Chevron

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October 13, 1993

Chevron U.S.A. Products Company
2410 Camino Ramon
San Ramon, CA 94583
P.O. Box 5004
San Ramon, CA 94583-0804

Marketing Department
Phone 510 842 9500

Ms. Susan Hugo
Alameda County Health Care Services
80 Swan Way, Room 200
Oakland, CA 94621

Re: Chevron Service Station No. 9-0329
340 Highland Avenue, Piedmont, California

Dear Ms. Hugo :

Enclosed is RESNA's work plan dated October 5, 1993.

Please review the work plan and send your written approval to our office.

If you have any questions or comments, please feel free to contact me at (510) 842-8752.

Sincerely,

Chevron U.S.A. Products Co.

Kenneth Kan
Engineer

LKAN/MacFile 9-0329R11

Enclosure

cc : Mr. Rich Hiett, RWQCB-San Francisco Bay Area
2101 Webster Street, Suite 500, Oakland, CA 94612

Attn. Frank Hoffman, Hoffman Investment Company
1760 Willow Road, Hillsborough, CA 94010

Mir Ghafari, Chevron Service Station
340 Highlands Ave., Piedmont, CA 94611

Ms. Bette Owen, Chevron U.S.A. Products Co.

RESNA
Working to Restore Nature

73 Digital Drive
Novato, CA 94949
Phone: (415) 382-7400
Fax: (415) 382-7415

October 5, 1993

Mr. Kenneth Kan
Chevron U.S.A. Products Company
2410 Camino Ramon
San Ramon, CA 94583-0804

Subject: **Work Plan for Evaluation of Soil and Groundwater**
Chevron Service Station No. 9-0329
340 Highland Avenue
Piedmont, California.

Mr. Kan:

At the request of Chevron U.S.A. Products Company (Chevron), RESNA Industries Inc. (RESNA) has prepared this work plan to perform a subsurface environmental investigation at the subject site. The site location is shown on Plate 1. The purpose of this investigation is to evaluate whether petroleum hydrocarbons are present in soil and groundwater offsite. Chevron's scope of work for RESNA includes the following:

- Drilling two soil borings using a hollow stem auger drill rig.
- Installing groundwater monitoring wells in the soil borings, sampling soil and groundwater, submitting selected soil and groundwater samples for laboratory analyses.
- Preparing a report.

SITE-SPECIFIC HEALTH AND SAFETY PLAN / BACKGROUND REVIEW / PERMITTING

A Site-Specific Health and Safety Plan will be prepared by RESNA as required by the Occupational Health and Safety Administration (OSHA) Standard "Hazardous Waste Operations and Emergency Response" guidelines (29 CFR 1910.120). The Site-Specific Health and Safety Plan will be prepared by RESNA personnel, following a review of site conditions and any existing Site-Specific Health and Safety Plans for the site with the Project Manager. The document will be reviewed by RESNA personnel and subcontractors performing work at the site. A copy of the Site-Specific Health and Safety Plan will be kept at the work site and will be available for reference by appropriate parties during the work. The RESNA geologist will act as the Site Safety Officer.

We understand from conversations with Chevron personnel that in January 1983, Gettler-Ryan of Hayward, California installed four groundwater monitoring wells (C-1 through C-4). In November 1990, GeoStrategies Inc. of Hayward, California drilled six exploratory soil borings at the site. Concentrations of gasoline hydrocarbons have been detected in groundwater samples collected from monitoring well C-2, located adjacent to the waste oil underground storage tank. In April 1993, RESNA hand augered four offsite soil borings (B-1 through B-4), installed temporary groundwater monitoring wells in the borings, collected groundwater samples, and performed an investigation of potential sources of petroleum hydrocarbons within a one-mile radius of the site. Petroleum hydrocarbons were not detected in soil samples collected from borings B-1 through B-4. Groundwater in temporary groundwater monitoring wells B-2 and B-4 ranged from approximately 3.0 to 3.7 feet below ground surface. Groundwater was not present above siltstone bedrock encountered in borings B-1 and B-3. Petroleum hydrocarbons were not detected in groundwater samples collected from temporary groundwater monitoring wells constructed in offsite borings B-2 and B-4. The Piedmont City Hall was identified as an offsite source of diesel hydrocarbons (RESNA Industries, June 25, 1993).

All applicable local and State permits pertaining to the proposed work will be obtained before commencing field work.

SOIL BORINGS / SAMPLING AND ANALYSES

RESNA will contact Underground Services Alert before drilling to help locate public utility lines at the site. RESNA will hand auger boring locations to a depth of approximately 3 feet to 5 feet before drilling to reduce the risk of damaging underground structures. Locations of the proposed soil borings and monitoring wells are shown on Plate 2. The soil boring locations were chosen to verify petroleum hydrocarbons are not present in soil and groundwater downgradient of the site as noted in temporary wells.

Soil borings will be drilled with a drill rig equipped with nominal 8-inch-diameter, hollow-stem augers. Augers and sampling equipment will be steam cleaned before use and between borings to minimize the possibility of crosshole contamination. The rinseate will be stored in a Department of Transportation (DOT) approved purge water trailer and taken to Chevron's Richmond Refinery for disposal. Drilling will be performed under the observation of a geologist, and the earth materials in the borings will be classified while drilling using the visual and manual methods according to the Unified Soil Classification System.

We expect to drill soil borings B-5 and B-6 to approximately 15 feet below grade. Soil borings will be drilled to approximately 10 feet below the first-encountered water bearing zone or to the top of bedrock. During drilling soil samples will be collected approximately every 5 feet, at obvious changes in soil stratigraphy, or at obvious signs of hydrocarbons, and just above first encountered groundwater. Samples will be collected with a California-modified, split-spoon sampler equipped with laboratory-cleaned brass sleeves. Samples will be collected by advancing the auger to a point just above the sampling depth and driving the sampler into the soil. The sampler will be driven 18 inches with a standard 140-pound hammer repeatedly dropped 30 inches. The number of blows required to drive the sampler each successive 6-inch interval will be counted and recorded to give an indication of soil consistency.

Soil samples will be monitored with a photoionization detector (PID), which measures hydrocarbon concentrations in the ambient air or headspace above the soil sample. Field instruments such as the PID are useful for indicating relative levels of volatile hydrocarbons, but do not detect concentrations of hydrocarbons with the same precision as laboratory analyses. Soil samples selected for possible chemical analysis will be sealed promptly with aluminum foil, plastic caps, and a non-volatile tape. The samples will be labeled and placed in iced storage for transport to the laboratory. Chain-of-Custody Records will be initiated by the geologist in the field, updated throughout handling of the samples, and sent with the samples to the laboratory. Copies of these records will be included in the final report. Cuttings generated during drilling will be stockpiled on plastic sheeting onsite pending characterization for disposal.

Soil samples selected for analyses from the soil borings will generally be the sample producing the highest reading on the PID, the sample with the strongest subjective evidence of hydrocarbons, and the sample from directly above first encountered groundwater. The RESNA project manager may select other appropriate samples from the borings utilizing the previously noted field screening techniques.

WELL INSTALLATION / WATER SAMPLING / ANALYSIS

Monitoring wells MW-5 and MW-6 will be constructed in borings B-5 and B-6 using thread-jointed, 2-inch-inner-diameter, Schedule 40 polyvinyl chloride (PVC) casing. No chemical cements, glues, or solvents will be used in well construction. The screened portion of each well will consist of factory-perforated casing with 0.020-inch-wide slots. We expect that the well screen will be installed from the total depth of each well to approximately three feet below grade. The well screen for each well will be installed approximately two feet above and ten feet below the current water table to permit entry of separate-phase hydrocarbons, if present, to allow for fluctuations in the groundwater elevation, and to provide an adequate surface seal. Unperforated casing will be installed from the top of each screen to the ground surface. The annular space in the well will be packed with sand to approximately one-half foot above the slotted interval. A bentonite plug will be constructed above the sand pack to prevent cement from entering the filter pack. The remaining annulus will be backfilled to grade with a slurry of cement and bentonite powder.

The monitoring wells will be protected with traffic-rated, cast-aluminum utility boxes equipped with PVC skirts. Each box has a seal to minimize surface-water infiltration and must be opened with a special wrench. The design of this box reduces the possibility of accidental disturbance of the well.

Monitoring Well Development and Sampling

RESNA will wait a minimum of 24 hours before development of the monitoring wells to allow the grout to harden. Initially, a water sample will be collected for subjective analysis before purging of the monitoring wells. This sample will be collected from near the water surface in the well with a Teflon bailer cleaned with a laboratory-grade detergent and deionized water. The wells will be developed with a surge block and pump. Well development will continue until the discharge water is relatively clear of silt and sand. Clay-size sediments derived from the screened portion of the formation cannot be eliminated by well development. After the water

level has been allowed to stabilize, the well will be checked for separate-phase hydrocarbons using an interface probe. The thickness of any product detected in the well will be recorded. If separate-phase hydrocarbons are encountered in the well, the well will not be purged, and the water will not be sampled for chemical analysis. Separate-phase hydrocarbons will be bailed from the well and stored in labeled drums onsite. RESNA will apprise Chevron of appropriate disposal options for separate-phase hydrocarbons bailed from the well.

The wells will be allowed to recover for a minimum of 24 hours after development prior to purging and sampling. If separate-phase hydrocarbons greater than 0.02-inches thick are not detected after development, the well will be purged of approximately 3 to 4 casing volumes of water with a submersible pump, or until pH, conductivity, and temperature of the purged water have stabilized. Water purged from the wells will be directed to a DOT approved purge water trailer and transported to Chevron's Richmond Refinery for disposal.

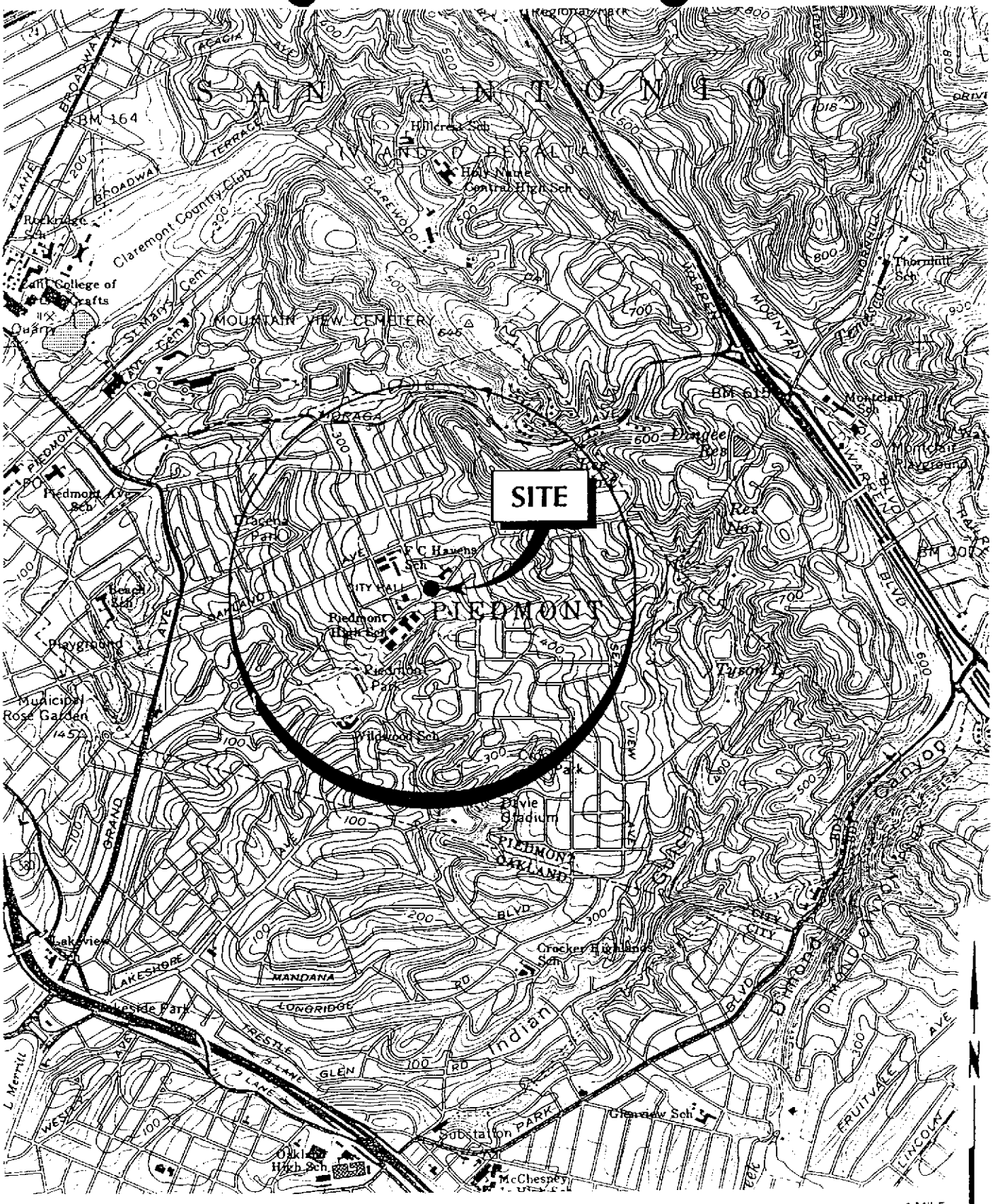
The wells will be allowed to recover to at least 80 percent of static conditions, and a sample of the groundwater will be collected with a bailer cleaned with a laboratory-grade detergent and deionized water. The water will be transferred slowly from the bailer to laboratory-cleaned 40-milliliter glass vials and 1 liter amber glass bottles for analyses by the laboratory. The glass vials will contain hydrochloric acid as a preservative. Our geologist will check to see that no headspace is present in the glass vials. Chain of Custody Records will be initiated in the field by the geologist, updated throughout handling of the samples, and sent along with the iced samples to the laboratory. Copies of Chain of Custody Records will be included in our final report.

Evaluation of Potentiometric Surface

The groundwater gradient and direction of groundwater flow at the site will be evaluated. A licensed land surveyor will measure the tops-of-casing elevations of the two newly installed wells and one existing well relative to mean sea level and an accuracy of 0.01 feet. Water-depth measurements will be made from the top of the casing in the well to the nearest 0.01 foot with an electronic water-level indicator. The well will be vented to the atmosphere for a minimum of 1 hour before obtaining depth-to-water measurements. Venting is conducted to allow the groundwater to equilibrate with barometric pressure. These data will be combined to evaluate the relative elevation of the groundwater surface in each well and the slope of the groundwater surface across the site.

Laboratory Analyses

Soil samples selected for analyses from each boring will generally include the sample with the highest reading on the PID, at five foot intervals, where visual evidence of hydrocarbons are observed, and the sample collected from just above the first encountered groudwater. Analysis of soil and groundwater samples will be performed for TPHg using modified EPA Method 8015, for and for BTEX using EPA Methods 8020, respectively. Detection limits for the tests requested and concentrations present will be stated on the laboratory reports. Analytical methods and detection limits will conform to guidelines specified in the latest edition of the Tri-Regional Recommendations. Laboratory analyses will be performed by a Chevron contracted laboratory.



Source: USGS Topographic Map, 7.5 minute series, Oakland East, Calif. quadrangle, 1980

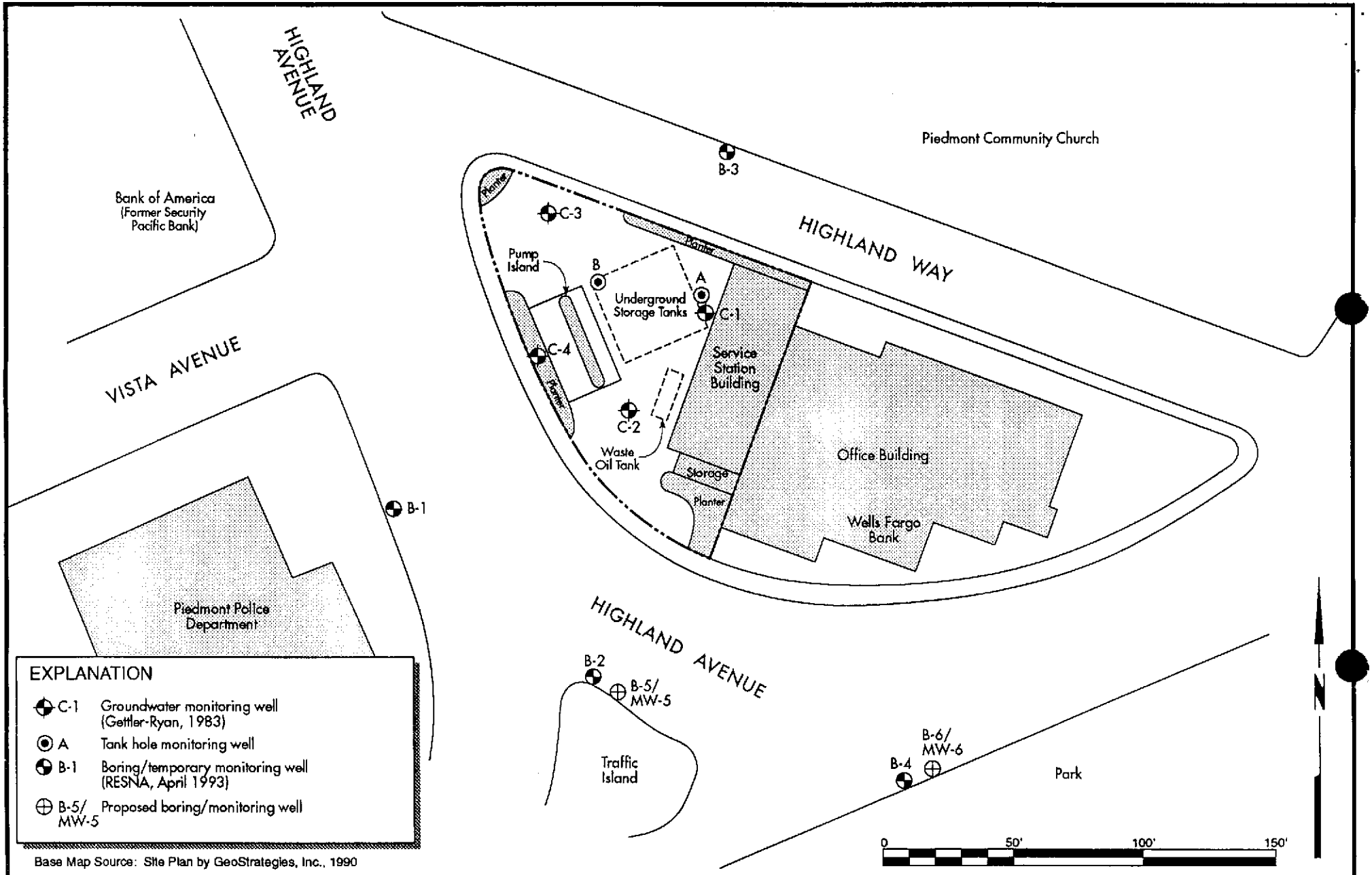
RESNA

PROJECT NO. 170105.02 | 3/93

SITE VICINITY MAP

Chevron Service Station No. 9-0329
340 Highland Avenue
Piedmont, California

PLATE
1



Base Map Source: Site Plan by GeoStrategies, Inc., 1990

RESNA

PROJECT NO. 170105.02 | 9/93

GENERALIZED SITE PLAN

Chevron Service Station No. 9-0329
340 Highland Avenue
Piedmont, California

PLATE
2