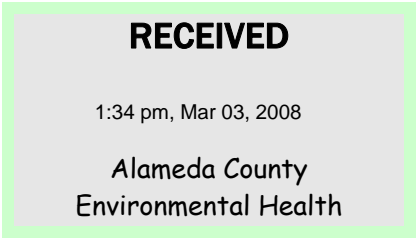




February 28, 2008

Mr. Jerry Wickham  
Alameda County Environmental Health Services  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502-6577



001-09567-04

**Subject:** Work Plan for Additional Well Installations and Quarterly Groundwater Monitoring and Reporting in the Former Hot Mix Asphalt Plant Area (AOC #1) of the Hanson Aggregates Radum Facility, 3000 Busch Road, Pleasanton, California, SLIC Case #RO0002941 and GeoTracker ID SLT19719376

Dear Mr. Wickham:

LFR Inc. (LFR) is pleased to present this work plan in response to the Alameda County Environmental Health (ACEH) letter dated January 11, 2007 (“the ACEH Letter”), regarding the environmental conditions in the former hot mix asphalt plant area of the Hanson Aggregates Northern California (“Hanson”) Radum Facility located at 3000 Busch Road in Pleasanton, California (“the Site”; Figures 1 and 2). In the ACEH Letter, ACEH presented technical comments regarding LFR’s summary report entitled “Additional Site Investigation Report for the Former Hot Mix Asphalt Plant Area (AOC #1) ACEH Case #RO0002941 and GeoTracker Global ID #SLT19719376, Hanson Aggregates Radum Facility, 3000 Busch Road, Pleasanton, Alameda County, California,” dated December 21, 2007 (“the LFR Report”).

**Background**

In preparation for a property transfer between Hanson and Legacy Partners (“Legacy”), Legacy retained ENV America (ENV) to assist with due diligence related to the environmental conditions of the Site. During 2006 and 2007, ENV conducted several Phase I and Phase II environmental assessment investigations throughout the Hanson Radum property including at the Site. In late 2006, Hanson retained LFR to further characterize areas of potential environmental concern at the Site and subsequently in other areas of the property. At the request of ACEH, LFR prepared a site-wide characterization work plan that included summaries of site history and environmental conditions throughout the property. To better focus the discussion, LFR defined nine areas of concern (AOCs; Figure 2); AOC #1 is considered to be the Site in this Work Plan.

The Site consists primarily of the former hot mix asphalt plant area where historical activities included the use of paving oil, lubricants, and diesel fuel. Most of the structures associated with the former hot mix asphalt plant have been demolished. Currently visible at the Site are the concrete base of the truck scale, the base of the paving oil containment structure, several concrete pads, and



miscellaneous debris. Standing water and petroleum product has been observed in the paving oil containment structure.

### ***Recent Investigation at the Site and the LFR Report***

Most recently during October 2007, LFR conducted an additional subsurface characterization investigation at the Site and presented conclusions and recommendations in the LFR Report. The objectives of LFR's October 2007 investigations were:

- (1) To further characterize the lateral and/or vertical extent of petroleum hydrocarbons (primarily total petroleum hydrocarbons [TPH] as diesel [TPHd] and as motor oil [TPHmo]) to the south, southwest, and northwest of the former asphalt plant;
- (2) To investigate the nature of the deep soil contamination identified in the northern half of the Site at approximately 30 to 40 feet below ground surface (bgs); and
- (3) To install five (subsequently increased to seven per ACEH request) new groundwater monitoring wells to monitor groundwater flow and quality over time.

These objectives were met by advancing 11 temporary soil borings to collect depth-discrete soil samples and five grab groundwater samples for laboratory analyses, collecting samples from the free product and from the deep soil contamination for specialized leaching and fingerprinting analyses, and installing seven new groundwater monitoring wells approximately around and in the vicinity of the former hot mix asphalt plant. The new wells were appropriately developed, and initial groundwater samples were collected for laboratory analyses. Based on the results from the October 2007 investigations and well installations, LFR concluded the following:

- The lateral and/or vertical extent of petroleum hydrocarbons in soil was sufficiently characterized at the Site.
- The deep soil contamination is relatively old, of limited extent, and immobile; was probably buried in place during historical mining operations; and is unlikely to further affect soil or significantly affect groundwater beneath the Site.
- The local groundwater flow direction in October 2007 was approximately to the west-northwest.
- Groundwater beneath the Site does not appear to have been significantly affected by TPH detected in soil beneath the Site.

LFR recommended initiation of a periodic groundwater monitoring and reporting program at the Site, comprised of sampling groundwater monitoring wells on a quarterly basis for approximately one year. If after one year of quarterly monitoring, no significant concentrations of compounds are detected in samples collected from the groundwater monitoring wells, groundwater monitoring should cease and the wells should be abandoned. In addition, LFR recommended that remaining debris and water and petroleum product in the paving oil containment structure be removed and



properly disposed of, and that shallow soils affected by petroleum hydrocarbons be removed and confirmation sampling be conducted.

### ***The ACEH Letter Technical Comments***

ACEH generally concurred with the conclusions and recommendations in the LFR Report, in particular, ACEH concurred that no further depth-discrete soil or grab groundwater sampling to further characterize the nature and extent of contamination be conducted at the Site at this time. ACEH requested that three additional groundwater monitoring wells be installed at the Site and that a plan for quarterly groundwater monitoring be presented in a work plan to be submitted by February 28, 2008 (herein). In addition, ACEH requested that a plan for soil excavation, removal, and confirmation sampling be submitted by March 21, 2008 (the soil excavation plan will be submitted under separate cover).

This work plan focuses on the request from ACEH to install three additional groundwater monitoring wells at the Site and presents a plan for quarterly groundwater monitoring and reporting.

### ***Summary of Existing Case Numbers***

As part of the property transfer agreement between Hanson and Legacy, the approximately 1,000-acre Hanson Radum property was divided into two primary parcels. To facilitate environmental investigations and reporting for the Hanson Radum property, ACEH has assigned two SLIC case number, defined as follows:

- ACEH SLIC case number RO0002941 and GeoTracker Global ID SLT19719376 refer to the approximately 15-acre Parcel 1 and a small area south of the Kiewit property, including AOC #1 and the western portion AOC #2.
- ACEH SLIC case number RO0002952 and GeoTracker Global ID SL0600101555 refer to the rest of the former Hanson Radum property, including the eastern portion of AOC #2 and AOCs #3 through #9.

### **Scope of Work**

The scope of work for this work plan is as follows:

- Install and develop three new groundwater monitoring wells.
- Collect initial groundwater samples from the three new wells for laboratory analyses.
- Initiate a quarterly groundwater monitoring and reporting program.



### ***Task 1: Pre-Field Activities***

Prior to the well drilling and installation work, LFR will obtain the appropriate drilling permit from the Zone 7 Water Agency. LFR will contact Underground Service Alert to notify them of the surface drilling work, and will subcontract a private underground utility clearance contractor to clear the proposed well locations and nearby areas.

The site-specific Health and Safety Plan prepared by LFR for previous subsurface investigations at the Site will be updated to address health and safety concerns specific to the planned field activities. Daily health and safety tailgate meetings will be conducted by the LFR field geologist prior to beginning any fieldwork, and fieldwork will be monitored to ensure that appropriate health and safety procedures are followed during the field investigations. In accordance with Hanson's standard facility operations, LFR staff and LFR's subcontractors will attend on-site health and safety training conducted by a Hanson representative.

### ***Task 2: Field Investigation***

The proposed field investigation for this project will include the drilling and installation of three new groundwater monitoring wells, which then will be developed, sampled, and surveyed.

The drilling is proposed to be completed by a California-licensed, hollow-stem auger drilling subcontractor under the direction of an LFR field geologist. LFR proposes to install the three new groundwater monitoring wells in the locations requested by ACEH in the ACEH Letter, approximately as shown on Figure 3. Well MW-8 is proposed to be located approximately at the northern end of the former truck scale to evaluate groundwater quality immediately downgradient from the former hot mix asphalt plant. Well MW-9 is proposed to be located approximately northwest of former soil boring B26 to confirm that the TPHd, TPHmo, and 2-methylnaphtalene detected in soil samples collected from 28 and 32 feet bgs have not affected groundwater. Well MW-10 is proposed to be located approximately northwest of former soil boring B22 to evaluate the detection of elevated TPHd concentrations reported for the grab groundwater samples collected from the B22 location. The proposed monitoring wells will be completed to total depths of approximately 65 feet bgs with approximately 10-foot well screens, depending on field conditions. Total depths and screened intervals may be adjusted based on lithologic conditions and depth to groundwater encountered in the proposed well locations at the time of drilling.

### **Lithologic Logging Procedures and Field Documentation**

Continuous soil cores will be collected during drilling. The soil cores will be visually logged and screened in the field using a photoionization detector (PID) to evaluate the presence of hydrocarbons or other volatile organic compounds (VOCs). The LFR field geologist will classify the soils encountered using American Society for Testing and Materials D 2488-00, based on the Unified Soil Classification System. Lithologic soil descriptions and field screening results will be



recorded on field boring logs that will be reviewed, edited, and signed by a California Professional Geologist. Soil samples for laboratory analyses will be collected from the continuous soil cores from intervals where visual and PID screening results indicate the potential presence of petroleum hydrocarbons. Any depth-discrete soil samples collected will be transferred to soil sample containers, properly labeled, and placed into ice-chilled coolers for transportation to an analytical laboratory for analyses. If groundwater is encountered during drilling that is suspected to be temporal or perched, a grab groundwater sample will be collected (if possible) using a disposable bailer lowered through the augers. Any grab groundwater samples collected will be placed into laboratory-supplied sample containers and into an ice-chilled cooler for transportation to an analytical laboratory. Depth-discrete soil and grab groundwater samples will be submitted to a California-certified analytical laboratory for analyses for the following compounds:

- TPHd and TPHmo using EPA Method 8015B (with silica gel cleanup)
- TPH as gasoline (TPHg), benzene, toluene, ethylbenzene, and total xylenes (BTEX), fuel oxygenates, and lead scavengers using EPA Method 8260

Relevant field activities will be appropriately documented using field forms, including field logs of soil borings and chain-of-custody forms for any samples collected. Field forms will be kept on file at LFR and will be available upon request. Copies of relevant field forms will be included in the summary report described below.

### **Well Construction**

The drilling subcontractor will construct and install the new monitoring wells under the direct supervision of an LFR field geologist. Each monitoring well casing will consist of 2-inch-diameter, Schedule 40 polyvinyl chloride (PVC) well casing and machine-slotted Schedule 40 PVC well screens with a slot size appropriate for the soil grain size and filter size selected. The groundwater monitoring wells recently installed at the Site were constructed with 0.020-inch slot-sized well screens and #3 filter sand. If appropriate, the same well construction will be used for the three new wells. The filter pack will be placed in the borehole annular space around the screen interval and extended approximately 1 to 2 feet above the top of the well screen. A bentonite seal approximately 2- to 3-feet thick will be placed above the sand pack. The annular space above the bentonite seal will be sealed with cement grout extending approximately to near ground surface. Each monitoring well casing will be equipped with a locking well cap. The surface completions will consist of an aboveground, monument-style well box equipped with locking access lids, installed in concrete pads. Three steel bollards will be installed surrounding each well to protect the well casing and box from damage.

Downhole drilling equipment will be appropriately cleaned with high-pressure hot water (steam cleaned) before use at each new drilling location. Waste soil generated during drilling will be placed on plastic tarps on the ground surface near each well location and will be disposed of as necessary during future land development activities. Wastewater generated during drilling and/or



well development and sampling will be temporarily placed in 55-gallon steel drums, properly labeled as nonhazardous wastewater, and properly characterized for disposal.

### **Well Location Survey**

After the new groundwater monitoring wells are installed, their locations and top of casing elevations will be surveyed by a California-licensed land surveyor. The survey will be conducted in the same land survey system that has been used previously so that the new wells can accurately be added to existing site plans.

### **Well Development and Sampling**

After a minimum of 24 hours following the completion of the well installations, each new groundwater monitoring well will be developed to remove fine materials from the well and maximize the hydraulic efficiency. Development will be performed using a combination of surge blocks and/or pumping, as appropriate. General water-quality parameters will be monitored and recorded during well development. Water from the well development activities will be contained in 55-gallon steel drums temporarily stored at the Site pending wastewater characterization and appropriate disposal.

### **Initial Groundwater Sampling**

Initial groundwater samples will be collected, using a disposable bailer, from each of the three new groundwater monitoring wells immediately after well development work is completed. Groundwater samples will be submitted to a state-certified analytical laboratory for the following analyses:

- TPHd and TPHmo using EPA Method 8015B (with silica gel cleanup)
- TPHg, BTEX, fuel oxygenates, and lead scavengers using EPA Method 8260

### ***Task 3: Quarterly Groundwater Monitoring***

This portion of the scope of work describes the quarterly groundwater monitoring plan proposed to be initiated and conducted at the Site, pending approval from ACEH. The plan will include the collection and analysis of groundwater samples from the 10 groundwater monitoring wells located at the Site (wells MW-1 through MW-10). This total number of wells includes the three new groundwater monitoring wells proposed to be installed as described under Task 2.

Periodic groundwater monitoring is proposed to be conducted on a quarterly basis for approximately one year. The quarterly monitoring periods are defined as follows:



1. First Quarter: January through March
2. Second Quarter: April through June
3. Third Quarter: July through September
4. Fourth Quarter: October through December

The quarterly groundwater monitoring will consist of first measuring the depth to groundwater in each of the 10 groundwater monitoring wells using a depth-to-water-level sounder. The depth to groundwater will be recorded on a field sheet after two consistent depth-to-water measurements are made back to back. Following the water-level monitoring, each well will be purged and sampled. Purging and sampling will be completed using conventional low-flow techniques in accordance with the EPA's protocol published in the April 1996 "Ground Water Issue" under the title "Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures." A low-flow pump such as an electrical peristaltic pump will be used to minimize the drawdown during purging. General water-quality parameters will be monitored during well purging using an in-line monitoring device. Groundwater samples will be collected after the general water-quality parameters have stabilized for three successive readings to within the following criteria:

- pH  $\pm 0.1$  unit
- electrical conductivity  $\pm 3\%$
- turbidity or dissolved oxygen  $\pm 10\%$

Groundwater samples will be collected using the low-flow pump into the appropriate laboratory-supplied groundwater sample containers. The sample containers will be properly labeled and placed in an ice-chilled cooler for transportation to the analytical laboratory. The samples will be analyzed by a California-certified analytical laboratory for those compounds detected previously at the Site, namely for TPHd, TPHmo, TPHg, and semivolatile organic compounds (SVOCs), as summarized in the sample matrix provided as Table 1. Note that, as described in the LFR Report, due to a field error during the October 2007 investigation, grab groundwater samples collected from certain soil boring locations for metals analyses were preserved instead of filtered; therefore, only total metals instead of dissolved metals concentrations could be determined. Therefore, to verify dissolved metals concentrations in groundwater beneath the Site, samples collected from three of the ten groundwater monitoring wells are proposed to be analyzed for dissolved metals concentrations during the first quarterly groundwater monitoring event (Table 1).

Groundwater monitoring is proposed to be conducted for four consecutive quarters, for a total period of approximately one year. As recommended in the LFR Report, if no significant concentrations are detected after one year of monitoring, quarterly monitoring should cease and the groundwater monitoring wells should be properly abandoned.



#### Task 4: Reporting

Upon completion of the well installation activities described above under Tasks 1 and 2, LFR will prepare and submit to ACEH a report summarizing the well installation and development work, and the results of the initial groundwater samples collected. The report will include lithologic logs, well completion details, copies of the drilling permit, well development field forms, chain-of-custody forms, and certified laboratory analytical reports. The report also will present an interpretation and discussion of data obtained during the well installation activities in the context of analytical data from the seven wells installed and initially sampled during October 2007, and from grab groundwater samples collected during previous subsurface investigations.

Quarterly groundwater monitoring reports will be prepared following each quarterly groundwater monitoring event described under Task 3. The quarterly monitoring reports will include summary tables of groundwater elevations and analytical data; figures presenting groundwater elevation contours, approximate flow direction, and selected analytical data; and a discussion of the monitoring results. Copies of relevant field forms such as well purge field forms and chain-of-custody forms, and copies of the certified analytical reports will be included in the appendices of each quarterly monitoring reports.

#### Schedule

After receiving approval from ACEH for this work plan, LFR will oversee the installation, development, sampling, and surveying of the three new groundwater monitoring wells as described in Tasks 1 and 2 above. Subsequently, LFR will initiate the quarterly groundwater monitoring program described under Task 3 above, including the existing and newly installed wells. Quarterly groundwater monitoring reports will be submitted to ACEH within 45 days after the end of each quarter.

In accordance with ACEH, all reports will be uploaded to the ACEH file transfer protocol site and to the Regional Water Quality Control Board GeoTracker database.

#### Closure

Please contact Katrin Schliewen at (510) 652-4500 or Lee Cover of Hanson at (925) 426-4170 if you have questions regarding the scope of work presented in this work plan.

Sincerely,

Katrin Schliewen, P.G. (7808)  
Senior Hydrogeologist



Ron Goloubow  
Senior Associate Geologist

Expires Feb. 28, 20 09





Attachments:

Table 1: Quarterly Groundwater Monitoring Sample Matrix

Figure 1: Site Location Map

Figure 2: Site Plan Showing Areas of Concern

Figure 3: Proposed New Groundwater Monitoring Well Locations and TPH Concentrations in Soil and Grab Groundwater Samples

Figure 4: Groundwater Monitoring Well Locations for Quarterly Monitoring

cc: Lee Cover, Hanson Aggregates Northern California

**Table 1**  
**Quarterly Groundwater Monitoring Sample Matrix**  
**Former Hot Mix Asphalt Plant Area**  
**Hanson Radum Facility, 3000 Busch Road, Pleasanton, California**

Well ID	Date Installed	Approximate Screen Interval top (feet bgs)	Approximate Screen Interval bottom (feet bgs)	TPHd / TPHmo 8015	TPHg 8260	BTEX 8260	Fuel Ox 8260	Lead Scav 8260	SVOCs 8270	Dissolved Metals 6010B
<i>Groundwater Monitoring Wells</i>										
MW-1	10/3/2007	45	60	X	X	X	X	X	X	-
MW-2	10/2/2007	45	60	X	X	X	X	X	X	-
MW-3	10/4/2007	45	60	X	X	X	X	X	X	once <sup>1</sup>
MW-4	10/5/2007	43	48	X	X	X	X	X	X	-
MW-5	10/9/2007	69	74	X	X	X	X	X	X	-
MW-6	10/10/2007	45	55	X	X	X	X	X	X	-
MW-7	10/1/2007	50	65	X	X	X	X	X	X	-
MW-8	TBD	TBD	TBD	X	X	X	X	X	X	once <sup>1</sup>
MW-9	TBD	TBD	TBD	X	X	X	X	X	X	once <sup>1</sup>
MW-10	TBD	TBD	TBD	X	X	X	X	X	X	-
<i>Quality Assurance and Quality Control Samples<sup>2</sup></i>										
Field Blank	na	na	na	X	X	X	X	X	X	-
Trip Blank	na	na	na	-	X	X	X	X	-	-

**Notes:**

feet bgs = feet below ground surface

"x" = to be analyzed quarterly for four consecutive quarters

"-" = not analyzed

TBD = to be determined, pending completions of well installation activities

na = not applicable

<sup>1</sup> Samples for dissolved metals will be collected only once, during the first quarterly monitoring event.

<sup>2</sup> One field blank (FB) sample will be collected during each quarterly monitoring event, and one trip blank (TB) sample will be collected for every cooler of samples transported to the laboratory during every quarterly monitoring event.

TPHd = total petroleum hydrocarbons as diesel by EPA Method 8015 (with silica gel cleanup)

TPHmo = total petroleum hydrocarbons as motor oil by EPA Method 8015 (with silica gel cleanup)

TPHg = total petroleum hydrocarbons as gasoline by EPA Method 8260

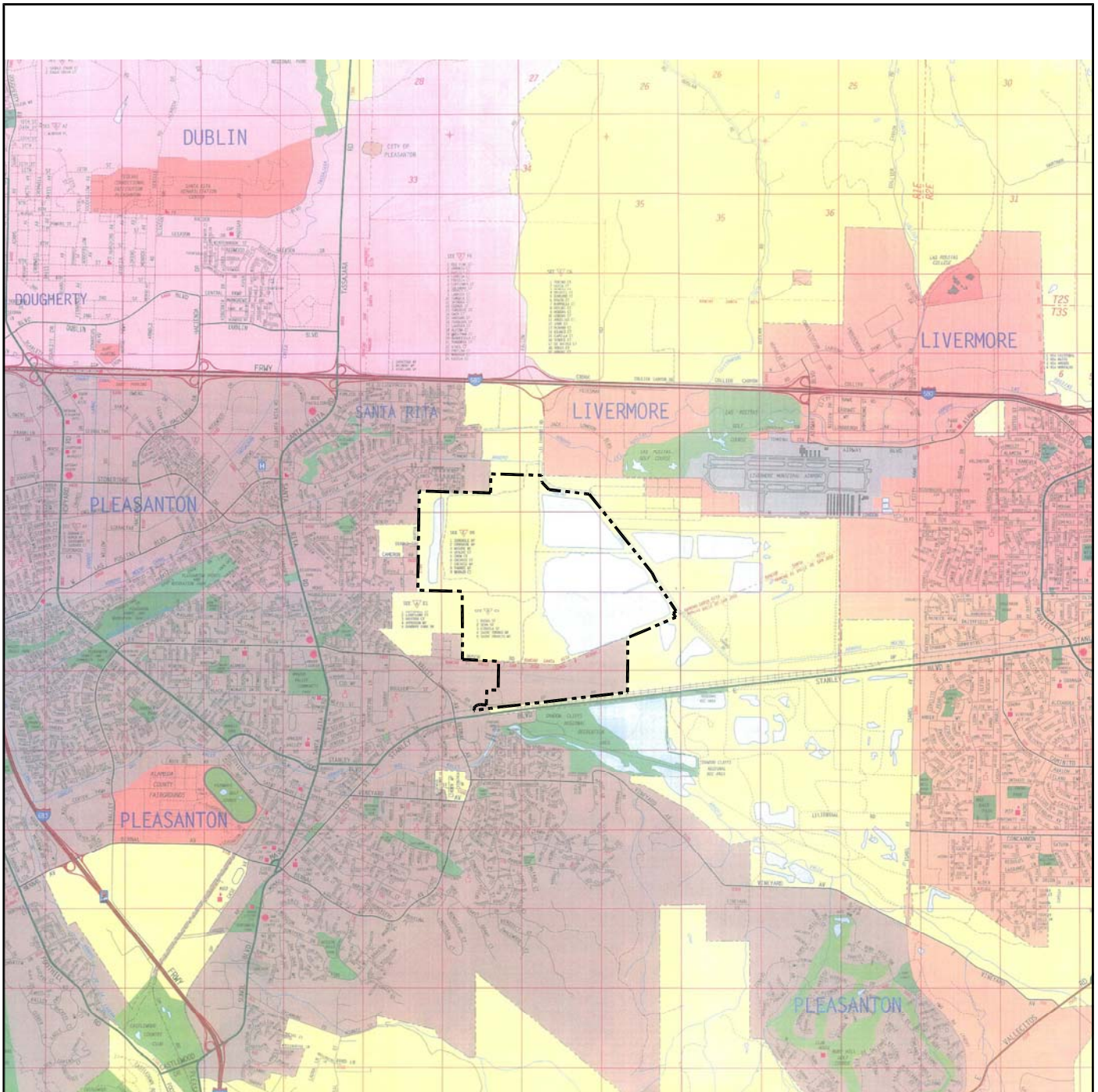
BTEX = benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8260

Fuel Ox = fuel oxygenates by EPA Method 8260

Lead Scav = lead scavengers by EPA Method 8260

SVOCs = semivolatle organic compounds by EPA Method 8270

Dissolved Metals = CAM 17 list of dissolved metals (laboratory filtered samples) by EPA Method 6010B



Source: Thomas Guide

**EXPLANATION**

----- Approximate Site Boundary



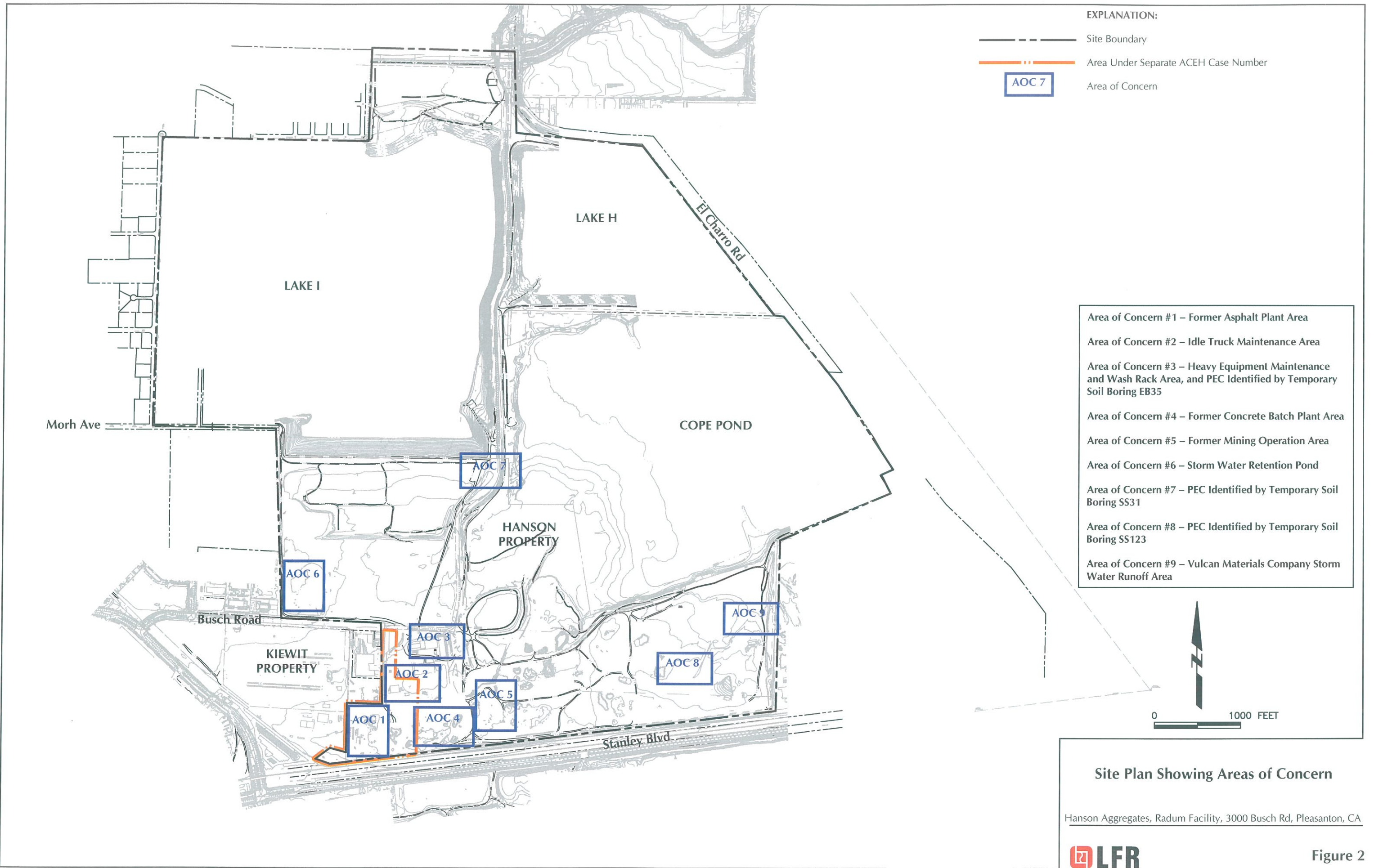
0 5000 FEET  
APPROXIMATE SCALE

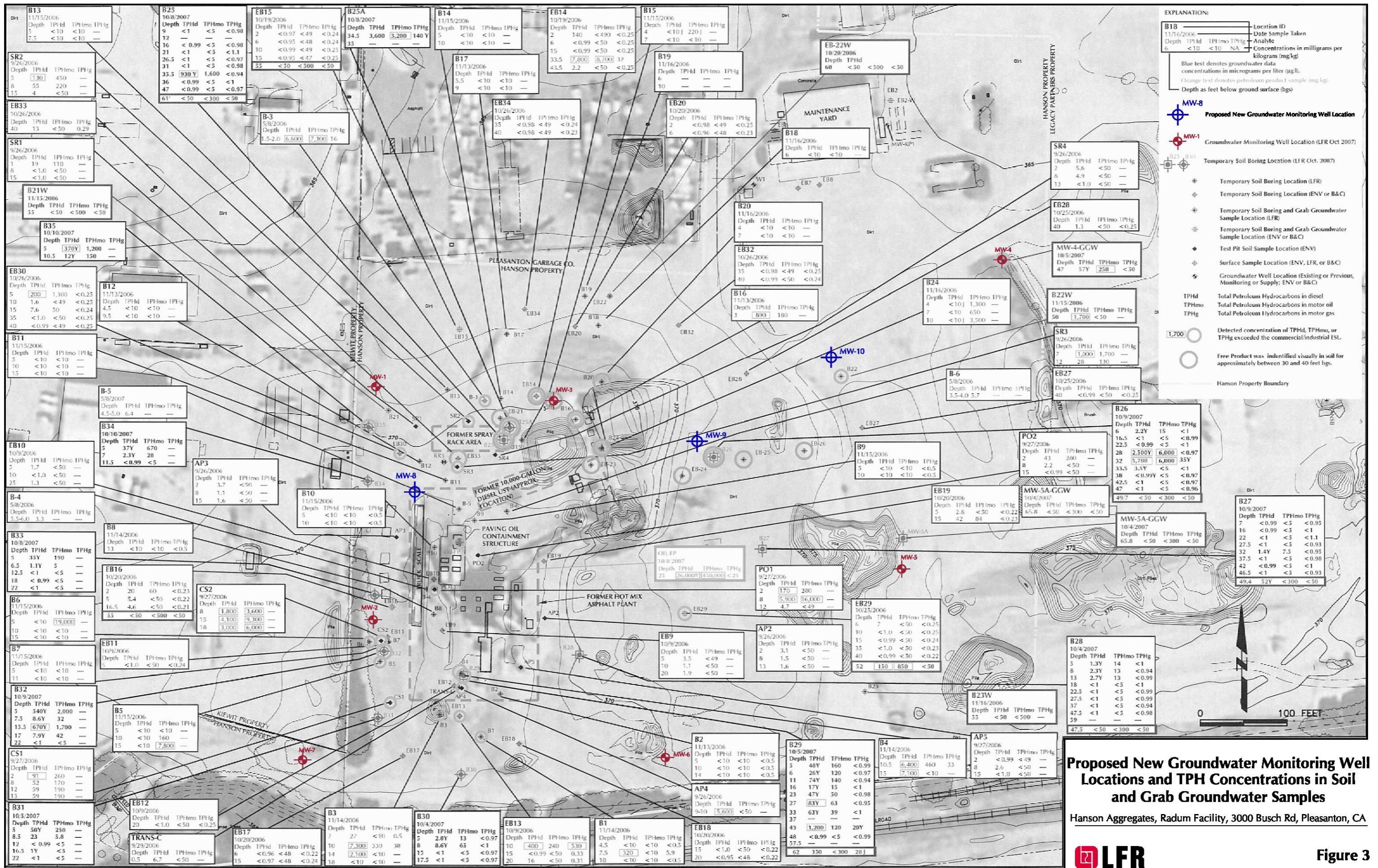
**Site Location Map**

Hanson Aggregates, Radum Facility, 3000 Busch Rd, Pleasanton, CA

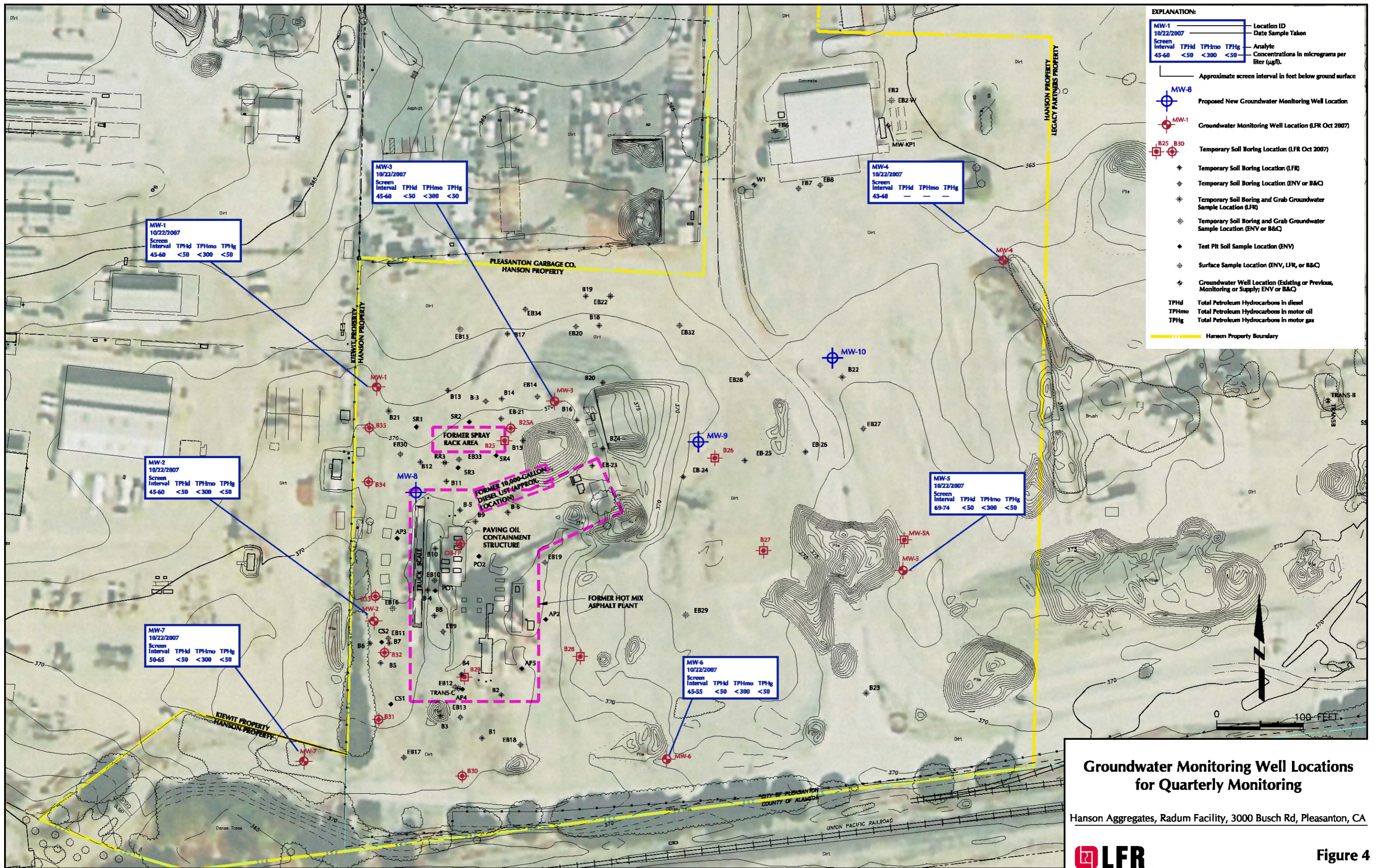


**Figure 1**





**Proposed New Groundwater Monitoring Well Locations and TPH Concentrations in Soil and Grab Groundwater Samples**  
 Hanson Aggregates, Radum Facility, 3000 Busch Rd, Pleasanton, CA



**Groundwater Monitoring Well Locations for Quarterly Monitoring**  
 Hanson Aggregates, Radum Facility, 3000 Busch Rd, Pleasanton, CA