HORIZON ENVIRONMENTAL INC.
Specialists in Site Assessment, Remedial Testing, Design and Operation

December 11, 2008

Mr. Jerry Wickham, Haz Mat Specialist
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, California 94502

Subject: **Letter Work Plan for Remedial Testing**
Former Beacon Station No. 12574 RWQCB Case No. 01-0167
22315 Redwood Road, Castro Valley, California ACDEH: RO0000355

Mr. Wickham:

On behalf of Ultramar Inc. (Ultramar), Horizon Environmental (Horizon) has prepared this letter work plan to conduct remedial testing work at the above-referenced site located in Castro Valley, California, as shown on the Site Location Map (Figure 1). This letter work plan contains a proposal to conduct high-vacuum dual-phase extraction (HVDPE) testing to evaluate the effectiveness in reducing elevated concentrations of impacted groundwater from beneath the site. Horizon contacted the Alameda County Department of Environmental Health (ACDEH), which verbally requested the Work Plan for the proposed remedial testing work presented in the *Semi-Annual Groundwater Monitoring Report* (Horizon, September 24, 2008).

Additional HVDPE events may be proposed based on the results of the proposed HVDPE testing. In this manner, a phased-approach consisting of periodic HVDPE events may be utilized for improving groundwater quality to low-risk levels for eventual Site Closure / No Further Action status for the Site. The scope of work described in this work plan is intended to comply with the California Water Resources Control Board document *Leaking Underground Fuel Tanks (LUFT) Manual,* the *Tri-Regional Board Staff Recommendations for Preliminary Investigation and Evaluation of Underground Tank Sites* dated April 2004, and ACDEH guidelines.

Site Description and Background

The site is located on the southwestern corner of the intersection of Redwood Road and Grove Way in Castro Valley, California, as depicted on Figure 1. The site is bounded by Grove Way to the north, a vacant office building to the south. Redwood Road to the east, and private residences to the west. Existing site facilities include a 7/11 convenience store and other commercial buildings situated on the western portion of the site extending to the property line, and a parking lot and landscaping areas situated on the central and eastern portions of the site. Former site facilities included four former fuel underground storage tanks (USTs) located in the southeastern portion of the property. There are currently five

groundwater monitoring wells (MW-1 through MW-4 and MW-6) associated with this site. Wells MW-1 through MW-4 are located within the property boundaries, while well MW-6 is located off-site to the south of the property on an adjoining property. Well MW-5 was destroyed by a third party due to off-site construction activities. Locations of these and other pertinent site features are shown on the Site Map (Figure 2).

Quarterly groundwater monitoring and sampling has been performed at the Site since 1992. Historical groundwater level data has indicated that groundwater has been seasonally present beneath the Site between the depths of approximately 14 to 22 feet bsg, and the direction of groundwater flow beneath the Site has been consistently to the south-southwest beneath the site. Recent groundwater quality data has indicated gasoline-impacted groundwater present in wells MW-1 and MW-2, with sheen periodically observed in well MW-2. A Groundwater Analytical Map for the July 29, 2008 analytical data is shown on Figure 3.

Scope of Work

The proposed scope of work is to conduct a short-term episode of HVDPE testing to remove various combinations of impacted groundwater and hydrocarbon vapors from the subsurface, which are then collected, separated, and treated aboveground. Groundwater monitoring performed before, during, and after the HVDPE testing will provide data for evaluation of water quality parameters. Groundwater sampling will be conducted in accordance with Horizon's Field Methods and Procedures included in Attachment A.

Horizon proposes the following for the HVDPE testing:

Task 1 Notify the property owners of the proposed work to minimize impact to the existing tenants. Update the site-specific *Health and Safety Plan* to identify and mitigate issues related to the proposed HVDPE remediation. Coordinate with the analytical laboratory to obtain the appropriate water and vapor sample containers, and to schedule submittal of the groundwater and vapor samples for performance of timely analyses. Select a HVDPE contractor to provide a truck-mounted extraction unit for the testing period. Notify the Bay Area Air Quality Management District (BAAQMD) of the proposed HVDPE testing event. Obtain a treated water discharge permit from the local sanitary sewer agency, which is the Castro Valley Sanitary District, if possible.

Task 2 Collect depth-to-water (DTW) measurements from wells MW-1, MW-2, MW-3, MW-4, and MW-6 prior to, during, and after HVDPE testing at the site to evaluate the groundwater drawdown beneath the site. DTW measurements will be collected from the wells with an electronic water-level indicator.

Task 3 Conduct a two-day HVDPE test event to remove sheen and reduce petroleum hydrocarbon concentrations in the subsurface groundwater and soils. The HVDPE-extracted hydrocarbon vapors will be treated aboveground using catalytic oxidizer equipment for vapor treatment, and capable of vapor

extraction flows up to 350 cubic feet per minute (cfm) and a vacuum of up to 15 inches of mercury (Hg). The HVDPE-extracted groundwater will be initially processed through a sediment filter, then processed through the truck-mounted HVDPE unit prior to discharge into an aboveground storage tank to allow for temporary storage of the extracted groundwater. Wells MW-1 and MW-2 will be used as the extraction wells.

Measure and record vapor and groundwater flow, vacuum readings, and the volume of groundwater removed from extraction wells MW-1 and MW-2 using field hydrocarbon analyzers, flow meters, and other field equipment; record induced vacuum and DTW measurements from observation wells MW-3, MW-4 and MW-6; record volatile hydrocarbon vapor concentrations for the HVDPE influent and effluent vapor streams and extraction wells MW-1 and MW-2 on an hourly basis for the first 8 hours of HVDPE operation, and every 2 hours thereafter; and record HVDPE operating parameters for vapor and groundwater influent and effluent flow rates.

Task 4 Collect groundwater samples after completion of the HVDPE event from extraction wells MW-1 and MW-2, selected monitoring wells, and the aboveground storage tank at the site to evaluate the effectiveness of the HVDPE process on dissolved hydrocarbon concentrations. Submit the groundwater samples under chain-of-custody (COC) documentation to a California-certified analytical laboratory for analysis of Total Petroleum Hydrocarbons as gasoline (TPHg), the volatile aromatics benzene, toluene, ethylbenzene, total xylenes (BTEX), and the fuel oxygenate methyl tert-butyl ether (MTBE) utilizing Environmental Protection Agency (EPA) Method 8260B. If additional analyses are required by the Castro Valley Sanitary District, Horizon will submit a groundwater sample collected from the aboveground storage tank for those required analyses.

Collect vapor samples during the HVDPE testing from the influent vapor stream of the mobile extraction unit to evaluate the efficiency of the HVDPE on soil vapor concentrations. Collect influent and effluent vapor samples at 1 hour, 24 hours, and during the final hour prior to the termination of the HVDPE test. Submit the vapor samples under COC documentation to a California-certified analytical laboratory for analysis of TPHg, BTEX, and MTBE utilizing EPA Method 8260B. The field measurements discussed in Task 3 may be used in lieu of the analytical samples for calculating hydrocarbon removal rates.

Task 5 Review the analytical results of the extracted groundwater in the aboveground storage tank. Upon receipt of the analytical results, Horizon will determine whether the extracted groundwater can be discharged without treatment to the Castro Valley Sanitary District sewer system; or to treat the HVDPE extracted groundwater onsite with a 200-pound water-phase GAC vessel prior to discharge; or if the extracted groundwater will be transported to an Valero-approved disposal facility. Horizon will forward the analytical

results of the extracted groundwater to the Castro Valley Sanitary District in order to obtain approval for discharging.

Task 6 Prepare and submit a report presenting the field procedures, results, evaluation, and conclusions of the HVDPE testing. If evaluation of the HVDPE testing indicates improved groundwater quality, propose additional HVDPE events to attain Site Closure / No Further Action status for the Site or preparing a Corrective Action Plan.

If you have any questions regarding this work plan, contact Horizon at (916) 939-2170.

Sincerely,
HORIZON ENVIRONMENTAL INC.

for Gary D. Barker
Senior Project Manager

Kenny B. Mateik
Professional Geologist, C.E.G. No. 1935

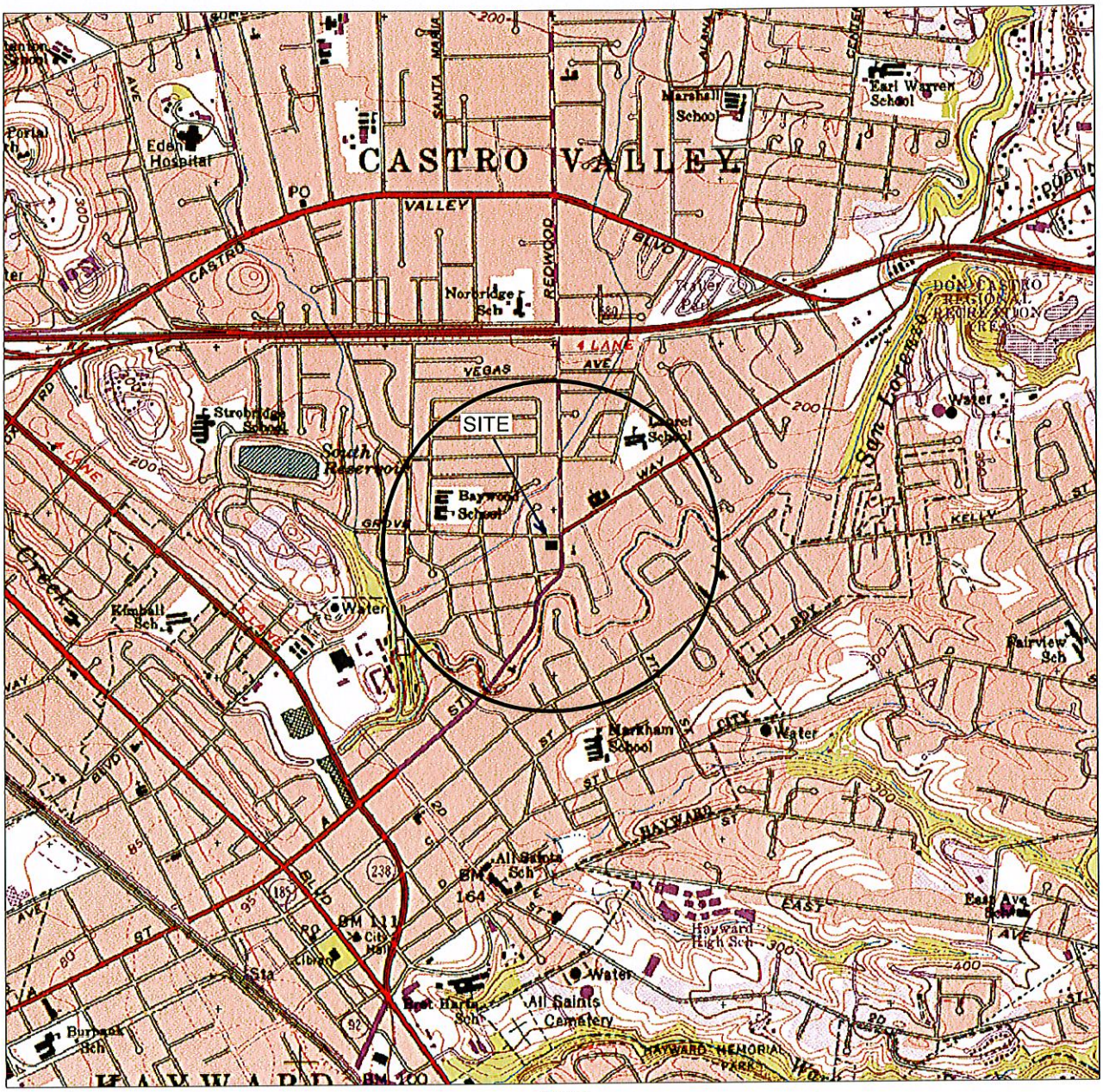
PROFESSIONAL GEOLOGIST
KENNY B. MATEIK
No. 1935
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA
Exp. 05/2010

Brandon M. Schlegel
Assistant Project Scientist

Attachments:
Figure 1: Site Location Map
Figure 2: Site Map / Groundwater Elevation Contour Map
Figure 3: Site Map / Groundwater Analytical Summary

Attachment A: Horizon Field Methods and Procedures

c: Mr. Robert Ehlers, Valero Energy Corp.
Mr. Bill Courtney, Property Manager
Mr. Allen Shin, Banya Investment LLC



GENERAL NOTES:
BASE MAP FROM U.S.G.S.
HAYWARD, CA.
7.5 MINUTE TOPOGRAPHIC
PHOTOREVISED 1980

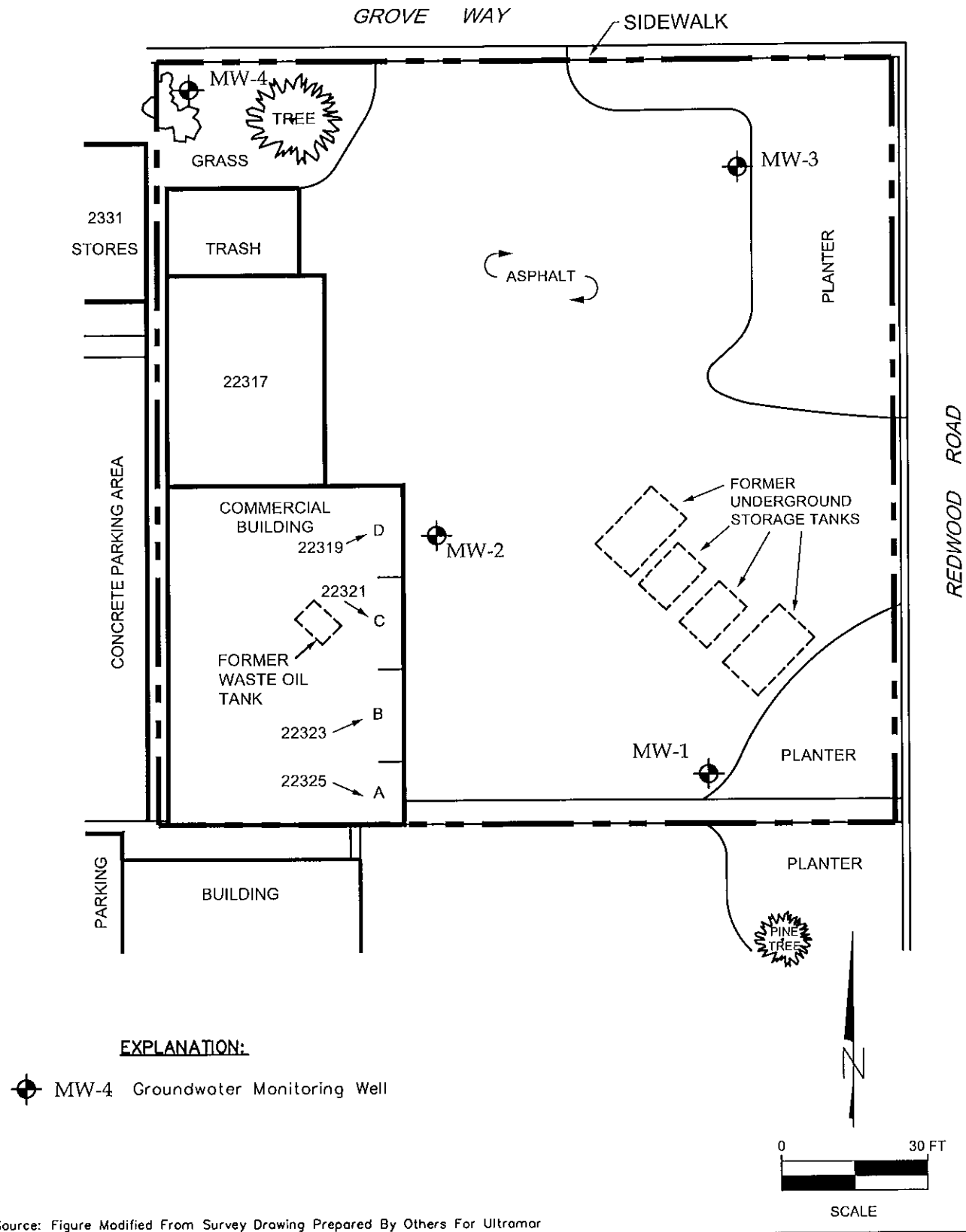
QUADRANGLE LOCATION

0 2000 FT

SCALE 1:24,000

NORTH

HORIZON ENVIRONMENTAL INC.		SITE LOCATION MAP	FIGURE 1
Project Number: 1574.41 Prepared By: K. Liptak Reviewed By: K. Mateik	Drawn By: M. LaCoste Date: 10/7/04 Revised Date:	FORMER BEACON STATION NO. 12574 22315 REDWOOD ROAD CASTRO VALLEY, CA.	

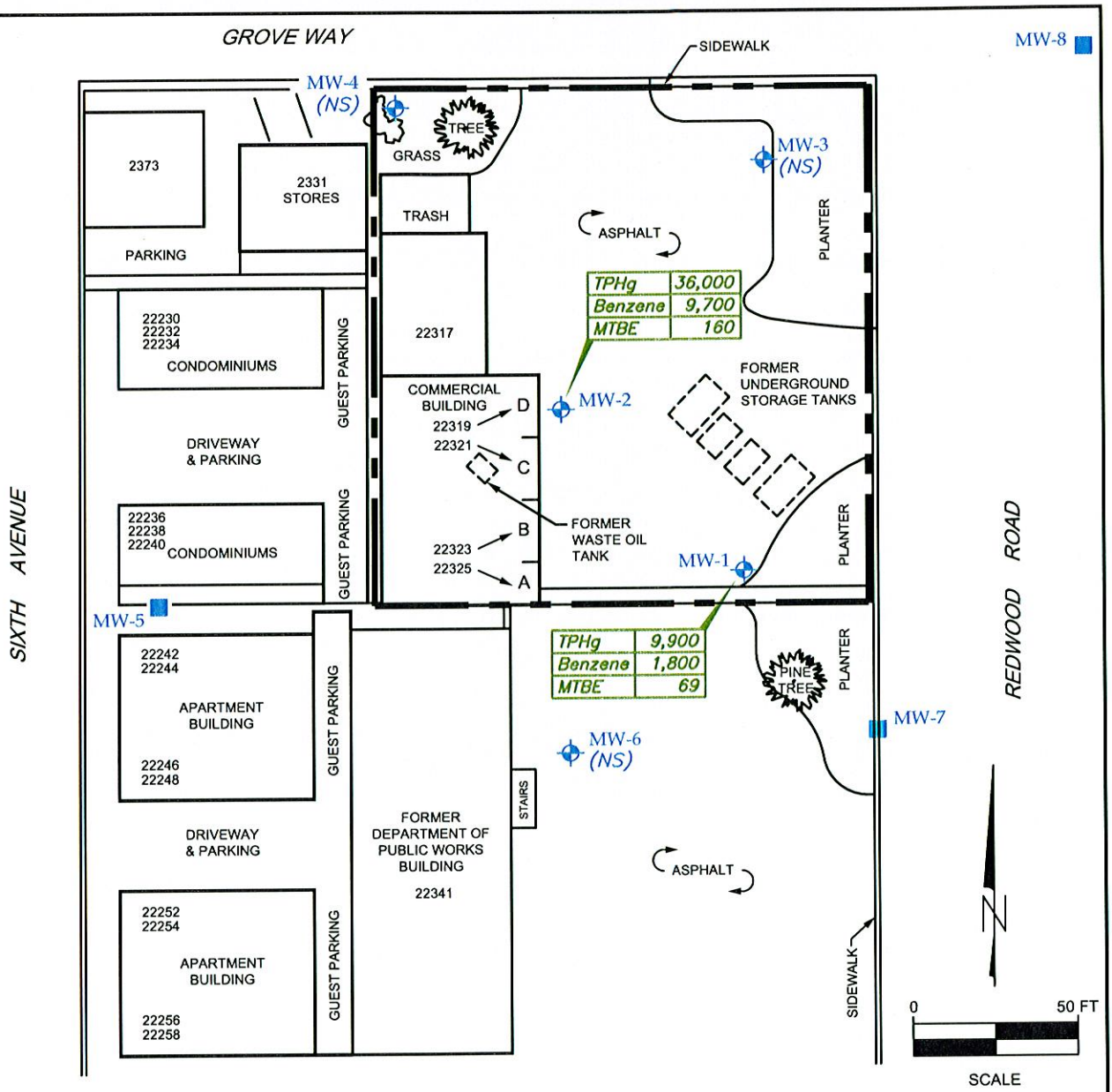


EXPLANATION:

MW-4 Groundwater Monitoring Well

Source: Figure Modified From Survey Drawing Prepared By Others For Ultramar

HORIZON ENVIRONMENTAL INC.		SITE MAP	FIGURE
Project Number: 1574.11 Prepared By: K. Mateik Reviewed By: G. Barker	Drawn By: C. Bechtell Date: 12/08 Revised Date:	FORMER BEACON STATION NO. 12574 22315 REDWOOD ROAD CASTRO VALLEY, CA.	2



EXPLANATION:

MW-6 Groundwater Monitoring Well

MW-8 Abandoned Monitoring Well

TPHg	36,000
Benzene	9,700
MTBE	160

TOTAL PETROLEUM HYDROCARBONS AS GASOLINE IN PARTS PER MILLION (ppm)

BENZENE CONCENTRATION IN ppm

METHYL-TERT BUTYL ETHER IN ppm

(NS) Not Sampled

Wells Sampled 07/29/08

Source: Figure Modified From Survey Drawing Prepared By Majors For Tesoro Refining.

HORIZON ENVIRONMENTAL INC.

Project Number: 1574.45 Prepared By: K. Liptak Reviewed By: K. Mateik	Drawn By: C. Bechtell Date: 08/08 Revised Date:	GROUNDWATER ANALYTICAL SUMMARY FORMER BEACON STATION NO. 12574 22315 REDWOOD ROAD CASTRO VALLEY, CA.

FIGURE 3

ATTACHMENT A

HORIZON FIELD METHODS AND PROCEDURES

HORIZON ENVIRONMENTAL INC.
FIELD METHODS AND PROCEDURES

The following section describes field procedures that will be completed by Horizon Environmental Inc. (Horizon) personnel in performance of the tasks involved with this project.

1.0 HEALTH AND SAFETY PLAN

Field work performed by Horizon and subcontractors at the site will be conducted according to guidelines established in a Site Health and Safety Plan (SHSP). The SHSP is a document that describes the hazards that may be encountered in the field and specifies protective equipment, work procedures, and emergency information. A copy of the SHSP will be at the site and available for reference by appropriate parties during work at the site.

2.0 LOCATING UNDERGROUND UTILITIES

Prior to commencement of work on site, the location of underground utilities will be researched with the assistance of Underground Service Alert (USA). USA will contact the owners of the various utilities in the vicinity of the site to have the utility owners mark the locations of their underground utilities. Work associated with the borings and monitoring well installations will be preceded by manual hand augering to avoid contact with underground utilities.

3.0 SOIL BORING AND SOIL SAMPLING PROTOCOL

Soil borings and soil sampling will be performed under the supervision of a Horizon geologist. The soil borings will be advanced using a truck-mounted hollow-stem auger drilling rig. To reduce the chances of cross-contamination between boreholes, downhole drilling equipment and sampling equipment will be cleaned between borings. To reduce cross-contamination between samples, the split-barrel sampler will be washed in a soap solution and double-rinsed between each sampling event.

Soil sampling will be conducted in accordance with ASTM 1586-84. Using this procedure, a split-barrel sampler (California-type sampler) lined with brass sample sleeves will be driven into the soil at approximately five-foot intervals by a 140-pound weight falling 30 inches. The number of blow counts required to advance the sample 18 inches will be recorded at each sample interval. Generally, the bottom soil sample will be sealed in the brass sleeve and stored at approximately 4°C for transport to the laboratory. The soil samples will be sealed in the sleeves using Teflon sheets and plastic caps; labeled; and promptly placed in iced storage.

Generally, the upper portions of each soil sample will be extruded from the brass sleeves, placed in a plastic bag, and sealed for later screening with a field calibrated (using isobutylene) Thermo Environmental Instruments Model 580 Organic Vapor Meter (OVM). Another portion of the soil sample was used for classification and description. After the portion of the soil sample is placed in the plastic bag, it will be allowed to warm, inducing volatilization of petroleum hydrocarbon vapors. The headspace vapors will then be screened with the OVM. The highest observed reading will be recorded on the boring logs.

Composite characterization samples will be collected from soil stockpiles generated at the site. A composite sample is four sample locations (as discrete samples) per composite. The composite characterization samples will be collected from the stockpiled soil by selecting random locations accessible around the soil pile, removing approximately six inches of soil, and driving a clean brass sleeve into the soil pile at the selected location. The number of samples collected will be based on the estimated amount of stockpiled soil. Generally, one composite soil sample is collected per 50 or 100 cubic yards of soil. The samples collected will be prepared and chilled for transport under Chain-of-Custody protocol, and sent to a State-certified laboratory for the analyses requested.

4.0 GROUNDWATER DEPTH EVALUATION

Depth to groundwater will be measured to the nearest 0.01-foot using an electronic hand-held water level indicator. The tip of the probe will be examined to evaluate whether a separate-phase hydrocarbon (SPH) sheen was present.

5.0 MONITORING WELL DEVELOPMENT/PURGING AND SAMPLING

Following installation, the wells will be surged with a surge block to remove fines from the sand pack. After surging, groundwater will be purged from each well using a bailer or centrifugal pump to remove sediment and enhance representative sample quality.

Groundwater sampling events conducted after the initial well development will be preceded by purging a minimum of three well casing volumes as described above. Purge water will be monitored for the parameters temperature, pH, and conductivity until stabilized. Wells will be allowed to recharge to 80% before sampling. If wells dewater, they will be allowed to recharge for a minimum of one hour prior to sampling.

After the water levels within the wells stabilized, a sample will be collected with a clean disposable bailer. Samples will be contained in air-tight vials, packed on ice, and transported to the laboratory for analysis. Groundwater samples will be transported to the laboratory and analyzed within the EPA-specified holding time for requested analyses. Each sample container submitted for analysis will have a label affixed to identify the job number, sample date, time of sample collection, and a sample number unique to that sample. Samples will be analyzed by a California-certified laboratory

A Chain-of-Custody form will be used to record possession of the sample from time of collection to its arrival at the laboratory. When the samples are shipped, the person in custody of them will relinquish the samples by signing the Chain-of-Custody form and noting the time. The Sample Control Officer at the laboratory will then verify the sample integrity and confirm that the sample was collected in the proper container, preserved correctly, and that there is an adequate volume for analysis.

6.0 WELLHEAD TOP OF CASING MEASUREMENT

The top of each new well riser will be measured to allow correlation of the groundwater levels at the site. The measured point on each well riser will be marked to help insure future groundwater level measurements are taken from the same location. All measurements will be measured relative to a surveyed benchmark for Global Positioning System (GPS) locations (X and Y coordinates), and will be measured to the nearest 0.01-foot relative to a surveyed benchmark for the well elevations (Z coordinates).