

Mr. Mark Detterman
Alameda County Health Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

November 16, 2011

RE: **Work Plan**
San Lorenzo High School
50 E. Lewelling Blvd.
San Lorenzo, California

RECEIVED

2:30 pm, Nov 15, 2012

Alameda County
Environmental Health

Dear Mr. Detterman,

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.

Sincerely,

A handwritten signature in black ink, appearing to read "Paul Dixon". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Paul Dixon, AIA
Director
Facilities and Operations
San Lorenzo Unified School District
15510 Usher Street
San Lorenzo, CA 94580-1641
Office: (510) 317-4841
pdixon@slzusd.org



Mr. Mark Detterman
Alameda County Health Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

November 16, 2012
Project 409-02.02

RE: **Work Plan**
San Lorenzo High School
50 E. Lewelling Blvd.
San Lorenzo, California

Dear Mr. Detterman,

EquoLogic, on behalf of the San Lorenzo Unified School District (SLUSD), has prepared the following soil investigation work plan. The work plan was requested by Alameda County Health Services Agency (ACHSA) in a letter to SLUSD dated October 12, 2012.

BACKGROUND

On August 18, 2010, a 6,000-gallon heating oil underground storage tank (UST) was removed from San Lorenzo High School. The location of San Lorenzo High School (Site) is shown on **Figure 1**. The excavation and tank removal were documented in a report by Golden Gate Tank Removal, Inc. (GGTR) titled *Closure Report for Underground Storage Tank, 50 E Lowellling Boulevard, San Lorenzo, CA 94580* dated October 19, 2010. After removal of the UST, confirmation soil samples were collected at a depth of 12 feet below ground surface (bgs). Samples were analyzed for total petroleum hydrocarbons as diesel (TPH-d) and as motor oil (TPH-mo). There is no specific test for heating oil. TPH in either TPH-d or TPH-mo carbon range could be heating oil. TPH-d concentrations were found up to 3,470 milligrams per kilogram (mg/kg) in soil and is assumed to represent heating oil. TPH-mo was not detected in soil samples. Additionally benzene, toluene, ethylbenzene, and xylene (BTEX) and fuel oxygenates were analyzed for, however, all were non-detectable at varying limits of detection.

A grab groundwater was collected from the UST excavation. The sample was analyzed for TPH-d and TPH-mo, BTEX, and fuel oxygenates. TPH-d was detected at 12.1 parts per million (ppm). All other parameters were below the method detection limit.

On June 12, 2012, four soil borings were drilled in the area of the former UST and remote fill port. Borings encountered primarily clay and silt soil deposits. A fine sandy soil layer was encountered in the depth interval of approximately 9 to 13 feet bg. Groundwater was encountered at a depth of approximately 10 feet bgs, perched within the sandy layer overlying a low permeability clay.

All PID readings for soil samples were zero. Heating oil was identified in only one soil sample – Boring B-1 at 5 feet bg adjacent to the remote fill port. Hydrocarbons were quantified by the laboratory as 1760 milligrams per kilogram (mg/kg) TPH-d and 1610 mg/kg TPH-mo. BTEX and MTBE were below the method detection limit in all samples with the exception of 17.2 micrograms per kilogram (ug/kg) xylene in B-1 at 5 feet bgs. In addition, naphthalene was quantified at 353 ug/kg and was below the method detection limit in the 10-foot sample.

Heating oil was not identified in any of the four groundwater samples. BTEX compounds and MTBE were all below the method detection limit with the exception of ethylbenzene at 0.25 micrograms per liter (ug/l) and xylene at 0.78 ug/l in the water sample from boring B-3.

WORK PLAN

EquoLogic proposes to sample soil and groundwater in the area of the former UST and remote fill port in order to establish the lateral and vertical extent of petroleum hydrocarbons. All appropriate permits will be obtained prior to commencing field work. An underground utility survey will be performed prior to field work in order to avoid damage to any lines during soil borings. Borings will be performed using direct-push technology. One boring is proposed in the center of the former UST footprint (**Figure 2**). The goal of this boring is to define the vertical extent of petroleum hydrocarbons detected at the base of the UST excavation. The boring will be advanced to a depth of approximately 24 feet bgs. Vertical migration of petroleum hydrocarbons is anticipated to be limited by the clay soil beneath the former UST and shallow groundwater.

Three initial borings are proposed adjacent (20 feet) to former remote fill port to define the lateral extent of petroleum hydrocarbons document in previous boring B-1 (**Figure 2**). Borings will be advanced to a depth of approximately 15 feet bgs. Soil samples will be monitored in the field for the presence of petroleum hydrocarbons with a photo-ionization detector (PID). Additional borings will be drilled at increasing distances from the former fill port until the extent of petroleum hydrocarbon impacted soil is defined.

Soil samples will be collected at 5-foot intervals and at the bottom of the borings. Soil samples will be obtained by pushing or driving a 4-foot long sampler into the ground. The sampler will contain clear acetate liners. Portions of the liner containing soil at the required depth will be cut and preserved with Teflon sheets and tight fitting plastic caps. Soil samples will be monitored in the field for the presence of petroleum hydrocarbons with a PID. Soil borings will be logged by a geologist using the Unified Soil Classification system. Soil samples will be stored in an ice chest for shipment to a California certified laboratory.

Soil samples will be analyzed for TPH-d (silica gel cleanup), TPH-mo (silica gel cleanup), BTEX compounds, and naphthalene by EPA Methods 8015/8260. Petroleum hydrocarbons within the carbon range of heating oil will be identified.

EquoLogic will prepare a report containing a Site Conceptual Model (SCM) and written description of field activities, boring logs stamped by a California professional geologist, boring location map, tables containing laboratory results, and certified analytical laboratory report. The SCM for this soils only case will present a geologic cross-section of the impacted area with chemical data, summary tables of all historic soil and groundwater chemical data, copies of boring logs, and a discussion of likely contaminated fate and transport. Additional information related to site water production wells will also be provided. The report will contain recommendations for any additional field work.

As requested in ACHSC letter dated October 10, 2012, the boring logs (B-1 through B-4) and report figures 1 and 2 have been uploaded to the Geotracker data base. The EDF will be uploaded when received from the laboratory.

LIMITATIONS

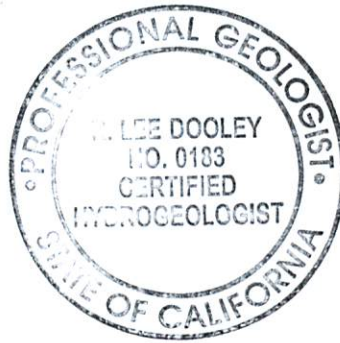
The descriptions, conclusions, and recommendations contained in this report represent EquoLogic's professional opinions based upon the currently available information and are arrived at in accordance with currently acceptable professional standards. For any reports cited that were not generated by EquoLogic, the data from those reports is used "as is" and is assumed to be accurate. This report is based upon a specific scope of work requested by the client. The Contract between EquoLogic and its client outlines the scope of work, and only those tasks specifically authorized by that contract or outlined in this report were conducted. This report is intended only for the use of EquoLogic's Client and anyone else specifically listed on this report. EquoLogic will not and cannot be liable for unauthorized reliance by any other third party. Other than as contained in this paragraph, EquoLogic makes no express or implied warranty as to the contents of this report.

You can contact me at (408) 656-2505 or by email at ldooley@equologicgroup.com.

Sincerely,



Lee Dooley
Senior Hydrogeologist
CHG 183

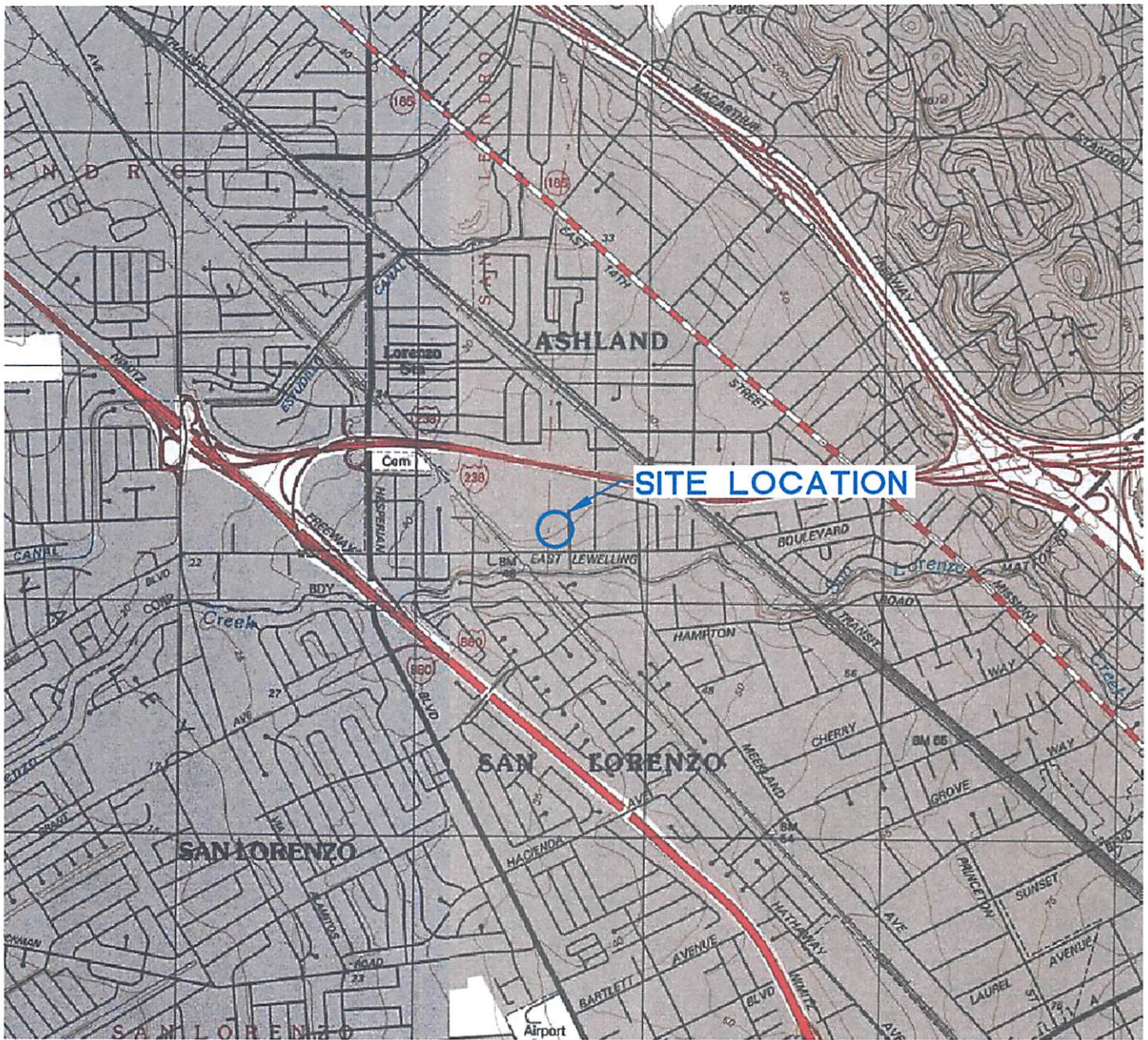


Attachments

Figure 1 – Site Location Map

Figure 2 – Boring Location Map

Cc: San Lorenzo Unified School District, c/o Dan Bates, 15510 Usher Street, San Lorenzo, CA 94580



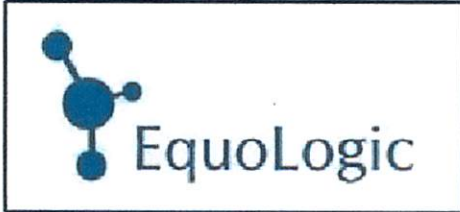
QUADRANGLE LOCATION



SCALE IN FEET



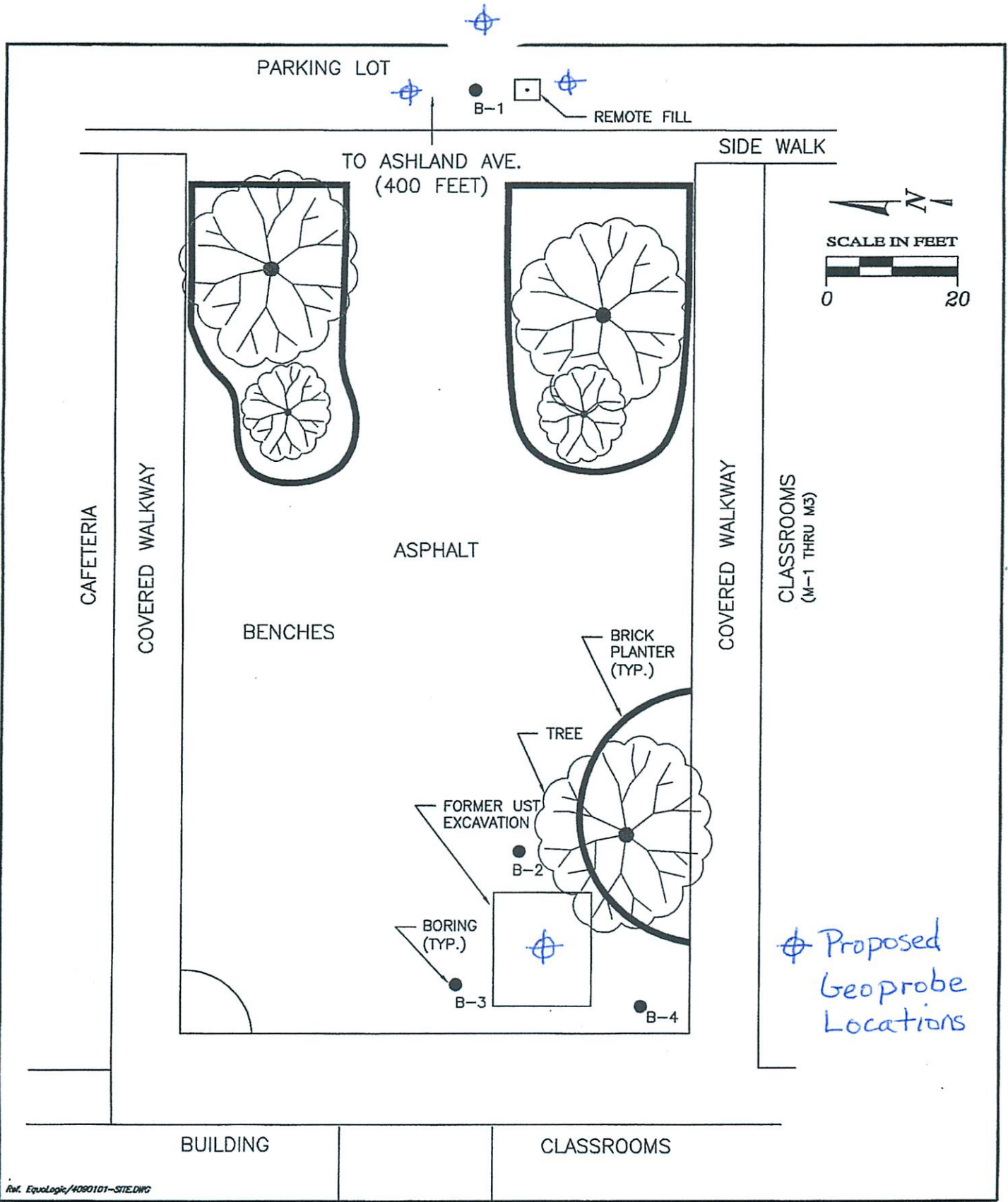
Ref. 4514/409.01.01/4090101-SLM.DWG




SITE LOCATION MAP

SAN LORENZO HIGH SCHOOL
 50 E. LOWELLING BLVD
 SAN LORENZO, CALIFORNIA

FIGURE:
 1
 PROJECT:
 409.01.01



Ref. EquoLogic/4090101-SITE.DWG

 EquoLogic	BORING LOCATION MAP	FIGURE: 2
	SAN LORENZO HIGH SCHOOL 50 EAST LOWELLING BLVD. SAN LORENZO, CALIFORNIA	PROJECT: 409.01.01