889,535
O.	Soil transport and disposal	65800	ton	$180	$11,844,000	$15,116,279
P.	Import fill	65800	ton	$12	$789,600	$1,007,752
Q.	Limestone treat	1000	ton	$30	$30,000	$38,288
R.	Backfill and compaction	43875	cu. yd	$6.50	$285,188	$363,980
S.	Drain rock	3500	cu. yd	$33	$115,500	$147,411
T.	Filter fabric	50000	sq. ft	$0.30	$15,000	$19,144
U.	Regrade site	101500	sq. ft	$1.25	$126,875	$161,928
V.	Aggregate base	3760	cu. yd	$25	$94,000	$119,970
W.	Place asphalt	101500	sq. ft	$3.10	$314,650	$401,582
X.	Seal Coat	11300	sq. yd	$1.00	$11,300	$14,422
Y.	Reinstall sanitary sewer	1	lump sum	$31,500	$31,500	$40,203
Z.	Reinstall electrical	1	lump sum	$36,000	$36,000	$45,946
AA.	Reinstall storm drain	1	lump sum	$75,000	$75,000	$95,721
BB.	Decon	70	day	$1,000	$70,000	$89,340
					$16,817,454	$21,463,806

TABLE B-3A
Excavation, Off-Site Hauling and Disposal
5050 Coliseum Way

	Description	Quantity	Unit	Unit Cost	Total Cost (1994 $'s)	Total Cost (1999 $'s)
II.	Engineering Costs					
A.	Engineering design	1	lump sum	$60,000	$60,000	$76,577
B.	Construction Management	1	lump sum	$120,000	$120,000	$153,154
C.	Health and safety/air monitoring	1	lump sum	$90,000	$90,000	$114,865
D.	QA/QC sampling	1	lump sum	$60,000	$60,000	$76,577
					$330,000	$421,173
	Contingency	15%		$17,147,454	$2,572,118	$3,282,747
	ESTIMATED TOTAL COST:				$19,719,572	$25,167,726

This cost estimate relied on previous work by Levine*Fricke modified to reflect current site knowledge.
1. An annual inflation factor of 5% was added to Levine Fricke unit costs to reflect present value.
2. Excavation costs do not include costs for demolition or restoration of existing improvements.
3. For disposal purposes, 50% of the excavated soil is assumed to be RCRA hazardous waste requiring treatment to UTS.

TABLE B-3b
Excavation, Off-Site Hauling and Disposal
5200 Coliseum Way

	Description	Quantity	Unit	Unit Cost	Total Cost (1994 $'s)	Total Cost (1999 $'s)
I.	Construction Costs					
A.	Mobilization and demobilization	1	lump sum	$20,000	$20,000	$25,526
B.	Asphalt removal and hauling	130000	sq. ft	$0.65	$84,500	$107,846
C.	Asphalt disposal	5200	ton	$4.10	$21,320	$27,210
D.	Removal of electrical utilities	1	lump sum	$15,000	$15,000	$19,144
E.	Removal of storm drain, sewer	1	lump sum	$35,000	$35,000	$44,670
F.	Temporary power	1	lump sum	$25,000	$25,000	$31,907
G.	Temporary sanitary tank	1	lump sum	$5,500	$5,500	$7,020
H.	Shoring (1500 linear feet)					
	Sheet piles	30000	sq. ft	$35	$1,050,000	$1,340,096
I.	Dewatering	60	day	$500	$30,000	$38,288
J.	Disposal of water	432000	gallon	$1	$432,000	$551,354
K.	Excavation:to 15 feet	77750	cu. yd	$10	$777,500	$992,309
L	Soil stabilization (UTS)	58300	ton	$45	$2,623,500	$3,348,325
M	Soil transport and disposal	116625	ton	$180	$20,992,500	$26,792,341
N	Import fill	252450	ton	$12	$3,029,400	$3,866,367
O	Limestone treat	1500	ton	$30	$45,000	$57,433
P	Backfill and compaction	77750	cu. yd	$6.50	$505,375	$645,001
Q	Drain rock	10000	cu. yd	$33	$330,000	$421,173
R	Filter fabric	130000	sq. ft	$0.30	$39,000	$49,775
S	Regrade site	130000	sq. ft	$1.25	$162,500	$207,396
T	Aggregate base	5185	cu. yd	$25	$129,625	$165,438
U	Place asphalt	130000	sq. ft	$3.10	$403,000	$514,341
V	Seal Coat	15555	sq. yd	$1.00	$15,555	$19,853
W	Reinstall sanitary sewer	1	lump sum	$31,500	$31,500	$40,203
X	Reinstall electrical	1	lump sum	$36,000	$36,000	$45,946
Y	Reinstall storm drain	1	lump sum	$75,000	$75,000	$95,721
Z	Decon	60	day	$1,000	$60,000	$76,577
					$30,973,775	$39,531,258
II.	Engineering Costs					
A.	Engineering design	1	lump sum	$60,000	$60,000	$76,577
B.	Construction Management	1	lump sum	$120,000	$120,000	$153,154
C.	Health and safety/air monitoring	1	lump sum	$90,000	$90,000	$114,865
D.	QA/QC sampling	1	lump sum	$60,000	$60,000	$76,577
					$330,000	$421,173
	Contingency	15%		$31,303,775	$4,695,566	$5,992,865
	ESTIMATED TOTAL COST:				$35,999,341	$45,945,295

This cost estimate relied on previous work by Levine*Fricke, modified to reflect current site knowledge.

1. An annual inflation factor of 5% was added to Levine Fricke unit costs to reflect present value.
2. Excavation costs do not include costs for demolition or restoration of existing improvements at 5200 Coliseum Way.
3. For disposal purposes, 50% of the excavated soil was expected to be RCRA hazardous requiring treatment to UTS.

TABLE B-3c
Excavation, Off-Site Hauling and Disposal
5051 Coliseum Way

	Description	Quantity	Unit	Unit Cost	Total Cost (1994 $'s)	Total Cost (1999 $'s)
I.	Construction Costs					
A.	Mobilization and demobilization	1	lump sum	$20,000	$20,000	$25,526
B.	Asphalt removal and hauling	30000	sq. ft	$0.65	$19,500	$24,887
C.	Asphalt disposal	1200	ton	$4.10	$4,920	$6,279
D.	Removal of electrical utilities	1	lump sum	$15,000	$15,000	$19,144
E.	Removal of storm drain, sewer	1	lump sum	$35,000	$35,000	$44,670
F.	Temporary power	1	lump sum	$25,000	$25,000	$31,907
G.	Temporary sanitary tank	1	lump sum	$5,500	$5,500	$7,020
H.	Shoring					
	Sheet piles	8000	sq. ft	$35	$280,000	$357,359
I.	Dewatering	60	day	$500	$30,000	$38,288
J.	Disposal of water	432000	gallon	$1	$432,000	$551,354
K.	Excavation to 7.5'	4200	cu. yd	$8	$33,600	$42,883
L.	Excavation:to 15 feet	65000	cu. yd	$10	$42,000	$53,604
M	Soil stabilization (UTS)	51900	ton	$45	$2,335,500	$2,980,756
N	Soil transport and disposal	103800	ton	$180	$18,684,000	$23,846,045
O	Import fill	103800	ton	$12	$1,245,600	$1,589,736
P.	Limestone treat	1500	ton	$30	$45,000	$57,433
Q.	Backfill and compaction	69200	cu. yd	$6.50	$449,800	$574,071
R.	Drain rock	9800	cu. yd	$33	$323,400	$412,749
S.	Filter fabric	103800	sq. ft	$0.30	$31,140	$39,743
T.	Regrade site	103800	sq. ft	$1.25	$129,750	$165,598
U.	Aggregate base	1000	cu. yd	$25	$25,000	$31,907
V.	Place asphalt	30000	sq. ft	$3.10	$93,000	$118,694
W.	Seal Coat	3400	sq. yd	$1.00	$3,400	$4,339
Z.	Reinstall storm drain	1	lump sum	$75,000	$75,000	$95,721
AA.	Decon	60	day	$1,000	$60,000	$76,577
					$24,443,110	$31,196,291
II.	Engineering Costs					
A.	Engineering design	1	lump sum	$60,000	$60,000	$76,577
B.	Construction Management	1	lump sum	$120,000	$120,000	$153,154
C.	Health and safety/air monitoring	1	lump sum	$90,000	$90,000	$114,865
D.	QA/QC sampling	1	lump sum	$60,000	$60,000	$76,577
					$330,000	$421,173
	Contingency	15%		$24,773,110	$3,715,967	$4,742,620
	ESTIMATED TOTAL COST:				$28,489,077	$36,360,083

This cost estimate relied on Levine Fricke's previous work with the following modifications to reflect current site
1. An annual inflation factor of 5% was added to Levine Fricke unit costs to reflect present value.
2. For disposal purposes, 50% of the excavated soil was assumed to be RCRA hazardous waste requiring treatment to UTS.

TABLE B-4
In Situ pH Neutralizaton
5051 Coliseum Way

	Description	Quantity	Unit	Unit Cost	Total Cost (1994 $'s)	Total Cost (1999 $'s)
I.	Construction Costs					
A.	Mobilization and demobilization	1	lump sum	$180,000	$180,000	$229,731
B.	Asphalt removal and hauling	131875	sq. ft	$0.65	$85,719	$109,401
C.	Asphalt disposal	5,275	ton	$4.10	$21,628	$27,603
D.	Removal of electrical utilities	1	lump sum	$15,000	$15,000	$19,144
E.	Removal of storm drain, sewer	1	lump sum	$35,000	$35,000	$44,670
F.	Temporary power	1	lump sum	$25,000	$25,000	$31,907
G.	Temporary sanitary tank	1	lump sum	$5,500	$5,500	$7,020
H	In situ soil treatment	69000	cu. yd	$65	$4,485,000	$5,724,123
I.	Limestone reagent	69000	gallon	$6	$382,260	$487,871
J.	Type V Portland Cement (20%)	13800	cu. yd	$15	$207,000	$264,190
K.	Backfill and compaction	69000	cu. yd	$6.50	$448,500	$572,412
L.	Regrade site	131875	sq. ft	$1.25	$164,844	$210,387
M.	Aggregate base	4885	cu. yd	$25	$122,125	$155,866
N.	Place asphalt	131875	sq. ft	$3.10	$408,813	$521,760
O.	Seal Coat	14600	sq. yd	$1.00	$14,600	$18,634
P.	Reinstall utilities	1	lump sum	$142,500	$142,500	$181,870
			Subtotal:		$6,563,488	$8,376,858
II.	Engineering Costs					
A.	Engineering design	1	lump sum	$60,000	$60,000	$76,577
B.	Construction Management	1	lump sum	$120,000	$120,000	$153,154
C.	Health and safety/air monitoring	1	lump sum	$90,000	$90,000	$114,865
D.	QA/QC sampling	1	lump sum	$60,000	$60,000	$76,577
			Subtotal:		$330,000	$421,173
	Contingency	15%		$6,893,488	$1,034,023	$1,319,705
		TOTAL CAPITAL COST:			$7,927,511	$10,117,736