Chevron U.S.A. Inc.
2410 Camino Ramon, San Ramon, California • Phone (415) 842-9500
Mail Address: P.O. Box 5004, San Ramon, CA 94583-0804

Marketing Operations

R. B. Bellinger
Manager, Operations
S. L. Patterson
Area, Manager, Operations
C. G. Trimbach
Manager, Engineering

February 20, 1991

Ms. Pamela Evans
Alameda County Environmental Health
80 Swan Way, Room 200
Oakland, CA 94621

Re: Chevron Service Station #9-0504
15900 Hesperian Boulevard
San Lorenzo, CA 94580

Dear Mr. Shahid:

Enclosed we are forwarding the Site Update Report dated February 8, 1991, conducted by our consultant GeoStrategies, Inc. for the above referenced site. As indicated in the report, hydrocarbon contaminant levels generally remained consistent with previous sampling rounds. Separate phase hydrocarbons were observed in Monitoring Wells C-1 and C-2 both at a measured thickness of .01 feet.

As mentioned in my letter to you dated January 3, 1991, depth-to water and phase-separated hydrocarbon measurements will be obtained weekly from all monitoring wells. If phase-separated hydrocarbons are observed, the product will be hand bailed and stored on site for proper disposal. At completion of the next scheduled sampling round, the data will be evaluated to determine the appropriate remedial action.

Also enclosed are additional copies of all reports generated within 1990 per Mr. Rich Hiett's request at the February 14, 1991, meeting.

Chevron will continue to weekly monitor and perform quarterly chemical analysis on all monitoring wells and report findings on a quarterly basis.

If you have any questions or comments please do not hesitate to call Nancy Vukelich at (415) 842-9581.

Very truly yours,
C. G. Trimbach

By _____
Nancy Vukelich

NLV/jmr
Enclosure

cc: Mr. Rich Hiett
RWQCB - Bay Area
1800 Harrison Street
Suite 700
Oakland, CA 94612

Mr. Bruce E. Prigoff, Esq.
Steefel, Levitt & Weiss
One Embarcadero Center, 29th Floor
San Francisco, CA 94111

Ms. Bette Brummett-Owen
Chevron Property Management Specialist

GeoStrategies Inc.

SITE UPDATE

Chevron Service Station No. 0504
15900 Hesperian Boulevard
San Lorenzo, California

725901-8

February 8, 1991

GeoStrategies Inc.
2140 WEST WINTON AVENUE
HAYWARD, CALIFORNIA 94545

February 8, 1991

Gettler-Ryan Inc.
2150 West Winton Avenue
Hayward, California 94545

Attn: Jeff Monroe

Re: SITE UPDATE
Chevron Service Station No. 0504
15900 Hesperian Boulevard
San Lorenzo, California

Gentlemen:

This report by GeoStrategies Inc. (GSI) describes the results of the fourth quarterly ground-water sampling for 1990 at the above referenced location (Plate 1). Field and chemical data were collected by Gettler-Ryan Inc. (G-R) on December 20, 1990, in accordance with the current quarterly sampling plan for the site. Field work and laboratory analyses were performed to comply with current State of California Water Resources Control Board guidelines for leaking underground storage tanks.

CURRENT QUARTER SAMPLING RESULTS

Potentiometric Data

Prior to ground-water sampling, depth to ground-water levels were measured in each well using an electronic oil-water interface probe. Static ground-water levels were measured from the surveyed top of the well box and recorded to the nearest ± 0.01 foot. Ground-water was encountered between 12.08 and 16.66 feet below the top of the well box, corresponding to elevations of 19.27 to 20.47 feet above mean sea level (MSL). The locations of the monitoring wells are presented on Plate 2.

Ground-water elevation data from this sampling have been plotted and contoured and are presented on Plate 3 as a potentiometric map. The depth-to-water measurement in Well C-7 is believed to be anomalous. Consequently, the water level in this well was not used in contouring shallow groundwater. Water-level data indicate an approximate hydraulic gradient of 0.004, with ground-water flow toward the west-southwest beneath the site. A summary of the potentiometric data is presented in Table 1.

Each well was monitored for the presence of separate-phase hydrocarbons using a portable oil-water interface probe. A clear acrylic bailer was used to visually confirm interface probe results and to check for a product sheen. Separate-phase hydrocarbons were observed in wells C-1 and C-2 with measured thicknesses of 0.01 feet. Consequently, these wells were not sampled. Product sheens were not detected in the wells.

Chemical Analytical Results

Ground-water samples were analyzed for Total Petroleum Hydrocarbons calculated as Gasoline (TPH-Gasoline) according to EPA Method 8015 (Modified) and Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) according to EPA Method 8020. The samples were analyzed by Superior Analytical Laboratory Inc. (Superior), a State-certified environmental laboratory located in San Francisco, California. G-R ground-water sampling procedures are presented in Appendix A.

Detectable concentrations of TPH-Gasoline were reported in five ground-water monitoring wells, ranging from 80 parts per billion (ppb) in Well C-5 to 3900 ppb in Well C-8. TPH-Gasoline was not detected (ND) in Wells C-6, C-9, C-10 and C-11. Detectable concentrations of benzene were reported in four wells, ranging from 1 ppb in Well C-4 to 120 ppb in Well C-8. Benzene was reported as ND in wells C-5, C-6, C-9, C-10 and C-11. A summary of the chemical analytical data is presented in Table 1. The analytical data for TPH-Gasoline and benzene have been plotted as a chemical concentration map on Plate 4. Available historical ground-water chemical data are presented in Table 2. A copy of the G-R Groundwater Sampling Report, Chain-of-Custody forms and Superior analytical results are presented in Appendix B.

DISCUSSION

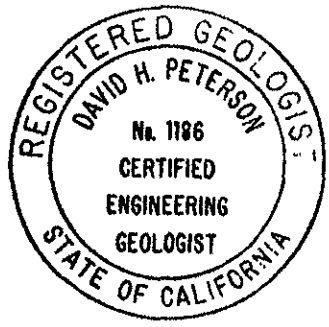
TPH-Gasoline was reported in Wells C-4 and C-5 at concentrations slightly above the detection limit. Superior's analytical report noted that the gas chromatogram did not match the characteristic pattern for gasoline. The concentrations were determined from a single peak in the gasoline range, indicating that the chemical detected was not actually gasoline. A discussion with the laboratory revealed that the peaks were probably an indication of the presence of one or more volatile organic compounds.

If you have any questions, please call.

GeoStrategies Inc. by,

Kevin D. McGraw
Hydrologist

David H. Peterson
Senior Geologist
C.E.G. 1186



KDM/DHP/mlg

Plate 1. Vicinity Map
Plate 2. Site Plan
Plate 3. Potentiometric Map
Plate 4. TPH-Gasoline/Benzene Concentration Map

Appendix A: Gettler-Ryan Inc. Groundwater Sampling Procedures
Appendix B: Gettler-Ryan Inc. Groundwater Sampling Report

QC Review: JLP/dhp

TABLE 1

GROUND-WATER ANALYSES DATA

WELL NO	SAMPLE DATE	ANALYZED DATE	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)	WELL ELEV (FT)	STATIC WATER ELEV (FT)	PRODUCT THICKNESS (FT)	DEPTH TO WATER (FT)
C-1	----	----	----	----	----	----	----	33.93	20.07	0.01	13.87
C-2	----	----	----	----	----	----	----	34.21	20.16	0.01	14.06
C-3	20-Dec-90	03-Jan-91	100	5	<0.5	27	130	35.46	20.29	----	15.17
C-4	20-Dec-90	03-Jan-91	170*	1	<0.5	<0.5	4	35.78	20.36	----	15.42
C-5	20-Dec-90	03-Jan-91	80*	<0.5	<0.5	<0.5	<0.5	35.31	20.37	----	14.94
C-6	20-Dec-90	03-Jan-91	<50	<0.5	<0.5	<0.5	<0.5	36.89	20.23	----	16.66
C-7	20-Dec-90	03-Jan-91	560	24	3	19	21	32.75	20.47	----	12.28
C-8	20-Dec-90	03-Jan-91	3900	120	20	130	180	33.82	19.61	----	14.21
C-9	20-Dec-90	03-Jan-91	<50	<0.5	<0.5	<0.5	<0.5	33.43	19.40	----	14.03

CURRENT REGIONAL WATER QUALITY CONTROL BOARD MAXIMUM CONTAMINANT LEVELS
Benzene 1.0 ppb Xylenes 1,750 ppb Ethylbenzene 680 ppb

CURRENT DHS ACTION LEVELS
Toluene 100 ppb

TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline PPB = Parts Per Billion
TB = Trip Blank CD = Duplicate Sample CF = Field Blank

Notes: 1. All data shown as <x are reported as ND (not detected).
2. Static Water elevations referenced to mean sea level (MSL). Elevations are corrected for free product using a correction factor of 0.8.
3. DHS Action Levels and MCLs are subject to change pending State review.
4. Wells C-1 and C-2 contained separate-phase hydrocarbons and were not sampled.
5. * Concentrations contributed by single peak in boiling range.

TABLE 1

GROUND-WATER ANALYSES DATA

WELL NO	SAMPLE DATE	ANALYZED DATE	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)	WELL ELEV (FT)	STATIC WATER ELEV (FT)	PRODUCT THICKNESS (FT)	DEPTH TO WATER (FT)
C-10	20-Dec-90	03-Jan-91	<50	<0.5	<0.5	<0.5	<0.5	31.63	19.27	----	12.36
C-11	20-Dec-90	03-Jan-91	<50	<0.5	<0.5	<0.5	<0.5	31.58	19.50	----	12.08
CD-5	20-Dec-90	03-Jan-91	<50	<0.5	<0.5	<0.5	<0.5	----	----	----	----
CF-4	20-Dec-90	03-Jan-91	<50	<0.5	<0.5	<0.5	<0.5	----	----	----	----
TB	20-Dec-90	03-Jan-91	<50	<0.5	<0.5	<0.5	<0.5	----	----	----	----

TABLE 2

HISTORICAL GROUNDWATER QUALITY DATABASE

SAMPLE DATE	SAMPLE POINT	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	E.B. (PPB)	XYLENES (PPB)	TPH-D (PPB)	O&G (PPB)	TPH-O (PPB)
06-Jun-89	C-1	5100.	250.	170.	200.	990.	N/A	N/A	N/A
06-Jun-89	C-2	130,000.	14,000.	28,000.	3,400.	24,000.	N/A	N/A	N/A
06-Jun-89	C-3	2,600.	63.	20.	390.	370.	N/A	N/A	N/A
08-Dec-89	C-3	680.	6.	1.	31.	58.	N/A	N/A	N/A
07-Sep-90	C-3	490	6	<0.5	41	120	N/A	N/A	N/A
20-Dec-90	C-3	100	5	<0.5	27	130	N/A	N/A	N/A
06-Jun-89	C-4	<50.	<0.05	<1.	<1.	<3.	N/A	N/A	<500
08-Dec-89	C-4	<500.	<0.5	<0.5	<0.5	<0.5	<1000.	<5000.	N/A
07-Sep-90	C-4	<50	<0.5	<0.5	<0.5	<0.5	N/A	<5000	N/A
20-Dec-90	C-4	170	1	<0.5	<0.5	4	N/A	N/A	N/A
06-Jun-89	C-5	<50.	<0.05	<1.	<1.	<3.	N/A	N/A	N/A
08-Dec-89	C-5	<500.	<0.5	<0.5	<0.5	<0.5	N/A	N/A	N/A
07-Sep-90	C-5	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A	N/A
20-Dec-90	C-5	80	<0.5	<0.5	<0.5	<0.5	N/A	N/A	N/A
08-Dec-89	C-6	<500.	<0.5	<0.5	<0.5	<0.5	N/A	N/A	N/A
07-Sep-90	C-6	57	<0.5	<0.5	0.6	4	N/A	N/A	N/A
20-Dec-90	C-6	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A	
08-Dec-89	C-7	1700.	32.	12.	17.	150.	N/A	N/A	N/A
07-Sep-90	C-7	880	84	23	46	180	N/A	N/A	N/A
20-Dec-90	C-7	560	24	3	19	21	N/A	N/A	N/A
08-Dec-89	C-8	4800.	62.	11.	95.	180.	N/A	N/A	N/A
07-Sep-90	C-8	3700	170	31	180	270	N/A	N/A	N/A
20-Dec-90	C-8	3900	120	20	130	180	N/A	N/A	N/A
07-Sep-90	C-9	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A	N/A
20-Dec-90	C-9	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A	N/A
07-Sep-90	C-10	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A	N/A
20-Dec-90	C-10	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A	N/A

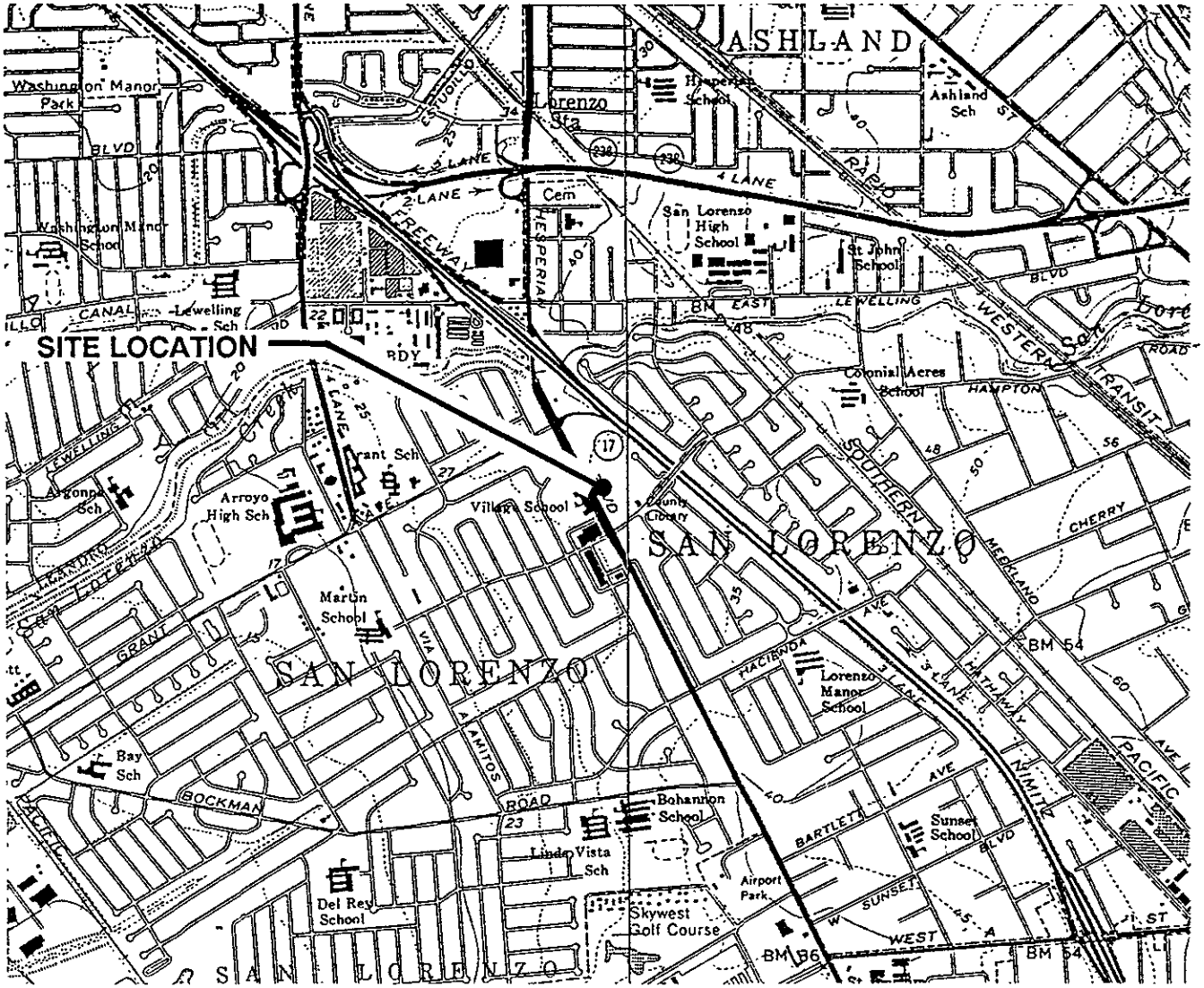
TABLE 2

HISTORICAL GROUNDWATER QUALITY DATABASE

SAMPLE DATE	SAMPLE POINT	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	E.B. (PPB)	XYLENES (PPB)	TPH-D (PPB)	O&G (PPB)	TPH-O (PPB)
07-Sep-90	C-11	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A	N/A
20-Dec-90	C-11	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A	N/A

TPH-G = Total Petroleum Hydrocarbons as Gasoline
PPB = Parts per Billion
TPH-D = Total Petroleum Hydrocarbons as Diesel
TPH-O = Total Petroleum Hydrocarbons as Oil
O&G = Total Oil & Grease
E.B. = Ethylbenzene
NOTE: All data shown as <X are reported as ND (not detected)

ILLUSTRATIONS



Base Map: USGS Topographic Map

GeoStrategies Inc.

VICINITY MAP
Chevron Service Station #0504
15900 Hesperain Blvd.
San Lorenzo, California

PLATE
1

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE
7259		9/90	

PARKING LOT

EXPLANATION

Ground-water monitoring well

Approximate Ground-water Flow Direction

PRIVATE ROAD

W.O TANK

C-4

TRASH ENCL

SERVICE STATION BUILDING

PLANTER

C-5

PLANTER

COMMERCIAL BUILDING

SERVICE ISLANDS

C-6

C-3

SERVICE ISLANDS

U.G. TANKS

PLANTER

PARKING LOT

COMMERCIAL (DONUT SHOP)

PARKING LOT

C-2

C-1

PLANTER

C-7

C-8

HESPERIAN BOULEVARD

C-9

C-11

RESIDENTIAL

PARKING LOT

C-10

Base Map: Standard Oil Co.
Ground & Grade Plan, dated 9-15-69

0 40

Scale in Feet

PLATE 2

SITE PLAN
Chevron Service Station #0504
15900 Hesperian Blvd.
San Lorenzo, California

GeoStrategies Inc.

GSI

REVISED DATE

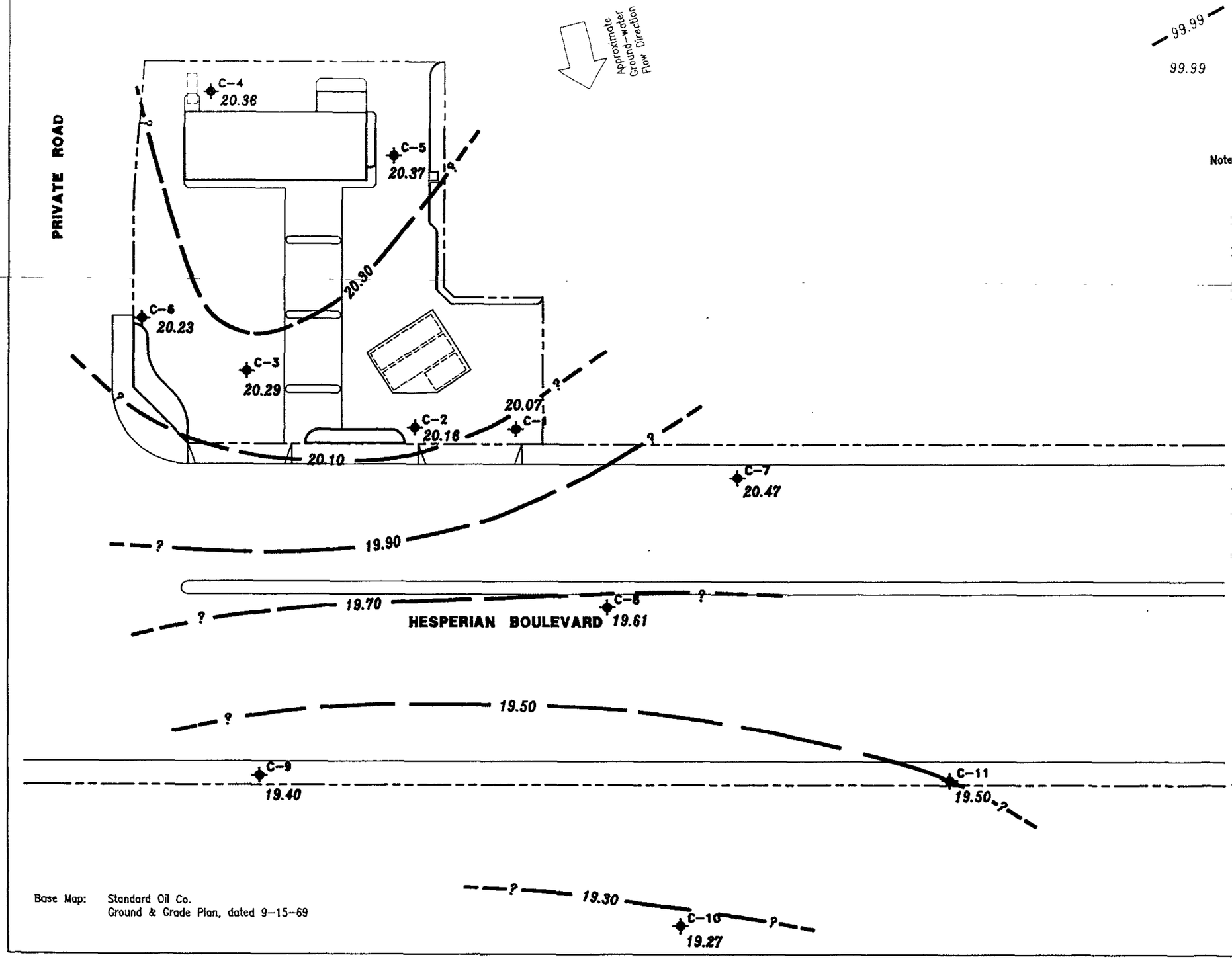
DATE 1/91

REVIEWED BY DHP

JOB NUMBER 725901

PLATE 3

POTENTIOMETRIC MAP
Chevron Service Station #0504
15900 Hesperian Blvd.
San Lorenzo, California



EXPLANATION

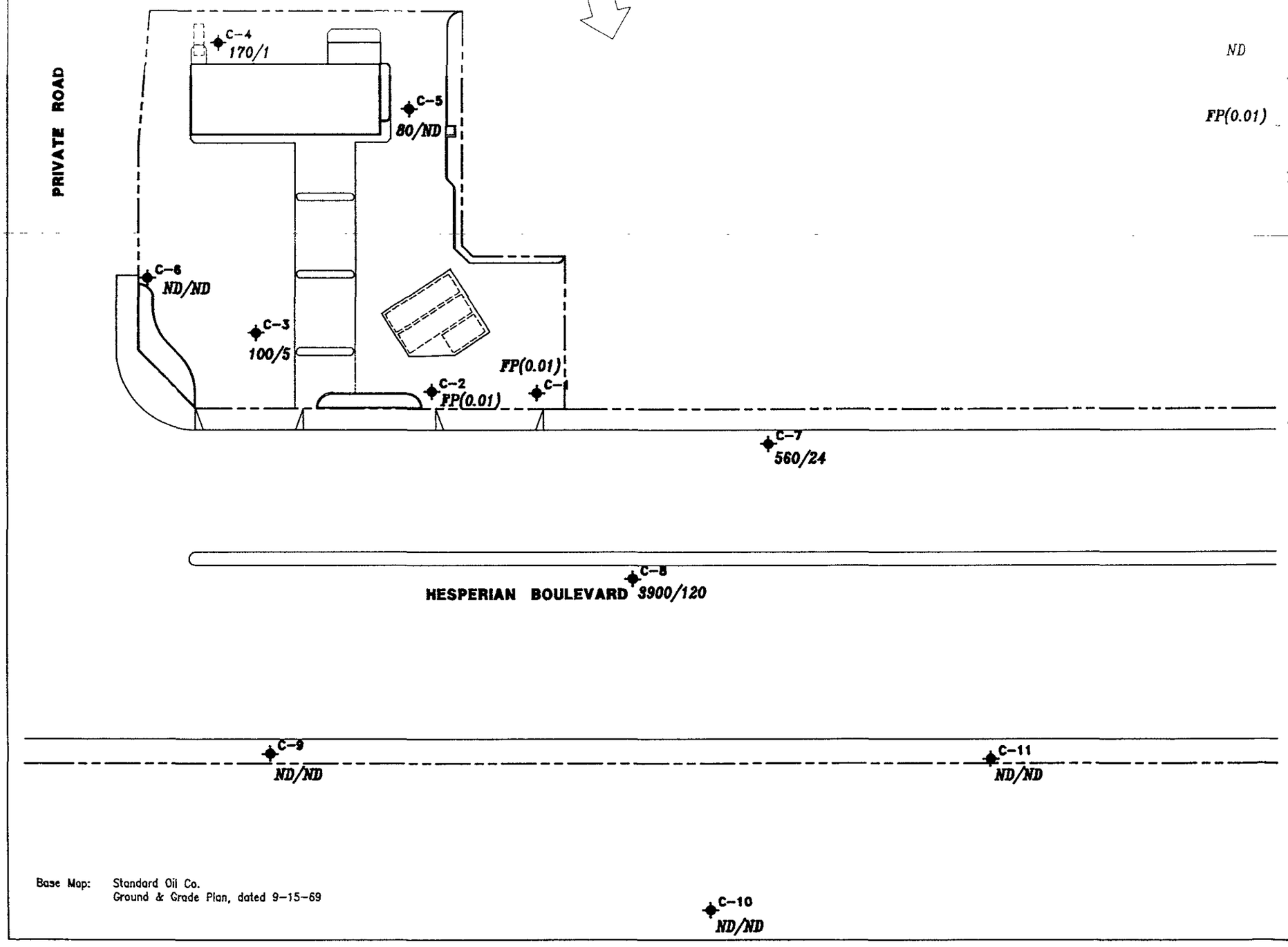
- Ground-water monitoring well
- 99.99 — Ground-water elevation contour Approximate Gradient = 0.004
- 99.99 — Ground-water elevation in feet referenced to Mean Sea Level (MSL) measured on December 20, 1990

Note:
1. Well C-7 was not used in contouring.
2. Contours may be influenced by irrigation practices and/or site construction activities.

Base Map: Standard Oil Co.
Ground & Grade Plan, dated 9-15-69

GeoStrategies Inc.

JOB NUMBER 725901
REVIEWED BY DHP
DATE 1/91
REVISED DATE



EXPLANATION

✦	Ground-water monitoring well
99/9.9	TPH-G (Total Petroleum Hydrocarbons calculated as Gasoline)/Benzene concentrations in ppb sampled on December 20, 1990
ND	Not Detected (See laboratory reports for detection limits)
FP(0.01)	**Floating Product (thickness in feet)**

Base Map: Standard Oil Co.
Ground & Grade Plan, dated 9-15-69

PLATE 4

TPH-G/BENZENE CONCENTRATION MAP
Chevron Service Station #0504
15900 Hesperian Blvd.
San Lorenzo, California

REVISED DATE

DATE 1/91

REVIEWED BY DHP

JOB NUMBER 725901

GeoStrategies Inc.

APPENDIX A

GETTLER-RYAN INC.

GROUNDWATER SAMPLING PROCEDURES

GROUND-WATER SAMPLING AND ANALYSIS

Quality Assurance/Quality Control Objectives

The sampling and analysis procedures employed by Gettler-Ryan Inc. (G-R) for ground-water sampling and monitoring follow specific Quality Assurance/Quality Control (QA/QC) guidelines. Quality Assurance objectives have been established by G-R to develop and implement procedures for obtaining and evaluating water quality and field data in an accurate, precise, and complete manner so that sampling procedures and field measurements provide information that is comparable and representative of actual field conditions. Quality Control (QC) is maintained by G-R by using specific field protocols and requiring the analytical laboratory to perform internal and external QC checks. It is the goal of G-R to provide data that are accurate, precise, complete, comparable, and representative. The definitions for accuracy, precision, completeness, comparability, and representativeness are as follows:

- Accuracy - the degree of agreement of a measurement with an accepted referenced or true value.

- Precision - a measure of agreement among individual measurements under similar conditions. Usually expressed in terms of the standard deviation.

- Completeness - the amount of valid data obtained from a measurement system compared to the amount that was expected to meet the project data goals.

- Comparability - expresses the confidence with which one data set can be compared to another.

- Representativeness - a sample or group of samples that reflects the characteristics of the media at the sampling point. It also includes how well the sampling point represents the actual parameter variations which are under study.

As part of the G-R QA/QC program, applicable federal, state, and local reference guidance documents are followed. The procedures outlined in these regulations, manuals, handbooks, guidance documents, and journals are incorporated into the G-R sampling procedures to assure that; (1) ground-water samples are properly collected, (2) ground-water samples are identified, preserved, and transported in a manner such that they are representative of field conditions, and (3) chemical analysis of samples are accurate and reproducible.

Guidance and Reference Documents Used to Collect Groundwater Samples

These documents are used to verify G-R sampling procedures and are consistent with current regulatory guidance. If site specific work and sampling plans are required, those plans will be developed from these documents, and newly received applicable documents.

U.S.E.P.A. - 330/9-51-002	NEIC Manual for Groundwater/Subsurface Investigation at Hazardous Waste Sites
U.S.E.P.A. - 530/SW611	Procedures Manual for Groundwater Monitoring at Solid Waste Disposal Facilities (August, 1977)
U.S.E.P.A. - 600/4-79-020	Methods for Chemical Analysis of Water and Wastes (1983)
U.S.E.P.A. - 600/4-82-029	Handbook for Sampling and Sample Preservation of Water and Wastewater (1982)
U.S.E.P.A. - 600/4-82-057	Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater (July, 1982)
U.S.E.P.A. - SW-846#, 3rd Edition	Test Methods for Evaluating Solid Waste - Physical/Chemical Methods (November, 1986)
40 CFR 136.3e,Table II (Code of Federal Regulations)	Required Containers, Preservation Techniques, and Holding Times
Resources Conservation and Recover Act (OSWER 9950.1)	Groundwater Monitoring Technical Enforcement Guidance Document (September, 1986)
California Regional Water Quality Control Board (Central Valley Region)	A Compilation of Water Quality Goals (September, 1988); Updates (October, 1988)
California Regional Water Quality Control Board (North Coast, San Francisco Bay, and Central Valley)	Regional Board Staff Recommendations for Initial Evaluations and Investigation of Underground Tanks: Tri-Regional Recommendations (June, 1988)

Guidance and Reference Documents Used to Collect Groundwater Samples (cont.)

Regional Water Quality Control Board (Central Valley Region)	Memorandum: Disposal, Treatment, and Refuse of Soils Contaminated with Petroleum Fractions (August, 1986)
State of California Department of Health Services	Hazardous Waste Testing Laboratory Certification List (March, 1987)
State of California Water Resources Control Board	Leaking Underground Fuel Tank (LUFT) Field Manual (May, 1988), and LUFT Field Manual Revision (April, 1989)
State of California Water Resources Control Board	Title 23, (Register #85.#33-8-17-85), Subchapter 16: Underground Tank Regulations; Article 3, Sections 2632 and 2634; Article 4, Sections 2645, 2646, 2647, and 2648; Article 7, Sections 2670, 2671, and 2672 (October, 1986: including 1988 Amendments)
Alameda County Water District	Groundwater Protection Program: Guidelines for Groundwater and Soil Investigations at Leaking Underground Fuel Tank Sites (November, 1988)
American Public Health Association	Standard Methods for the Examination of Water and Wastewaters, 16th Edition
Analytical Chemistry (journal)	Principles of Environmental Analysis, Volume 55, Pages 2212-2218 (December, 1983)
Napa County	Napa County Underground Storage Tank Program: Guidelines for Site Investigations; February 1989.
Santa Clara Valley Water District	Guidelines for Preparing or Reviewing Sampling Plans for Soil and Groundwater Investigation of Fuel Contamination Sites (January, 1989)

Guidance and Reference Documents Used to Collect Groundwater Samples (cont.)

Santa Clara Valley Water District	Investigation and Remediation at Fuel Leak sites: Guidelines for Investigation and Technical Report Preparation (March 1989)
Santa Clara Valley Water District	Revised Well Standards for Santa Clara County (July 18, 1989)
American Petroleum Institute	Groundwater Monitoring & Sample Bias; API Publication 4367, Environmental Affairs Department, June 1983
American Petroleum Institute	A Guide to the Assessment and Remediation of Underground Petroleum Releases; API Publication 1628, February 1989
American Petroleum Institute	Literature Summary: Hydrocarbon Solubilities and Attenuations Mechanisms, API Publication 4414, August 1985
Site Specific (as needed)	General and specific regulatory documents as required.

Because ground-water samples collected by G-R are analyzed to the parts per billion (ppb) range for many compounds, extreme care is exercised to prevent contamination of samples. When volatile or semi-volatile organic compounds are included for analysis, G-R sampling crew members will adhere to the following precautions in the field:

1. A clean pair of new, disposable gloves are worn for each well being sampled.

2. When possible, samples are collected from known or suspected wells that are least contaminated (i.e. background) followed by wells in increasing order of contamination.

3. Ambient conditions are continually monitored to maintain sample integrity.

When known or potential organic compounds are being sampled for, the following additional precautions are taken:

1. All sample bottles and equipment are kept away from fuels and solvents. When possible, gasoline (used in generators) is stored away from bailers, sample bottles, purging pumps, etc.

2. Bailers are made of Teflon or Stainless Steel. Other materials such as plastic may contaminate samples with phthalate esters which interfere with many Gas Chromatography (GC) analyses.

3. Volatile organic ground-water samples are collected so that air passage through the sample does not occur or is minimal (to prevent volatiles from being stripped from the samples): sample bottles are filled by slowly running the sample down the side of the bottle until there is a positive convex meniscus over the neck of the bottle; the Teflon side of the septum (in cap) is positioned against the meniscus, and the cap screwed on tightly; the sample is inverted and the bottle lightly tapped. The absence of an air bubble indicates a successful seal; if a bubble is evident, the cap is removed, more sample is added, and the bottle is resealed.

4. Extra Teflon seals are brought into the field in case seals are difficult to handle and/or are dropped. Dropped seals are considered contaminated and are not used. When replacing seals or if seals become flipped, care is taken to assure that the Teflon seal faces down.

Sample analysis methods, containers, preservatives and holding times are shown on Table 1.

Laboratory and field handling procedures of samples are monitored by including QC samples for analysis with every submitted sample lot from a project site. QC samples may include any combination of the following:

A. Trip Blank: Used for purgeable organic compounds only; QC samples are collected in 40 milliliter (ml) sample vials filled in the analytical laboratory with organic-free water. Trip blanks are sent to the project site, and travel with project site samples. Trip blanks are not opened, and are returned from a project site with the project site samples for analysis.

B. Field Blank: Prepared in the field using organic-free water. These QC samples accompany project site samples to the laboratory and are analyzed for specific chemical parameters unique to the project site where they were prepared.

C. Duplicates: Duplicated samples are collected "second samples" from a selected well and project site. They are collected as either split samples or second-run samples collected from the same well.

D. Equipment Blank: Periodic QC sample collected from field equipment rinsate to verify decontamination procedures.

The number and types of QC samples are determined as follows:

A. Up to 2 wells - Trip Blank Only

B. 2 to 5 Wells - 1 Field Blank and 1 Trip Blank

C. 5 to 10 Wells - 1 Field blank, 1 Trip Blank, and 1 Duplicate

D. More than 10 Wells - 1 Field Blank, 1 Trip Blank, and 1 Duplicate per each 12 wells

E. If sampling extends beyond one day, quality control samples will be collected for each day.

Additional QC is performed through ongoing and random reviews of duplicate samples to evaluate the precision of the field sampling procedures and analytical laboratory. Precision of QC data is accomplished by calculating the Relative Percent Difference (RPD). The RPD is evaluated to assess whether values are within an acceptable range (typically ± 20% of duplicate sample).

SAMPLE COLLECTION

This section describes the routine procedures followed by G-R while collecting ground-water samples for chemical analysis. These procedures include decontamination, water-level measurements, well purging, physical parameter measurements, sample collection, sample preservation, sample handling, and sample documentation. Critical sampling objectives for G-R are to:

1. Collect ground-water samples that are representative of the sampled matrix and,

2. Maintain sample integrity from the time of sample collection to receipt by the analytical laboratory.

Sample analyses methods, containers, preservation, and holding times are presented in Table 1.

Decontamination Procedures

All physical parameter measuring and sampling equipment are decontaminated prior to sample collection using Alconox or equivalent detergent followed by steam cleaning with deionized water. Any sampling equipment surfaces or parts that might absorb specific contaminants, such as plastic pump valves, impellers, etc., are cleaned in the same manner.

Sample bottles, bottle caps, and septa used for sampling volatile organics are thoroughly cleaned and prepared in the laboratory. Sample bottles, bottle caps, and septa are protected from all potential chemical contact before actual usage at a sample location.

During field sampling, equipment placed in a well are decontaminated before purging or sampling the next well. The equipment are decontaminated by cleaning with Alconox or equivalent detergent followed by steam cleaning with deionized water.

Water-Level Measurements

Prior to purging and sampling a well, the static-water levels are measured in all wells at a project site using an electric sounder and/or calibrated portable oil-water interface probe (Figure 4). Both static water-level and separate-phase product thickness are measured to the nearest ±0.01 foot. The presence of separate-phase product is confirmed using a clean, acrylic or polyvinylchloride (PVC) bailer, measured to the nearest ±0.01 foot with a decimal scale tape.

Water-Level Measurements (continued)

The monofilament line used to lower the bailer is replaced between wells with new line to preclude the possibility of cross-contamination. Field observations (e.g. well integrity, product color, turbidity, water color, odors, etc.) are noted on the G-R Well Sampling Field Data Sheet shown in Figure 4. Before and after each use, the electric sounder, interface probe and bailer are decontaminated by washing with Alconox or equivalent detergent followed by rinsing with deionized water to prevent cross-contamination.

As mentioned previously, water-levels are measured in wells with known or suspected lowest dissolved chemical concentrations to the highest dissolved concentrations.

Well Purging

Before sampling occurs, well casing storage water and interstitial water in the artificial sand pack will be purged using (1) a positive displacement bladder pump constructed of inert, non-wetting, Teflon and stainless steel, (2) a pneumatic-airlift pumping system, (3) a centrifigal pumping system, or (4) a Teflon or Stainless steel bailer (Figure 5). Methods of purging will be assessed based on well size, location, accessibility, and known chemical conditions. Individual well purge volumes are calculated from borehole volumes which take into account the sand packed interval in the well annular space. As a general rule, a minimum of 3 and a maximum of 10 borehole volumes will be purged. Wells which dewater or demonstrate slow recharge periods (i.e. low-yield wells) during purging activities may be sampled after fewer purging cycles. If a low-yield (low recovery) well is to be sampled, sampling will not take place until at least 80 percent of the previously measured water column has been replaced by recharge, or as per local requirements. Physical parameter measurements (temperature, pH, and specific conductance) are closely monitored throughout the well purging process and are used by the G-R sampling crew as indicators for assessing sufficient purging. Purging is continued until all three physical parameters have stabilized. Specific conductance (conductivity) meters are read to the nearest ± 10 umhos/cm, and are calibrated daily. pH meters are read to the nearest ± 0.1 pH units and are calibrated daily. Temperature is read to the nearest 0.1 degree F. Calibration of physical parameter meters will follow manufacturers specifications. Monitoring wells will be purged according to the protocol presented in Figure 5. Collected field data during purging activities will be entered on the G-R Well Sampling Field Data Sheet shown in Figure 4. Copies of the G-R Field Data Sheets will be reviewed by the G-R Sampling Manager for accuracy and completeness.

DOCUMENTATION

Sample Container Labels

Each sample container will be labeled by an adhesive label, noted in permanent ink immediately after the sample is collected. Label information will include:

Sample point designation (i.e. well number or code)

Sampler's identification

Project number

Date and time of collection

Type of preservation used

Well Sampling Data Forms

In the field, the G-R sampling crew will record the following information on the Well Sampling Data Sheet for each sample collected:

Project number

Client

Location

Source (i.e. well number)

Time and date

Well accessibility and integrity

Pertinent well data (e.g. depth, product thickness, static water-level, pH, specific conductance, temperature)

Calculated and actual purge volumes

Chain-of-Custody

A Chain-of-Custody record (Figure 6) shall be completed and accompany every sample and every shipment of samples to the analytical laboratory in order to establish the documentation necessary to trace sample possession from time of collections. The record will contain the following information:

- Sample or station number or sample identification (ID)
- Signature of collector, sampler, or recorder
- Date and time of collection
- Place of collection
- Sample type
- Signatures of persons involved in chain of possession
- Inclusive dates of possession

Samples shall always be accompanied by a Chain-of-Custody record. When transferring the samples, the individual relinquishing and receiving the samples will sign, date, and note the time on the Chain-of-Custody record. G-R will be responsible for notifying the laboratory coordinator when and how many samples will be sent to the laboratory for analysis, and what types of analyses shall be performed.

TABLE 1

SAMPLE ANALYSIS METHODS, CONTAINERS, PRESERVATIONS, AND HOLDING TIMES

Parameter	Analytical Method	Reporting Units	Container	Preservation	Maximum Holding Time
Total Petroleum Hydrocarbons (Gasoline)	EPA 8015 (modified)	mg/l ug/l	40 ml. vial glass, Teflon	cool, 4 C HCl to pH<2	14 days (maximum)
Benzene Toluene Ethylbenzene Xylenes (BTEX	EPA 8020	mg/l ug/l	50 ml. vial glass, Teflon lined septum	cool, 4 C HCl to pH<2	7 days (w/o preservative) 14 days (w preservative)
Oil & Grease	SM 503E	mg/l ug/l	1 l glass, Teflon lined septum	H2SO4 or HCl to pH<2	28 days (maximum)
Total Petroleum Hydrocarbons (Diesel)	EPA 8015 (modified)	mg/l ug/l	40 ml. vial glass, Teflon lined septum	cool, 4 C	14 days (maximum)
Halogented Volatile Organics (chlorinated solvents)	8010	mg/l ug/l	40 ml. vial glass, Teflon lined septum	cool, 4 C	14 days (maximum)
Non chlorinated solvents	8020	mg/l ug/l	40 ml. vial glass, Teflon lined septum	cool, 4 C HCl to pH<2	14 days (maximum)
Volatile Organics	8240	mg/l ug/l	40 ml. vial glass, Teflon lined septum	cool, 4 C HCl to pH<2	14 days (maximum)
Semi-Volatile Organics	8270	mg/l ug/l	1 l amber glass, Teflon lined septum	cool, 4 C	7 days extract 40 days (maximum to analyze)
Specific Conductance (Field test)		umhos/cm			
pH (Field test)		pH units			
Temperature (Field test)		Deg F			

GETTLER-RYAN INC.

General and Environmental Contractors

WELL SAMPLING FIELD DATA SHEET

FIGURE 4

COMPANY _____ JOB # _____

LOCATION _____ DATE _____

CITY _____ TIME _____

Well ID. _____ Well Condition _____

Well Diameter _____ in. Hydrocarbon Thickness _____ ft.

Total Depth _____ ft.

Depth to Liquid- _____ ft.

Volume Factor (VF)			
	2" = 0.17	6" = 1.50	12" = 5.80
	3" = 0.38	8" = 2.60	
	4" = 0.66	10" = 4.10	

(# of casing volumes) _____ x _____ x(VF) _____ = (Estimated Purge Volume) _____ gal.

Purging Equipment _____

Sampling Equipment _____

Starting Time _____ Purging Flow Rate _____ gpm.

(Estimated Purge Volume) _____ gal. / (Purging Flow Rate) _____ gpm. = (Anticipated Purging Time) _____ min.

Time	pH	Conductivity	Temperature	Volume

Did well dewater? _____ If yes, time _____ Volume _____

Sampling Time _____ Weather Conditions _____

Analysis _____ Bottles Used _____

Chain of Custody Number _____

COMMENTS _____

FIGURE 5

Monitoring Well Sampling Protocol Schematic

Sampling Crew Reviews Project Sampling Requirements/Schedule

↓

Field Decontamination and Instrumentation Calibration

↓

Check Integrity of Well (Inspect for Well Damage)

↓

Measure and Record Depth to Water and Total Well Depth (Electric Well Sounder)

↓

Check for Floating Product (Oil/Water Interface Probe)

Floating Product Present

↓

Confirm Product Thickness (Acrylic or PVC Bailer)

↓

Collect Free-Product Sample

↓

Dissolved Product Sample Not Required

↓

Record Data on Field Data Form

Floating Product Not Present

↓

Purge Volume Calculation

$V = \pi (r/12)^2 h(\_\% \text{ vol})(7.48) = \_\_\_ / \text{gallons}$

V = Purge volume (gallons)

$\pi = 3.14159$

h = Height of Water Column (feet)

r = Borehole radius (inches)

↓

Evacuate water from well equal to the calculated purge volume while monitoring groundwater stabilization indicator parameters (pH, conductivity, temperature) at intervals of one casing volume.

Well Dewaters after One Purge Volume (Low yield well)

↓

Well Recharges to 80% of Initial Measured Water Column Height in Feet within 24 hrs. of Evacuation.

↓

Measure Groundwater Stability Indicator Parameters (pH, Temperature, Conductivity)

↓

Collect Sample and Complete Chain-of-Custody

↓

Preserve Sample According to Required Chemical Analysis

↓

Transport to Analytical Laboratory

Well Readily Recovers

↓

Record Groundwater Stability Indicator Parameters from each Additional Purge Volume

Stability indicated when the following Criteria are met:

pH :	± 0.1 pH units
Conductivity:	± 10%
Temperature:	1.0 degrees F

Groundwater Stability Achieved

↓

Collect Sample and Complete Chain-of-Custody

↓

Preserve Sample According to Required Chemical Analysis

↓

Transport to Analytical Laboratory

Groundwater Stability Not Achieved

↓

Continue Purging Until Stability is Achieved

↓

Collect Sample and complete Chain-of-Custody

↓

Preserve Sample According to Required Chemical Analysis

↓

Transport to Analytical Laboratory

Gettler - Ryan Inc. ENVIRONMENTAL DIVISION

Chain of Custody
FIGURE 6

COMPANY _____ JOB NO. _____

JOB LOCATION _____

CITY _____ PHONE NO. _____

AUTHORIZED _____ DATE _____ P.O. NO. _____

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID

RELINQUISHED BY: _____ RECEIVED BY: _____

RELINQUISHED BY: _____ RECEIVED BY: _____

RELINQUISHED BY: _____ RECEIVED BY LAB: _____

DESIGNATED LABORATORY: _____ DHS #: _____

REMARKS: _____

DATE COMPLETED _____ FOREMAN _____

APPENDIX B

GETTLER-RYAN INC.

GROUNDWATER SAMPLING REPORT

gettler — ryan inc.

January 9, 1991

GROUNDWATER SAMPLING REPORT

Chevron U.S.A. Inc.
Post Office Box 5004
San Ramon, California 94583-0804

Referenced Site: Chevron Service Station #0504
15900 Hesperian Blvd./Post Office Road
San Lorenzo, California

Sampling Date: December 20, 1990

This report presents the results of the groundwater sampling and analytical program conducted by Gettler-Ryan Inc. on December 20, 1990 at the referenced location. The site is occupied by an operating service station located on the northeast corner of Hesperian Boulevard and Post Office Road. The service station has underground storage tanks containing regular leaded, unleaded and super unleaded gasoline products.

There are currently six groundwater monitoring wells on site and five wells off site at the locations shown on the attached site map. Prior to sampling, all wells were inspected for total well depth, water levels, and presence of separate phase hydrocarbons using an electronic interface probe. A clean acrylic bailer was used to visually confirm the presence and thickness of separate phase hydrocarbon. Groundwater depths ranged from 12.08 to 16.66 feet below grade. Separate phase hydrocarbons were observed in wells C-1 and C-2.

The wells were then purged and sampled. The purge water was contained in drums for proper disposal. Standard sampling procedure calls for a minimum of four case volumes to be purged from each well. Each well was purged while pH, temperature, and conductivity measurements were monitored for stability. Details of the final well purging results are presented on the attached Table of Monitoring Data. In cases where a well dewatered or less than four case volumes were purged, groundwater samples were obtained after the physical parameters had stabilized. Under such circumstances the sample may not represent actual formation water, due to low flow conditions.

Samples were collected, using Teflon bailers, in properly cleaned and laboratory prepared containers. All sampling equipment was thoroughly cleaned after each well was sampled and steam cleaned upon completion of work at the site. The samples were labeled, stored on blue ice, and transported to the laboratory for analysis. A trip blank, supplied by the laboratory, was included and analyzed to assess quality control. A duplicate sample (CD-5), was submitted without well designation to assess laboratory performance. Analytical results for the trip blank are included in the Certified Analytical Report (CAR's). Chain of custody records were established noting sample identification numbers, time, date, and custody signatures.

2150 west winton avenue • hayward, california 94545-1210 • (415) 783-7500

The samples were analyzed by Superior Analytical Laboratory Inc., located at 1555 Burke, Unit 1, San Francisco, California. The laboratory is assigned a California DHS-HMTL Certification number of 1332. The results are presented as a Certified Analytical Report, a copy of which is attached to this report.

Tom Paulson
Sampling Manager

attachments

TABLE OF MONITORING DATA
GROUNDWATER WELL SAMPLING REPORT

WELL I.D.	C-1	C-2	C-3	C-4	C-5 CD-5	C-6
Casing Diameter (inches)	3	3	3	3	3	2
Total Well Depth (feet)	----	----	19.6	20.4	19.5	24.5
Depth to Water (feet)	13.87**	14.06**	15.17	15.42	14.94	16.66
Free Hydrocarbons (feet)	0.01	0.01	none	none	none	none
Reason Not Sampled	free product	free product	----	----	----	----
Calculated 4 Case Vol.(gal.)	----	----	6.7	7.6	7.0	5.4
Did Well Dewater?	----	----	no	no	no	no
Volume Evacuated (gal.)	----	----	9.0	9.5	9.0	7.0
Purging Device	----	----	Bailer	Bailer	Bailer	Bailer
Sampling Device	----	----	Bailer	Bailer	Bailer	Bailer
Time	----	----	12:33	13:13	12:56	12:15
Temperature (F)*	----	----	65.2	69.8	69.5	68.9
pH*	----	----	7.26	6.57	6.42	7.10
Conductivity (umhos/cm)*	----	----	229	1094	1047	1064

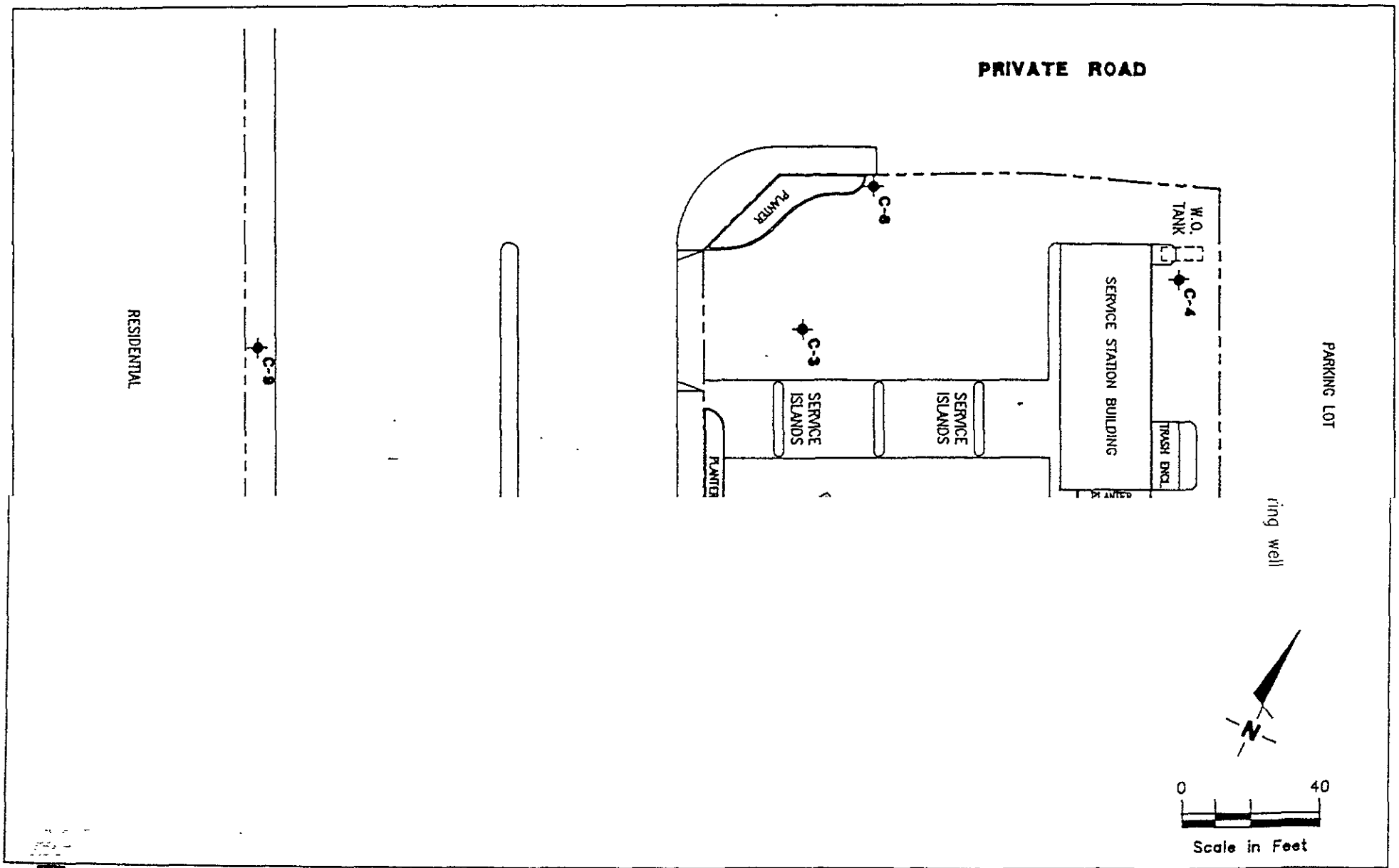
* Indicates Stabilized Value

** Not corrected for presence of free product

TABLE OF MONITORING DATA
GROUNDWATER WELL SAMPLING REPORT

WELL I.D.	C-7	C-8	C-9	C-10	C-11
Casing Diameter (inches)	2	2	2	3	2
Total Well Depth (feet)	25.2	25.3	24.9	25.1	25.0
Depth to Water (feet)	12.28	14.21	14.03	12.36	12.08
Free Hydrocarbons (feet)	none	none	none	none	none
Reason Not Sampled	----	----	----	----	----
Calculated 4 Case Vol.(gal.)	10.2	7.5	7.4	8.6	8.7
Did Well Dewater?	no	no	no	no	no
Volume Evacuated (gal.)	13.0	9.5	9.5	11.0	11.0
Purging Device	Bailer	Bailer	Bailer	Bailer	Bailer
Sampling Device	Bailer	Bailer	Bailer	Bailer	Bailer
Time	09:35	09:55	11:15	10:27	10:52
Temperature (F)*	68.6	69.9	64.2	69.5	68.1
pH*	6.23	6.46	7.87	6.62	6.88
Conductivity (umhos/cm)*	1046	1130	178	1098	1054

* Indicates Stabilized Value



GeoStrategies Inc.

SITE PLAN
Chevron Service Station #0504
15900 Hesperian Blvd.
San Lorenzo, California

PLATE
2

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE
7259		9/90	

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

GETTLER-RYAN INC.
GENERAL CONTRACTORS

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 11319
CLIENT: Chevron USA Inc.
CLIENT JOB NO.: 3259

DATE RECEIVED: 12/21/90
DATE REPORTED: 01/07/91

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
11319- 1	C-3	12/20/90	01/03/91
11319- 2	C-4	12/20/90	01/03/91
11319- 3	C-5	12/20/90	01/03/91
11319- 4	C-6	12/20/90	01/03/91
11319- 5	C-7	12/20/90	01/03/91
11319- 6	C-8	12/20/90	01/03/91
11319- 7	C-9	12/20/90	01/03/91
11319- 8	C-10	12/20/90	01/03/91
11319- 9	C-11	12/20/90	01/03/91
11319-10	CF-4	12/20/90	01/03/91

Laboratory Number:	11319 1	11319 2	11319 3	11319 4	11319 5
ANALYTE LIST	Amounts/Quantitation Limits (ug/L)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	100	**170	**80	ND<50	560
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	5	1	ND<0.5	ND<0.5	24
TOLUENE:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	3
ETHYL BENZENE:	27	ND<0.5	ND<0.5	ND<0.5	19
XYLENES:	130	4	ND<0.5	ND<0.5	21

** Sample #2 and #3 does not match gasoline pattern.

Laboratory Number:	11319 6	11319 7	11319 8	11319 9	11319 10
ANALYTE LIST	Amounts/Quantitation Limits (ug/L)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	3900	ND<50	ND<50	ND<50	ND<50
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	120	ND<0.5	ND<0.5	ND<0.5	ND<0.5
TOLUENE:	20	ND<0.5	ND<0.5	ND<0.5	ND<0.5
ETHYL BENZENE:	130	ND<0.5	ND<0.5	ND<0.5	ND<0.5
XYLENES:	180	ND<0.5	ND<0.5	ND<0.5	ND<0.5

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 11319
CLIENT: Chevron USA Inc.
CLIENT JOB NO.: 3259

DATE RECEIVED: 12/21/90
DATE REPORTED: 01/07/91

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
11319-11	CD-5	12/20/90	01/03/91
11319-12	TRIP BLANK	12/20/90	01/03/91

Laboratory Number:	11319 11	11319 12
ANALYTE LIST	Amounts/Quantitation Limits (ug/L)	
OIL AND GREASE:	NA	NA
TPH/GASOLINE RANGE:	ND<50	ND<50
TPH/DIESEL RANGE:	NA	NA
BENZENE:	ND<0.5	ND<0.5
TOLUENE:	ND<0.5	ND<0.5
ETHYL BENZENE:	ND<0.5	ND<0.5
XYLENES:	ND<0.5	ND<0.5

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

QA/QC INFORMATION
SET: 11319

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT
ug/l = part per billion (ppb)

OIL AND GREASE ANALYSIS By Standard Methods Method 503E:
Minimum Detection Limit in Water: 5000ug/L

Modified EPA-SW846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Water: 50ug/l
Standard Reference: NA

EPA-SW846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Water: 50ug/l
Standard Reference: 08/24/90

SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Water: 0.5ug/l
Standard Reference: 10/22/90

ANALYTE	REFERENCE	SPIKE LEVEL	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Oil & Grease	NA	NA	NA	NA	NA
Diesel	NA	NA	NA	NA	NA
Gasoline	10/22/90	200ng	93/97	4	75-125
Benzene	10/22/90	200ng	86/86	1	75-130
Toluene	10/22/90	200ng	84/87	4	75-130
Ethyl Benzene	10/22/90	200ng	89/92	3	75-130
Total Xylene	10/22/90	600ng	89/91	3	75-130

Richard Srna, Ph.D.
Cecilia G. Gonguin (for)
Laboratory Director

Chain-of-Custody-Recor

Chevron U.S.A. Inc.
P.O. BOX 5004
San Ramon, CA 94583
FAX (415)842-9591

Chevron Facility Number 0504
Facility Address 15900 Hesperian Blvd
Consultant Project Number 3259
Consultant Name Cuttler Ryan Inc
Address 2150 W Winton, Hayward
Project Contact (Name) Tom Paulson
(Phone) 783-7500 (Fax Number)

Chevron Contact (Name)
(Phone)
Laboratory Name Superior
Laboratory Release Number 247245O
Samples Collected by (Name) John P Zwierzak
Collection Date 12-20-90
Signature John P. Zwierzak

Sample Number	Number of Containers	Matrix S = Soil A = Air W = Water C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	Analyses To Be Performed: BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Chlorinated HC (8010)	Non Chlorinated HC (8020)	Total Lead (AA)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)	Remarks
C-3	3	W	1	1233	HCl	Yes	✓							
C-4				1313			✓							
C-5				1256			✓							
C-6				1215			✓							
C-7				0935			✓							
C-8				0955			✓							
C-9				1115			✓							
C-10				1027			✓							
C-11				1052			✓							
CF-4				1313			✓							
CD-5	↓			—			—							
Trip Blank	1	↓		—	↓	↓	—							

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
John P. Zwierzak	G/R	12/20/17:16	Refrig	G/R	12-20/17:16
Refrig	G/R	12-21/7:30	John P. Zwierzak	G/R	12-21/7:30
John P. Zwierzak	G/R	12/21/8:25	Cecilia H. Joaquin		12/21/90 8:25

Turn Around Time (Circle Choice)
24 Hrs.
48 Hrs.
5 Days
10 Days
As Contracted

COC-1.DWG/11 90/HCH

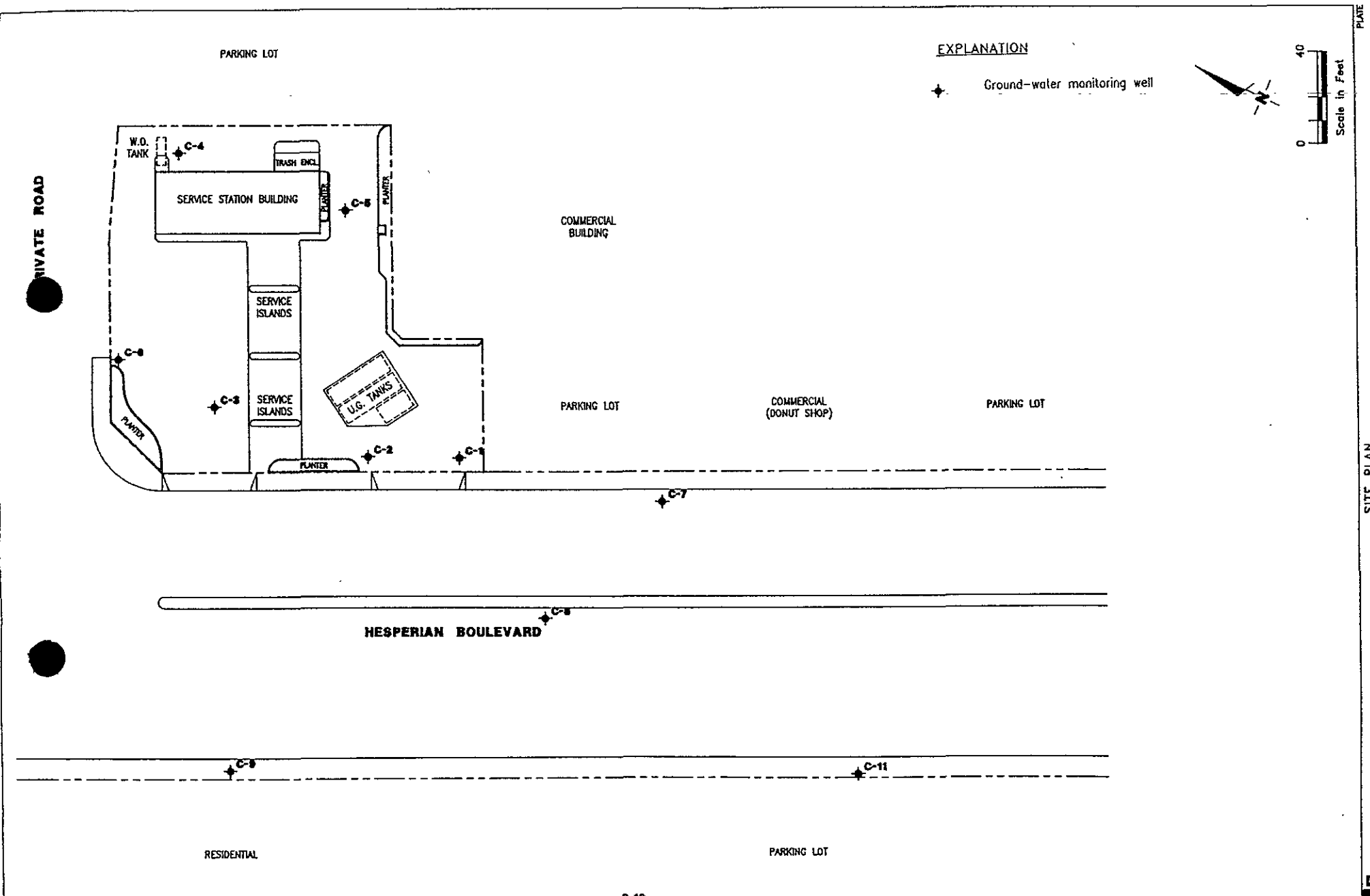
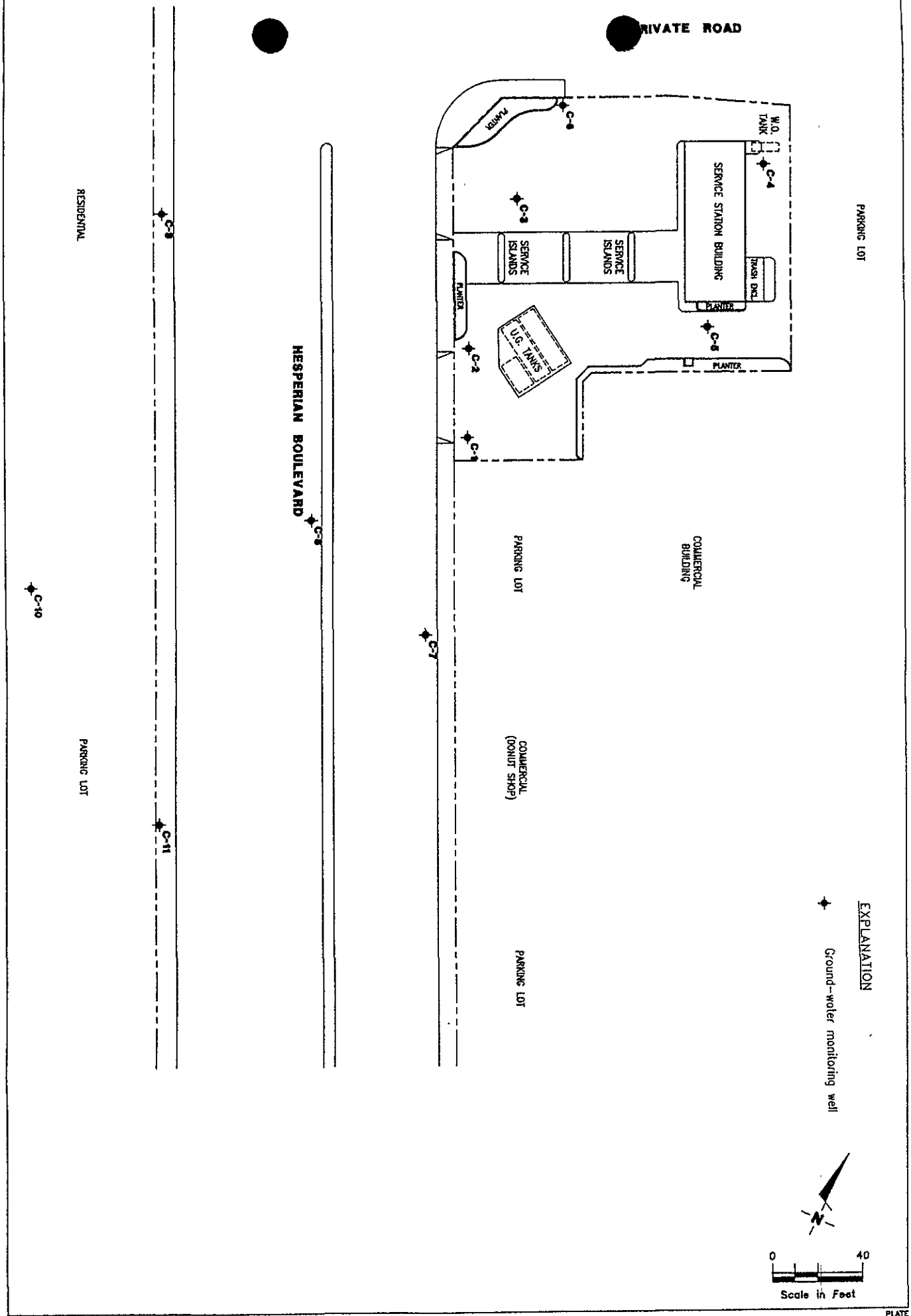


PLATE 2

SITE PLAN
Chevron Service Station #0504
15900 Hesperian Blvd.
San Lorenzo, California

GeoStrategies Inc.

GSI



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SITE PLAN
Chevron Service Station #0504
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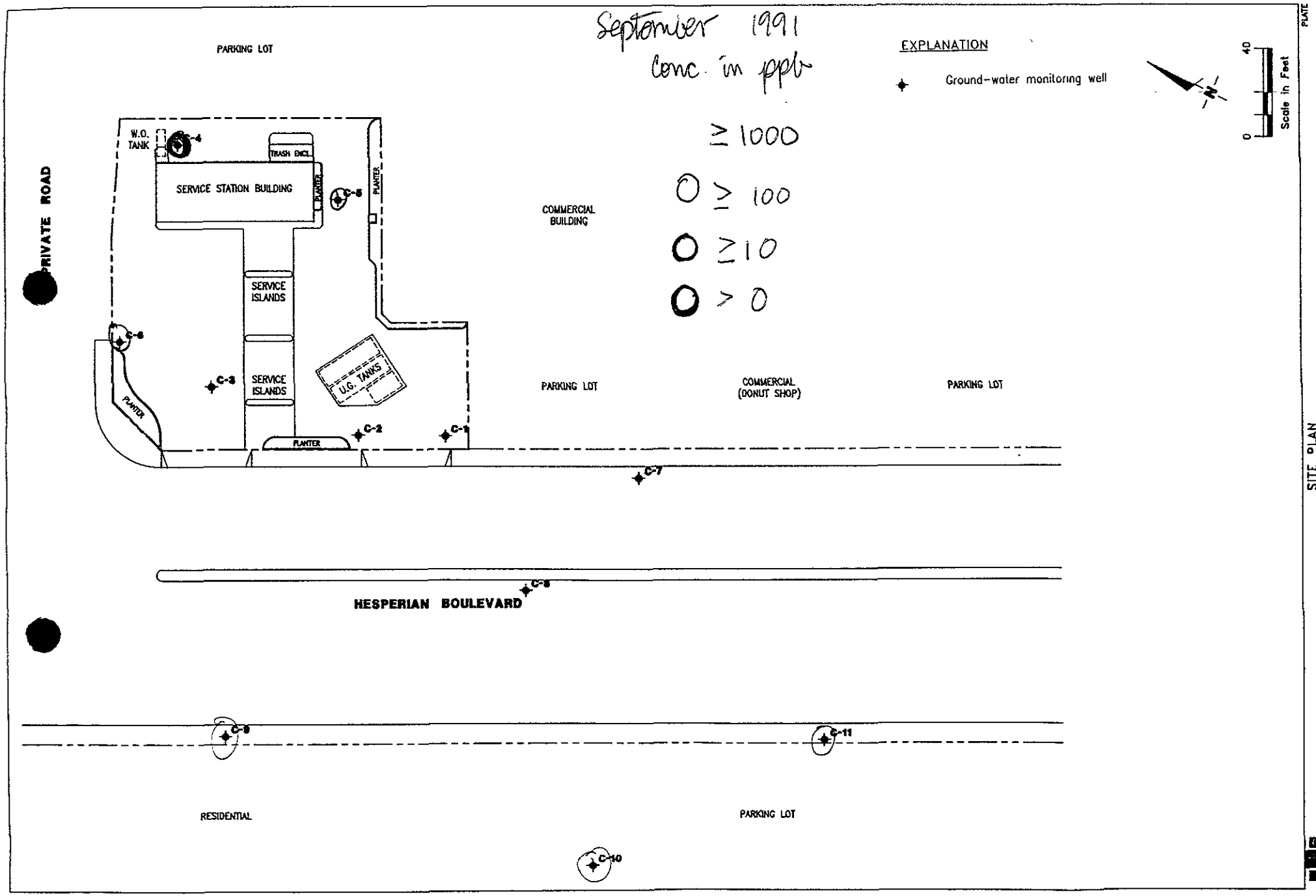
PLATE
2



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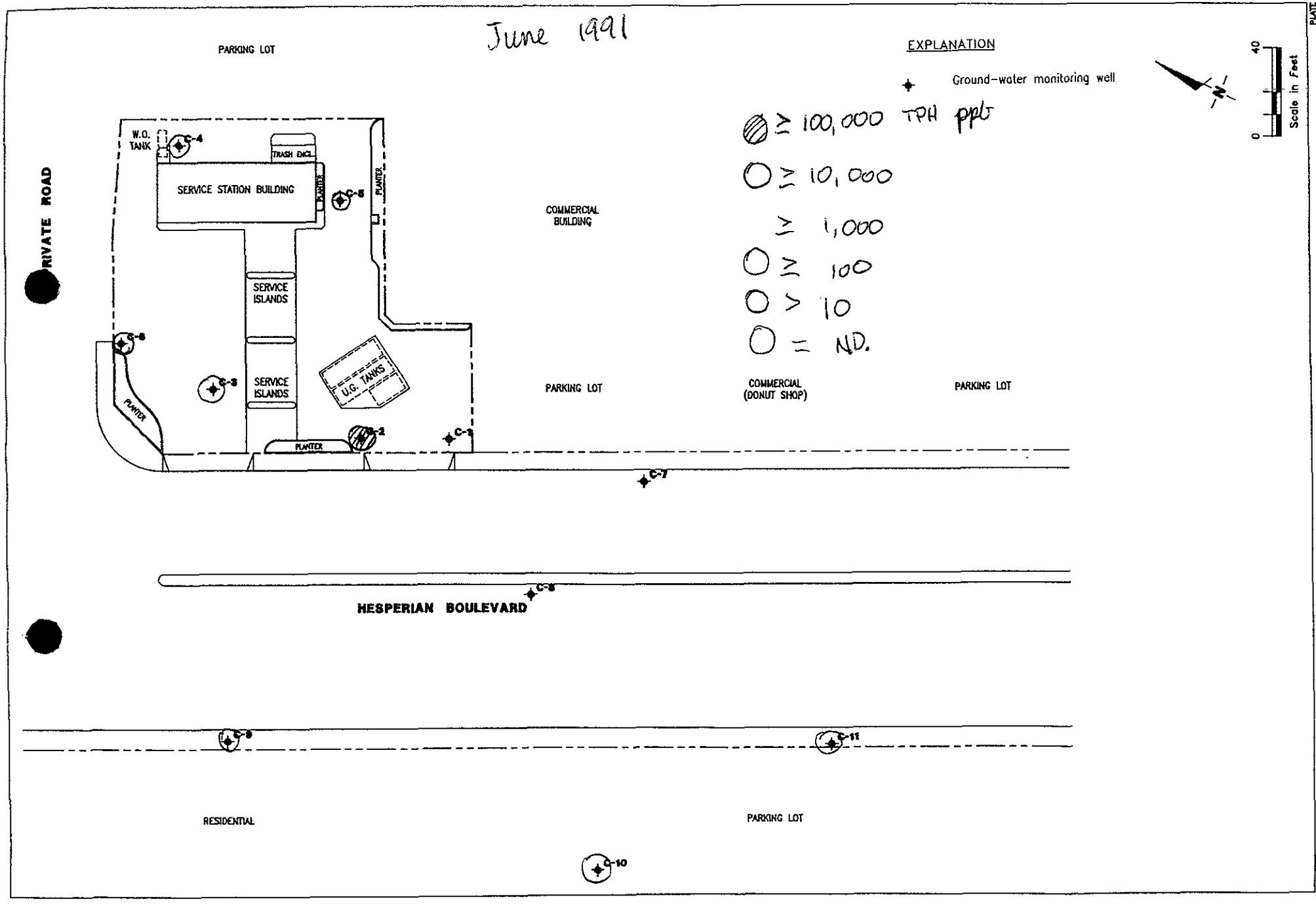

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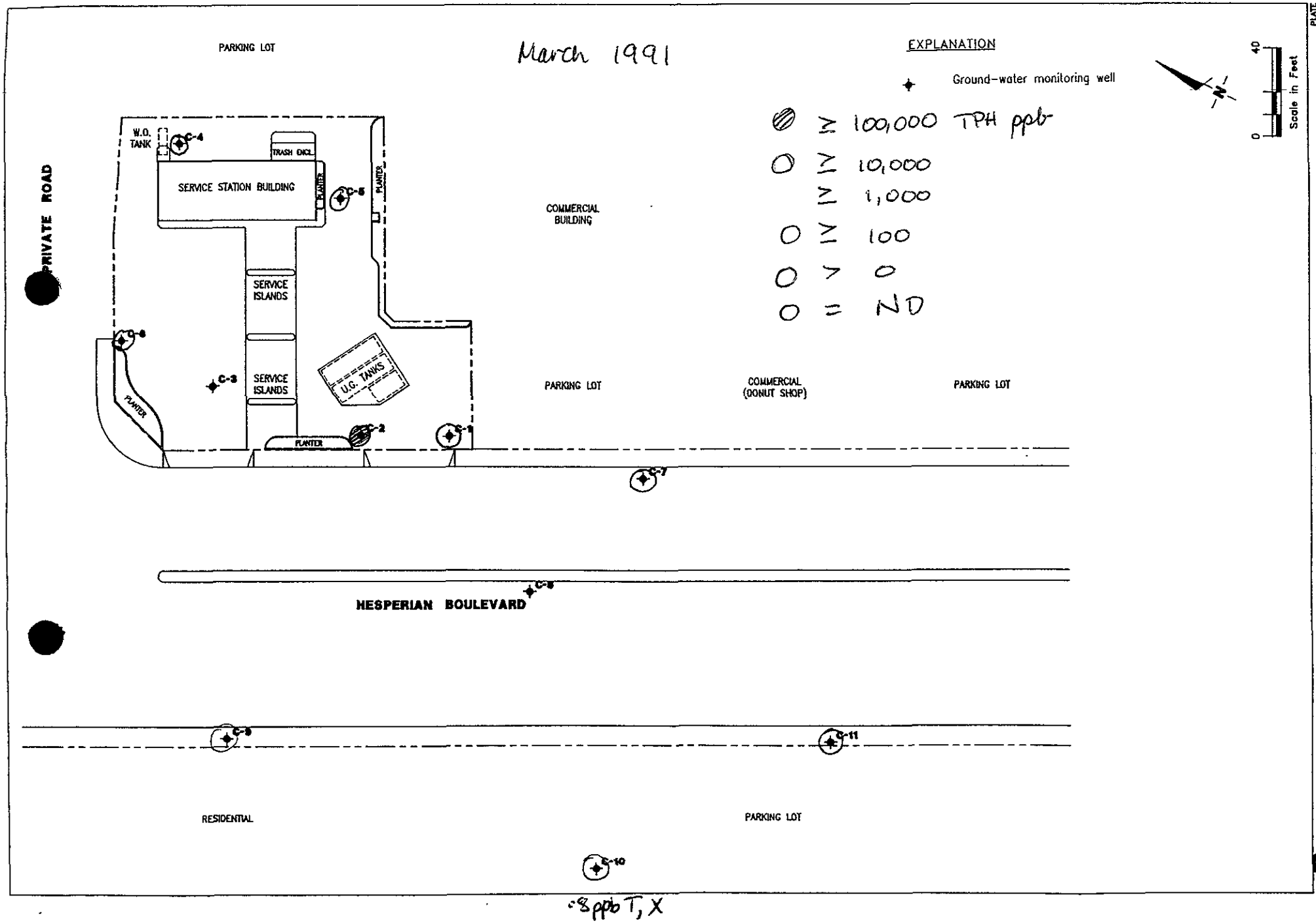

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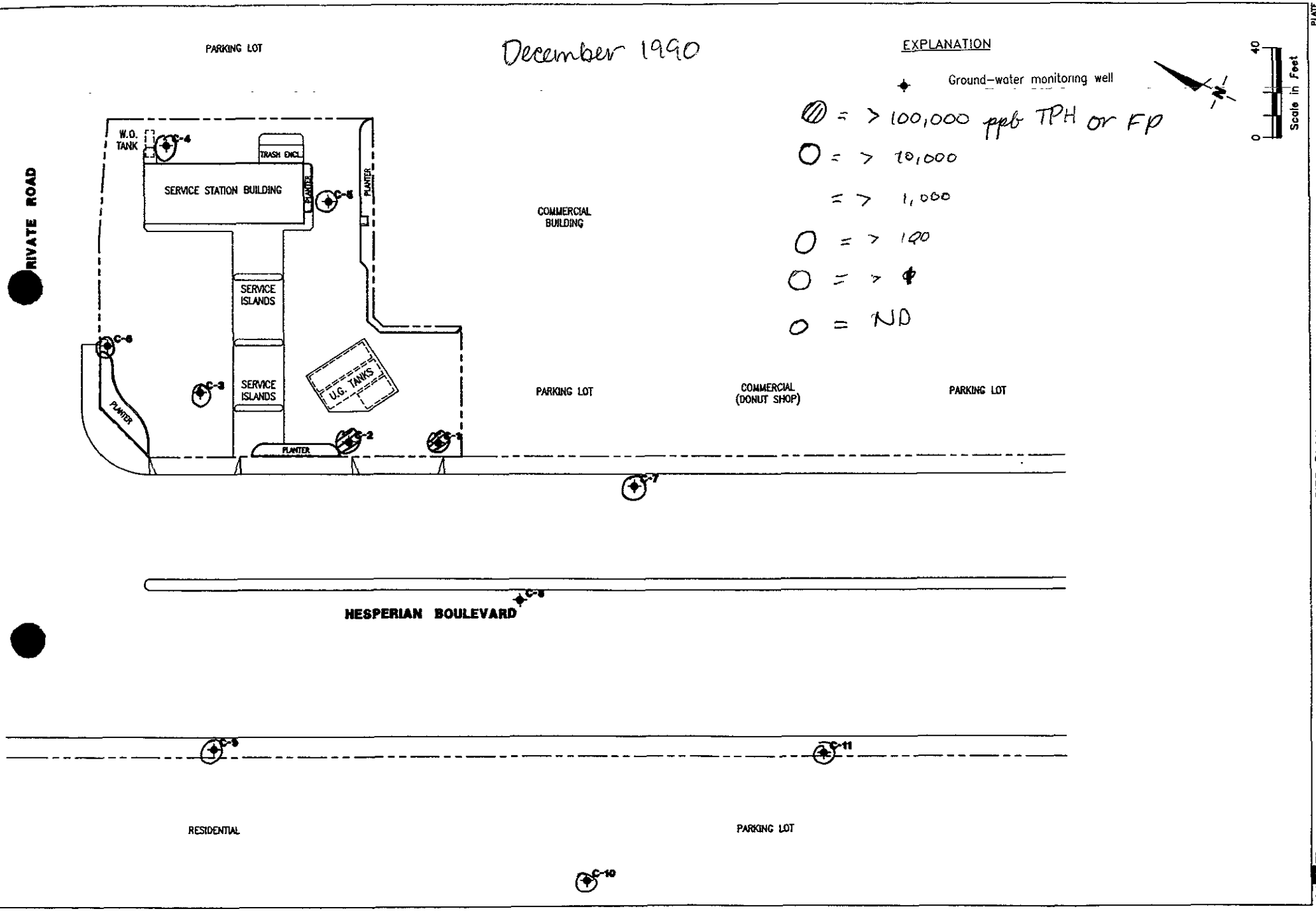

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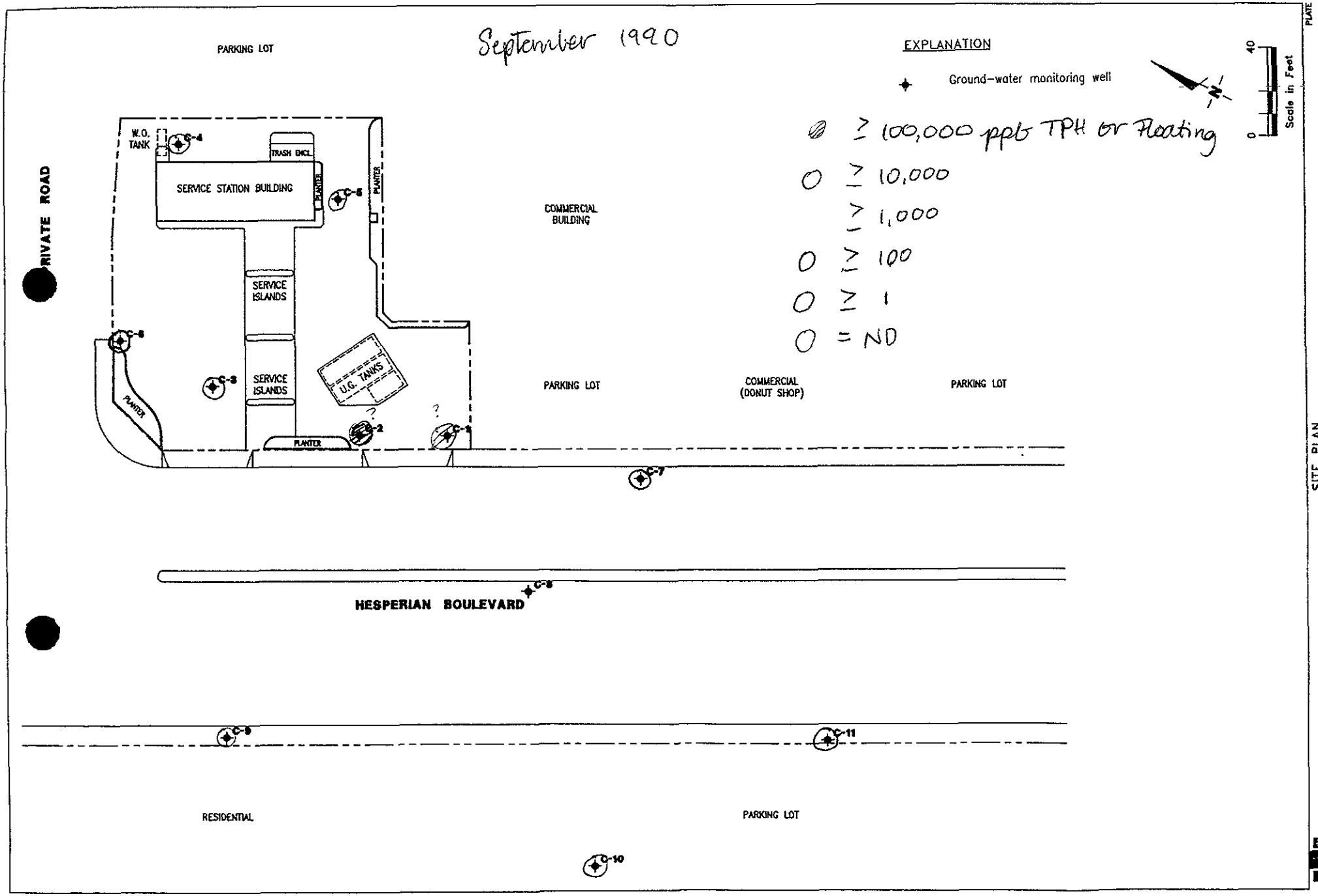

PLATE 2

SITE PLAN
Chevron Service Station #0504
15900 Hesperian Blvd.
San Lorenzo, California

GeoStrategies Inc.

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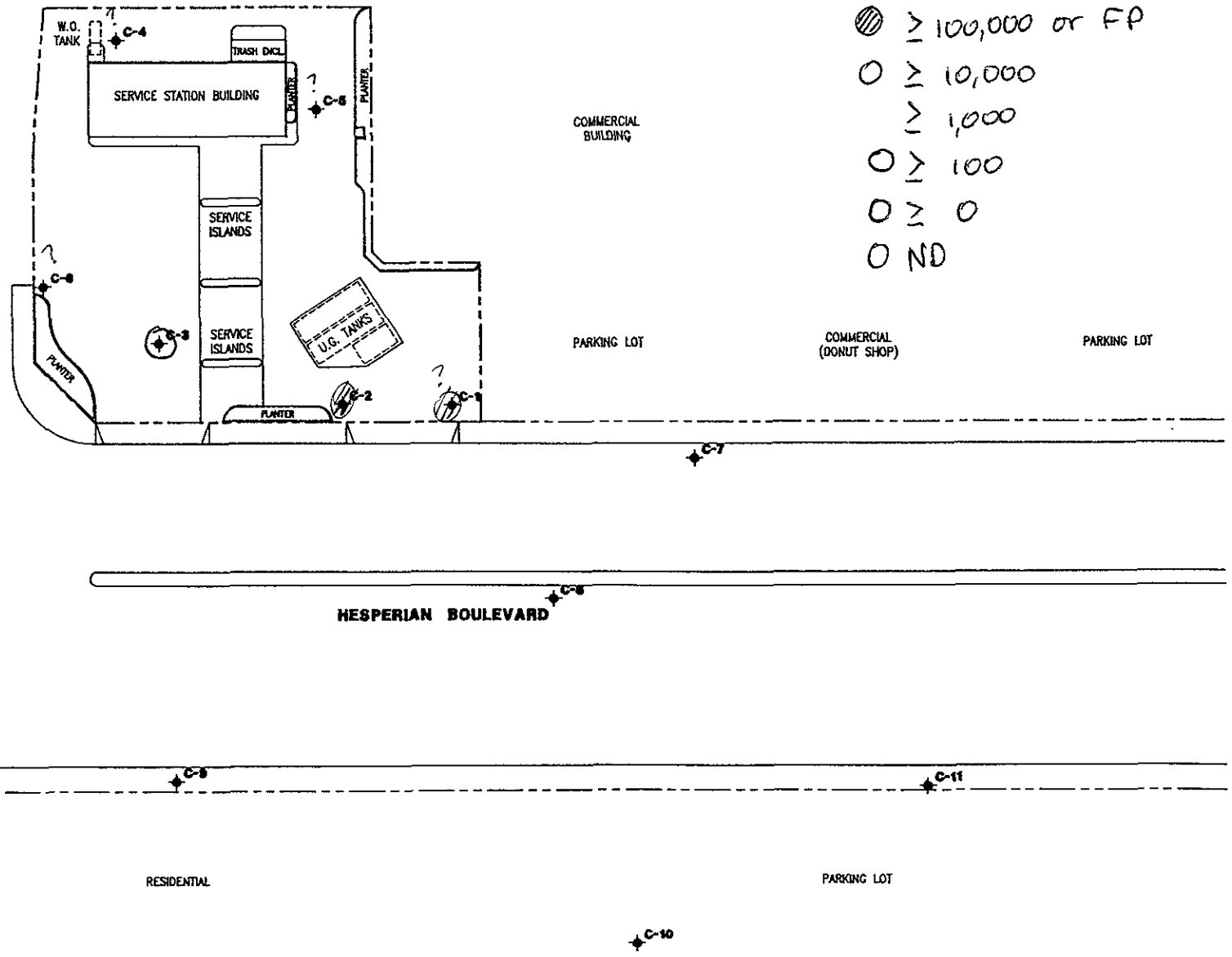


September 1989

EXPLANATION

Ground-water monitoring well

- ≥ 100,000 or FP
- ≥ 10,000
- ≥ 1,000
- ≥ 100
- ≥ 0
- ND

N

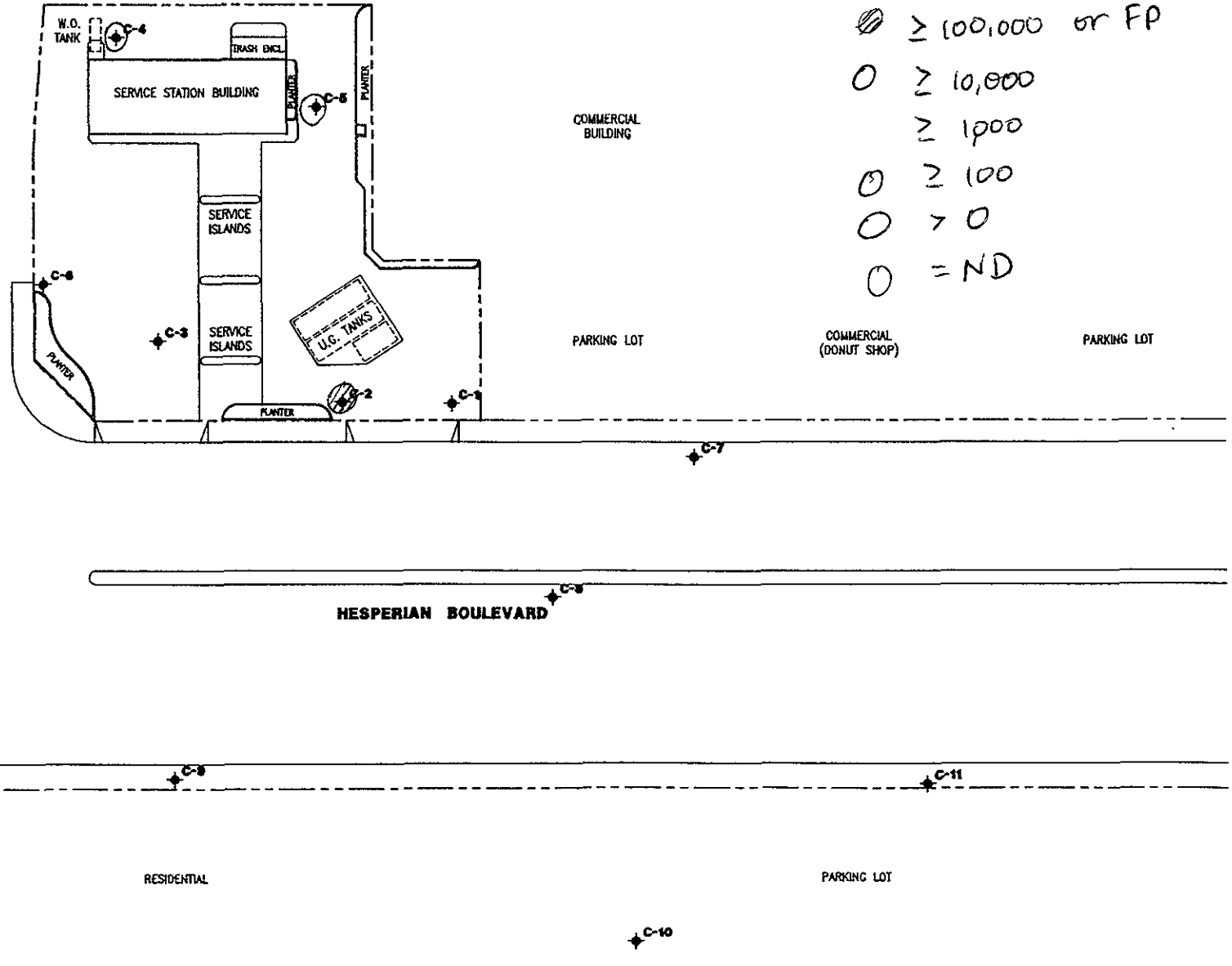
Scale in Feet: 0, 40

PLATE 2

SITE PLAN
Chevron Service Station #0504
15900 Hesperian Blvd.
San Lorenzo, California

GeoStrategies Inc.

June 1989



≥ 100,000 or FP
0 ≥ 10,000
≥ 1000
0 ≥ 100
0 > 0
0 = ND

PLATE 2

SITE PLAN
Chevron Service Station #0504
15900 Hesperian Blvd.
San Lorenzo, California

GeoStrategies Inc.

GSI

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

Marketing Department

91 OCT 29 PM 1:46

October 28, 1991

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

Re: Chevron Service Station #9-0504
15900 Hesperian Blvd., San Lorenzo

Dear Ms. Evans:

Analytical results for ground water samples collected at the subject site on September 26, 1991, show significant reduction in hydrocarbon concentrations. Informal sampling results are enclosed for your information. The report will be finalized and submitted in November, 1991. Concentrations in ground water from monitor wells C-1 and C-2 dropped from 37,000 and 1,200,000 parts per billion (ppb) to 3,200 and 4,900 ppb, respectively since the March, 1991 sampling event.

These wells were redeveloped by our consultant, Alton Geoscience, Inc. on September 23, 1991. The mechanical action of redevelopment may have removed small residual pockets of separate-phase hydrocarbons trapped in the well sand packs and adjacent soils which might have contributed to the high concentrations previously detected. Also, water levels dropped over 1.5 feet since the June, 1991, monitoring event. We recommend reevaluating the remedial approach for this site after two more quarterly sampling events to see if a trend of decreasing concentrations is being established or if the September results are anomalous.

Chevron will continue to monitor this site and report findings on a quarterly basis.

If you have any questions or comments, please do not hesitate to contact me at (510) 842-9581.

Very truly yours,
CHEVRON U.S.A. INC.

Nancy Vukelich
Environmental Engineer

Enclosure

cc: Mr. Eddie So, RWQCB-Bay Area
Ms. B.C. Owen
File (9-0504-1)

Mr. Bruce E. Prigoff, Esq.
Steefel, Levitt & Weiss
One Embarcadero Center, 29th Floor
San Francisco, CA 94111

Table 1
Summary of Results of Ground Water Sampling
Chevron Service Station No. 9-0504
15900 Hesperian Boulevard, San Lorenzo, California

Concentrations in parts per billion (ppb)

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEV.	DEPTH TO WATER	L-PH	GROUND WATER ELEV.	TPH-G	TPH-D	B	T	E	X	TOG	TPH-O	LAB
C-1	06/06/89	---	---	---	---	5100	---	250	170	200	990	---	---	NA
C-1	12/08/89	---	13.14	0.01	---	---	---	---	---	---	---	---	---	NA
C-1	09/07/90	33.93	14.04	0.03	19.91	---	---	---	---	---	---	---	---	NA
C-1	12/20/90	33.93	13.87	0.01	20.07	---	---	---	---	---	---	---	---	NA
C-1	03/15/91	33.93	11.40	---	22.53	37000	---	220	53	580	1900	---	---	SAL
C-1	06/28/91	33.93	12.25	SHEEN	21.68	3300	---	110	6.2	100	350	---	---	SA
C-1	09/26/91	33.93	14.02	---	19.91	3200	---	220	6.9	230	710	---	---	SA
C-2	06/06/89	---	---	---	---	130000	---	14000	28000	3400	24000	---	---	NA
C-2	12/08/89	---	13.44	0.15	---	---	---	---	---	---	---	---	---	NA
C-2	09/07/90	34.21	14.28	0.10	20.01	---	---	---	---	---	---	---	---	NA
C-2	12/20/90	34.21	14.06	0.01	20.16	---	---	---	---	---	---	---	---	NA
C-2	03/15/91	34.21	11.59	0.01	22.63	1200000	---	4700	16000	13000	140000	---	---	SAL
C-2	06/28/91	34.21	12.55	SHEEN	21.66	150000	---	3500	4200	2100	16000	---	---	SAL
C-2	09/26/91	34.21	14.20	---	20.01	4900	---	220	290	130	880	---	---	SAL
C-3	06/06/89	---	---	---	---	2600	---	63	20	390	370	---	---	NA
C-3	12/08/89	---	---	---	---	680	---	6	1	31	58	---	---	SAL
C-3	09/07/90	35.46	15.31	---	20.15	490	---	6	ND<0.5	41	120	---	---	SAL
C-3D	09/07/90	35.46	15.31	---	20.15	460	---	6	ND<0.5	40	110	---	---	SAL
C-3	12/20/90	35.46	15.17	---	20.29	100	---	5	ND<0.5	27	130	---	---	SAL
C-3	03/06/91	35.46	13.27	---	22.19	1300	---	7	ND<0.5	75	250	---	---	SAL
C-3D	03/06/91	35.46	13.27	---	22.19	1400	---	8	ND<0.5	76	250	---	---	SAL
C-3	06/28/91	35.46	13.67	---	21.79	770	---	6.0	ND<0.5	81	71	---	---	SAL
C-3D	06/28/91	35.46	13.67	---	21.79	990	---	5.5	ND<0.5	86	75	---	---	SAL
C-3	09/26/91	35.46	15.32	---	20.14	1400	---	7.9	ND<0.5	98	340	---	---	SAL
C-4	06/06/89	---	---	---	---	ND<50	---	ND<0.05	ND<1	ND<1	ND<3	---	ND<500	NA
C-4	12/08/89	---	---	---	---	ND<500	ND<1000	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5000	---	SA
C-4	09/07/90	35.78	15.58	---	20.20	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<5000	---	SA
C-4	12/20/90	35.78	15.42	---	20.36	170	---	1	ND<0.5	ND<0.5	4	---	---	SAL
C-4	03/06/91	35.78	13.54	---	22.24	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-4	06/28/91	35.78	13.93	---	21.85	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.8	---	---	SAL
C-4	09/26/91	35.78	15.64	---	20.14	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-4D	09/26/91	35.78	15.64	---	20.14	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL

Table 1
Summary of Results of Ground Water Sampling
Chevron Service Station No. 9-0504
15900 Hesperian Boulevard, San Lorenzo, California

Concentrations in parts per billion (ppb)

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEV.	DEPTH TO WATER	L-PH	GROUND WATER ELEV.	TPH-G	TPH-D	B	T	E	X	TOG	TPH-O	LAB
C-5	06/06/89	---	---	---	---	ND<50	---	ND<0.05	ND<1	ND<1	ND<3	---	---	NA
C-5	12/08/89	---	---	---	---	ND<500	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-5	09/07/90	35.31	15.10	---	20.21	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-5	12/20/90	35.31	14.94	---	20.37	80	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-5	03/06/91	35.31	13.06	---	22.25	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-5	06/28/91	35.31	13.46	---	21.85	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-5	09/26/91	35.31	15.14	---	20.17	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-6	12/08/89	---	---	---	---	ND<500	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-6	09/07/90	36.89	16.83	---	20.06	57	---	ND<0.5	ND<0.5	0.6	4	---	---	SAL
C-6	12/20/90	36.89	16.66	---	20.23	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-6	03/06/91	36.89	14.80	---	22.09	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-6	06/28/91	36.89	15.16	---	21.73	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-6	09/26/91	36.89	16.82	---	20.07	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-7	12/08/89	---	---	---	---	1700	---	32	12	17	150	---	---	SAL
C-7	09/07/90	32.75	13.02	---	19.73	880	---	84	23	46	180	---	---	SAL
C-7	12/20/90	32.75	12.28	---	20.47	560	---	24	3	19	21	---	---	SAL
C-7	03/06/91	32.75	16.92	---	15.83	240	---	25	2	4	26	---	---	SAL
C-7	06/28/91	32.75	11.31	---	21.44	2600	---	130	13	82	220	---	---	SAL
C-7	09/26/91	32.75	12.28	---	20.47	8100	---	47	35	350	1200	---	---	SAL
C-8	12/08/89	---	---	---	---	4800	---	62	11	95	180	---	---	SAL
C-8	09/07/90	33.82	14.32	---	19.50	3700	---	170	31	180	270	---	---	SAL
C-8	12/20/90	33.82	14.21	---	19.61	3900	---	120	20	130	180	---	---	SAL
C-8	03/06/91	33.82	14.80	---	19.02	1200	---	45	6	34	57	---	---	SAL
C-8	06/28/91	33.82	12.65	---	21.17	6900	---	180	46	340	640	---	---	SAL
C-8	09/26/91	33.82	14.29	---	19.53	1400	---	66	9.8	38	40	---	---	SAL

Table 1
Summary of Results of Ground Water Sampling
Chevron Service Station No. 9-0504
15900 Hesperian Boulevard, San Lorenzo, California

Concentrations in parts per billion (ppb)

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEV.	DEPTH TO WATER	L-PH	GROUND WATER ELEV.	TPH-G	TPH-D	B	T	E	X	TOG	TPH-O	LAB
C-9	09/07/90	33.43	14.06	---	19.37	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-9	12/20/90	33.43	14.03	---	19.40	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-9	03/06/91	33.43	12.12	---	21.31	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-9	06/28/91	33.43	12.41	---	21.02	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-9	09/26/91	33.43	14.02	---	19.41	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-10	09/07/90	31.63	12.49	---	19.14	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-10	12/20/90	31.63	12.36	---	19.27	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-10	03/06/91	31.63	10.45	---	21.18	ND<50	---	ND<0.5	0.8	ND<0.5	0.8	---	---	SAL
C-10	06/28/91	31.63	10.74	---	20.89	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-10	09/26/91	31.63	12.42	---	19.21	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-11	09/07/90	31.58	12.22	---	19.36	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-11	12/20/90	31.58	12.08	---	19.50	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-11	03/06/91	31.58	16.15	---	15.43	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-11	06/28/91	31.58	10.52	---	21.06	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
C-11	09/26/91	31.58	12.20	---	19.38	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
TB	09/07/90	NA	NA	NA	NA	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
TB	03/06/91	NA	NA	NA	NA	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
TB	06/28/91	NA	NA	NA	NA	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
TB	09/26/91	NA	NA	NA	NA	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
RINSATE	03/06/91	NA	NA	NA	NA	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL
RINSATE	09/26/91	NA	NA	NA	NA	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	SAL

EXPLANATION OF ABBREVIATIONS:

TPH-G :Total Petroleum Hydrocarbons as Gasoline (EPA method 8015 modified)
TPH-D :Total Petroleum Hydrocarbons as Diesel (EPA method 8015 modified)
TPH-O :Total Petroleum Hydrocarbons as Oil (EPA method 8015 modified)
TOG :Total Oil and Grease (EPA method 5520)
L-PH :Liquid-Phase Hydrocarbons (expressed in feet)

B :Benzene (EPA Method 8020 or 8240)
T :Toluene (EPA Method 8020 or 8240)
E :Ethylbenzene (EPA Method 8020 or 8240)
X :Xylenes (EPA Method 8020 or 8240)
ND :Not detected
NA :Not applicable/Not available
--- :Not analyzed/Not measured
TB :Trip Blank
SAL :Superior Analytical Laboratory

Note: Top of casing and Ground Water elevations are expressed at feet above mean sea level (NGVD - 1929)