Chevron

Chevron U.S.A. Products Company
2410 Camino Ramon, San Ramon, California • Phone (510) 842-9500
Mail Address: P.O. Box 5004, San Ramon, CA 94583-0804

Operations

STID 402

January 26, 1993

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

Re: Off-site Verification of Soil and Groundwater / Risk Management Plan
Former Chevron Service Station No. 9-3864
5101 Telegraph Avenue, Oakland, California

Dear Ms. Hugo :

Enclosed is the the work plan from RESNA dated January 20, 1993 for the installation of five permanent wells as part of the verification of soil and groundwater and as part of the risk management plan.

As part of the verification of soil and groundwater, soil samples will be taken from the borings of each proposed monitoring well and analyzed for total petroleum hydrocarbon as gasoline (TPH-G), benzene, toluene, ethylbenzene, and xylenes (BTEX). Once the wells are installed, the wells will be purged, developed, and surveyed. After these wells are developed and surveyed, the wells will be sampled and analyzed for TPH-G and BTEX.

As part of the risk management plan, five (5) additional off-site monitoring wells will be installed to supplement the existing four (4) on-site wells. Each proposed off-site well will be placed in a strategic location which will provide groundwater data in the up-gradient, cross-gradient, and down-gradient direction. In effect, the off-site wells will surround the dissolved hydrocarbon plume. Once the off-site wells are installed, the on-site wells will only provide additional information that is not essential in monitoring the plume. In the event, the on-site wells are abandoned. The off-site wells will continue to provide the required information to monitor the dissolved hydrocarbon plume. The wells will be monitored and sampled initially on a quarterly basis for a period of six months and sampled afterwards on an annual basis. This sampling frequency can be modified to meet any unexpected change if necessary. This monitoring and sampling change will begin once the work plan is approved.

In summary, the risked-based analysis prepared by Geraghty & Miller, Inc. which incorporated the results of the subsurface investigation performed by Pacific Environmental Group and all previous investigations provide enough data and support to suggest the site is developable, and remediation is not necessary. The work plan on installing five additional off-site wells will provide an adequate risk management plan.

Finally, please submit a letter to this office confirming your approval of the work plan from Pacific Environmental Group dated October 13, 1992. In addition, please respond in writing to the development and remediation of this site as well as Chevron's risk management plan and proposed well installation.

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

Sincerely,

Chevron U.S.A. Products Co.

Kenneth Kan

Kenneth Kan
Site Assessment and Remediation Engineer

LKAN/MacFile 9-3864R13
Enclosure

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

Dr. Ravi Arulananthum
Alameda County Health Care Services
Department of Environmental Health
80 Swan Way, Room 200
Oakland, CA 94621

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

RESNA
Working to Restore Nature

73 Digital Drive
Novato, California 94949-5704
Phone: (415) 382-7400
FAX: (415) 382-7415

January 20, 1993

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

Subject: Work Plan for Off-Site Verification of Soil and Groundwater and Risk Management Plan at Chevron Service Station No. 9-3864, Oakland, California.

Dear Mr. Kan:

At the request of Chevron U.S.A. Products Company (Chevron), RESNA Industries Inc. (RESNA) has prepared this work plan for performing a subsurface environmental investigation at the subject site. The site location is shown on Figure 1. The purpose of this investigation is to verify the extent of petroleum hydrocarbons in soil and groundwater and to install monitoring wells as part of a risk management plan. RESNA's scope of work includes engaging a utility locator service prior to drilling at the site, advancing five soil borings using a drilling rig, installing groundwater monitoring wells in the borings, sampling soil and groundwater, submitting selected soil and groundwater samples for laboratory analyses, performing a survey of water wells in the site vicinity, performing an off-site source investigation, and preparing a report.

RESNA will perform the following work for this investigation:

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 complete 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.

BACKGROUND

We understand from information provided by Chevron personnel that two 10,000-gallon fuel underground storage tanks (USTs), one 5,000-gallon fuel UST, and one 1,000-gallon waste-oil UST were installed at the site in 1970.

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In November and December 1990, GeoStrategies of Hayward, California drilled four soil borings onsite, constructed groundwater monitor wells (C-1 through C-4) in the borings, and sampled the monitor wells. Groundwater was encountered in the borings at a depth of approximately 15 feet below ground surface (bgs), with a hydraulic gradient to the west. All work was documented in a report by GeoStrategies dated January 17, 1991.

Between June 1991 and June 1992, Sierra Environmental Services (SES) performed semi-annual groundwater monitoring and sampling. All work was documented in reports by SES dated July 3, 1991, December 23, 1991 and June 17, 1992.

In September 1991, Chevron removed existing tanks, and overexcavated approximately 600 cubic yards of soil around the tank cavities and product piping trenches. All work was documented in a report by Blaine Technical Services dated October 28, 1991.

In August 1992 Pacific Environmental Group (PEG) conducted an off-site source investigation which indicated that a former Shell service station on the corner of Claremont and Telegraph Avenues may be contributing petroleum hydrocarbons to groundwater beneath the site.

In November 1992, PEG drilled five soil borings located off-site, constructed temporary groundwater monitor wells (TC-1 through TC-5), and collected groundwater samples. Total petroleum hydrocarbons as gasoline (TPHg) were not detected in groundwater samples collected downgradient of the site. Concentrations of TPHg, ethylbenzene, and total xylenes were detected in groundwater samples collected from temporary wells TC-4 and TC-5, located adjacent to the former Shell service station and on the east side of Telegraph Avenue upgradient of the site, respectively. Benzene and toluene were not present in any of the groundwater samples analyzed from temporary wells TC-4 and TC-5. Benzene, toluene, ethylbenzene, and total xylenes (BTEX) were not present in any of the groundwater samples analyzed from downgradient temporary wells TC-1, TC-2, and TC-3. All work was documented in a report by PEG dated December 18, 1992.

In December 1992, Geraghty & Miller, Inc. performed a risk assessment for the site (Risk Base Analysis for Former Chevron Service Station No. 9-3864, 5101 Telegraph Avenue, Oakland, California. December 29, 1992).

SOIL BORINGS / SAMPLING AND ANALYSES

Five soil borings (B-1 through B-5) will be drilled using a truck-mounted drill rig equipped with 8-inch diameter hollow stem augers. The locations of all proposed borings are shown on Figure 2. Proposed borings B-1 through B-5 will be drilled to approximately 10 feet below the first encountered groundwater, or five feet below the first encountered aquitard. First groundwater is anticipated to occur between 15 and 18 feet below ground surface at the site. Augers will be steam cleaned between each boring, and all sampling equipment will be rinsed with a solution of Alconox and tap water between sample intervals. We anticipate field operations to be completed within three days.

Soil samples will be collected at five-foot depth intervals, just above first encountered groundwater, and at notable lithologic changes, utilizing an 18-inch California-modified, split-spoon sampler equipped with 2-inch-diameter brass sample 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. Each soil sample will be screened for volatile compounds with a photoionization detector (PID). Drilling will be performed under the observation of a RESNA geologist; earth materials in the borings will be identified using manual and visual methods, and classified in the field according to the Unified Soil Classification System. Work will be performed under the supervision of a California registered professional engineer. One sample from every sampling interval will be sealed with aluminum foil, capped, taped, labeled, and placed on ice in an insulated container. Soil generated through drilling will be stored on plastic sheeting pending characterization for disposal. Soil will be disposed by a contractor selected by Chevron. All applicable local and State permits pertaining to the proposed work will be obtained before commencing field work.

Soil samples selected for analyses from all 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. Selected soil samples will be analyzed by a California-certified laboratory for total petroleum hydrocarbons as gasoline (TPHg) using modified U.S. Environmental Protection Agency (EPA) Method 8015, and for benzene, toluene, ethylbenzene and total xylenes (BTEX) using EPA Method 8020.

MONITORING WELL INSTALLATION / WATER SAMPLING / ANALYSIS

Groundwater monitoring wells MW-1 through MW-5 will be constructed in the soil borings. Each well will be constructed of two-inch or four-inch diameter, schedule 40 PVC casing with flush treads and, at the request of Chevron, 0.010-inch-slot well screen. The well screen for each of the five monitoring wells will be installed approximately five feet above and ten feet below the current water table to permit entry of separate-phase hydrocarbons, if present, and to allow for fluctuations in the groundwater elevation. A sand filter will be placed around the well screen to a height of two feet above the top of the screen. Each well will be completed with a bentonite seal and cement grout (containing 2 to 3 percent bentonite powder) to grade. Each wellhead will be protected by a locking cap and a traffic-rated street box with a water-tight bolted lid. A typical groundwater monitoring well construction diagram is presented in Figure 3.

WELL DEVELOPMENT / SURVEYING / GROUNDWATER MONITORING

RESNA will wait a minimum of 24 hours before developing the monitoring wells to allow the grout to harden. Each monitoring well will then be developed using a surge block and pump to remove fine-grained sediments from the well and filter pack. Well development will continue until the discharge water is clear of silt and sand. Clay-size sediments derived from the screened

portion of the formation cannot be eliminated by well development. Water from the development process will be placed in a portable trailer and transferred to the Chevron Refinery in Richmond, California. After the water level has been allowed to stabilize, the well will be checked for separate-phase hydrocarbons; if present, the apparent thickness will be measured using an interface probe. The thickness of any separate-phase hydrocarbons detected in the well will be recorded.

The top-of-casing (TOC) and horizontal position of wells MW-1 through MW-5 will be surveyed relative to an established or assumed benchmark by a licensed land surveyor. The survey data will be used together with depth to water measurements taken from the TOC in the well to the nearest 0.01 foot with an electric water-level indicator to evaluate the relative elevation of the groundwater surface in each well, the slope of the groundwater surface across the site, and the local groundwater flow direction.

WELL PURGING / WATER SAMPLING / ANALYSIS

If less than 0.02 feet of separate-phase hydrocarbons are present in a well, the well will be purged of three to five well casing volumes, and a sample will be collected for laboratory analyses. Measurements of temperature, pH, and conductivity will be taken to assure that representative formation water is present in the well prior to sampling. The water level will be allowed to recover to at least 80 percent of static conditions, and samples will be collected with clean disposable bailers. The water will be transferred slowly from the bailer to laboratory-cleaned sample containers for laboratory analyses. Chain of Custody Records will be initiated in the field by the geologist, updated throughout handling of the samples, and sent along with the samples to the analytical laboratory. Copies of Chain of Custody Records will be included in our report. Water purged from the wells will be directed to a purge water trailer on site and transported to the Chevron Refinery in Richmond, California.

The groundwater samples collected from wells MW-1 through MW-5 will be analyzed for TPHg using EPA Method 8015 (modified) and for BTEX using EPA Method 602. 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 of the RWQCB. Laboratory analyses will be performed by a laboratory certified by the State of California.

REPORT PREPARATION

A report summarizing methodology, the soil stratigraphy in the borings, and field and laboratory results will be supplied to Chevron. Information gathered during the investigation will be considered confidential and will be released only with the authorization of Chevron.

PROJECT SCHEDULE

RESNA is prepared to begin work on this project immediately in accordance with the work plan approval by Chevron. We will schedule drilling to begin at the site within one week of approval of the proposed work.

RESNA
Working To Restore Nature

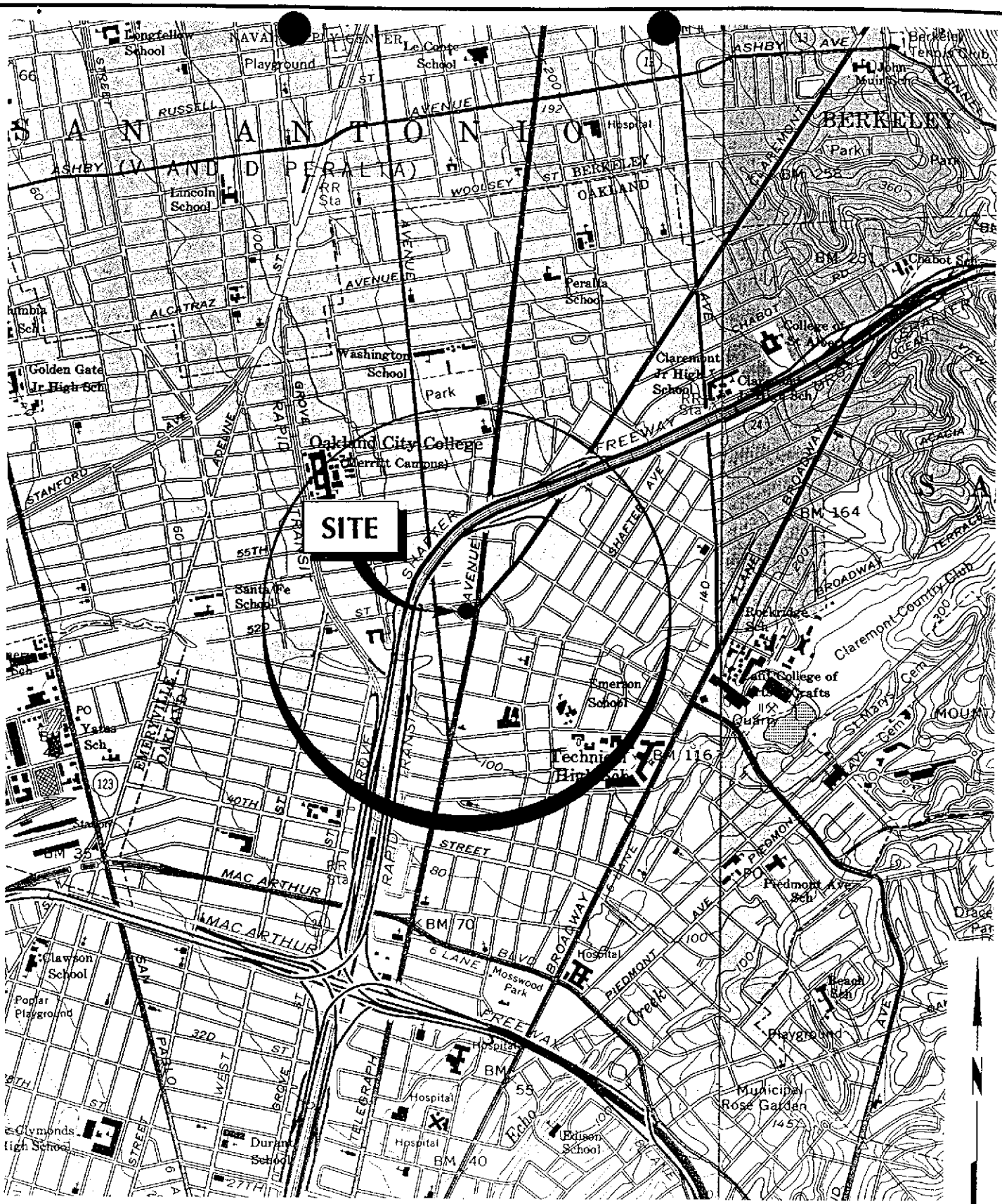
Please contact us at (415) 382-7400 if you have questions or comments regarding this work plan.

Sincerely,
RESNA Industries Inc.

Justin M. Power
Project Geologist

Richard H. Walls, P.E.
Senior Project Engineer

Attachments: Figures



Source: USGS Topographic Map, 7.5 minute series, Oakland East, Calif. and Oakland West, Calif. quadrangles, 1980

0 1/2 1 MILE

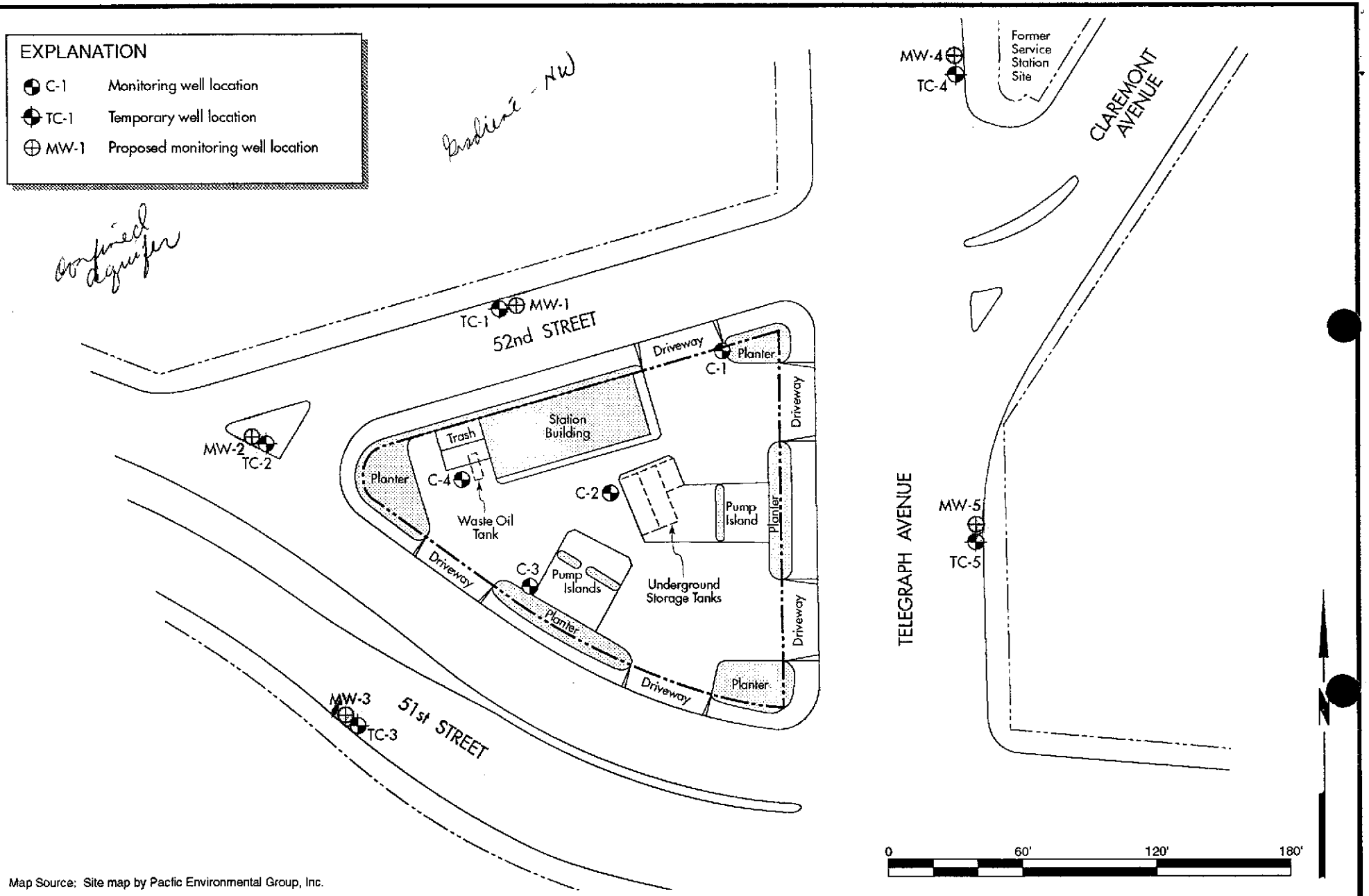
RESNA

PROJECT NO. 17075.01 | 1/93

SITE VICINITY MAP

Former Chevron Service Station No. 9-3864
5101 Telegraph Avenue
Oakland, California

PLATE 1



Map Source: Site map by Pacific Environmental Group, Inc.

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GENERALIZED SITE PLAN

Former Chevron Service Station No. 9-3864
5101 Telegraph Avenue
Oakland, California

FIGURE
2