PACIFIC
ENVIRONMENTAL
GROUP, INC.

November 4, 1991
Project 325-02.01

Chevron USA, Inc.
P.O. Box 5004
San Ramon, California 94583-0804

Attn: Ms. Nancy Vukelich

Re: Former Chevron USA Station 9-2384
15526 Hesperian Boulevard
San Lorenzo, California

Dear Ms. Vukelich:

This letter presents a Work Plan prepared by Pacific Environmental Group, Inc. (PACIFIC) for a preliminary soil and groundwater investigation at the Former Chevron USA service station referenced above.

BACKGROUND

Site Description

The site is a former Bubble Machine car wash and Chevron USA service station located at 15526 Hesperian Boulevard in San Lorenzo, California (Figures 1 and 2). The site lies within a mixed commercial and residential area. Figure 3 presents the former service station layout, including station building, product island and underground storage tank locations. The service station had three underground fuel storage tanks (two 10,000-gallon and one 6,000-gallon fiberglass gasoline storage tanks) located within a common excavation in the northwestern corner of the site.

The single wall fiberglass gasoline storage tanks were installed in 1972. Tank tests performed December 10, 1981, on the supreme unleaded and regular unleaded tanks resulted in a failed test. The tanks were subsequently uncovered to isolate the piping, retested, and found to be tight. During the most recent tank test

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performed on October 18, 1990, the regular leaded tank failed the test. As a result, the regular leaded tank was uncovered on November 2, 1990, and tested tight.

The site was abandoned effective March 31, 1991, and the product dispensers were removed at approximately that time. The underground tanks and associated piping were removed on May 30, 1991.

Hydrogeologic Setting

The site is located in the relatively flat-lying San Francisco Bay Plain, and is underlain by undifferentiated Quaternary deposits. The deposits consist primarily of tens of feet of stream alluvium and slope wash, which overlie thick deposits of marine clay and sand with thin gravels. The average thickness of the Quaternary deposits on the plain may exceed 600 feet.

The Hayward Fault, a right-lateral strike-slip fault with a large vertical component of displacement, is located less than one mile to the northeast of the site, and forms the scarp between the relatively flat bay plain and the East Bay Hills. San Lorenzo Creek, which flows to the west into San Francisco Bay, is located approximately 1650 feet to the south of the site. Regional groundwater flow is in a westerly direction, towards San Francisco Bay.

PROPOSED SCOPE OF WORK

To evaluate the soil and groundwater conditions beneath the site, PACIFIC proposes installing three groundwater monitoring wells. The monitoring wells will be constructed of 2-inch diameter, Schedule 40 PVC casing, and will be constructed in accordance with California Department of Water Resources guidelines for monitoring well installation. Drilling and monitoring well installation procedures are included in Attachment A, and the proposed well locations are shown on Figure 3.

One groundwater monitoring well is to be placed to the west of the storage tank complex to characterize downgradient soil and groundwater conditions. One well is to be placed to the north of the storage tank complex in the inferred crossgradient direction, and one monitoring well is to be placed to the east of the storage tank complex and pump islands in the inferred upgradient direction.

Following installation, the groundwater monitoring wells will be developed and sampled. Before sampling, water levels will be measured in each well and they will

be checked for the presence of separate-phase hydrocarbons. Sampling procedures are discussed in Attachment A.

Laboratory Analysis

Selected soil samples will be analyzed by a State-certified laboratory for the presence of total petroleum hydrocarbons (TPH) as gasoline by EPA Method 8015, and for the presence of benzene, toluene, ethylbenzene and xylenes (BTEX compounds) by EPA Method 8020. All groundwater samples will be analyzed for TPH as gasoline by EPA Method 8015 and BTEX by EPA Method 8020. Laboratory analytical procedures are discussed in Attachment A.

Report

Upon completion of the above-described field work, a technical report will be prepared and submitted to Chevron USA. The report will include boring logs, well completion details, soil and groundwater analytical results, a shallow groundwater contour map, and a summary of findings and recommendations.

If you have any questions or comments regarding the contents of this Work Plan, please do not hesitate to call.

Sincerely,

Pacific Environmental Group, Inc.

Jerry Mitchell
Project Geologist

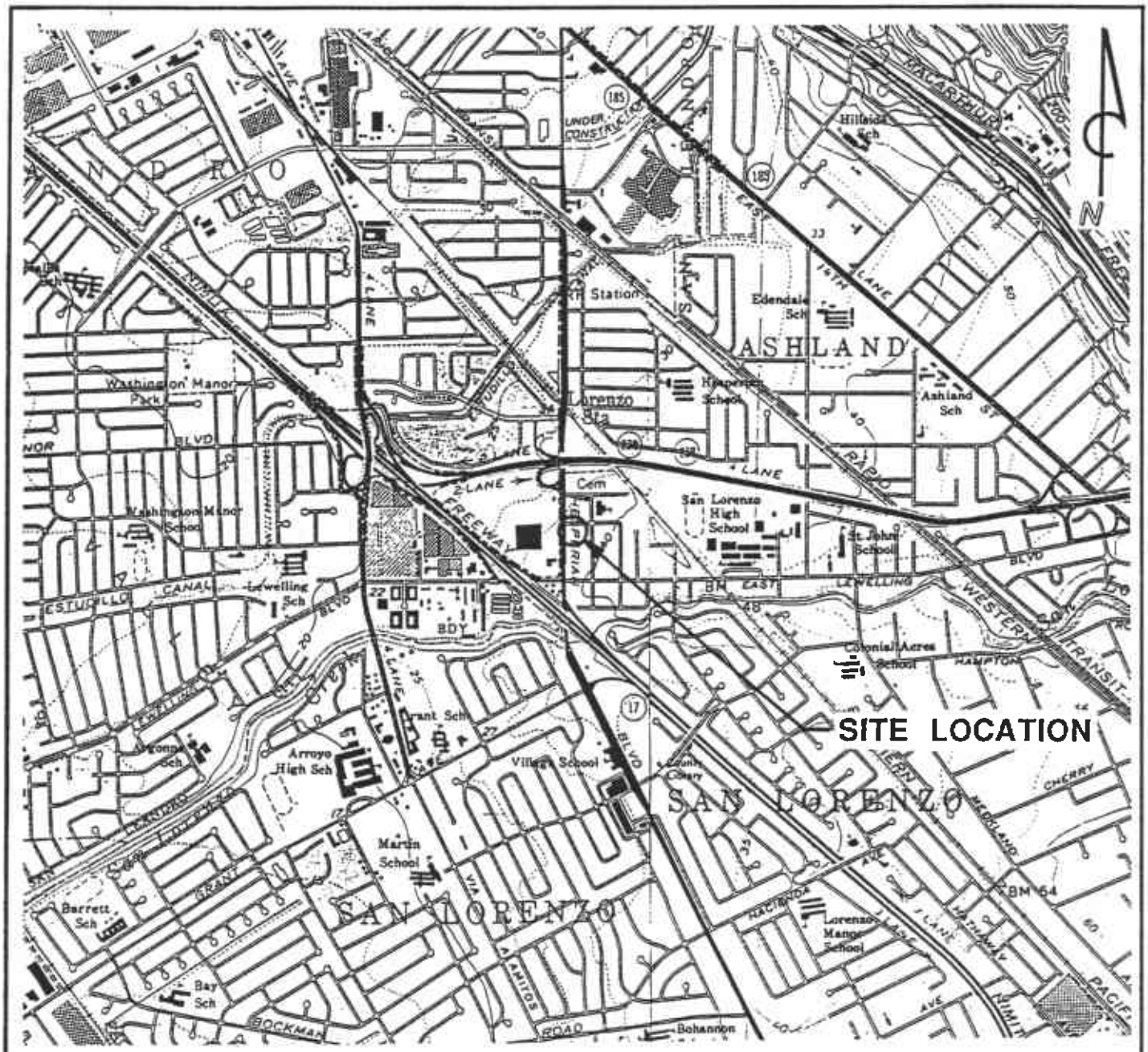
Debra J. Moser
Senior Geologist
CEG 1293

REGISTERED GEOLOGIST
DEBRA J. MOSER
No. 1293
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

Attachments: Figure 1 - Site Location Map
Figure 2 - Extended Site Map
Figure 3 - Site Map
Attachment A - Investigative Procedures

REFERENCES

U.S. Geological Survey, 1956, *Geology of the Hayward Quadrangle, California*, G. D. Robinson.



QUADRANGLE LOCATION

REFERENCES:
USGS 7.5 MIN. TOPOGRAPHIC MAP
TITLED: SAN LEANDRO, CALIFORNIA
DATED: 1959 REVISED: 1980
TITLED: HAYWARD, CALIFORNIA
DATED: 1959 REVISED: 1980

SCALE

2000 0 2000 FEET

PACIFIC ENVIRONMENTAL GROUP, INC.

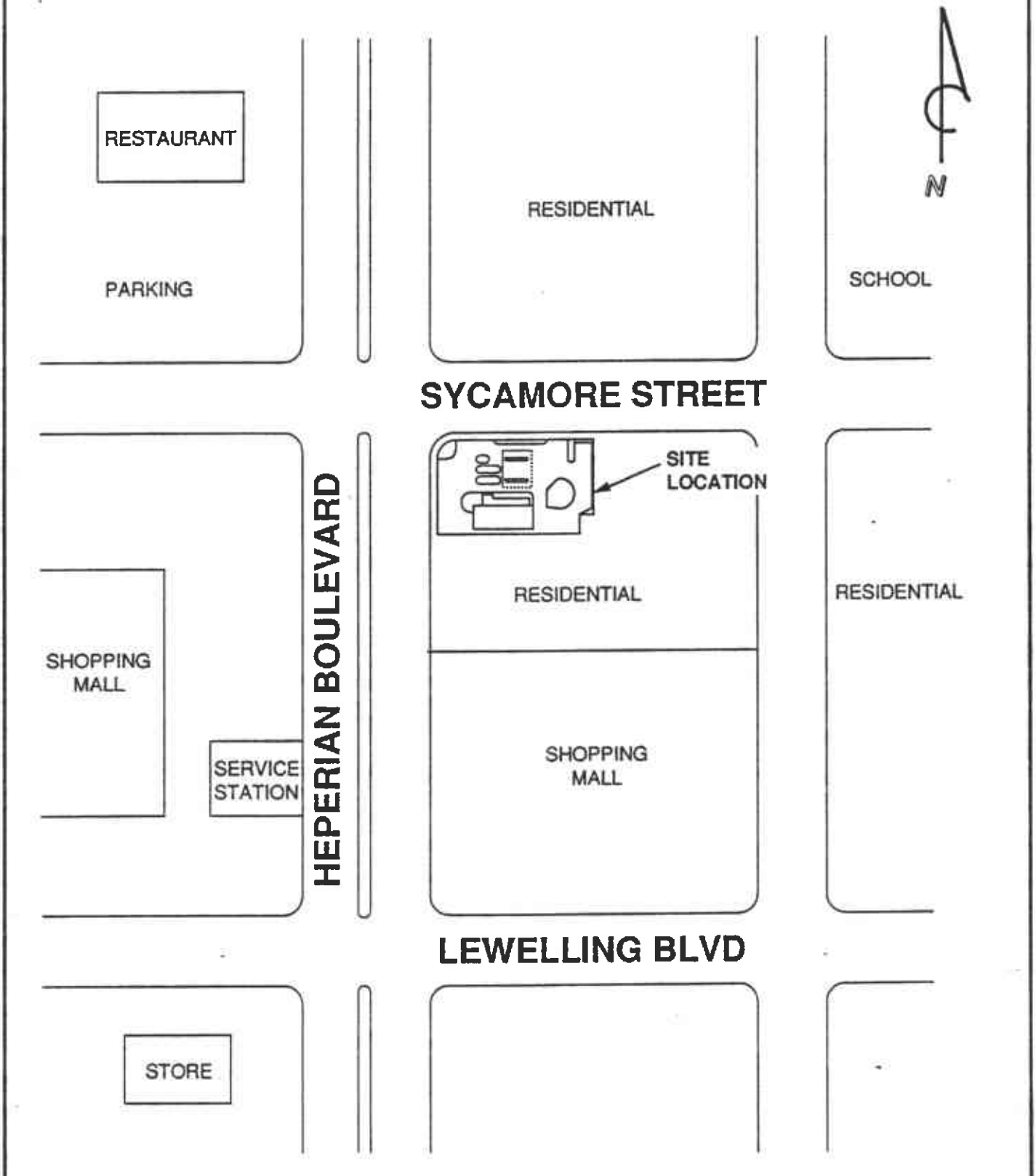
FORMER CHEVRON USA STATION 9-2384
15526 Hesperian Boulevard at Sycamore Street
San Lorenzo, California

SITE LOCATION MAP

FIGURE: 1

PROJECT: 325-02.01

SAN JOSE BLUEPRINT CO



NOT TO SCALE

PACIFIC ENVIRONMENTAL GROUP, INC.	**FORMER CHEVRON USA STATION 9-2384** 15526 Hesperian Boulevard at Sycamore Street San Lorenzo, California **EXTENDED SITE MAP**	FIGURE: **2** PROJECT: 325-02.01

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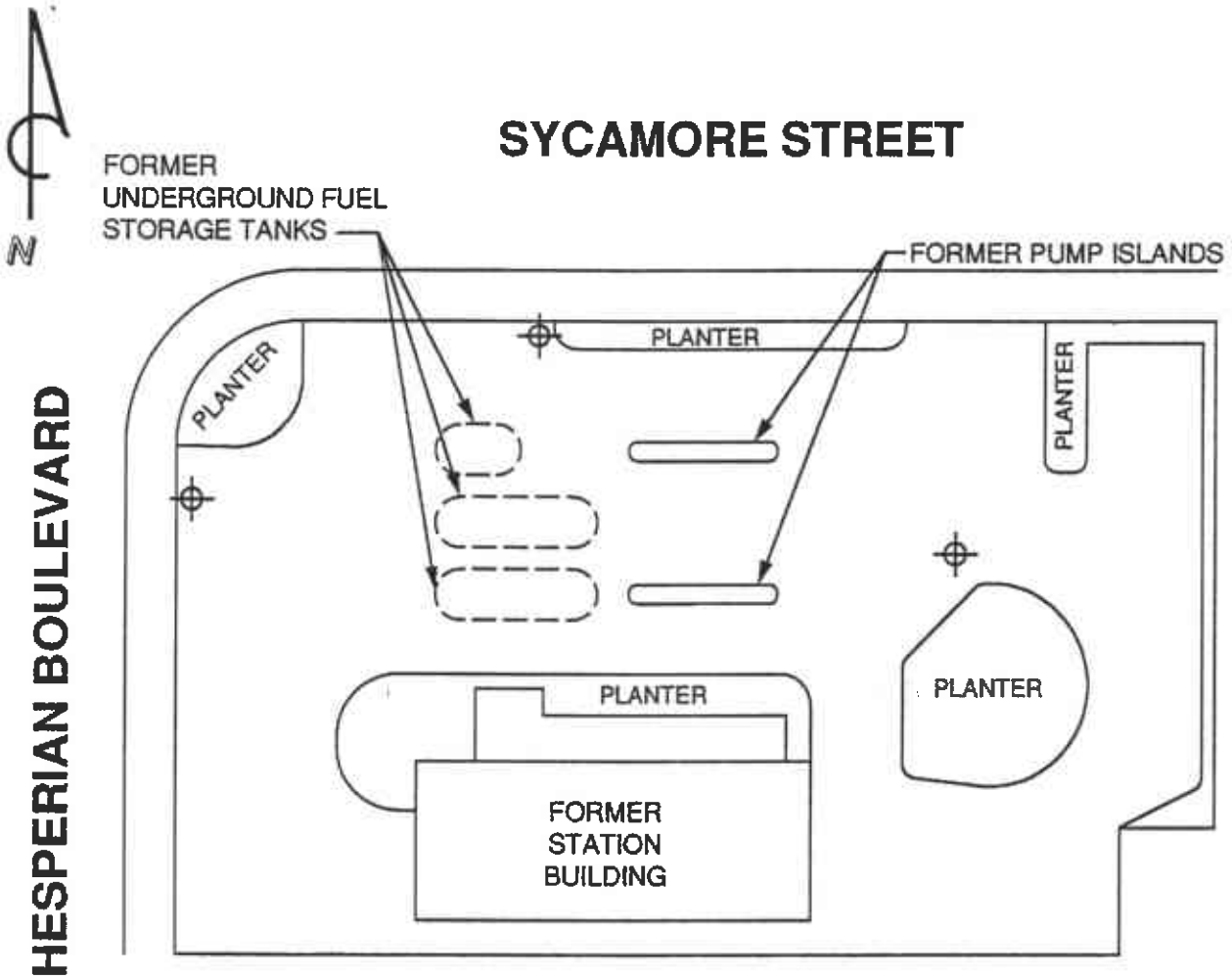

LEGEND

⊕ PROPOSED GROUNDWATER MONITORING WELL LOCATION

SCALE

0 30 60 FEET

PACIFIC ENVIRONMENTAL GROUP, INC.

FORMER CHEVRON USA STATION 9-2384
15526 Hesperian Boulevard at Sycamore Street
San Lorenzo, California

SITE MAP

FIGURE: **3**

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11/04/91

ATTACHMENT A

INVESTIGATIVE PROCEDURES

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INVESTIGATIVE PROCEDURES

Exploratory Borings and Monitoring Well Installation

The soil borings will be drilled with hollow-stem auger drilling equipment and will be logged by a PACIFIC geologist using the Unified Soil Classification System and standard geologic techniques. Soil samples for logging and possible chemical analysis will be collected at 5-foot depth intervals and at significant lithologic changes by advancing a California-modified split-spoon sampler with brass liners into undisturbed soil beyond the tip of the auger. The sampler will be driven a maximum of 18 inches using a 140-pound hammer with a 30-inch drop. Soil samples for chemical analysis will be retained in brass liners, wrapped with aluminum foil and plastic end caps, and sealed in clean glass containers. These samples will be placed on ice for transport to the laboratory accompanied by chain-of-custody documentation.

Soil samples collected during drilling will be analyzed in the field for ionizable organic compounds using the H-NU Model PI 101 photoionization detector with a 10.2 eV lamp. The test procedure involves measuring approximately 30 grams from an undisturbed soil sample, placing this sub-sample in a clean glass jar, and sealing the jar with aluminum foil secured under a ring-type threaded lid. The jar is warmed for approximately 20 minutes, then the foil is pierced and the head-space within the jar is tested for total organic vapor, measured in parts per million as benzene (ppm: volume/volume). The instrument will be calibrated prior to drilling using a 100 ppm isobutylene standard (in air) and a sensitivity factor of 0.7, which relates the photoionization potential of isobutylene (7.0 ppm) to benzene. The results of the field testing are used to select soil samples for laboratory analysis.

The borings will be converted to groundwater monitoring wells and will penetrate a maximum of 20 feet into the water-bearing zone, taking care not to penetrate a 5-foot thick aquitard. Two-inch diameter Schedule 40 PVC casing and 0.020-inch factory-slotted screen will then be installed. Graded sand pack will be placed into the annular space across the screen interval, and will extend approximately 1 foot above the

top of the screen. A bentonite and concrete seal will be placed from the top of the sand pack to the ground surface. A locking cap and protective vault box will be installed on the top of each well. The well locations will be noted, and the surface elevation of each vault box and top of casing will be surveyed to the nearest 0.01 foot based on mean sea level datum by a licensed surveyor. This information will be used to calculate the groundwater flow direction and gradient.

All downhole drilling equipment will be steam cleaned between each boring. Steam cleaning water will be contained in 55-gallon drums and secured at the site pending disposal.

Groundwater Sampling

The wells will be developed after installation by surging and pumping until the water pumped from the well is substantially free of sediment. The wells will not be developed until at least 24 hours after installation, and will be allowed to recover for 24 hours after development prior to sampling.

Site groundwater monitoring wells will be sampled by first measuring the water level and checking for the presence of separate-phase hydrocarbons using an electronic interface probe. If no separate-phase hydrocarbons are noted, the wells will then be purged a minimum of four casing volumes of water (or until dry) using a centrifugal pump, during which time temperature, pH, and electrical conductivity will be monitored to indicate that a representative groundwater sample has been obtained. After purging, the water levels in the wells will be allowed to partially recover before sampling. Groundwater samples will be collected using a Teflon bailer, placed into appropriate EPA-approved containers, labeled, logged onto chain-of-custody documents, and transported on ice to the laboratory. A trip blank and a duplicate water sample will accompany the samples to the laboratory. Well development and purged groundwater will be contained in 55-gallon drums and secured on site pending disposal.

Laboratory Analysis

Groundwater samples and selected soil samples will be analyzed for total petroleum hydrocarbons (TPH) as gasoline and benzene, toluene, ethylbenzene, and xylenes (BTEX compounds). The analyses for TPH will be performed by Modified EPA Method 8015 with purge-and-trap extraction, with final detection by gas chromatography using a flame-ionization detector. The analyses for BTEX will be performed according to EPA Method 8020. Laboratory quality assurance documentation will accompany the laboratory results. Laboratory detection limits will be in accordance with RWQCB minimum detection limits.