A·C·C ENVIRONMENTAL CONSULTANTS
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April 20, 2011

Mr. Jerry Wickham
Senior Hazardous Materials Specialist
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

c/o

Ms. Jan Shipley
Livermore Valley Joint Unified School District (LVJUSD)
685 East Jack London Boulevard
Livermore, California 94550

RE: Soil Characterization and Groundwater Characterization Work Plan
Laidlaw Transit-2900 Ladd Avenue, Livermore, California
Fuel Leak Case No. RO0000188, GeoTracker Global ID T0600100844
ACC Project Number: 3054-103.00

Dear Ms. Shipley:

ACC Environmental Consultants, Inc., (ACC) has prepared the enclosed Work Plan for additional site characterization at 2900 Ladd Avenue, Livermore, California to support site closure and gain "No Further Action". This proposed work will be scheduled immediately following Work Plan approval from the Alameda County Environmental Health (ACEH).

This Work Plan was designed to obtain additional soil and groundwater characterization to move the site towards regulatory closure. The field portion of this scope of work will be scheduled once Alameda County Environmental Health (ACEH) has provided approval of the work plan.

If you have any questions regarding this Work Plan, please call me at (510) 638-8400, extension 110 or email me at jsiudyla@accenv.com.

Sincerely,

Julia Siudyla
Project Geologist

Enclosures

Additional Soil and Groundwater Site Characterization Work Plan

2900 Ladd Avenue
Livermore, California

ACC Project Number 3054-103.00

Prepared for:

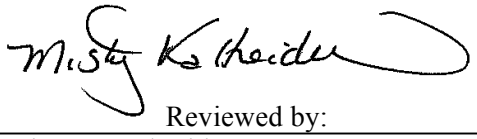
Mr. Jerry Wickham
Senior Hazardous Materials Specialist
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

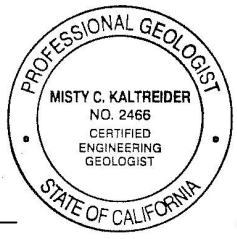
c/o

Ms. Jan Shipley
Livermore Valley Joint Unified School District (LVJUSD)
685 East Jack London Boulevard
Livermore, California 94550

February 24, 2011

Julia Siudyla
Project Geologist





Reviewed by:
Misty C. Kaltreider, PG 7016, CEG 2466
Engineering Geologist

TABLE OF CONTENTS

1.0 INTRODUCTION

At the request of Livermore Valley Joint Unified School District (LVJUSD), ACC Environmental Consultants, Inc. (ACC) has prepared this Work Plan to perform additional soil and groundwater site characterization. This Work Plan was designed to obtain additional soil and groundwater characterization to move the site towards regulatory closure.

This investigation work plan is prepared for the express use of LVJUSD, its agents and employees and shall not be relied upon by third party interests unless written authorization is provided by LVJUSD and ACC. The information and or proposed scope of work included in this work plan may be required to be submitted and approved to regulatory agencies overseeing work. This work plan is not intended to be used as a specification to address items outside the scope of this document or to provide guidance for remedial activities unless otherwise stated.

1.1 Background

The Site is located at 2900 Ladd Avenue in Oakland, California (Figure 1). The Site is currently occupied by Laidlaw Transit Maintenance Yard (a.k.a. the LVJUSD Bus Barn). The former Underground Storage Tank Complex at the site consisted of three (3) USTs (Figure 2); 6,000-gallon regular gasoline, 6,000-gallon unleaded gasoline, and a 10,000-gallon diesel. In 1990, the 6,000-gallon regular gasoline UST located on the site failed tank tightness testing. As a result a soil boring was conducted which confirmed that the UST had an unauthorized release. All three USTs that were located on the subject property (including the 6,000-gallon regular gasoline UST) were removed from the ground in 1992.

Following tank removal, numerous soil and groundwater investigations were subsequently conducted at the site from 1990 through 2003 to delineate the extent of impact. These investigations are summarized in section 1.2 below. The groundwater monitoring and sampling continued until 2003. It is unclear why the groundwater-monitoring program was discontinued. On November 18, 2010 Alameda County Environmental Heath Services (ACEHS) issued a Notice of Violation to LVJUSD pertaining to Fuel Leak Case Number RO0000188/GeoTracker Global ID T0600100844. ACEHS specifically requested a work plan to evaluate if the existing monitoring wells act as conduits for vertical contamination migration; characterize the magnitude in the shallow and deeper groundwater zones through detailed lithologic assessment; conduct a water supply well survey within 2000 feet of the site; and comply with GeoTracker requirements. A copy of the Notice of Violation is attached.

This workplan proposes to conduct the required characterization and assessment.

1.2 Previous Site Investigations

August 1990 BSK & Associates (BSK) - Soil Boring/Sampling and Chemical Testing Report:
In 1990 the 6,000-gallon Regular Gasoline UST failed its tank tightness testing. As a result of this failure BSK conducted one angled soil boring (EB-1) to obtain a soil samples from underneath the UST. Two soil samples (EB-1, No. 2 and EB-1, No. 3) indicated elevated levels of Total Petroleum Hydrocarbons as Gasoline (TPHg) (1,500-2,300 mg/kg), Benzene (7.3-9.8 mg/kg), Toluene (54-79 mg/kg), Ethylbenzene (22-38mg/kg) and Total Xylenes (140-220 mg/kg) (BTEX). These levels exceeded the 1990 State Water Resource Control Board Actions Levels for TPHg and BTEX.

1990-1991 ENGEO Incorporated (ENGEO) Investigations:
In December of 1990 ENGEO conducted a soil and groundwater study in the vicinity of the UST basin on the subject property. ENGEO conducted three borings and converted one of the borings to a permanent

monitoring well (MW-1). Both soil and groundwater samples were collected at MW-1. MW-1 was drilled to 67 feet bgs and the well screen was set from 42-67 feet bgs. Only soil sampling was conducted at the other two soil boring locations (B-1 and B-2). Soil samples indicated petroleum hydrocarbon soil impacts from 15-40 feet bgs. The groundwater sample from MW-1 indicated TPHg at 1,400 ppb (µg/L), Benzene at 63 ppb (µg/L), Ethylbenzene at 8 ppb (µg/L), Toluene at 52 ppb (µg/L), and Xylenes at 590 ppb (µg/L). Groundwater was encountered at 57 feet bgs during drilling and stabilized at 10 feet bgs.

It should be noted that during this investigation ENGEO punctured the 6,000-gallon regular gasoline UST. However, the UST was reportedly empty and no fuel was release.

1992 ENGEO Investigations:
In July and August of 1992 ENGEO conducted a groundwater-sampling event, well destruction, and removed the three (3) USTs. Groundwater sampling conducted on July 1, 1992 from MW-1, which reported elevated concentrations of fuel constituents. Well MW-1 was destroyed on July 9, 1992. In August of 1992 the remaining product and USTs were removed. A 4th UST located adjacent to the LVJUSD property was also removed. At the time of the removal 13 soil verification samples were collected from beneath the USTs, Product piping and dispensers. TPHg was detected at levels exceeding the laboratory detection limits under the north end of the Leaded Gasoline UST and under the Unleaded Gasoline Dispenser. Total Petroleum Hydrocarbons as Diesel (TPHd) was detected at levels exceeding the laboratory detection limits the north end of the Leaded Gasoline UST and under the Diesel Dispenser. Soil over excavation was conducted under the unleaded gasoline and diesel dispensers. Approximately 40 cubic yards (20 from the UST basin and 20 from the dispenser areas) of soil was removed and disposed of off site.

1993 ENGEO Investigations:
On July 8, 1993 ENGEO published a Soil and Groundwater Investigation Report that summarized results for 6 soil borings and the installation of MW-2, which was completed to 57 feet bgs and screened from 32 to 57 feet bgs. Information obtained from this report indicates that soil and groundwater impacts appear to be confined to the area to the northwest of the former UST Basin. Soil impacts appear to extend from 15 feet bgs to the top of the water table (approximately 35 feet bgs). Groundwater levels during the 1993 investigation were reported15 feet higher than the 1992 event and the groundwater concentrations were also reported higher than previous events.

1994 ENGEO Investigations:
In July 1994 ENGEO conducted additional soil, groundwater, and soil gas investigation, which included the installation of monitoring wells MW-3 and MW-4. Both wells were completed to 53 feet bgs. Well MW-3 was screened from 28 to 53 ft bgs and well MW-4 was screened from 26 to 53 feet bgs. The groundwater sample from MW-2 reported 7,000 µg/L TPHg and 520 µg/L benzene. Wells MW-3 and MW-4 were both non-detect for TPHg and BTEX. Hydropunch groundwater samples collected from B10 and "A", indicated high levels of TPHg and BTEX up to 70,000 µg/L TPHg and 12,000 µg/L benzene. Soil samples collected during this investigation reported low to below laboratory detection limits for TPHg and BTEX. Based on the investigation, ENGEO indicated that a perched zone of groundwater was found at test holes B-9, B-10 "A", and in MW-4 at 20 feet bgs.

1998 SCA Environmental Inc. Tier 2 Assessment: Based on the Tier 2 assessment the site is not a candidate for closure. Two exposure pathways were identified at the site: 1) Soil leaching to groundwater and, 2) groundwater ingestion.

1999 ENEGO Investigations:
In July and August of 1999 well MW-5 was installed with a screen interval from 15 to 25 feet bgs. One soil sample was collected and analyzed from this boring (21.5 feet) and was non detect for TPHg and BTEX.

Groundwater from this well was subsequently sampled and indicated elevated levels of TPHg and BTEX up to 92,000 µg/L TPHg and 9,900 µg/L benzene. MTBE was non detect.

Groundwater monitoring:
Periodic groundwater monitoring and sampling was conducted from 1995 through 2003. Initial sampling events reported detectable concentrations in well MW-2 and periodically in the other wells. In 2001, sheen was noted on the groundwater collected from MW-5. Depth to groundwater and groundwater flow direction were reported to vary seasonally. Groundwater sample results are summarized in Historical Soil and Groundwater Summary Tables included as Table 1 and Table 2.

2011 ACC Groundwater Monitoring Event:
In March of 2011 three monitoring wells were gauged and sampled. Depth to water in the wells ranged from 22.52 to 23.48 feet below top of well casing. During this event wells MW-2 and MW-3 were non detect for TPHg and BTEX, MW-4 was not sampled, and MW-5 had detections of TPHg and BTEX. No Free Product was found. Groundwater flow direction was not calculated.

All Previous sample locations are provided on Figure 3- Previous Site Investigation Sample Location Map

2.0 PROPOSED SCOPE OF WORK

2.1 Filter Pack and Screen Intervals for Wells MW-2, MW-3, and MW-4.

To access the filter pack and screen intervals for wells MW-2, MW-3, and MW-4 ACC will conduct a thorough review of all existing boring logs to aid in determining if two water bearing zones are present at the subject property. In addition, ACC proposes to conduct three (3) cone penetration testing (CPT) high-resolution vertical profiles using a Membrane Interface Probe (MIP) system adjacent to each of the three wells locations. The MIP is a continuous volatile organic compound (VOC) sampling system. This review and CPT will aid in determining if two water bearing zones are present and if MW-2, MW-3 and MW-4 should be abandoned and if new groundwater monitoring well should be installed.

Based on ACC's initial site review, the existing network of four onsite monitoring wells appear to be screening in two water-bearing zones that have been identified below the site; Zone A at approximately 20 fbg (monitored by MW-5) and Zone B at approximately 35-55 fbg. Zone A maybe be a seasonal perched zone and does not appear to be horizontally continuous as it was only encountered during drilling of B-5/MW-2 and MW-5. Depth to groundwater varies seasonally. Since only well MW5 was completed in the shallow zone, the groundwater flow direction was not determined.

Regional Hydrogeology:
According to the September 2005 *Groundwater Management Plan* prepared by the Zone 7 Water Agency (Zone 7), the site is located in the Mocho II Sub-Basin of the Main Livermore-Amadore Valley Groundwater Basin. Zone 7 Water Agency extracts groundwater from this basin for municipal drinking water. Sediments in this basin are described as recent alluvium consisting of sandy gravel and sandy clayey gravel from the surface to approximately 150 feet below grade (fbg). This alluvium overlies the Livermore Formation.

Site lithology:
Based on the boring and well logs for the site, there appears to be shallow gravel/sand unit at approximately 12 to 25 feet bgs that is periodically saturated. The shallow unit was encountered in a majority of the borings B5 through B10, and MW1 – 5, however, during the initial investigation work

(1990) B1 – B4 and MW-1 (Dec 1990), no free water was encountered in this unit. This unit may have become saturated after completion of the monitoring wells that have screen and well pack intervals that extended into to the shallow zone.

In general from review of the logs, a 6 to 10 foot thick fine-grain unit (clay to silt) was noted across the site that was found to separate the upper shallow unit with a deeper water-bearing zone. The deeper zone was noted in the logs as occurring in gravel/sandy zone at approximately 45 feet bgs and extends to the depth investigated of 67 feet bgs.

The well screens and sand pack for wells MW-2 through MW-4 extend from the deeper zone through the fine-grain clay layer separating the shallow and deeper zones and into the shallow zone. Well MW-5 was constructed to screen the shallow zone only and did not extend into the deeper zone. The majority of the residual soil impacts appear to be in the shallow permeable zone and extend into the fine-grain soil above the deeper zone (11 to 36 feet bgs). No soil impacts were reported in the deeper permeable zone. Cross sections A-A' and B-B' illustrate the approximate subsurface conditions.

In reviewing the borings logs, it appears that soil logging and soil interpretation varied from the early 1990 through 1994. Because there appears to be some inconsistency in historical logging, our interpretation of the lithologic subsurface conditions are approximated.

Hydrogeology:
Previous groundwater monitoring of the existing wells associated with the site have found the depth to groundwater to range from 17.28 ft bgs to 39.5 ft bgs in the deeper screen wells (MW-1 through MW-4) and from 20.19 ft bgs to 24.35 ft bgs in the shallow screen well (MW-5). It is unknown if the monitoring wells have been surveyed to an established bench mark, and since the well screens appear to extent through two zones, the groundwater flow direction has not been calculated for the site. Based on sites in the area, the regional groundwater flow is generally varies from north to west.

Full descriptions of these sampling methods are described below in Section 3.0.

Detailed cross sections are included as Figure 5 and Figure 6.

A Well Construction Detail is included as Table 3.

2.2 Additional Soil and Groundwater Characterization

To further delineate the plume horizontally, vertically, and to obtain current data ACC proposes to conduct eight (8) additional soil borings at the Site with hollow stem auger and three CPT borings to evaluate vertical profiling. The soil borings will be conducted to a max depth of 70 feet bgs. ACC will collect up to twenty-four (24) representative soil samples, from the eight (8) of the soil boring locations for analysis of TPHg, BTEX and MtBE. No soil samples will be collected from the CPT borings. ACC will also collect one grab groundwater sample from each of the eight (8) soil boring locations. Each of the groundwater samples will be analyzed for TPHg, BTEX and MtBE by EPA Method 8015B.

Full descriptions of these sampling methods are described below in Section 3.0.

Proposed sample locations are provided on Figure 2-Proposed Sample Location Map.

2.3 Well Survey

ACC will conduct a well survey that will identify all water supply wells within 2,000 feet of the subject site. Information from both Zone 7 Water Agency and the State of California Department of Water Resources will be obtained. As part of the well survey, ACC will perform a background study of the historical land uses of the site and properties in the vicinity of the site. This background study will aid in determining the existence of unrecorded/unknown (abandoned) wells, which can act as pathways for migration of contamination at and/or from the site. Requests for this information are currently underway.

2.4 ***GeoTracker Compliance***

The site will be claimed in GeoTracker and all available reports will be electronically uploaded to Geotracker and the Alameda County Environmental Cleanup Oversight Program FTP site.

3.0 SAMPLING METHODS

3.1 Soil Sampling

3.1.1 Standard Procedures for Cone Penetrometer Testing and Sampling

ACC is proposing to conduct three (3) CPT borings utilizing Columbia Technologies High Resolution Vertical Profiling. A detailed Technical Approach is provided in Appendix B.

3.1.2 Standard Procedures for Hollow Stem Auger Testing and Sampling

A total of six (6) soil borings will be conducted at the Site. The soil borings will be conducted to a max depth of 70 feet bgs. The ground surface immediately adjacent to the boring will as a datum to measure sample depth. The horizontal location of each boring will be measured from a permanent site fixture with a measuring tape/wheel. These soil borings will be conducted with a Portable Sampling Rig equipped with 6-inch hollow stem augers. Select depth intervals (5-foot intervals) will be collected from select depth intervals utilizing direct push technologies and a split barrel sampler lined with stainless steel plastic, and/or brass sampling tubes (18-inch sample) and logged using the Unified Soil Classification System, field screened with a PID meter, or prepared for analysis. Additional samples for analysis may be collected at the water table, lithologic changes, or areas depicting field impact. Soil intervals saved for analysis will be immediately placed in plastic sampling tubes with polyethylene sheeting and tight-fitting plastic caps, collected and placed in glass jars, or filed preserved via EPA Method 5035, labeled, placed in resealable plastic bags, and placed in a pre-chilled insulated container and prepared for transport and analysis using standard chain of custody protocol. Soil samples collected for analysis will be sealed and cooled as soon as feasible to minimize potential volatilization. All samples will be in a locked vehicle or in direct observation at all times.

Prior to conducting all invasive work, ACC will contact Underground Service Alert, underground utility locator to mark all utilities at the subject property. ACC will obtain a drilling permit from Alameda County Public Works and Zone 7 Water District for this scope of work.

3.2 Grab Groundwater Sampling

Grab groundwater samples will be collected with the use of a PVC schedule 40, 2-inch, temporary monitoring wells. Each soil boring will be conducted to the respective depth of interest (70 feet bgs or five feet below the first depth in which groundwater is first encountered) and the temporary monitoring well will be set with a 5-foot long screen which will be exposed to the formation. Grab water samples will be collected using low-flow, low-turbidity techniques and field filtered using 0.45 micron filters. The

amount of sediment and turbidity observed in the water samples will be noted on field logs. Grab groundwater samples will be collected into laboratory-supplied 40-milliliter sample vials without headspace, and 1-liter amber bottles, labeled and immediately sealed and cooled to minimize potential volatilization.

All samples collected will be stored in a pre-chilled, insulated container pending ACC transport to TestAmerica, a state-certified analytical laboratory. Every effort will be made to minimize disturbance of the groundwater samples prior to placement in the sample containers and maintaining the samples at four degrees Celsius prior to analysis. Standard turnaround time for analytical results is 5 working days. However, an expedited turn around time may be elected for the proposed work.

3.3 Sample Containers and Preservation

Soil samples collected will be either collected in plastic sampling tubes which will be immediately capped with polyethylene sheeting and tight-fitting plastic caps, collected and placed in glass jars, or filed preserved via EPA Method 5035. Grab groundwater samples will be collected in laboratory-supplied new glass 40-milliliter glass vials, plastic containers, or 1 liter amber bottles provided by TestAmerica.

Samples will be labeled with pre-printed laboratory-supplied labels, placed in new resealable plastic bags, and immediately placed in a pre-chilled, insulated container maintained at four degrees Celsius pending transport to the analytical laboratory. Each sample cooler will be chilled with ice and no blue ice containers will be used.

3.4 Sample Packaging and Shipment

All samples will be handled according to ACC sampling protocols. Soil samples will be covered at each open end with new polyethylene (Teflon®) sheeting, fitted with tight-fitting plastic caps, or collected in glass jars labeled, placed in resealable plastic bags, placed in a pre-chilled, insulated container pending transport to ACC's Oakland office. ACC will properly refrigerate the samples until they are picked up by the analytical laboratory courier or delivered directly to the lab. Standard chain of custody documentation will be maintained at all times. Samples will be submitted to the laboratory within 24 hours of collection.

3.5 Sample Documentation

ACC will utilize a unique sample numbering system to identify sample locations and depths. Each sample will be designated with the following: 1) Unique boring number – "B11"; and 2) maximum depth – "B11-7.5". A sample designated B11-7.5 is therefore a soil sample collected at soil boring location B11 at 7.0-7.5 feet bgs. Each respective sample designation will be placed at the top of the sample label and on each line of the chain of custody form.

Soil samples will be logged and fully described on pre-printed ACC log forms. These log forms are designed to facilitate preparing boring logs for the final report of findings and prompt the ACC field geologist to obtain and document specific types of information.

3.6 Analytical Methods

An EPA certified analytical laboratory will analyze all samples. Select samples will be analyzed for the following:

- Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) and MtBE by EPA Method 5035/8260B,

- Total Petroleum Hydrocarbons purgeable (as gasoline) (TPHg) by EPA Method 5035/8015B

3.7 Decontamination

All sampling equipment will be either new disposable equipment or pre-cleaned, stainless steel sampling equipment. Decontamination of the 6-inch hollow stem augers, hand auger (if utilized), and slide-hammer (if utilized) sampler will be performed between sample locations by washing the equipment with a tap water and Alconox cleaning solution, rinsing the equipment with clean tap water, and a final rinse with tap water.

New clean nitrile surgical gloves will be worn at each new sample location and at each new depth at each sample location. Gloves will be replaced before the collection and/or handling of every sample.

3.8 Backfilling Soil Borings

The soil borings will be backfilled by tremie with cement grout or cement grout/sand mixture (cement slurry consisting of approximately six gallons of water mixed with 94 pounds of Portland cement). The cement slurry will be prepared with an electric mixing rod to minimize cement lumps in the slurry mix. The surface of the soil boring will be covered with approximately 3 to 6 inches of concrete and colored to match the existing surface.

All cuttings remaining or unused shall be containerized and hauled off site. The containers shall be clearly labeled to the ownership of the container and labeled hazardous or non-hazardous.

4.0 TECHNICAL REPORTS

A technical report discussing fieldwork, observations and findings, analytical results, conclusions, and recommendations will be prepared for LVJUSD and for submission to ACEH.

5.0 SCHEDULE

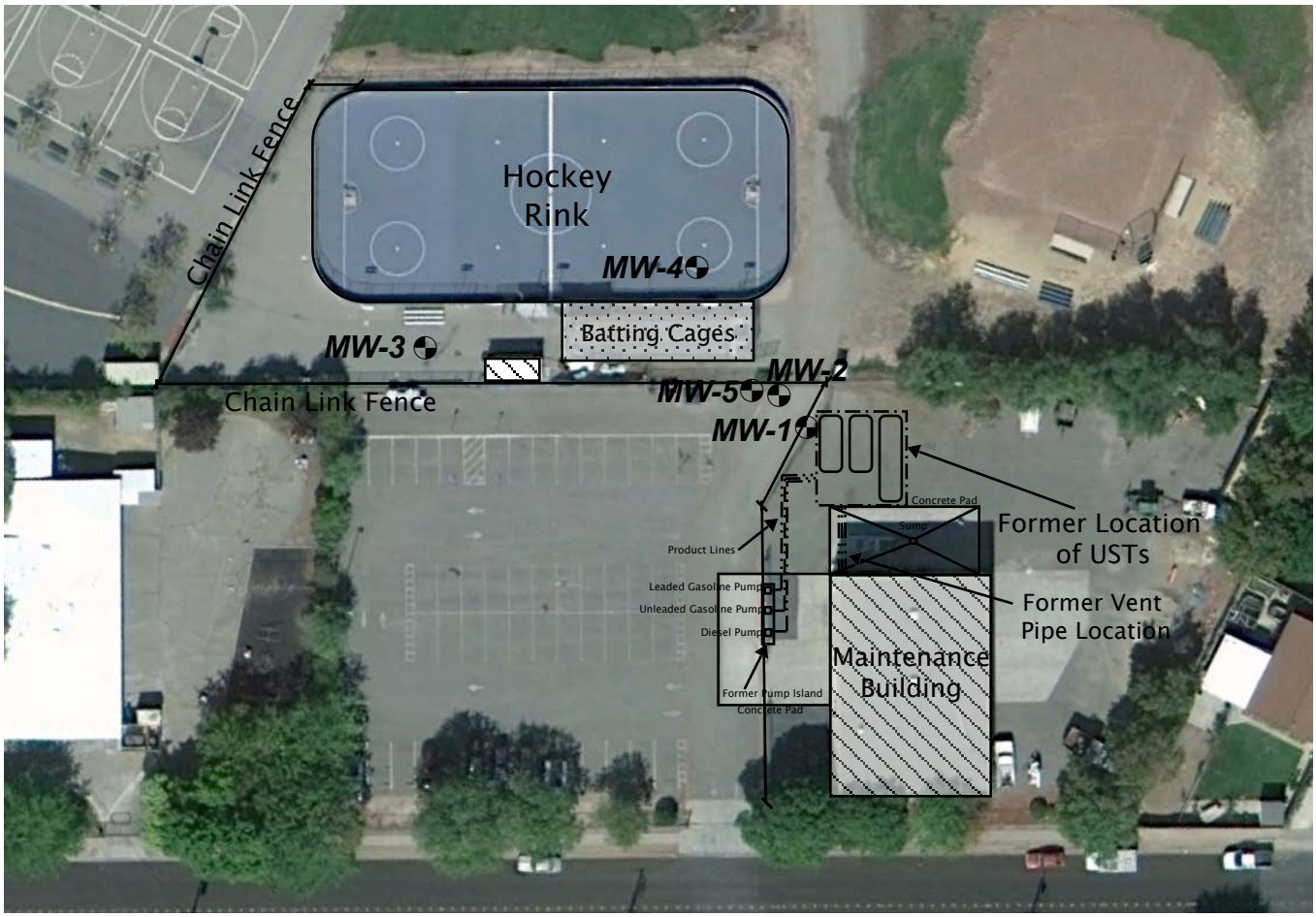
ACC will perform and complete the work within two weeks upon authorization to proceed from the Client and approval from ACEH.

6.0 PERJURY STATEMENT

ACC Environmental Consultant's declares, under penalty and perjury, that the information and/or recommendations contained in this document are true to the best of our knowledge.

Source: Google Earth, 2011

Title ***Site Location Map 2900 Ladd Avenue Livermore, California***	
Figure Number: 1	Scale: None
Project Number: 3054-103.00	Drawn By: JS
A·C·C ENVIRONMENTAL CONSULTANTS An Employee Owned Company	Date: 4/7/11 N W E S



Scale

0' 37.5' 75'

Title ***Aerial Map***
2900 Ladd Avenue
Livermore, California

Figure Number: 2	Drawn By: JS
Project Number: 3054-103.00	Date:4/6/11

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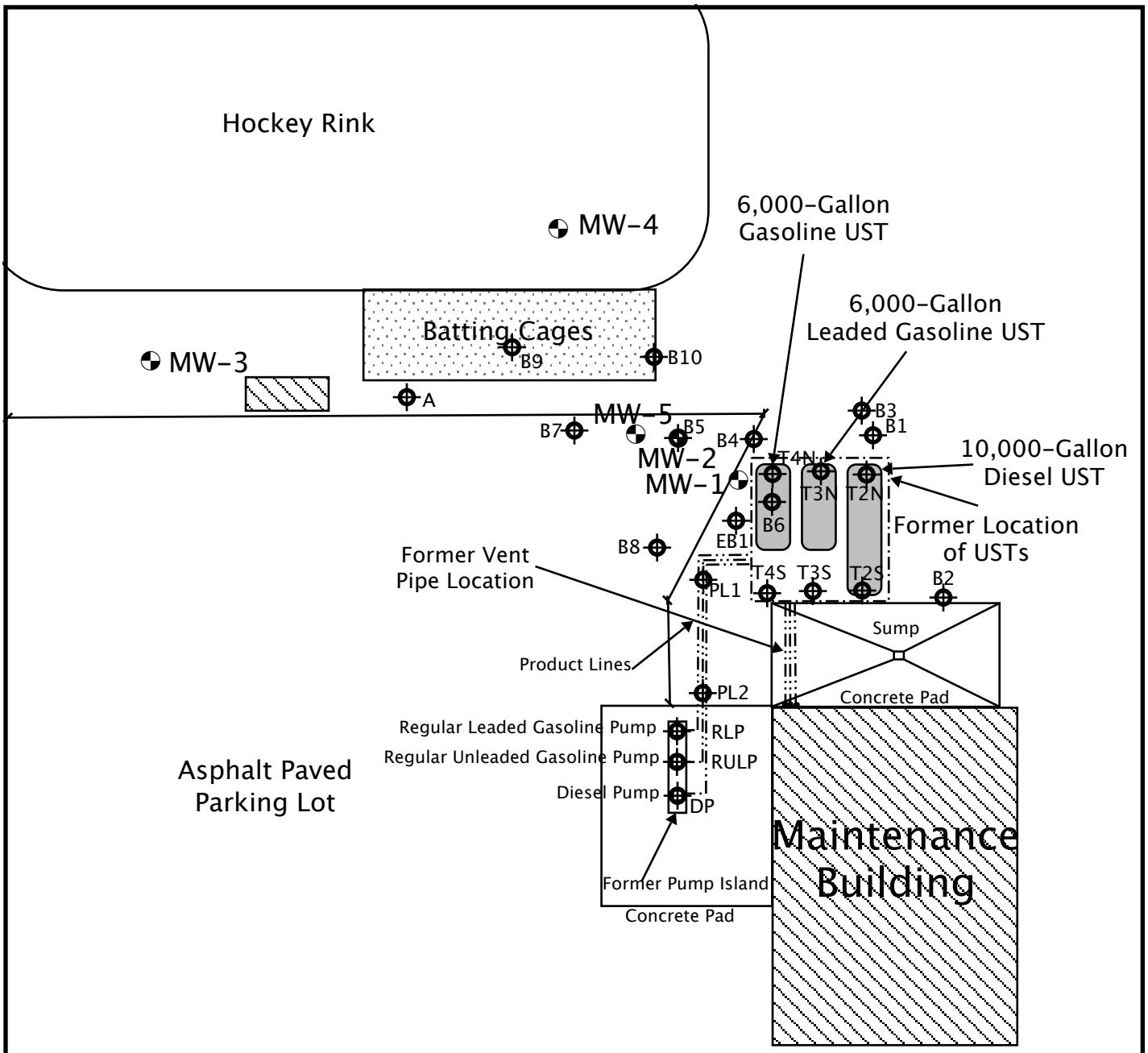

Scale

0' 20' 40'

Title ***Historical Sample Location Map***
2900 Ladd Avenue
Livermore, California

Figure Number: 3	Scale: None
Project Number: 3054-103.00	Drawn By: JS
	Date: 4/7/11

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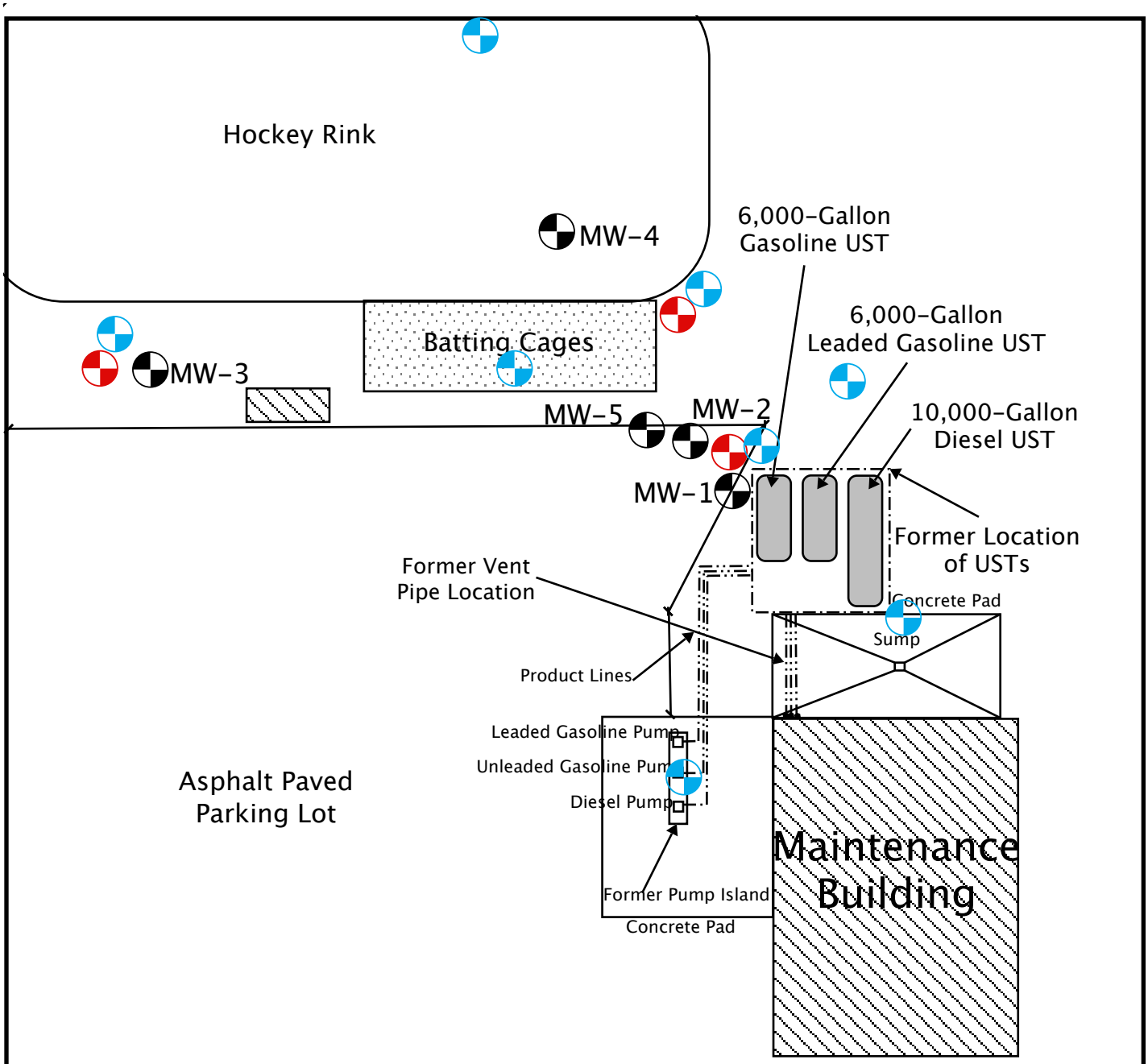

Ladd Avenue

Proposed Soil Boring Locations

ProposedCone Penetrometer Locations

Exisitng MW Locations

Scale

0' 20' 40'

Title ***Site Location Map***
2900 Ladd Avenue
Livermore, California

Figure Number: 4	Scale: None
Project Number: 6470-034.00	Drawn By: JS
	Date: 4/7/11

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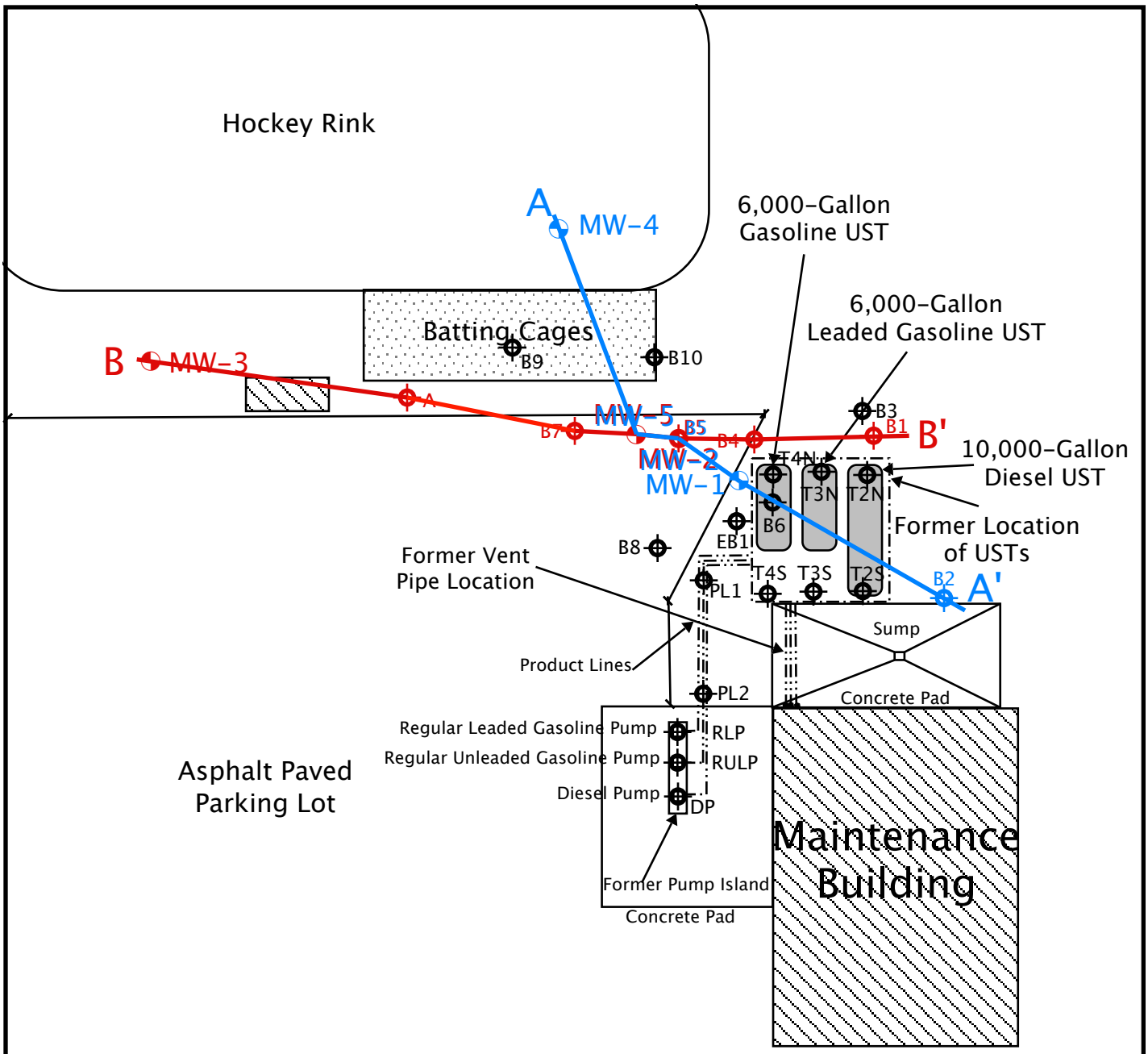

Title ***Cross Section Overview Map***
2900 Ladd Avenue
Livermore, California

Figure Number: 5	Scale: None
Project Number: 3054-103.00	Drawn By: JS
	Date: 4/7/11

Scale

0' 20' 40'

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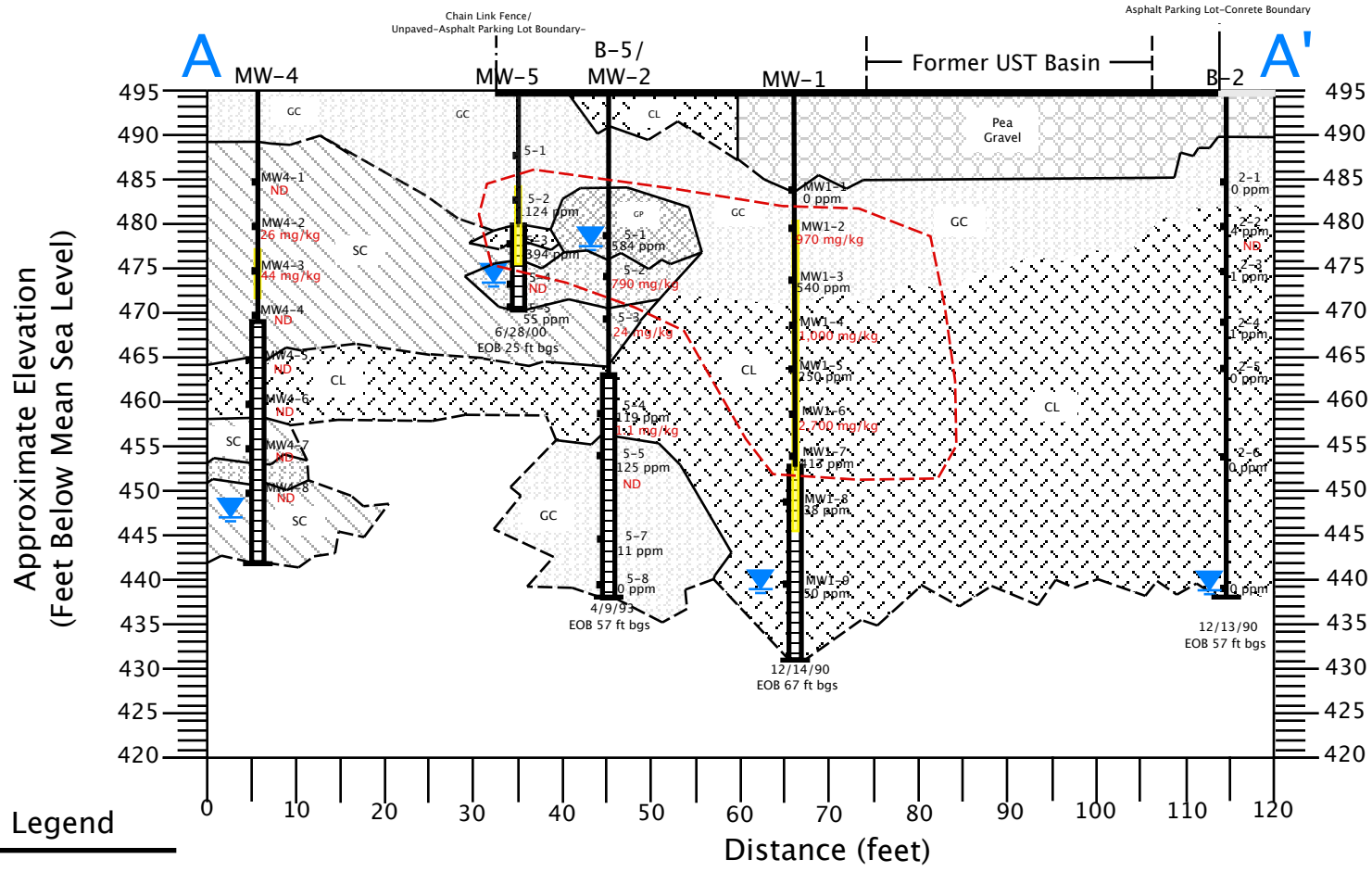
N W E S



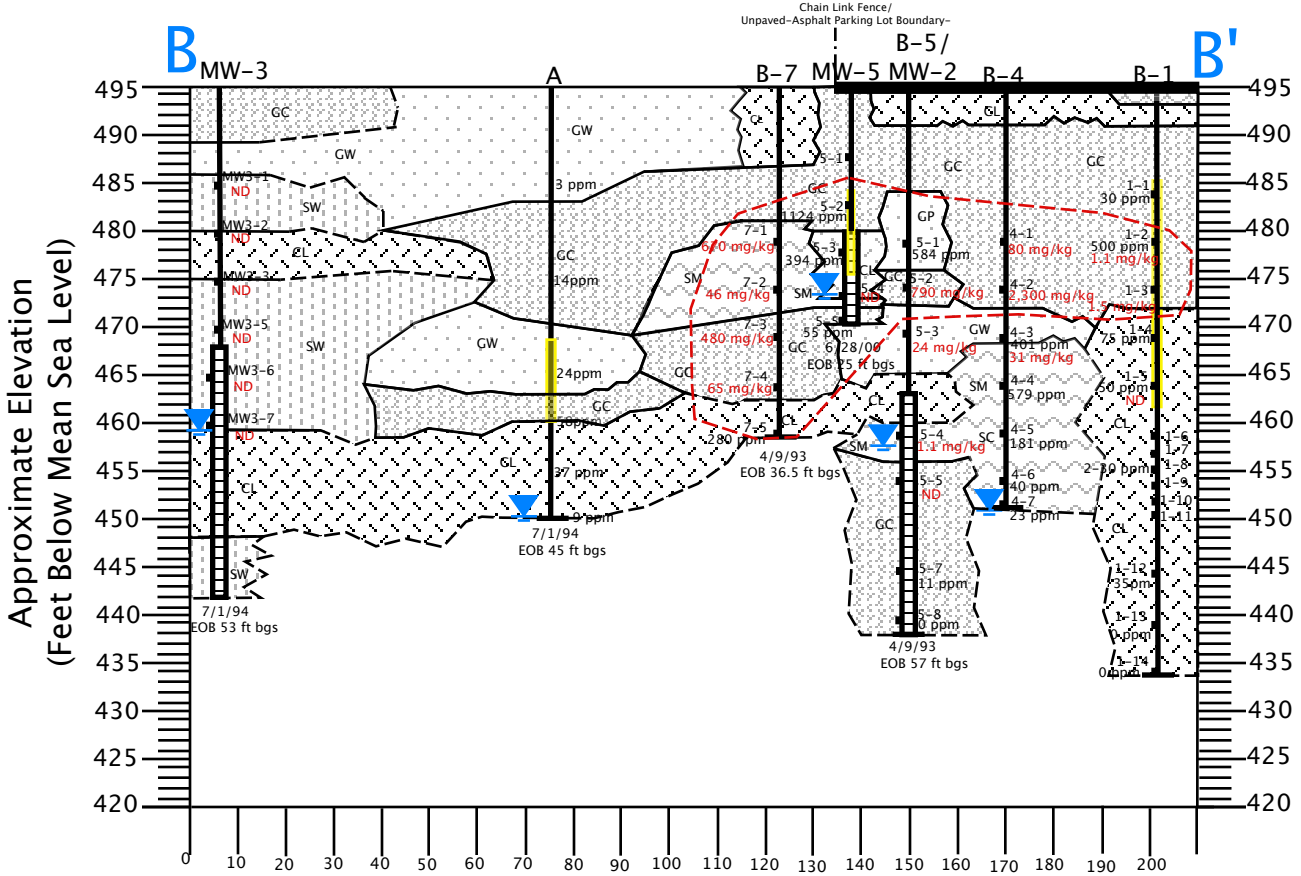
Legend

- (SC) Clayey sands, poorly graded sand-clay mixtures
- Pea Gravel
- (GC) Clayey gravels, poorly graded gravel-sand slit mixtures
- (CL) Inorganic clays of low-medium plasticity, gravely clays, sandy clays, silty clays, lean clays
- (GP) Poorly graded gravels, grave-sand mixtures
- Depth to water during drilling
- 000 ppm — PPM of Soil during drilling
- 1.1 mg/kg — Level of TPHg in soil
- Approximate 100 ppm extent of TPHg in soil
- Odor noted on boring logs
- Screened interval of monitoring well
- Bottom of boring

Scale
(Vertical & Horizontal)

0' 10' 20'

Title: ***Geologic Cross Section A-A'*** ***2900 Ladd Avenue*** ***Livermore, California***	
Figure Number: 6	Scale: None
Project Number: 6470-034.00	Drawn By: JS
A·C·C ENVIRONMENTAL CONSULTANTS An Employee Owned Company	Date: 4/7/11
	A-A'



Scale Horz. 1'=40'

0' 20' 30'

Legend

- Approximate 100 ppm extent of TPHg in soil
- (SW) Well graded sands, gravelly sands
- (GM) Silty gravels, poorly graded gravel-sand, silt mixtures
- Pea Gravel
- (GC) Clayey gravels, poorly graded gravel-sand slit mixtures
- (CL) Inorganic clays of low-medium plasticity, gravely clays, sandy clays, silty clays, lean clays
- (GP/GW) Poorly to Well graded gravels, gravel-sand mixtures
- (SC/SM) Silty Sands, poorly graded sand-dilt mixtures
- Depth to water during drilling
- 000 ppm — PPM of Soil during drilling
- 1.1 mg/kg — Level of TPHg in soil
- Odor noted on boring logs
- Screened interval of monitoring well
- Bottom of boring

Title: ***Geologic Cross Section A-A'*** ***2900 Ladd Avenue*** ***Livermore, California***	
Figure Number: 7	Scale: None
Project Number: 6470-034.00	Drawn By: JS
A·C·C ENVIRONMENTAL CONSULTANTS An Employee Owned Company	Date: 4/7/11
	A-A'

TABLE 1-A
Soil Analytical Summary Table
Laidlaw Transit
2900 Ladd Avnue
Livermore, California
3054-103.00

Sample Number	Sample Depth Feet Below Ground Surface (bgs)	Sampling Date	Matrix	Constituents and Concentrations (mg/kg)							
				TPHg	TPHd	B	T	E	X	MtBE	Lead
				Total Petroleum Hydrocarbons - Gasoline	Total Petroleum Hydrocarbons- Diesel	Benzene	Toluene	Ethylbenzene	Xylene	Methyl tert-butyl ether	Lead
B1-2	16	13-Dec-90	Soil (mg/kg)	1.1	NT	0.18	0.036	0.0053	0.032	NT	NT
B1-3	21	13-Dec-90	Soil (mg/kg)	1.5	NT	0.16	0.071	0.0081	0.051	NT	NT
B1-5	31	13-Dec-90	Soil (mg/kg)	ND	NT	0.013	ND	ND	ND	NT	NT
B1-11	44	13-Dec-90	Soil (mg/kg)	ND	NT	0.004	ND	ND	ND	NT	NT
B2-2	16	13-Dec-90	Soil (mg/kg)	ND	NT	0.016	0.0026	ND	ND	NT	NT
MW1-2	16	13-Dec-90	Soil (mg/kg)	970	NT	8.1	27	13	27	NT	NT
MW1-4	26	13-Dec-90	Soil (mg/kg)	1,000	NT	ND	27	10	53	NT	NT
MW1-6	36	13-Dec-90	Soil (mg/kg)	2,700	NT	ND	27	10	53	NT	NT
MW1-8	46	13-Dec-90	Soil (mg/kg)	ND	NT	0.001	0.004	ND	0.0099	NT	NT
EB-1, No. 2	14	25-Jul-90	Soil (mg/kg)	2,300	NT	9.8	79	38	220	NT	NT
EB-1, No. 3	17	25-Jul-90	Soil (mg/kg)	1,500	NT	7.3	54	22	140	NT	NT
****ESLs - Residential (unrestricted site usage)**		**Shallow Soil (≤ 3 m)**	**Soil (mg/kg)**	**83**	**83**	**0.044**	**2.9**	**2.3**	**2.3**	**0.023**	**200**
		Deep Soil (>3 m)	**Soil (mg/kg)**	**83**	**83**	**0.044**	**2.9**	**3.3**	**2.3**	**0.023**	**750**
****ESLs - Commercial site usage**		**Shallow Soil (≤ 3 m)**	**Soil (mg/kg)**	**83**	**83**	**0.044**	**2.9**	**3.3**	**2.3**	**0.023**	**750**
		Deep Soil (>3 m)	**Soil (mg/kg)**	**83**	**83**	**0.044**	**2.9**	**3.3**	**2.3**	**0.023**	**750**
PRG's		**Residential**	**Soil (mg/kg)**	**NA**	**NA**	**1.10**	**5,000**	**5.7**	**600**	**39**	**400**
		Commercial	**Soil (mg/kg)**	**NA**	**NA**	**5.6**	**46,000**	**29**	**2,600**	**190**	**800**
California Human Health Screening Levels (CHHSLS)		**Residential**	**Soil (mg/kg)**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**80**
		Commercial	**Soil (mg/kg)**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**320**

Notes

***ESLs = Bay Area Regional Water Quality Control Board Environmental Screening Levels (Interim Final May 2008), where groundwater is NOT a source of Drinking Water*

PRGs=EPA Region 9 Preliminary Remediation Goal November 2009)

DTW: :Depth to water (ft.) measured from top of casing (TOC).

NT: Not Tested; NM: Not Measured; NS: Not Sampled

**-- No Data*
Shaded Values Exceed Their Respective Criteria

TABLE 1-B
Soil Analytical Summary Table
Laidlaw Transit
2900 Ladd Avnue
Livermore, California
3054-103.00

Sample Number	Sample Depth Feet Below Ground Surface (bgs)	Sampling Date	Matrix	Constituents and Concentrations (mg/kg)							
				TPHg	TPHd	B	T	E	X	MtBE	Lead
				Total Petroleum Hydrocarbons - Gasoline	Total Petroleum Hydrocarbons- Diesel	Benzene	Toluene	Ethylbenzene	Xylene	Methyl tert-butyl ether	Lead
T2-1N	11.5	6-Aug-92	Soil (mg/kg)	ND	37	ND	ND	ND	ND	NT	NT
T2-1S	12	6-Aug-92	Soil (mg/kg)	NT	ND	ND	ND	ND	ND	NT	NT
T3-1N	11.5	6-Aug-92	Soil (mg/kg)	ND	Nt	ND	ND	ND	ND	NT	NT
T3-1S	12	6-Aug-92	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
T4-1N	11.5	6-Aug-92	Soil (mg/kg)	1,200	NT	2.1	4.2	2.4	160	NT	12
T4-1S	12	6-Aug-92	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	8.2
PL-1	4	6-Aug-92	Soil (mg/kg)	ND	ND	ND	ND	ND	ND	NT	NT
PL-2	4	6-Aug-92	Soil (mg/kg)	ND	ND	ND	ND	ND	ND	NT	NT
DP-1	3.75	6-Aug-92	Soil (mg/kg)	NT	46	ND	ND	ND	ND	NT	NT
RULP-1	3.5	6-Aug-92	Soil (mg/kg)	3	NT	ND	ND	0.0074	0.013	NT	12
RLP-1	3.75	6-Aug-92	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
B4-2	21	9-Apr-93	Soil (mg/kg)	800	9.1	1.9	22	8.1	56	NT	NT
B4-3	26	9-Apr-93	Soil (mg/kg)	2,300	ND	7.7	88	35	210	NT	NT
B4-4	30.5	9-Apr-93	Soil (mg/kg)	31	ND	0.051	0.64	3.5	2.4	NT	NT
B5-2	20.5	9-Apr-93	Soil (mg/kg)	790	ND	2.8	21	6.7	4.1	NT	NT
B5-3	25.5	9-Apr-93	Soil (mg/kg)	24	ND	0.052	0.62	3.3	2.2	NT	NT
B5-4	36	9-Apr-93	Soil (mg/kg)	1.1	ND	0.23	0.0083	ND	0.13	NT	NT
B5-5	41	9-Apr-93	Soil (mg/kg)	ND	ND	ND	ND	ND	ND	NT	NT
B6-1	15.5	9-Apr-93	Soil (mg/kg)	860	46	ND	13	83	55	NT	NT
B6-2	21	9-Apr-93	Soil (mg/kg)	530	120	1.9	17	73	44	NT	NT
B6-3	26	9-Apr-93	Soil (mg/kg)	1,200	ND	4.1	39	150	100	NT	NT
B6-4	31	9-Apr-93	Soil (mg/kg)	410	ND	ND	4.5	35	22	NT	NT
B7-1	16	9-Apr-93	Soil (mg/kg)	670	ND	1.2	16	97	58	NT	NT
B7-2	21	9-Apr-93	Soil (mg/kg)	46	ND	0.19	1.3	6	3.6	NT	NT
B7-3	26	9-Apr-93	Soil (mg/kg)	480	ND	ND	6.7	40	25	NT	NT
B7-4	31	9-Apr-93	Soil (mg/kg)	65	ND	8.4	1.3	7.5	4.8	NT	NT
B8-2	21	9-Apr-93	Soil (mg/kg)	18	ND	1.6	3.1	3.3	2.2	NT	NT
B8-3	26	9-Apr-93	Soil (mg/kg)	ND	ND	0.08	0.77	0.11	0.73	NT	NT
B8-4	30.5	9-Apr-93	Soil (mg/kg)	ND	ND	0.05	0.20	0.005	0.37	NT	NT
****ESLs - Residential (unrestricted site usage)**		**Shallow Soil (≤ 3 m)**	**Soil (mg/kg)**	**83**	**83**	**0.044**	**2.9**	**2.3**	**2.3**	**0.023**	**200**
		Deep Soil (>3 m)	**Soil (mg/kg)**	**83**	**83**	**0.044**	**2.9**	**3.3**	**2.3**	**0.023**	**750**
****ESLs - Commercial site usage**		**Shallow Soil (≤ 3 m)**	**Soil (mg/kg)**	**83**	**83**	**0.044**	**2.9**	**3.3**	**2.3**	**0.023**	**750**
		Deep Soil (>3 m)	**Soil (mg/kg)**	**83**	**83**	**0.044**	**2.9**	**3.3**	**2.3**	**0.023**	**750**
PRG's		**Residential**	**Soil (mg/kg)**	**NA**	**NA**	**1.10**	**5,000**	**5.7**	**600**	**39**	**400**
		Commercial	**Soil (mg/kg)**	**NA**	**NA**	**5.6**	**46,000**	**29**	**2,600**	**190**	**800**
California Human Health Screening Levels (CHHSLS)		**Residential**	**Soil (mg/kg)**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**80**
		Commercial	**Soil (mg/kg)**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**320**

Notes

***ESLs = Bay Area Regional Water Quality Control Board Environmental Screening Levels (Interim Final May 2008), where groundwater is NOT a source of Drinking Water*

PRGs=EPA Region 9 Preliminary Remediation Goal November 2009)

DTW: ;Depth to water (ft.) measured from top of casing (TOC).

NT: Not Tested; NM: Not Measured; NS: Not Sampled

**– No Data*
Shaded Values Exceed Their Respective Criteria

TABLE 1-C
Soil Analytical Summary Table
Laidlaw Transit
2900 Ladd Avnue
Livermore, California
3054.103.00

Sample Number	Sample Depth Feet Below Ground Surface (bgs)	Sampling Date	Matrix	Constituents and Concentrations (mg/kg)							
				TPHg	TPHd	B	T	E	X	MtBE	Lead
				Total Petroleum Hydrocarbons - Gasoline	Total Petroleum Hydrocarbons- Diesel	Benzene	Toluene	Ethylbenzene	Xylene	Methyl tert-butyl ether	Lead
MW3-1	1/11/04	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW3-2	15	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW3-3	20	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW3-4	25	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW3-5	30	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW3-6	35	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW3-7	40	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW4-1	10	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW4-2	15	1-Jul-94	Soil (mg/kg)	26	NT	0.21	0.75	0.21	1.4	NT	NT
MW4-3	20	1-Jul-94	Soil (mg/kg)	44	NT	0.25	0.70	0.28	2.3	NT	NT
MW4-4	25	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW4-5	30	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW4-6	35	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW4-7	40	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW4-8	45	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
B9-1	15	1-Jul-94	Soil (mg/kg)	ND	NT	0.074	0.008	0.011	0.059	NT	NT
B9-2	20	1-Jul-94	Soil (mg/kg)	640	NT	4.2	23	10	70	NT	NT
B9-3	25	1-Jul-94	Soil (mg/kg)	ND	NT	0.12	0.013	ND	0.02	NT	NT
B10-1	14	1-Jul-94	Soil (mg/kg)	3	NT	0.5	0.57	0.11	0.62	NT	NT
B10-2	18	1-Jul-94	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	NT	NT
MW5-4	22	28-Jun-00	Soil (mg/kg)	ND	NT	ND	ND	ND	ND	ND	NT
****ESLs - Residential (unrestricted site usage)**		**Shallow Soil (≤ 3 m)**	**Soil (mg/kg)**	**83**	**83**	**0.044**	**2.9**	**2.3**	**2.3**	**0.023**	**200**
		Deep Soil (>3 m)	**Soil (mg/kg)**	**83**	**83**	**0.044**	**2.9**	**3.3**	**2.3**	**0.023**	**750**
****ESLs - Commercial site usage**		**Shallow Soil (≤ 3 m)**	**Soil (mg/kg)**	**83**	**83**	**0.044**	**2.9**	**3.3**	**2.3**	**0.023**	**750**
		Deep Soil (>3 m)	**Soil (mg/kg)**	**83**	**83**	**0.044**	**2.9**	**3.3**	**2.3**	**0.023**	**750**
PRG's		**Residential**	**Soil (mg/kg)**	**NA**	**NA**	**1.10**	**5,000**	**5.7**	**600**	**39**	**400**
		Commercial	**Soil (mg/kg)**	**NA**	**NA**	**5.6**	**46,000**	**29**	**2,600**	**190**	**800**
California Human Health Screening Levels (CHHSLS)		**Residential**	**Soil (mg/kg)**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**80**
		Commercial	**Soil (mg/kg)**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**320**

Notes

***ESLs = Bay Area Regional Water Quality Control Board Environmental Screening Levels (Interim Final May 2008), where groundwater is NOT a source of Drinking Water*

PRGs=EPA Region 9 Preliminary Remediation Goal November 2009)

DTW: ;Depth to water (ft.) measured from top of casing (TOC).

NT: Not Tested; NM: Not Measured; NS: Not Sampled

**-- No Data*
Shaded Values Exceed Their Respective Criteria

TABLE 2-A
Groundwater Analytical Summary Table
Laidlaw Transit
2900 Ladd Avnue
Livermore, California

				Constituents and Concentrations (ug/L)					
				TVPHg	B	T	E	X	MtBE
Sample Number	Sampling Date	Matrix	DTW	Total Volatile Petroleum Hydrocarbons - Gasoline	Benzene	Toluene	Ethylbenzene	Xylene	Methyl tert-butyl ether
MW2	20-Apr-93	Water	30.81	4,500	340	110	8	630	NT
	12-May-94	Water	31.12	7,000	520	220	35	410	NT
	8-Feb-95	Water	28.04	170	8.9	4.5	2.1	17	NT
	23-May-95	Water	17.77	<50	<0.5	<0.5	<0.5	<0.5	NT
	20-Sep-95	Water	25.55	8,400	2,500	1,200	180	940	NT
	29-Dec-95	Water	20.91	640	0.7	<0.5	1.9	4.7	NT
	1-Nov-96	Water	22.63	1,600	390	140	25	120	NT
	29-Apr-97	Water	20.39	4,900	640	240	83	200	<250
	5-Aug-99	Water	26.18	3,000	1,100	370	97	240	<25
	1-Aug-00	Water	23.96	2,200	850	240	74	240	<50
	18-Jan-02	Water	30.85	350	62	0.85	0.82	2.5	<5
	2-Jul-02	Water	33.45	--	--	--	--	--	--
	4-Dec-02	Water	36.21	--	--	--	--	--	--
	31-Mar-11	Water	--	<50	<0.5	<0.5	<0.5	<1	<0.5
****ESLs**	**Groundwater is a Current or Potential Source of Drinking Water**	**Water**	**Water**	**100**	**1**	**40**	**30**	**20**	**5**
	Groundwater is not a Current or Potential Source of Drinking Water	**Water**	**Water**	**210**	**46**	**130**	**43**	**100**	**1,800**
PRG's	**MCLs**	**Water**	**Water**	**N/A**	**5**	**1,000**	**700**	**10,000**	**N/A**

Notes

***ESLs = Bay Area Regional Water Quality Control Board Environmental Screening Levels (Interim Final May 2008), where groundwater is NOT a source of Drinking Water*

PRGs=EPA Region 9 Preliminary Remediation Goal November 2009)

DTW: ;Depth to water (ft.) measured from top of casing (TOC).

NT: Not Tested; NM: Not Measured; NS: Not Sampled

**-- No Data*

Shaded Values Exceed Their Respective Criteria

TABLE 2-B
Groundwater Analytical Summary Table
Laidlaw Transit
2900 Ladd Avnue
Livermore, California

				Constituents and Concentrations (ug/L)					
				TVPHg	B	T	E	X	MtBE
Sample Number	Sampling Date	Matrix	DTW	Total Volatile Petroleum Hydrocarbons - Gasoline	Benzene	Toluene	Ethylbenzene	Xylene	Methyl tert-butyl ether
MW3	12-Jul-94	Water	38.76	<50	<0.5	<0.5	<0.5	<0.5	NT
	8-Feb-95	Water	27.08	<50	<0.5	<0.5	<0.5	<0.5	NT
	23-May-95	Water	17.28	<50	<0.5	<0.5	<0.5	<0.5	NT
	20-Sep-95	Water	25.06	<50	1.4	<0.5	<0.5	<0.5	NT
	29-Dec-95	Water	20.25	50	1.8	<0.5	<0.5	<0.5	NT
	1-Nov-96	Water	22.22	<50	<0.5	<0.5	<0.5	<0.5	NT
	29-Apr-97	Water	20.05	<50	1.7	<0.5	<0.5	<0.5	<5
	5-Aug-99	Water	26.07	<50	<0.5	<0.5	<0.5	<0.5	<5
	20-Jul-00	Water	23.35	<50	1.4	3.6	<0.5	3.9	<5
	18-Jan-02	Water	30.5	<50	<.5	<0.5	<0.5	<0.5	<5
	2-Jul-02	Water	33.53	--	--	--	--	--	--
	4-Dec-02	Water	36.35	--	--	--	--	--	--
	31-Mar-11	Water	--	<50	<0.5	<0.5	<0.5	<1	<0.5
**ESLs	Groundwater is a Current or Potential Source of Drinking Water	Water	Water	100	1	40	30	20	5
	Groundwater is not a Current or Potential Source of Drinking Water	Water	Water	210	46	130	43	100	1,800
PRG's	MCLs	Water	Water	N/A	5	1,000	700	10,000	N/A

Notes

***ESLs = Bay Area Regional Water Quality Control Board Environmental Screening Levels (Interim Final May 2008), where groundwater is NOT a source of Drinking Water*

PRGs=EPA Region 9 Preliminary Remediation Goal November 2009)

DTW: ;Depth to water (ft.) measured from top of casing (TOC).

NT: Not Tested; NM: Not Measured; NS: Not Sampled

**-- No Data*

Shaded Values Exceed Their Respective Criteria

TABLE 2-C
Groundwater Analytical Summary Table
Laidlaw Transit
2900 Ladd Avnue
Livermore, California

				Constituents and Concentrations (ug/L)					
				TVPHg	B	T	E	X	MtBE
Sample Number	Sampling Date	Matrix	DTW	Total Volatile Petroleum Hydrocarbons - Gasoline	Benzene	Toluene	Ethylbenzene	Xylene	Methyl tert-butyl ether
MW4	12-Jul-94	Water	39.5	<50	<0.5	<0.5	<0.5	<0.5	NT
	8-Feb-95	Water	27.66	<50	<0.5	<0.5	<0.5	<0.5	NT
	23-May-95	Water	17.68	60	<0.5	<0.5	<0.5	<0.5	NT
	20-Sep-95	Water	25.81	<50	<0.5	<0.5	<0.5	<0.5	NT
	29-Dec-95	Water	20.9	<50	<0.5	<0.5	<0.5	<0.5	NT
	1-Nov-96	Water	22.84	<50	2.7	<0.5	<0.5	<0.5	NT
	29-Apr-97	Water	20.57	<50	2.6	<0.5	<0.5	<0.5	9.2
	5-Aug-99	Water	26.64	120	59	<0.5	<0.5	<0.5	19
	20-Jul-00	Water	23.91	97	21	6.8	0.66	4.6	11
	18-Jan-02	Water	NM	NS	NS	NS	NS	NS	NS
	2-Jul-02	Water	--	--	--	--	--	--	--
****ESLs**	**Groundwater is a Current or Potential Source of Drinking Water**	**Water**	**Water**	**100**	**1**	**40**	**30**	**20**	**5**
	Groundwater is not a Current or Potential Source of Drinking Water	**Water**	**Water**	**210**	**46**	**130**	**43**	**100**	**1,800**
PRG's	**MCLs**	**Water**	**Water**	**N/A**	**5**	**1,000**	**700**	**10,000**	**N/A**

Notes

***ESLs = Bay Area Regional Water Quality Control Board Environmental Screening Levels (Interim Final May 2008), where groundwater is NOT a source of Drinking Water*

PRGs=EPA Region 9 Preliminary Remediation Goal November 2009)

DTW: ;Depth to water (ft.) measured from top of casing (TOC).

NT: Not Tested; NM: Not Measured; NS: Not Sampled

**-- No Data*

Shaded Values Exceed Their Respective Criteria

TABLE 2-D
Groundwater Analytical Summary Table
Laidlaw Transit
2900 Ladd Avnue
Livermore, California

				Constituents and Concentrations (ug/L)					
				TVPHg	B	T	E	X	MtBE
Sample Number	Sampling Date	Matrix	DTW	Total Volatile Petroleum Hydrocarbons - Gasoline	Benzene	Toluene	Ethylbenzene	Xylene	Methyl tert-butyl ether
MW5	21-Jul-00	Water	20.19	92,000	9,900	15,000	540	17,000	<1,300
	18-Jan-02	Water	23.61	63,000	5,900	10,000	1,900	15,000	<1,300
	2-Jul-02	Water	24.29	86,000	10,000	14,000	2,100	15,000	<1,300
	4-Dec-02	Water	24.35	72,000	8,500	11,000	1,600	10,000	<1,300
	31-Mar-11	Water	--	65,000	8,700	8,700	2,800	16,000	<500
**ESLs	Groundwater is a Current or Potential Source of Drinking Water	Water	Water	100	1	40	30	20	5
	Groundwater is not a Current or Potential Source of Drinking Water	Water	Water	210	46	130	43	100	1,800
PRG's	MCLs	Water	Water	N/A	5	1,000	700	10,000	N/A

Notes

***ESLs = Bay Area Regional Water Quality Control Board Environmental Screening Levels (Interim Final May 2008), where groundwater is NOT a source of Drinking Water*

PRGs=EPA Region 9 Preliminary Remediation Goal November 2009)

DTW: ;Depth to water (ft.) measured from top of casing (TOC).

NT: Not Tested; NM: Not Measured; NS: Not Sampled

**-- No Data*

Shaded Values Exceed Their Respective Criteria

TABLE 3
Well Construction Detail Table
Laidlaw Transit
2900 Ladd Avnue
Livermore, California
3054-103.00

Well ID	Date Installed	TOC (feet amsl)	Total Depth (bgs)	Casing Diameter (inches)	Screen Interval (bgs)	Sand pack	Status
MW-1	12/14/90	489.5	67 Feet	6	42-67	40-67	Inactive/ Abandoned
MW-2	4/13/93	Unknown	57 Feet	2	31.5-57	30-57	Active
MW-3	7/1/94	Unknown	53 Feet	2	28-53	26-53	Active
MW-4	6/30/94	Unknown	53 Feet	2	28-53	26-53	Inactive/ Needs to be located
MW-5	5/28/00	Unknown	25 Feet	2	15-25	14-25	Active

Notes:
bgs=below ground surface
TOC= Top of Casing

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
ALEX BRISCOE, Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

NOTICE OF VIOLATION

November 18, 2010

Mr. George Moniz
Livermore Unified School District
685 E. Jack London Blvd.
Livermore, CA 94550

Subject: Notice of Violation for Fuel Leak Case No. RO0000188 and GeoTracker Global ID T0600100844, Laidlaw Transit (Maintenance Yard), 2900 Ladd Avenue, Livermore, CA 94550

Dear Mr. Moniz:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above referenced site. The most recent document that we have received for this site is a document entitled "Report on Groundwater Sampling for Monitoring Well MW-5," dated January 7, 2003 prepared on your behalf by Engeo Incorporated. ACEH has not received any more recent documents since receiving the January 7, 2003 report. The January 7, 2003 report presents the results from groundwater sampling of one monitoring well at the site, well MW-5. Laboratory analytical results from the sampling conducted in December 2002, indicate that groundwater from well MW-5 contains 72,000 micrograms per liter (µg/L) of total petroleum hydrocarbons as gasoline (TPHg), 8,500 µg/L of benzene, 11,000 µg/L of toluene, 1,600 µg/L of ethylbenzene, and 10,000 µg/L of xylenes. Sampling activities conducted prior to December 2002 have also detected elevated concentrations of petroleum hydrocarbons in soil and groundwater at the site. Based on the elevated concentrations of petroleum hydrocarbons present in soil and groundwater at the site, investigation and cleanup of this site is not complete. Therefore, you are required to conduct additional site investigation, groundwater monitoring, and cleanup in order to reach site closure.

In correspondence dated August 5, 2005, ACEH requested that you submit a Work Plan to complete site investigation and conduct groundwater monitoring. No Work Plan was subsequently received. Therefore, your site is out of compliance with directives from this agency. In order for your site to return to compliance, please **submit a Work Plan that addresses the technical comments below no later than February 18, 2011.** Failure to submit the requested Work Plan by the due date specified above may result in referral and possible enforcement action by the District Attorney and/or ineligibility for reimbursement of corrective action costs incurred at the site from the Underground Storage Tank Clean-up Fund. Pursuant to Chapter 6.7, California Health and Safety code, civil penalties up to $10,000 for each UST for each day of violation may be imposed. Once removed from the Clean-up Fund, the costs associated with the subsurface investigation and/or cleanup work that may be required at your site will not be reimbursed.

Former tanks

2008
2009
2010

Cell 510-773-0352 Jerry

TECHNICAL COMMENTS

1. **Filter Pack and Screen Intervals for Wells MW-2, MW-3, and MW-4.** The screen interval for existing well MW-2 extends from approximately 32 to 57 feet bgs. The screen interval for wells MW-3 and MW-4 extends from approximately 28 to 53 feet bgs. The Work Plan must include an assessment of whether the filter packs and screen intervals for these wells connect different water-bearing zones and may act as conduits for vertical contaminant migration. The wells are to be properly decommissioned if it is determined that the wells connect different water-bearing zones or vertical ambient flow is potentially occurring within the wells.

2. **Site Characterization.** The lateral and vertical extent of soil and groundwater contamination at the site has not been fully defined. Monitoring well MW-5 extends to a depth of 25 feet bgs and monitors shallow groundwater at the site. The remaining three wells are screened within lower stratigraphic intervals. Both shallow groundwater (currently monitored by well MW-5) and the deeper groundwater monitored by well MW-2, are contaminated. Detailed lithologic information is to be collected using soil borings, direct push sampling, and/or cone penetrometer to complete site characterization. The Work Plan requested below is to include plans to characterize chemical concentrations in groundwater within the shallow groundwater zone and deeper water-bearing zones. Please consider the use of depth discrete groundwater samples collected along transects to characterize the site prior to installation of monitoring wells. We request that you use detailed hydrogeologic cross sections to determine the appropriate locations and designs for monitoring wells/well clusters and piezometers that are needed to appropriately characterize the three-dimensional extent of soil and groundwater contamination at the site. To appropriately evaluate your site, your monitoring wells/well clusters will need to be screened in the permeable zones with screen lengths that match the stratigraphic sequence. Please include the above information in the Work Plan requested below.

3. **Well Survey**. ACEH requests that you locate all water supply wells within 2,000 ft of the subject site. We recommend that you obtain well information from both Zone 7 Water Agency and the State of California Department of Water Resources, at a minimum. As part of your detailed well survey, please perform a background study of the historical land uses of the site and properties in the vicinity of the site. Use the results of your background study to determine the existence of unrecorded/unknown (abandoned) wells, which can act as pathways for migration of contamination at and/or from your site. Please refer to the Regional Board's guidance for identification, location, and evaluation of potential deep well conduits when conducting your preferential pathway study. Please include the Well Survey in the Work Plan requested below.

4. **Noncompliance with GeoTracker Requirements.** Review of the State's GeoTracker database indicates that the site still has not been claimed. Your site is out of compliance with directives from this agency. This letter is an additional attempt to preclude further enforcement actions. Pursuant to California Code of Regulations, Title 23, Division 3, Chapter 30, Articles 1 and 2, Sections 3893, 3894, and 3895, you are required to claim your site and subsequently transmit electronic reports and other site data.

TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention: Jerry Wickham), according to the following schedule:

- **February 18, 2011** – Work Plan

If you have any questions, please call me at (510) 567-6791 or send me an electronic mail message at jerry.wickham@acgov.org.

Sincerely,

Digitally signed by Jerry Wickham
DN: cn=Jerry Wickham, o=Alameda County Environmental Health, ou, email=jerry.wickham@acgov.org, c=US
Date: 2010.11.18 15:24:32 -08'00'

Jerry Wickham, California PG 3766, CEG 1177, and CHG 297
Senior Hazardous Materials Specialist

Attachment: Responsible Party(ies) Legal Requirements/Obligations

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Danielle Stefani, Livermore Pleasanton Fire Department, 3560 Nevada St, Pleasanton, CA 94566 (*Sent via E-mail to: dstefani@lpfire.org*)

Cheryl Dizon (QIC 8021), Zone 7 Water Agency, 100 North Canyons Pkwy, Livermore, CA 94551 (*Sent via E-mail to: cdizon@zone7water.com*)

Donna Drogos, ACEH (*Sent via E-mail to: donna.drogos@acgov.org*)
Jerry Wickham, ACEH (*Sent via E-mail to: jerry.wickham@acgov.org*)

GeoTracker, File

LOP case Alameda County Env. Health. ACGOV.ORG/ on line LOP records. HTM.
Clean up fund. State water USD clean up fund

Attachment 1
Responsible Party(ies) Legal Requirements/Obligations

REPORT REQUESTS

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) GeoTracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the GeoTracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in GeoTracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/electronic_submittal/report_rqmts.shtml.

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to $10,000 per day for each day of violation.

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	**ISSUE DATE:** July 5, 2005
	REVISION DATE: March 27, 2009
	PREVIOUS REVISIONS: December 16, 2005, October 31, 2005
SECTION: Miscellaneous Administrative Topics & Procedures	**SUBJECT:** Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- Entire report including cover letter must be submitted to the ftp site as **a single portable document format (PDF) with no password protection**. (Please do not submit reports as attachments to electronic mail.)
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- Signature pages and perjury statements **must** be included and have either original or electronic signature.
- **Do not password protect the document**. Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted**.
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:
  RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Additional Recommendations

- A separate copy of the tables in the document should be submitted by e-mail to your Caseworker in **Excel** format. These are for use by assigned Caseworker only.

Submission Instructions

1) Obtain User Name and Password:
   a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
      i) Send an e-mail to dehloptoxic@acgov.org
         Or
      ii) Send a fax on company letterhead to (510) 337-9335, to the attention of My Le Huynh.
   b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses**, and the **Case Numbers (RO# available in Geotracker) you will be posting for**.

2) Upload Files to the ftp Site
   a) Using Internet Explorer (IE4+), go to ftp://alcoftp1.acgov.org
      (i) Note: Netscape and Firefox browsers will not open the FTP site.
   b) Click on File, then on Login As.
   c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
   d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
   e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.

3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
   a) Send email to dehloptoxic@acgov.org notify us that you have placed a report on our ftp site.
   b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
   c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO# use the street address instead.
   d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

KEY TO BORING LOGS

MAJOR TYPES			DESCRIPTION
COARSE-GRAINED SOILS MORE THAN HALF OF MAT'L LARGER THAN #200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO 4 SIEVE SIZE	CLEAN GRAVELS WITH LITTLE OR NO FINES	Well graded gravels, little or no fines
			Poorly graded gravels or gravel-sand mixture
		GRAVELS WITH OVER 12 % FINES	Silty gravels, gravel and silt mixtures
			Clayey gravels, gravel and clay mixtures
			Clayey sandy gravel, gravel-sand-clay mixtures
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO 4 SIEVE SIZE	CLEAN SANDS WITH LITTLE OR NO FINES	Well graded sands, little or no fines
		SANDS WITH OVER 12 % FINES	Silty sand, sand-silt mixtures
			Clayey sand, sand-clay mixtures
FINE-GRAINED SOILS MORE THAN HALF OF MAT'L SMALLER THAN #200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50% OR LESS		Silt
			Clay
			Clayey silt, silt-clay mixtures
			Silty clay, clay-silt mixtures
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%		Gravelly clay, clay-gravel mixtures
			Sandy silty clay, clay-silt-sand mixtures
			Gravelly silt, silt-gravel mixtures
	HIGHLY ORGANIC SOILS		Peat and other highly organic soils
BEDROCK	SEDIMENTARY BEDROCK OTHER BEDROCK TYPES DESCRIBED ON LOGS		Sandstone
			Siltstone
			Claystone

RELATIVE DENSITY

SANDS AND GRAVELS	BLOWS/FOOT (S.P.T.)
VERY LOOSE	0-4
LOOSE	4-10
MEDIUM DENSE	10-30
DENSE	30-50
VERY DENSE	OVER 50

CONSISTENCY

SILTS AND CLAYS	STRENGTH*	BLOWS/FOOT (S.P.T.)
VERY SOFT	0-1/4	0-2
SOFT	1/4-1/2	2-4
MEDIUM STIFF	1/2-1	4-8
STIFF	1-2	8-15
VERY STIFF	2-4	15-30
HARD	OVER 4	OVER 30

SAMPLER SYMBOLS

- Modified California (3" O.D.) sampler
- S.P.T. - Split Spoon sampler
- Bulk - Bag sample
- Lost - Sample attempted, no recovery
- Shelby tube

LINE TYPES

- Solid - Layer Break
- Angled - Approximate Layer Break
- Dashed - Gradational Layer Break

(S.P.T.) Number of blows of 140 lb. hammer falling 30" to drive a 2-inch O.D. (1-3/8 inch I.D.) Sampler.

ENGEO

* Unconfined compressive strength in tons/sq. ft., asterisk on log means determined by Pocket Penetrometer.

DATE: 07/25/90
LOGGED BY: MC
ELEVATION: --
WATER LEVEL: None encountered
EQUIPMENT: Mobile Drill B-53, 8" Hollow Stem Auger (Drilled at a 30° angle from vertical)

LOG DESIGNATION EB-1

JOB: P90150
FIGURE: 3

DEPTH, FEET	NOMINAL (1) DIAMETER, IN.	BLOWS/FOOT (2)	MOISTURE %	DRY DENSITY, PCF	SAMPLES	U.S.C.S.	SOIL OR ROCK DESCRIPTION	NOTES
						PMT	3" Asphaltic Concrete over 8" Aggregate Base	
						CL	SILTY CLAY: Redish medium brown, very moist, slightly gravelly, no odor	OVM* = 0
						GC	CLAYEY GRAVEL: Medium brown, damp, medium to coarse-grained	OVM = 0
5								
10								OVM = 37
	2.0	-	-	-	1		CLAYEY SANDY GRAVEL: Light brown, very moist, slight hydrocarbon odor	OVM = 37
15								
	2.0	-	-	-	2		Strong gasoline odor, sample wet with product	OVM = 512
20	2.0	-	-	-	3		as above	OVM = 738
								Boring Terminated At 20'
25							OVM: Denotes Organic Vapor Meter	

THE LOGS SHOW SUBSURFACE CONDITIONS AT THE DATES AND LOCATIONS INDICATED, AND IT IS NOT WARRANTED THAT THEY ARE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

(1) SAMPLER INSIDE DIAM.
(2) 140lbs HAMMER - 30 INCH DROP.
(P) HYDRAULICALLY PUSHED

BSK & Associates

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: July 1, 1994 SURFACE ELEVATION: Approx. feet msl DESCRIPTION	N S.P.T. BLOW/FT *MODIFIED FOR 3" O.D. SAMPLER	OVM READING P.I.D. (10.0eV) (parts per million)	IN PLACE: DRY UNIT WEIGHT (PCF)	IN PLACE: MOIST. CONTENT % DRY WEIGHT
0			Brown, silty LOAM				
5			Light brown, dry, sandy GRAVEL.				
10					3		
15			Brown, clayey GRAVEL, moist/wet.				
20					14		
25			Brown clayey GRAVEL, some fine to coarse sand, wet, slight hydrocarbon odor. Decrease in gravel.				
30			Wet, clayey, fine to medium GRAVEL with sand, hydrocarbon odor.		24		

OVM 3174B 3/22/95

ENGEO
INCORPORATED

2900 LADD AVENUE
LIVERMORE, CALIFORNIA

BORING NO.: PHA
DATE: March 1995
JOB NO.: 3174-F7

FIGURE NO. 6

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: July 1, 1994 SURFACE ELEVATION: Approx. feet msl DESCRIPTION	N S.P.T. BLOW/FT *MODIFIED FOR 3" O.D. SAMPLER	OVM READING P.I.D. (10.0eV) (parts per million)	IN PLACE: DRY UNIT WEIGHT (PCF)	IN PLACE: MOIST. CONTENT % DRY WEIGHT
30			Decrease in gravel clayey Wet, odorous, clayey GRAVEL, gravelly CLAY.				
					58		
35			Stiffer, sandy CLAY, wet, brown, odor.				
					37		
40			Brown, stiff, wet silty CLAY, little fine to medium gravel.				
			▽ Hydropunch samples collected from 44'-45'.		9		
45			Bottom of boring at approximately 45 feet.				
50							
55							
60							

OVM 3174B 3/22/95

ENGEO INCORPORATED

2900 LADD AVENUE
LIVERMORE, CALIFORNIA

BORING NO.: PHA
DATE: March 1995
JOB NO.: 3174-F7

FIGURE NO. 6

DATE OF BORING: December 13, 1990

SURFACE ELEVATION: Approx. 490.0 feet

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	N S.P.T. BLOWS/FT *MODIFIED FOR 3" O.D. SAMPLER	qu UNCON. COMP. STRENGTH (TSF) *FIELD PENET. APPROX.	IN PLACE DRY UNIT WEIGHT (PCF)	IN PLACE MOIST. CONTENT % DRY WEIGHT
0			ASPHALT				
			PEA GRAVEL.				
			Reddish-brown silty CLAY, some gravels. (CL)		0		
5			Brown clayey GRAVEL, medium to coarse. (GC)		0		
			Coarser gravel.		0		
10	1-1		Brown sandy clayey GRAVEL, moist, very dense, slight odor. (GC)	50/5"	30		
			Strong petroleum odor at 14 feet.		410		
15	1-2			22*	500		
20			Medium dense, strong petroleum hydrocarbon odor.		532		
	1-3			30*	180		
					102		
25	1-4		Light brown sandy gravelly CLAY, moist, very stiff, odor. (CL)	28*	75		
					50		
30							

ENGEO INCORPORATED

Livermore Valley Unified School District

Livermore, California

BORING NO.: B1

DATE: September 1991

JOB NO: N1-3174-F1

FIGURE NO.

DATE OF BORING: December 13, 1990

SURFACE ELEVATION: Approx. 490.0 feet

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	N S.P.T. BLOWS/FT *MODIFIED FOR 3" O.D. SAMPLER	qu UNCON. COMP. STRENGTH (TSF) *FIELD PENET. APPROX.	IN PLACE DRY UNIT WEIGHT (PCF)	IN PLACE MOIST. CONTENT % DRY WEIGHT
30			Moist, harder, slight odor. (CL)				
	1-5			33*	50		
					57		
35			Reddish-brown sandy silty CLAY, with gravels, moist, stiff. (CL)				
	1-6			9*	30		
	1-7		Lense of red clay at 38.5 feet.	9*			
	1-8		Brown sandy silty CLAY with some gravels, very moist, hard, odor. (CL)	36*	2		
40	1-9			50/5"	30		
	1-10		Brown sandy gravelly CLAY, very moist, hard, odor. (CL)	50/5"	18		
	1-11			46*	20		
45							
	1-12		Mottled brown sandy gravelly CLAY, very moist, hard. (CL)	63*	5		
					0		
55			Brown silty CLAY with some gravel, very moist, hard. (CL)				
	1-13		▽ Approximate water level at time of drilling	50/6"*	0		
60							

ENGEO INCORPORATED

Livermore Valley Unified School District

Livermore, California

BORING NO.: B1

DATE: September 1991

JOB NO: N1-3174-F1

FIGURE NO.

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: December 13, 1990 SURFACE ELEVATION: Approx. 490.0 feet DESCRIPTION	N S.P.T. BLOWS/FT *MODIFIED FOR 3" O.D. SAMPLER	qu UNCON. COMP. STRENGTH (TSF) *FIELD PENET. APPROX.	IN PLACE: DRY UNIT WEIGHT (PCF)	IN PLACE: MOIST. CONTENT % DRY WEIGHT
60	1-14		Brown gravelly silty CLAY, saturated, hard. (CL)	57	0		
			Bottom of boring at approximately 61.5 feet.				
65							
70							
75							
80							
85							
90							

ENGEO INCORPORATED

Livermore Valley Unified School District

Livermore, California

BORING NO.: B 1

DATE: September 1991

JOB NO: N1-3174-F1

FIGURE NO.

DATE OF BORING: December 13, 1990

SURFACE ELEVATION: Approx. 490.0 feet

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	N S.P.T. BLOWS/FT *MODIFIED FOR 3" O.D. SAMPLER	qu UNCON. COMP. STRENGTH (TSF) *FIELD PENET. APPROX.	IN PLACE DRY UNIT WEIGHT (PCF)	IN PLACE MOIST. CONTENT % DRY WEIGHT
0			ASPHALT				
			PEA GRAVEL.		0		
5			Brown clayey GRAVEL, coarse, moist, dense. (GC)		0		
10	2-1			48*	0		
15			Brown silty CLAY with gravel, brown moist, hard, very slight odor. (CL)				
	2-2			51*	4		
20					7		
	2-3		Brown sandy silty CLAY with minor gravels, moist, hard. (CL)	34*	1		
25					1		
	2-4			50*	1		
30			Brown silty CLAY (CL), with some gravels, moist, hard. (CL)				

ENGEO INCORPORATED

Livermore Valley Unified School District

Livermore, California

BORING NO.: B2

DATE: September 1991

JOB NO: N1-3174-F1

FIGURE NO.

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: December 13, 1990 SURFACE ELEVATION: Approx. 490.0 feet DESCRIPTION	N S.P.T. BLOWS/FT *MODIFIED FOR 3" O.D. SAMPLER	qu UNCON. COMP. STRENGTH (TSF) *FIELD PENET. APPROX.	IN PLACE: DRY UNIT WEIGHT (PCF)	IN PLACE: MOIST. CONTENT % DRY WEIGHT
30	2-5			48*	0		
			Brown silty gravelly CLAY, moist, very stiff. (CL)				
35							
			Brown silty CLAY with minor gravels, moist, very stiff. (CL)				
40			Light brown silty sandy CLAY, moist, very stiff. (CL)				
	2-6			22*	0		
45					0		
50							
			Brown silty sandy CLAY, some gravel, moist, very stiff. (CL)				
55							
	2-7		▽	22*	0		
			Water encountered at approximately 57 feet. Bottom of boring at approximately 57 feet.				
60							

ENGEO INCORPORATED

Livermore Valley Unified School District

Livermore, California

BORING NO.: B2

DATE: September 1991

JOB NO: N1-3174-F1

FIGURE NO.

DATE OF BORING: April 9, 1993

SURFACE ELEVATION: Approx. feet msl

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	N S.P.T. BLOW/FT *MODIFIED FOR 3" O.D. SAMPLER	OVM READING P.I.D. (10.0eV) (parts per million)	IN PLACE DRY UNIT WEIGHT (PCF)	IN PLACE MOIST. CONTENT % DRY WEIGHT
0			ASPHALT/BASE ROCK				
			10YR 4/4 Dark yellowish-brown gravelly CLAY, moist. (CL)				
5			10YR 4/4 Dark yellowish brown clayey GRAVEL. (GC)		2.3		
10	3-1		10YR 5/4 Yellowish brown clayey sandy GRAVEL. Gravel to 4 inches.		3.0 3.0		
15	3-2		10YR 5/4 Yellowish brown silty SAND with some clay, slightly to medium plasticity. (SM/SC) Increasing gravel.		20.5		
20	3-3		10YR 6/5 Pale brown clayey sandy GRAVEL, very moist. (GC)		3.8		
25	3-4				4.6		
30							

ENGEO INCORPORATED

Livermore Valley Joint Unified School District
Livermore, California

BORING NO.: B-3

DATE: July 1993

JOB NO.: 3174-F6

FIGURE NO. 3

DATE OF BORING: April 9, 1993

SURFACE ELEVATION: Approx. feet msl

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	N S.P.T. BLOW/FT *MODIFIED FOR 3" O.D. SAMPLER	OVM READING P.I.D. (10.0eV) (parts per million)	IN PLACE DRY UNIT WEIGHT (PCF)	IN PLACE MOIST. CONTENT % DRY WEIGHT
30							
	3-5		10YR 5/4 Yellowish brown silty CLAY, moist, medium plasticity. (CL)		2.7		
			▼ Water level 4/13/93.				
35							
	3-6		Mottled 10YR 5/8 yellowish brown and 10YR 5/3 brown clayey SAND, wet, moisture on grains. (CL)		3.8		
			10YR 5/4 Yellowish brown clayey SILT, wet, trace rounded gravel, moisture on grains.				
40			▼ Water level three hours after drilling.				
	3-7				4.0		
			▽ Water level at time of drilling.				
45			10YR 5/6 Yellowish brown clayey sandy GRAVEL, wet. (CG)				
	3-8				1.1		
			Bottom of boring at approximately 46.5 feet.				
50							
55							
60							

ENGEO INCORPORATED

Livermore Valley Joint Unified School District
Livermore, California

BORING NO.: B-3

DATE: July 1993

JOB NO.: 3174-F6

FIGURE NO. 3

DATE OF BORING: April 9, 1994

SURFACE ELEVATION: Approx. feet msl

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	N S.P.T. BLOW/FT *MODIFIED FOR 3" O.D. SAMPLER	OVM READING P.I.D. (10.0eV) (parts per million)	IN PLACE DRY UNIT WEIGHT (PCF)	IN PLACE MOIST. CONTENT % DRY WEIGHT
0			ASPHALT/BASE ROCK				
			10YR 4/4 Dark yellowish brown gravelly CLAY with some sand moist. (CL)				
			Increasing gravel.				
5			10Y 5/4 Yellowish brown sandy GRAVEL with some clay, slightly moist. (GC)		10.8		
					5.6		
10			Increasing moisture				
15	4-1				478		
			Very moist.				
20	4-2				478		
25	4-3		Harder drilling.		401		
			10YR 5/4 Yellowish brown sandy GRAVEL, damp. (GW)				
30							

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Livermore Valley Joint Unified School District
Livermore, California

BORING NO.: B-4

DATE: July 1993

JOB NO.: 3174-F6

FIGURE NO. 4

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: April 9, 1994 SURFACE ELEVATION: Approx. feet msl DESCRIPTION	N S.P.T. BLOW/FT *MODIFIED FOR 3" O.D. SAMPLER	OVM READING P.I.D. (10.0eV) (parts per million)	IN PLACE DRY UNIT WEIGHT (PCF)	IN PLACE MOIST. CONTENT % DRY WEIGHT
30	4-4		Easier drilling.		579		
			Mottled 10YR 5/8 Yellowish brown and 10YR 6/3 pale brown clayey SILT, trace fine sand, very moist, slight plasticity. (SM) ▼ Water level on 4/12/93.				
35	4-5		Increasing sand.		181		
			10YR 5/6 Yellowish brown clayey silty SAND with rounded gravels, very moist. SC)				
40	4-6				40		
	4-7		▽ Water level at time of drilling.		23		
45							
50							
55							
60							

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Livermore Valley Joint Unified School District
Livermore, California

BORING NO.: B-4
DATE: July 1993
JOB NO.: 3174-F6

FIGURE NO. 4

DATE OF BORING: April 9, 1993

SURFACE ELEVATION: Approx. feet MSL

DEPTH (FEET)	MONITORING WELL CONSTRUCTION DETAIL	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	N S.P.T. BLOWS/FT *MODIFIED FOR 3" O.D. SAMPLER	OVM READING P.I.D. (10.0eV) (parts per million)	IN PLACE DRY UNIT WEIGHT (PCF)	IN PLACE MOIST. CONTENT % DRY WEIGHT
0			ASPHALT/BASE ROCK.				
			10YR 4/6 Dark yellowish brown silty CLAY with some gravel, moist, medium plasticity. (CL) Increasing gravel.				
5			10YR 3/3 Dark brown clayey GRAVEL with gravels to 4 inches, moist. (GC) Very coarse gravel.		1.5		
					2.7		
10			▽ Water level at time of drilling.				
			10YR 6/4 Light yellowish brown sandy GRAVEL with trace fines, wet. (GP)				
15			5-1		584		
20			10YR 5/4 Dark yellowish brown clayey sandy GRAVEL, wet. (CG) 5-2		693		
25			10YR 5/4 Dark yellowish brown gravelly SAND with little silt and clay, very moist. (SC) 5-3		659		
			Increasing clay.				
30			No sample recovery.				

ENGEO INCORPORATED

Livermore Valley Joint
Livermore, California

WELL NO.: B-5 / MW-2

DATE: July 1993

JOB NO.: 3174-F6

FIGURE NO. 5

DEPTH (FEET)	MONITORING WELL CONSTRUCTION DETAIL	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	N S.P.T. BLOWS/FT *MODIFIED FOR 3" O.D. SAMPLER	OVM READING P.I.D. (10.0eV) (parts per million)	IN PLACE: DRY UNIT WEIGHT (PCF)	IN PLACE: MOIST. CONTENT % DRY WEIGHT
			DATE OF BORING: April 9, 1993				
			SURFACE ELEVATION: Approx. feet MSL				
30					297		
			Mottled 10YR 5/8 yellowish brown and 10YR 6/3 pale brown silty CLAY, moist. (CL) Increasing silt. ▼ Water level on 4/12/93				
35			5-4		119		
			Mottled 10YR 5/8 yellowish brown and 10YR 6/3 pale brown clayey SILT. (SM) Increasing sand; trace gravel.				
40			2.5Y 5/4 Light olive-brown clayey sandy GRAVEL, moist. (GC)				
			5-5		125		
45			10YR 5/4 Yellowish brown clayey sandy GRAVEL, wet.				
			5-6				
50			5-7		11		
55			5-8				
			Bottom of boring at approximately 57 feet.				
60							

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Livermore Valley Joint
Livermore, California

WELL NO.: B-5/MW-2
DATE: July 1993
JOB NO.: 3174-F6

FIGURE NO. 5

DATE OF BORING: April 9, 1993

SURFACE ELEVATION: Approx. feet msl

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	N S.P.T. BLOW/FT *MODIFIED FOR 3" O.D. SAMPLER	OVM READING P.I.D. (10.0eV) (parts per million)	IN PLACE DRY UNIT WEIGHT (PCF)	IN PLACE MOIST. CONTENT % DRY WEIGHT
0			ASPHALT/BASE ROCK				
			PEA GRAVEL. (FILL)				
5							
10			CONCRETE.				
			10YR 4/6 Dark yellowish brown clayey GRAVEL, moist. (GC)				
15	6-1				603		
20	6-2		10YR 5/4 Yellowish-brown clayey GRAVEL, wet. (GC)		598		
25	6-3		10YR yellowish brown silty CLAY, very moist, medium plasticity. (CL)		478		
30			10YR 5/6 Yellowish brown silty SAND and GRAVEL, moist. (GM)				

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Livermore Valley Joint Unified School District
Livermore, California

BORING NO.: B-6

DATE: July 1993

JOB NO.: 3174-F6

FIGURE NO. 6

DATE OF BORING: April 9, 1993

SURFACE ELEVATION: Approx. feet msl

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	N S.P.T. BLOW/FT *MODIFIED FOR 3" O.D. SAMPLER	OVM READING P.I.D. (10.0eV) (parts per million)	IN PLACE DRY UNIT WEIGHT (PCF)	IN PLACE MOIST. CONTENT % DRY WEIGHT
30	6-4				522		
35	6-5		Mottled 10YR 5/8 yellowish brown and 10YR 6/3 pale brown clayey SILT with fine sand, very moist. (SM)		151		
40			Bottom of boring at approximately 36.5 feet.				
45							
50							
55							
60							

ENGEO INCORPORATED

Livermore Valley Joint Unified School District
Livermore, California

BORING NO.: B-6

DATE: July 1993

JOB NO.: 3174-F6

FIGURE NO. 6

DATE OF BORING: April 9, 1993

SURFACE ELEVATION: Approx. feet msl

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	N S.P.T. BLOW/FT *MODIFIED FOR 3" O.D. SAMPLER	OVM READING P.I.D. (10.0eV) (parts per million)	IN PLACE DRY UNIT WEIGHT (PCF)	IN PLACE MOIST. CONTENT % DRY WEIGHT
0			ASPHALT/BASE ROCK				
			10YR 4/2 Very dark grayish-brown sandy gravelly CLAY, slightly moist, medium plasticity. (CL)		5.4		
5			10YR 4/3 Brown clayey SAND, damp. (CL)				
			10YR 4/4 Dark yellowish brown sandy clayey GRAVEL, moist. (CG)		2.3		
10					2.3		
			10YR 5/3 Brown silty SAND with gravel, trace clay, wet. (SM)				
15	7-1				733		
20			Mottled 10YR 5/4 yellowish brown and 10YR 6/3 pale brown clayey SILT, very moist, wet. (SM)				
	7-2				742		
			10YR 5/6 Yellowish brown clayey sandy GRAVEL, very moist. (CG)				
25	7-3				623		
30							

ENGEO INCORPORATED

Livermore Valley Joint Unified School District
Livermore, California

BORING NO.: B-7

DATE: July 1993

JOB NO.: 3174-F6

FIGURE NO. 7

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	N S.P.T. BLOW/FT *MODIFIED FOR 3" O.D. SAMPLER	OVM READING P.I.D. (10.0eV) (parts per million)	IN PLACE DRY UNIT WEIGHT (PCF)	IN PLACE MOIST. CONTENT % DRY WEIGHT
			DATE OF BORING: April 9, 1993				
			SURFACE ELEVATION: Approx. feet msl				
30	7-4				707		
35	7-5		Mottled 10YR 5/8 yellowish brown silty CLAY/clayey SILT, very moist, medium plasticity. (CL)		280		
			Bottom of boring at approximately 36.5 feet.				
40							
45							
50							
55							
60							

ENGEO INCORPORATED

Livermore Valley Joint Unified School District
Livermore, California

BORING NO.: B-7
DATE: July 1993
JOB NO.: 3174-F6

FIGURE NO. 7

DATE OF BORING: April 9, 1993

SURFACE ELEVATION: Approx. feet msl

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	N S.P.T. BLOW/FT *MODIFIED FOR 3" O.D. SAMPLER	OVM READING P.I.D. (10.0eV) (parts per million)	IN PLACE: DRY UNIT WEIGHT (PCF)	IN PLACE: MOIST. CONTENT % DRY WEIGHT
0			ASPHALT/BASE ROCK				
			10YR 4/4 Dark yellowish-brown gravelly CLAY, moist. (CL)				
					10.0		
5			10YR 5/4 Dark yellowish brown clayey GRAVEL, slightly moist. (GC)		7.0		
10					5.4		
			wet.				
15	8-1				14.1		
20			Mottled 10YR 6/6 brownish yellow and 10YR 6/3 pale brown clayey SILT, moist, low plasticity. (ML)				
	8-2				534		
			10YR 5/4 Yellowish brown clayey GRAVEL, wet. (GC)				
25							
	8-3				137		
30							

ENGEO INCORPORATED

Livermore Valley Joint Unified School District
Livermore, California

BORING NO.: B-8

DATE: July 1993

JOB NO.: 3174-F6

FIGURE NO. 8

DATE OF BORING: April 9, 1993

SURFACE ELEVATION: Approx. feet msl

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	N S.P.T. BLOW/FT *MODIFIED FOR 3" O.D. SAMPLER	OVM READING P.I.D. (10.0eV) (parts per million)	IN PLACE DRY UNIT WEIGHT (PCF)	IN PLACE MOIST. CONTENT % DRY WEIGHT
30	8-4				20		
35	8-5		Mottled 10YR 5/8 yellowish brown and 10YR 6/3 pale brown silty CLAY, moist. (CL)				
			Bottom of boring at approximately 35.5 feet.				
40							
45							
50							
55							
60							

ENGEO INCORPORATED

Livermore Valley Joint Unified School District
Livermore, California

BORING NO.: B-8

DATE: July 1993

JOB NO.: 3174-F6

FIGURE NO. 8

DATE OF BORING: July 1, 1994

SURFACE ELEVATION: Approx. feet msl

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	N S.P.T. BLOW/FT *MODIFIED FOR 3" O.D. SAMPLER	OVM READING P.I.D. (10.0eV) (parts per million)	IN PLACE DRY UNIT WEIGHT (PCF)	IN PLACE MOIST. CONTENT % DRY WEIGHT
0			Dry GRAVEL, base rock.				
			Reddish brown, damp, sandy SILT.				
			Changes to silty GRAVEL, little sand.				
			Brown, silty SAND with some fine to medium gravel, damp/dry.				
5			Light brown, damp, silty SAND (fine to coarse) with some gravel.				
			Increase in gravel (gravel layer).				
10			Brown, damp, silty, fine to coarse SAND and fine to medium GRAVEL.		20		
			Increase in clay content. Brown, moist, clayey, fine to coarse SAND with some fine to medium gravel.				
15	9-1		Brown, wet, fine to coarse SAND with fine to medium GRAVEL, little clay, little silt, slight odor.		19		
			Brown, wet, clayey SAND with fine to medium gravel.		50		
20	9-2				66		
			Brown, wet, fine to coarse SAND with fine to medium GRAVEL, slight odor.		23		
			Increase in clay content. Clayey fine to coarse SAND, some fine to medium gravel.				
25	9-3		Brown, slightly clayey fine to coarse SAND with fine to medium GRAVEL.		12		
			Bottom of boring at approximately 26.5 feet.				
30							

OVM 3174B 3/22/95

ENGEO INCORPORATED

2900 LADD AVENUE

LIVERMORE, CALIFORNIA

BORING NO.: B9

DATE: March 1995

JOB NO.: 3174-F7

FIGURE NO. 4

DATE OF BORING: July 1, 1994

SURFACE ELEVATION: Approx. feet msl

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	N S.P.T. BLOW/FT *MODIFIED FOR 3" O.D. SAMPLER	OVM READING P.I.D. (10.0eV) (parts per million)	IN PLACE DRY UNIT WEIGHT (PCF)	IN PLACE MOIST. CONTENT % DRY WEIGHT
0			Light reddish brown, damp, fine to medium sandy SILT with fine to medium gravel.				
			Increase in gravel.				
5			Light brown, sandy SILT with fine to medium gravel.				
			Fine to coarse SAND and fine to medium GRAVEL.				
			Increase in moisture.				
10			Brown, slightly clayey, damp, fine to coarse SAND and fine to medium GRAVEL.				
			Brown, moist, clayey fine to coarse SAND with fine to medium GRAVEL, moist to wet.				
	10-1		Mottled yellow-brown/gray-brown, moist, fine sandy SILT to silty fine SAND, moist (odor).		104		
15			Fine sandy SILT, little fine gravel.				
	10-2		Brown moist to wet, fine interbeds of wet fine to coarse SAND with silt (moist).		22		
20			Bottom of boring at approximately 20 feet.				
25							
30							

ENGEO INCORPORATED

2900 LADD AVENUE

LIVERMORE, CALIFORNIA

BORING NO.: B10

DATE: March 1995

JOB NO.: 3174-F7

FIGURE NO. 5

OVM 3174B 3/22/95

DATE OF BORING: December 14, 1990

SURFACE ELEVATION: Approx. 490.0 feet

DEPTH (FEET)	DESCRIPTION	N S.P.T. BLOWS/FT *MODIFIED FOR 3" O.D. SAMPLER	OVM READING P.I.D. (10.0eV) (parts per million)	IN PLACE DRY UNIT WEIGHT (PCF)	IN PLACE MOIST. CONTENT % DRY WEIGHT
0	ASPHALT cover.				
	Brown silty CLAY, dry. (CL)		0		
	PEA GRAVEL.				
5					
10	MW1-1 Brown clayey GRAVEL, medium to coarse, moist, medium dense, odor. (GC)	7*	0		
15	MW1-2 Very dense, strong odor.	50/5"	542		
20	MW1-3	34*	540		
25	MW1-4 Brown gravelly sandy CLAY, moist, hard, strong petroleum hydrocarbon odor. (CL)	15*	400		
30	Brown silty sandy CLAY, moist, hard, strong odor. (CL)		602		

ENGEO INCORPORATED

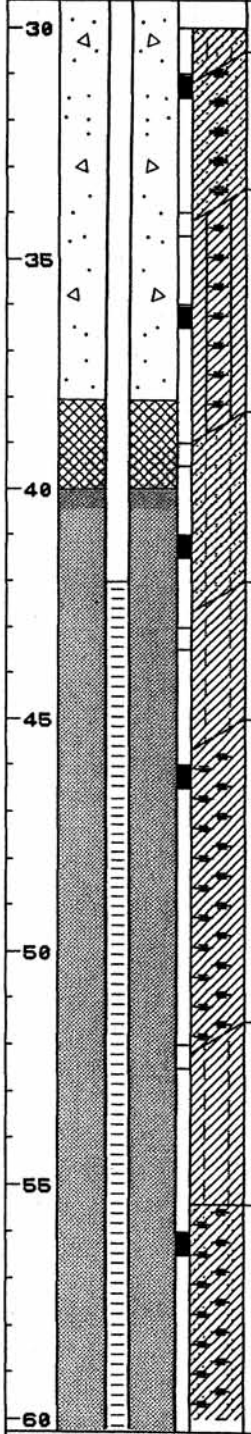
Livermore Valley Unified School District
Livermore, California

WELL NO.: MW1

DATE: September 1991

JOB NO.: N1-3174-F1

FIGURE NO.



DATE OF BORING: December 14, 1990

SURFACE ELEVATION: Approx. 490.0 feet

DEPTH (FEET)	DESCRIPTION	N S.P.T. BLOWS/FT *MODIFIED FOR 3" O.D. SAMPLER	OVM READING P.I.D. (10.0eV) (parts per million)	IN PLACE: DRY UNIT WEIGHT (PCF)	IN PLACE: MOIST. CONTENT % DRY WEIGHT
30	MW1-5 Brown gravelly sandy CLAY, moist, hard, odor. (CL)	44*	250		
			100		
35	MW1-6 Mottled brown silty CLAY some sand and gravels, moist, very stiff, odor. (CL)	27*	153		
	Brown sandy silty CLAY, moist, very stiff, odor. (CL)		300		
40	MW1-7	30*	413		
	Brown silty CLAY, minor sand and gravel, moist, very stiff, odor. (CL)		100		
45	MW1-8 Brown gravelly CLAY, moist, hard, odor. (CL)	42*	38		
50	Brown silty CLAY, minor gravel, moist, hard, odor. (CL)		6		
55	MW1-9 Brown sandy gravelly CLAY, moist, hard, slight ▽ odor. (CL) Approximate water level at the time of drilling.	50*	2		
60					

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Livermore Valley Unified School District
Livermore, California

WELL NO.: MW1

DATE: September 1991

JOB NO.: N1-3174-F1

FIGURE NO.

DEPTH (FEET)	MONITORING WELL CONSTRUCTION DETAIL	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: December 14, 1990 SURFACE ELEVATION: Approx. 490.0 feet DESCRIPTION	N S.P.T. BLOWS/FT *MODIFIED FOR 3" O.D. SAMPLER	OVM READING P.I.D. (10.0eV) (parts per million)	IN PLACE: DRY UNIT WEIGHT (PCF)	IN PLACE: MOIST. CONTENT % DRY WEIGHT
60					0		
65			Yellow-brown clayey gravelly SAND, saturated. (SP) Running sands at approximately 63.5 feet.		0		
70			Bottom of boring at approximately 67 feet. NOTE: After removal of augers from hole, water measured at approximately 46 feet.				
75							
80							
85							
90							

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Livermore Valley Unified School District
Livermore, California

WELL NO.: MW1
DATE: September 1991
JOB NO.: N1-3174-F1

FIGURE NO.

DATE OF BORING: July 1, 1994

SURFACE ELEVATION: Approx. feet MSL

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	MONITORING WELL CONSTRUCTION DETAIL	PID READING (10.0eV) (ppm)	N S.P.T. BLOWS/FT *MODIFIED FOR 3" O.D. SAMPLER
0			Loose layer of GRAVEL, light brown (fill)?	Type I/II Portland Cement		
			Brown, sandy SILT with some gravel, damp. Increase in gravel at 3 feet. Fine to coarse GRAVEL with little sand and silt.			
5			Some fine to coarse GRAVEL, angular to subrounded, little fine to coarse sand, damp, trace of clay.			
			Increase in clay, fine gravel, increase in moisture.			
10	MW3-1		Brown/reddish brown, moist/wet, fine to coarse SAND and fine to coarse GRAVEL.			
			Increase in moisture.			
15	MW3-2		Red brown/brown, moist, clayey SILT to silty CLAY, stiff.			
			More gravelly at 19 to 20 feet.			
20	MW3-3		Poor recovery, wet, fine to coarse sand and gravel.			
			Brown, moist, fine to coarse SAND with lenses of silty clay, trace 10 to 15% gravel, no obvious odor.	Bentonite seal		
25	MW3-4		Brown, wet fine to coarse SAND with fine to medium GRAVEL, little clay.	0.01 in. slotted 2 in. PVC pipe with #3 Monterey sand		
			Clay content varies.			
30						

WELL3 3174B 3/22/95

ENGEO INCORPORATED

2900 LADD AVENUE

LIVERMORE, CALIFORNIA

WELL NO.: MW3

DATE: March 1995

JOB NO.: 3174-F7

FIGURE NO. 2

DATE OF BORING: July 1, 1994

SURFACE ELEVATION: Approx. feet MSL

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	MONITORING WELL CONSTRUCTION DETAIL	PID READING (10.0eV) (ppm)	N S.P.T. BLOWS/FT *MODIFIED FOR 3" O.D. SAMPLER
30	MW3-5		Brown/reddish brown, fine to coarse SAND with fine to medium GRAVEL, lenses of fine to medium sand, wet, trace little clay.			
			▽ Water level at time of drilling.			
35	MW3-6		Increase in fines, brown fine to coarse SAND with silt, little clay trace of gravel, interbedded with lenses of fine to coarse sand.			
			Brown, stiff, silty CLAY with fine to coarse sand, little gravel, moist. Wet, clayey sand.			
40	MW3-7		Yellow-brown, stiff, sandy SILT, little fine to medium gravel, lenses of stiff silt with fine to medium sand.			
			Becomes more CLAYEY. No odors Increase in gravel at 43 to 44 feet.			
45			Brown, wet, silty CLAY with little fine to coarse sand, trace of fine gravel.			
			Brown, wet, fine to coarse SAND with fine to medium GRAVEL. Wet.			
50			Wet, fine to coarse SAND and fine to medium GRAVEL.			
			Bottom of boring at approximately 53 feet.			
55						
60						

WELL3 3174B 3/22/95

ENGEO INCORPORATED

2900 LADD AVENUE

LIVERMORE, CALIFORNIA

WELL NO.: MW3

DATE: March 1995

JOB NO.: 3174-F7

FIGURE NO. 2

DATE OF BORING: June 30, 1994

SURFACE ELEVATION: Approx. feet MSL

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	MONITORING WELL CONSTRUCTION DETAIL	PID READING (10.0eV) (ppm)	N S.P.T. BLOWS/FT *MODIFIED FOR 3" O.D. SAMPLER
0			Dark brown, moist, clayey LOAM.	Type I/II Portland Cement		
			Increase in gravel.			
5			Brown/dark brown, moist, silty CLAY with gravel, some sand.			
			Clayey SAND with fine to medium gravel, brown, moist. Moist clayey SAND and GRAVEL, brown.			
10	MW4-1		Brown, wet SAND and GRAVEL, trace of clay, angular gravels.			
			Brown, wet, SAND and GRAVEL, little silt and clay.			
15	MW4-2				310	
			Brown, wet, SAND and GRAVEL, trace of clay.			
20	MW4-3		Brown, wet, fine to coarse SAND and fine to coarse GRAVEL, little clay, slight odor.		268	
			Increase in clay content, wet.	Bentonite seal		
25	MW4-4		Brown/yellow brown, clayey fine to coarse SAND, moist.	0.01 in slotted 2 in. PVC pipe with #3 Monterey sand	90	
			Brown, moist/wet, fine to coarse SAND with some clay, little fine to medium gravel.			
30						

WELL3 3174B 3/22/95

ENGEO INCORPORATED

2900 LADD AVENUE

LIVERMORE, CALIFORNIA

WELL NO.: MW4

DATE: March 1995

JOB NO.: 3174-F7

FIGURE NO. 3

DATE OF BORING: June 30, 1994

SURFACE ELEVATION: Approx. feet MSL

DEPTH (FEET)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	MONITORING WELL CONSTRUCTION DETAIL	PID READING (10.0eV) (ppm)	N S.P.T. BLOWS/FT *MODIFIED FOR 3" O.D. SAMPLER
30	MW4-5		Brown SAND and GRAVEL (large angular gravel fragments in liner).		116	
			Yellow-brown, moist sandy CLAY, fine to coarse sand, trace of gravel. Clay increase with fine to coarse sand and a trace of fine gravel.			
35	MW4-6		Yellow-brown/brown, moist clayey SILT, no odor.		34	
			Increase in gravel.			
40	MW4-7		Moist, brown, hard, fine to coarse SAND and GRAVEL, trace of clay and silt.		14	
			Brown, moist, fine to coarse sandy CLAY with fine to medium gravel.			
45	MW4-8		Brown, moist, fine to coarse SAND and fine to coarse GRAVEL. Water at time of drilling.			
			Brown, wet, fine to coarse SAND with little fine to medium gravel.			
50			Clayey fine to coarse SAND with GRAVEL, wet.			
			Bottom of boring at approximately 53 feet.			
55						
60						

WELL3 3174B 3/22/95

ENGEO INCORPORATED

2900 LADD AVENUE

LIVERMORE, CALIFORNIA

WELL NO.: MW4

DATE: March 1995

JOB NO.: 3174-F7

FIGURE NO. 3

DATE OF BORING: June 28, 2000

SURFACE ELEVATION: Approx. 490 feet (149 meters)

DEPTH (FEET)	DEPTH (METERS)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	BLOWS/FT	OVM READING P.I.D. (10.0eV) (Parts Per million)	IN PLACE DRY UNIT WEIGHT (PCF)	IN PLACE MOIST. CONTENT % DRY WEIGHT
0				2 inches Asphalt over 4 inches of Aggregate Baserock.				
				CLAYEY GRAVEL (GC), dark brown, moist, gravels to 2/3 inches maximum diameter, subangular.		1.5		
	1							
5								
	2	5-1		CLAYEY GRAVEL (GC), gravels to 1 $^{1}/_{4}$ inch maximum diameter, subangular to subrounded, very moist, very dense.	75	1.2		
10	3							
		5-2		CLAYEY GRAVEL (GC), dark gray, moderate petroleum odor.	75	1124		
	4							
15								
	5			SANDY lean CLAY (CL), mottled dark yellowish brown/gray, moist, fine-grained sand, moderate petroleum odor, stiff.				
		5-3			19	394		
20	6							
		5-4		SILTY, CLAYEY fine SAND (SC-SM), dark gray with dark yellow brown mottling, wet, very dense.	85	190.4		
	7			CLAYEY GRAVEL (GC), dark gray with dark yellowish brown mottling, very moist, with sand, dense.				
				▽ Water level at 24.4 feet, at 11:30.				
25		5-5			55	28.5		
	8			Bottom of boring at approximately 25 feet. Ground water encountered at 24.4 feet during drilling.				
30	9							

OVMMET 3174C.GPJ 8/21/00

ENGEO INCORPORATED

LVJUSD MAINTENANCE YARD

LIVERMORE, CALIFORNIA

BORING NO.: MW-5

DATE: August 2000

PROJ. NO.: 3174.3.050.02 CHECKED BY SM

FIGURE NO.

BORING/WELL NO. B5-MW2

MONITORING WELL DETAIL

PROJECT NUMBER 3174-F6

PROJECT NAME L.V.J.U.S.D. Maintenance Yard

COUNTY Alameda

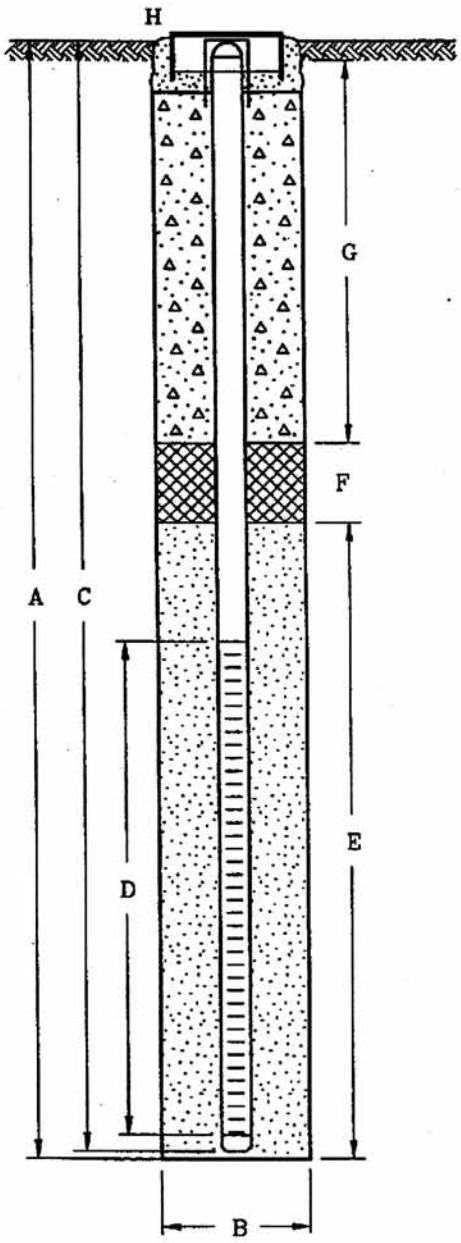
WELL PERMIT NO. #93167

DATE OF INSTALLATION April 13, 1993

TOP OF CASING ELEV. _____

GROUND SURFACE ELEV. _____

DATUM _____



EXPLORATORY BORING

A. TOTAL DEPTH 57 FT.

B. DIAMETER 7.25 IN.

DRILLING METHOD Hollow Stem Auger

WELL CONSTRUCTION

C. CASING LENGTH 57' FT.

MATERIAL schedule 40 PVC

DIAMETER 2.0 IN.

D. SLOTTED INTERVAL LENGTH 25 FT.

SLOTTED INTERVAL FROM 32 TO 57 FT.

SLOT SIZE 0.020 IN.

E. FILTER PACK INTERVAL 30 TO 57 FT.

FILTER MATERIAL No. 3 Monterey Sand

F. FILTER PACK SEAL 28 TO 30 FT.

SEAL MATERIAL Bentonite Pellets

G. GROUT INTERVAL 1.0 TO 28 FT.

GROUT MATERIAL Type I/II Portland Cement

H. Flush Mount Cristy Box

ENGEO INCORPORATED

BORING/WELL NO. MW3

MONITORING WELL DETAIL

PROJECT NUMBER 3174-F7

PROJECT NAME 2900 Ladd Avenue

COUNTY Alameda

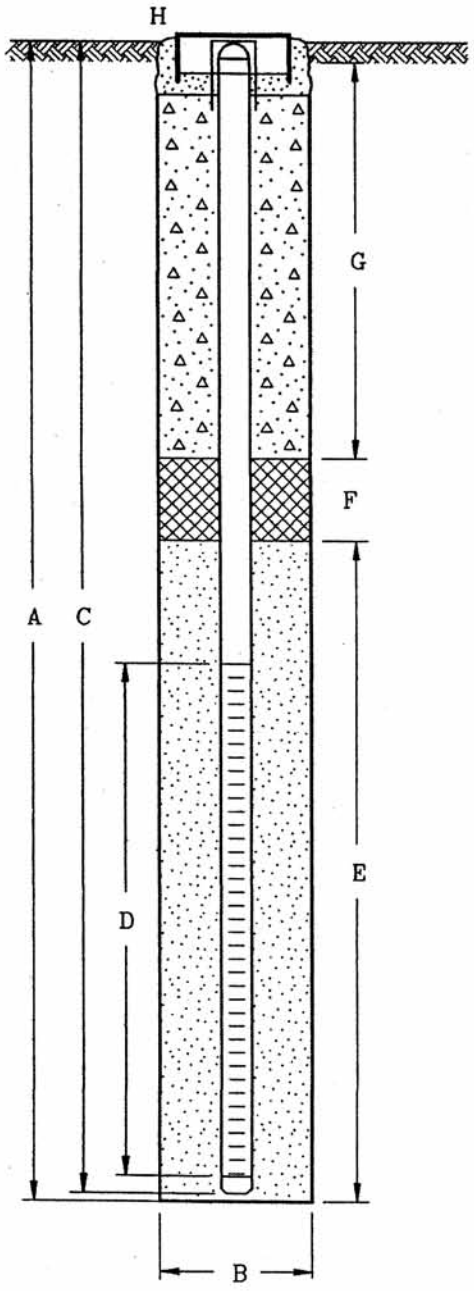
WELL PERMIT NO. 94371

DATE OF INSTALLATION July 1, 1994

TOP OF CASING ELEV.

GROUND SURFACE ELEV.

DATUM



EXPLORATORY BORING

A. TOTAL DEPTH 53 FT.

B. DIAMETER 7.25 IN.

DRILLING METHOD Hollow Stem Auger

WELL CONSTRUCTION

C. CASING LENGTH 53 FT.

MATERIAL Schedule 40 PVC

DIAMETER 2 IN.

D. SLOTTED INTERVAL LENGTH 25 FT.

SLOTTED INTERVAL FROM 28 TO 53 FT.

SLOT SIZE 0.020 IN.

E. FILTER PACK INTERVAL 26 TO 53 FT.

FILTER MATERIAL No. 3 Monterey Sand

F. FILTER PACK SEAL 24 TO 26 FT.

SEAL MATERIAL Bentonite Pellets

G. GROUT INTERVAL 0 TO 24 FT.

GROUT MATERIAL Type I/II Portland Cement

H. Flush Mount Cristie Box

ENGEO INCORPORATED

BORING/WELL NO. MW4

MONITORING WELL DETAIL

PROJECT NUMBER 3174-F7

PROJECT NAME 2900 Ladd Avenue

COUNTY Alameda

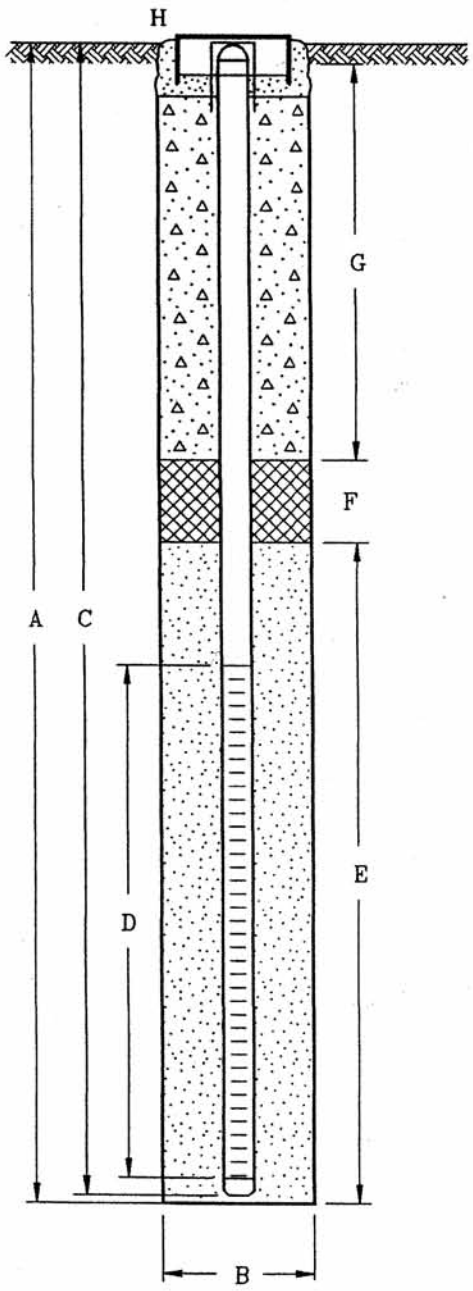
WELL PERMIT NO. 94371

DATE OF INSTALLATION June 30, 1994

TOP OF CASING ELEV.

GROUND SURFACE ELEV.

DATUM



EXPLORATORY BORING

A. TOTAL DEPTH 53 FT.

B. DIAMETER 7.25 IN.

DRILLING METHOD Hollow Stem Auger

WELL CONSTRUCTION

C. CASING LENGTH 53 FT.

MATERIAL Schedule 40 PVC

DIAMETER 2 IN.

D. SLOTTED INTERVAL LENGTH 25 FT.

SLOTTED INTERVAL FROM 28 TO 53 FT.

SLOT SIZE 0.020 IN.

E. FILTER PACK INTERVAL 26 TO 53 FT.

FILTER MATERIAL No. 3 Monterey Sand

F. FILTER PACK SEAL 24 TO 26 FT.

SEAL MATERIAL Bentonite Pellets

G. GROUT INTERVAL 0 TO 24 FT.

GROUT MATERIAL Type I/II Portland Cement

H. Flush Mount Cristie Box

ENGEO INCORPORATED

BORING/WELL NO. MW-5

MONITORING WELL DETAIL

PROJECT NUMBER 3174.3.050.02

PROJECT NAME LVJUSD MAINTENENCE YARD

COUNTY ALAMEDA

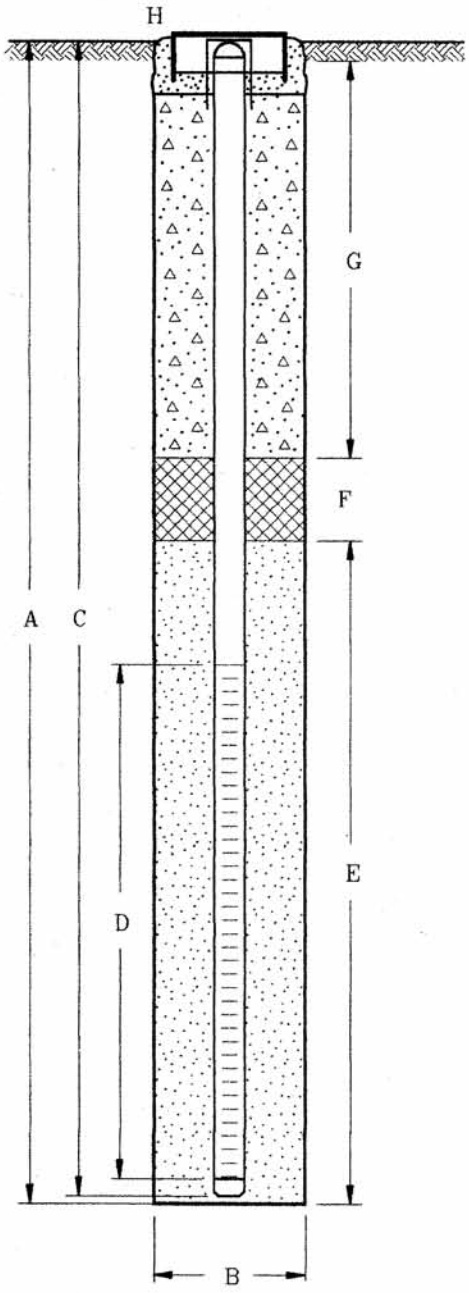
WELL PERMIT NO. 20102

DATE OF INSTALLATION 5/28/2000

TOP OF CASING ELEV. _____

GROUND SURFACE ELEV. 482 FT. (APPROX)

DATUM _____



EXPLORATORY BORING

A. TOTAL DEPTH 25 FT.

B. DIAMETER 8 IN.

DRILLING METHOD

CONTINUOUS FLIGHT HOLLOW STEM AUGER

WELL CONSTRUCTION

C. CASING LENGTH 24.5 FT.

MATERIAL SCH 40 PVC

DIAMETER 2 IN.

D. SLOTTED INTERVAL LENGTH 10 FT.

SLOTTED INTERVAL FROM 15 TO 25 FT.

SLOT SIZE 0.010 IN.

E. FILTER PACK INTERVAL 14 TO 25 FT.

FILTER MATERIAL MONTEREY #2/16 SAND

F. FILTER PACK SEAL 13 TO 14 FT.

SEAL MATERIAL BENTONITE CHIPS

G. GROUT INTERVAL 0.5 TO 13 FT.

GROUT MATERIAL NEET CEMENT

H. 12" DIAMETER FLUSH MOUNT MONUMENT

ENGEO INCORPORATED

Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

PERJURY STATEMENT

Name of Document or Report: Additional Site Characterization Work Plan

RO#0000188

I declare, under penalty and perjury, that the information and/or recommendations contained in the above stated document or report is true and correct to the best of my knowledge.

Janet Shipley
Signature

Janet Shipley
Company Officer or Legal Representative Name

Construction Supervisor
Title

4/27/11
Date