PACIFIC
ENVIRONMENTAL
GROUP, INC.

Date July 30, 1991
Project 330-40.03

To: Mr. Paul Smith
Alameda County Environmental
Health Department
Hazardous Material Division
80 Swan Way., Room 200
Oakland, California 94621

We have enclosed:

Copies	Description
1	Soil vapor influence study.
1	Construction drawings for the catalytic treatment unit, for Station #276 at MacArthur Blvd. in Oakland, California.

For your: X Use
Approval
Review
Information

Comments: Paul, enclosed is the information we discussed, if there are any further questions please call.

Dan landry

91 JUL 31 PM 2

1601 Civic Center Drive, Suite 202, Santa Clara, California 95050 (408) 984-6536 FAX: (408) 243-3911
620 Contra Costa Boulevard, Suite 209, Pleasant Hill, California 94523 (415) 825-0855 FAX: (415) 825-0882

REMEDI-CAT

The Anguil Environmental Systems, Inc. REMEDI-CAT catalytic reactor system is a portable, self-contained fume incinerator specifically designed to destroy off gas, organic vapor contaminants (VOC) that are discharged from soil vapor extraction and ground water treatment systems during contaminated site clean-ups.

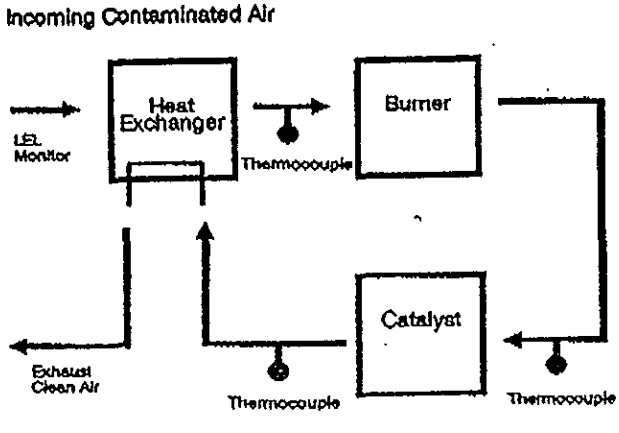
COMPONENTS

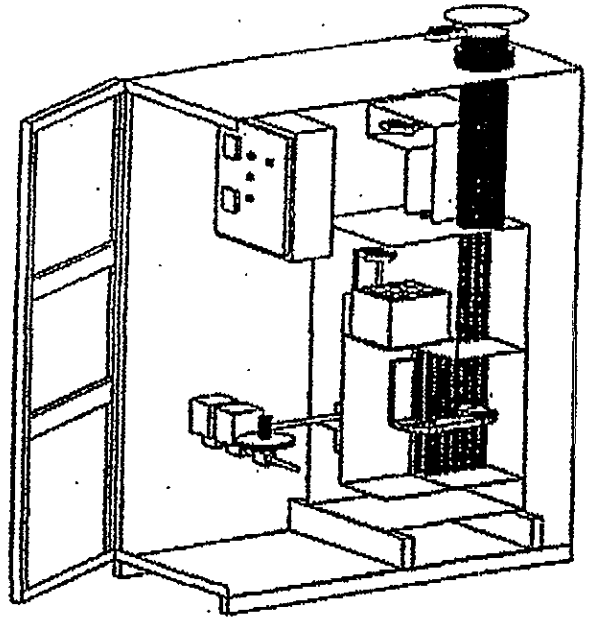
The REMEDI-CAT is shipped fully assembled and tested. It is enclosed in a weatherproof, insulated steel cabinet. Two lockable access doors allow service to all internal parts. A REMEDI-CAT can be configured to process from 100-500 CFM. The basic unit includes a heat exchanger, modulating burner, FM/IRI gas train, catalyst matrix, fan and fresh air bleed in valves, system controls, LEL monitor, strip chart temperature recorder and flame arrestor. Communication interface packages and specialty catalysts are available are as

CONSTRUCTION

The entire inner cabinet is fully welded 304 SS blanketed with high density insulation. The outer skin is weather resistant coated carbon steel. The heat exchanger, which preheats the incoming air stream to reduce operating costs, is a cleanable, shell and tube design, constructed from heavy gauge, type 304L SS. The burner is a proven industrial design and can be configured to operate with either natural gas or propane. The catalyst is a ceramic matrix, bearing a noble metal oxidizing catalyst. The matrix is contained in a removable, stainless steel module for ease of cleaning or replacement.

System Schematic





- **Onsite contaminant destruction**
- **No long term liability**
- **Low operating cost ($.20 min to $.75 max)**
- **Variable airflow**
- **Modular expandable construction**

HOW THE REMEDI-CAT WORKS

Solvent laden air is drawn into the fan, then pushed into the REMEDI-CAT. The air passes through the tube side of the primary heat exchanger and then into the burner section. The burner preheats the air to the catalyzing temperature. The preheated air passes over the catalyst where an exothermic reaction takes place and the VOC's in the air stream are converted to harmless carbon dioxide, water vapor and energy. The hot clean air then passes on the shell side of the heat exchanger where the energy is used to preheat the incoming air. Preheating the air allows the burner to modulate down accordingly and minimize the auxiliary fuel costs. In many cases the system will be self-sustaining. The purified air is then exhausted to atmosphere.

February 16, 1990
Project Number 330-40.03

Mr. Kyle Christie
ARCO Petroleum Products Company
P.O. Box 5811
San Mateo, California 94402

Re: ARCO Service Station No. 0276
10600 MacArthur Boulevard at 106th Street
Oakland, California

Dear Mr. Christie:

Pacific Environmental Group, Inc. (PACIFIC) is pleased to submit this report concerning ongoing environmental services in an area adjacent to the ARCO station referenced above. At the request of ARCO, PACIFIC has developed a design for the installation and operation of an in-situ soil venting system at this site. The following is a description of the project site and background, the performance testing, and the soil venting system.

SITE DESCRIPTION AND BACKGROUND

The project site is a parking lot adjacent to southern boundary of the ARCO station located at 10600 MacArthur Boulevard, Oakland, California (Figure 1). The soil venting system has been designed to remediate an area of approximately 90 feet by 100 feet with soils containing petroleum hydrocarbons. The parking lot is part of a commercial development known as Foothill Square Shopping Center.

The presence of petroleum hydrocarbons in the soil in varying concentrations was previously noted in the Preliminary Report of Environmental Investigation, ARCO Station Number 276, May 12, 1989, prepared by Applied Geosystems, and a soil vapor investigation performed by PACIFIC on June 21 and 22, 1989, and reported to ARCO in PACIFIC's letter report of July 17, 1989.

During the PACIFIC investigation a total of sixteen soil gas probes were installed, both at the ARCO station and in the adjacent parking lot. Probes installed in the parking lot were sampled at two depth intervals: 17 to 19 feet and 22 to 24 feet deep. As previously reported by PACIFIC, total hydrocarbon concentrations in the upper sample elevations ranged from 5 parts per million (ppm) to 31,900 ppm; total petroleum concentrations in the lower sample elevations ranged from 20 ppm to 40,000 ppm.

Remedial efforts at the site are currently focused on off-site soil vapor extraction. On-site remedial activities should be initiated following the ongoing tank replacement project. This should avoid the potential destruction of an on-site soil vapor extraction system during the tank replacement project.

PERFORMANCE TESTING

Vapor extraction probes were installed at the site in order to test the feasibility of soil venting as a remedial method, and to provide data for the design of an in-situ soil venting system. Six vapor extraction probes, consisting of one-half inch diameter steel pipe, and an existing three inch diameter monitoring well were used to execute the performance testing.

Three of the probes were driven to depths of 20 feet, with perforations from 15 to 20 feet deep, while the three remaining probes were driven to a depth of thirty feet, with perforations from 24 to 29 feet deep (see Figure 2). The perforated sections allow for the flow of vapors from the soil into the extraction vents.

Results of the performance testing indicated that subsurface soil conditions would support a soil venting system incorporating vapor extraction vents spaced approximately 30 feet on center (see Table 1). The proposed system design actually incorporated a closer vent spacing layout of approximately 15 to 20 feet on center, in an effort to expedite remediation at the request of ARCO.

SOIL VENTING SYSTEM

The in-situ soil venting system consists of two major components:

- Twenty five soil vapor extraction probes (or soil vents), one vadose well, associated piping, and manifold device
- A mobile extraction and treatment device

The twenty five soil vents, consisting of one-half inch diameter steel pipe, were driven to depths of up to 34 feet with pneumatic equipment (see Figure 3). Seven of the soil vents are perforated from a depth of 16 to 21 feet, while the eighteen remaining soil vents are perforated from 25 to 34 feet. The original design called for the installation of twenty eight soil extraction probes, but subsurface obstructions prevented the installation of three probes. Since the design incorporated a vent spacing more compact than required by subsurface conditions, the elimination of these probes should not impact the effectiveness of the remedial effort.

In addition, an existing three-inch monitoring well is utilized as a vadose well for the remediation of soils containing petroleum hydrocarbons between the depths of approximately 22 and 27 feet. This well is essentially an oversized soil vent which provides a medium for a higher flow rates of vapors from soils in the vicinity of the well.

Both the soil vents and the vadose well have been piped to a below-grade manifold device which will control individual vapor extraction flow rates. The vent piping has been routed across the site in shallow trenches and buried in the trenches at a depth of approximately one foot. The surface of the parking lot in the remediation area was repaired with asphalt paving to match the surrounding surfaces.

A mobile extraction and treatment device shall be used initially to extract and treat soil vapor for petroleum hydrocarbons. The device consists of an extraction pump or blower, and an internal combustion engine powered by propane. This device is capable of extracting soil vapor and oxidizing greater than 98% of the petroleum hydrocarbons. Emissions from the combustion device shall comply with the requirements of air-quality permits issued by the Bay Area Air Quality Management District (BAAQMD). The combustion device has previously been permitted on other sites under the BAAQMD's jurisdiction, and the permit has been transferred to this site.

After hydrocarbon concentrations are reduced to levels which are anticipated to be acceptable for long term ambient venting (LTAV), the mobile extraction and combustion device shall be replaced by an electric vacuum pump and dilution system. The system is tentatively scheduled to begin operation in mid-February 1990, and is projected to continue operating for approximately one year.

A report on the system installation and initial start-up monitoring data will be forthcoming. PACIFIC appreciates this opportunity to be of service. Please call if you have any questions concerning the contents of this report.

Sincerely,

PACIFIC ENVIRONMENTAL GROUP, INC.

Robert K. Wenzlau, P.E.
Senior Engineer

enclosures

TABLE 1

INFLUENCE STUDY PERFORMANCE DATA

Probe/Well ID	Influence Vac("H20)	Extraction Note cfm	Perforated Depth	Capture Radius	Extraction Vacuum ("Hg)	Probe/Well Diameter
Extrc >MW3	--	14.0	22.0-27.0'	--	8.0	3.0"
A	.1	--	15.0-20.0'	5.0'	--	1/2"
B	.02	--	15.0-20.0'	15.0'	--	1/2"
C	0	--	15.0-20.0'	20.0'	--	1/2"
F	.17	--	24.0-29.0'	20.0'	--	1/2"
Extrc >MW3	--	12.0	22.0-27.0'	--	8.0	3.0"
A	.1	--	15.0-20.0'	5.0'	--	1/2"
B	.05	--	15.0-20.0'	15.0	--	1/2"
C	0	--	15.0-20.0'	20.0'	--	1/2"
F	>.25	--	24.0-29.0'	20.0'	--	1/2"
Extrc >MW3	--	12.0	22.0-27.0'	--	8.0	3.0"
A	.1	--	15.0-20.0'	5.0'	--	1/2"
B	.04	--	15.0-20.0'	15.0'	--	1/2"
C	0	--	15.0-20.0'	20.0'	--	1/2"
F	>.25	--	24.0-29.0	20.0'	--	1/2"
Extrc >MW3	--	12.0	22.0-27.0'	--	8.0	3.0"
A	.1	--	15.0-20.0'	5.0'	--	1/2"
B	.04	--	15.0-20.0'	15.0'	--	1/2"
C	0	--	15.0-20.0'	20.0'	--	1/2"
F	>.25	--	24.0-29.0'	20.0'	--	1/2"
Extrc >A	--	2.0	15.0-20,0'	--	15.0	1/2"
MW3	.015	--	22.0-27.0'	5.0'	--	3.0"
B	.01	--	15.0-20.0'	10.0'	--	1/2"
C	0	--	15.0-20.0'	15.0'	--	1/2"
F	0	--	25.0-29.0'	15.0'	--	1/2"

TABLE 1
(continued)

INFLUENCE STUDY PERFORMANCE DATA

Probe/Well ID		Influence Vac("H20)	Extraction Note cfm	Perforated Depth	Capture Radius	Extraction Vacuum ("Hg)	Probe/Well Diameter
Extrc	>A	--	2.0	15.0-20.0'	--	15.0	1/2"
	MW3	0	--	22.0-27.0'	5.0'	--	3.0"
	B	.01	--	15.0-20.0'	10.0'	--	1/2"
	C	0	--	15.0-20.0'	15.0'	--	1/2"
	F	0	--	24.0-29.0'	15.0'	--	1/2"
Extrc	>A	--	2.0	15.0-20.0'	--	15.0	1/2"
	MW3	0	--	22.0-27.0'	5.0'	--	3.0"
	B	.01	--	15.0-20.0'	10.0'	--	1/2"
	C	0	--	15.0-20.0'	15.0'	--	1/2"
	F	0	--	24.0-29.0'	15.0'	--	1/2"
Extrc	>A	--	2.0	15.0-20.0'	--	15.0	1/2"
	MW3	0	--	22.0-27.0'	5.0'	--	3.0"
	B	.03	--	15.0-20.0'	10.0'	--	1/2"
	C	0	--	15.0-20.0'	15.0'	--	1/2"
	F	0	--	24.0-29.0'	15.0'	--	1/2"
Extrc	>D	--	2.5	24.0-29.0'	--	15.0	3.0"
	MW3	0	--	22.0-27.0'	5.0'	--	1/2"
	B	0	--	15.0-20.0'	10.0'	--	1/2"
	C	0	--	15.0-20.0'	15.0'	--	1/2"
	F	0	--	24.0-29.0'	15.0	--	1/2"
Extrc	D	--	2.5	25.0-29.0'	--	15.0'	1/2"
	MW3	0	--	22.0-27.0'	5.0'	--	3.0"
	B	0	--	15.0-20.0'	10.0'	--	1/2"
	C	0	--	15.0-20.0'	15.0'	--	1/2"
	F	0	--	24.0-29.0	15.0	--	1/2"

TABLE 1
(continued)

INFLUENCE STUDY PERFORMANCE DATA

Probe/Well ID		Influence Vac("H20)	Extraction Note cfm	Perforated Depth	Capture Radius	Extraction Vacuum ("Hg)	Probe/Well Diameter
Extrc	>D	--	2.5	24.0-29.0'	--	15.0	1/2"
	MW3	0	--	22.0-27.0'	5.0'	--	3.0"
	B	.01	--	15.0-20.0'	10.0'	--	1/2"
	C	0	--	15.0-20.0'	15.0'	--	1/2"
	F	0	--	24.0-29.0'	15.0'	--	1/2"
Extrc	>D	--	2.5	24.0-29.0'	--	15.0	1/2"
	MW3	0	--	22.0-27.0'	5.0'	--	3.0"
	B	.01	--	15.0-20.0'	10.0'	--	1/2"
	C	0	--	15.0-20.0'	15.0'	--	1/2"
	F	.005	--	24.0-29.0'	15.0'	--	1/2"
Extrc	>D	--	2.5	24.0-29.0'	--	15.0	1/2"
	MW3	0	--	22.0-27.0'	5.0'	--	3.0"
	B	0.2	--	15.0-20.0'	10.0'	--	1/2"
	C	0	--	15.0-20.0'	15.0'	--	1/2"
	F	0	--	24.0-29.0'	15.0'	--	1/2"
Extrc	>MW3	--	14.0	22.0-27.0'	--	11.0	3.0"
	B	.02	--	15.0-20.0'	15.0'	--	1/2"
	D	0	--	24.0-29.0'	5.0'	--	1/2"
	E	.01	--	24.0-29.0'	15.0'	--	1/2"
	F	0	--	24.0-29.0'	20.0'	--	1/2"
Extrc	>MW3	--	13.0	22.0-27.0'	--	12.0	3.0"
	B	.03	--	15.0-20.0'	15.0'	--	1/2"
	D	0	--	24.0-29.0'	5.0'	--	1/2"
	E	.01	--	24.0-29.0'	15.0'	--	1/2"
	F	0	--	24.0-29.0'	20.0'	--	1/2"

TABLE 1
(continued)

INFLUENCE STUDY PERFORMANCE DATA

Probe/Well ID	Influence Vac("H20)	Extraction Note cfm	Perforated Depth	Capture Radius	Extraction Vacuum ("Hg)	Probe/Well Diameter
Extrc >MW3	--	15.0	22.0-27.0'	--	12.0	3.0"
B	.04	--	15.0-20.0'	15.0'	--	1/2"
D	0	--	24.0-29.0'	5.0'	--	1/2"
E	.01	--	24.0-29.0'	15.0'	--	1/2"
F	0	--	24.0-29.0'	20.0'	--	1/2"
Extrc >MW3	--	15.0	22.0-27.0'	--	12.0	3.0"
B	.04	--	15.0-20.0'	15.0'	--	1/2"
D	.005	--	24.0-29.0'	5.0'	--	1/2"
E	.01	--	24.0-29.0'	15.0'	--	1/2"
F	0	--	24.0-29.0'	20.0'	--	1/2"
Extrc >E	--	20.0	24.0-29.0'	--	16.0	1/2"
A	.005	--	15.0-20.0'	10.0'	--	1/2"
D	0	--	24.0-29.0'	10.0'	--	1/2"
B	0	--	15.0-20.0'	3.0'	--	1/2"
F	.02	--	24.0-29.0'	5.0'	--	1/2"
Extrc >E	--	12.0	24.0-29.0'	--	16.0	1/2"
A	.01	--	15.0-20.0'	10.0'	--	1/2"
D	0	--	24.0-29.0'	10.0'	--	1/2"
B	.005	--	15.0-29.0'	3.0'	--	1/2"
F	.04	--	24.0-29.0'	5.0'	--	1/2"
Extrc >E	--	14.0	24.0-29.0'	--	16.0	1/2"
A	.005	--	15.0-20.0'	10.0'	--	1/2"
D	0	--	24.0-29.0'	10.0'	--	1/2"
B	.005	--	15.0-20.0'	3.0'	--	1/2"
F	.055	--	24.0-29.0'	5.0'	--	1/2"

TABLE 1
(continued)

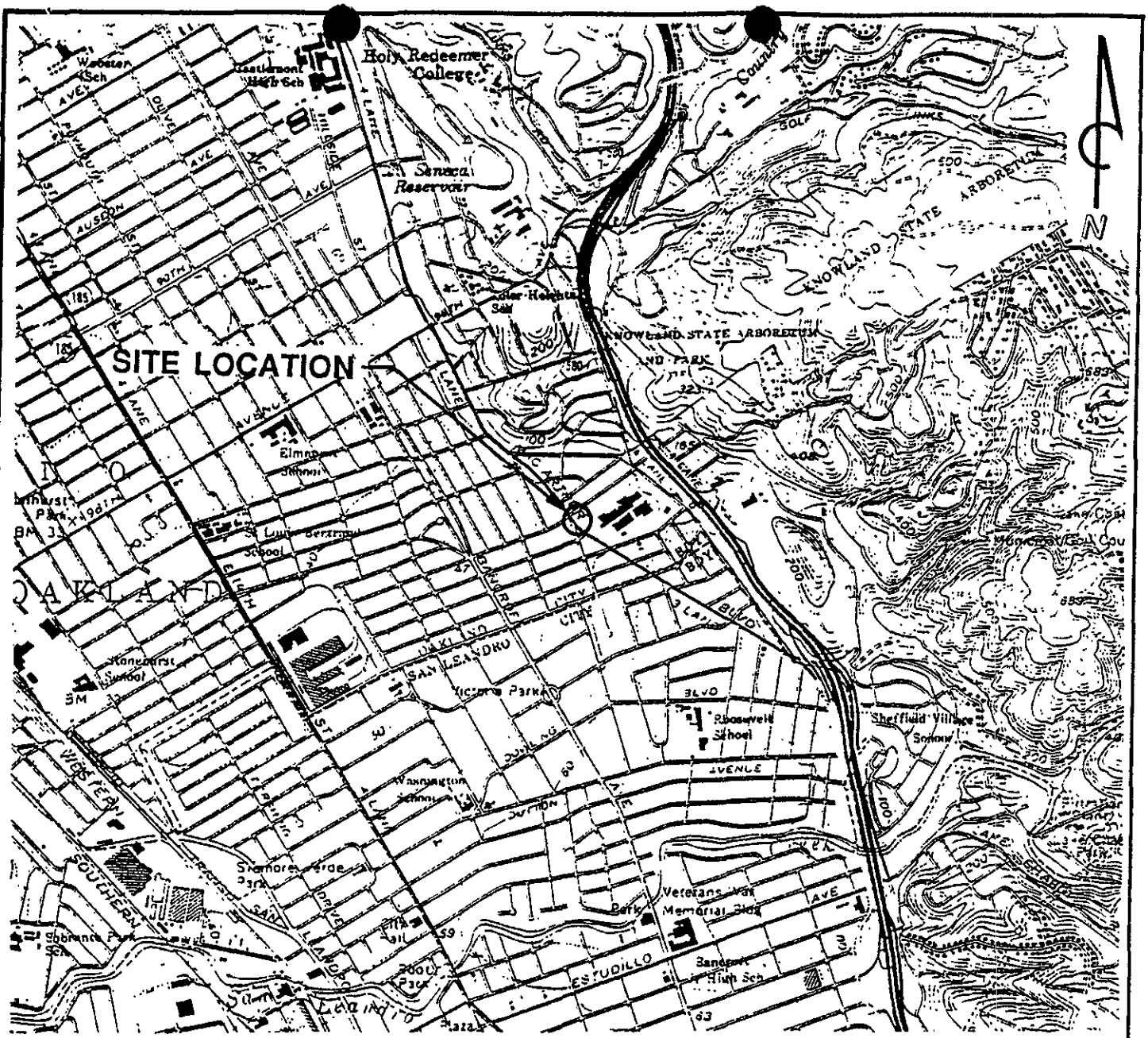
INFLUENCE STUDY PERFORMANCE DATA

Probe/Well ID		Influence Vac("H20)	Extraction Note cfm	Perforated Depth	Capture Radius	Extraction Vacuum ("Hg)	Probe/Well Diameter
Extrc	>E	--	12.0	24.0-29.0'	--	16.0	1/2"
	A	.01	--	15.0-20.0'	10.0'	--	1/2"
	D	0	--	24.0-29.0'	10.0'	--	1/2"
	B	.005	--	15.0-20.0'	3.0'	--	1/2"
	F	.08	--	24.0-29.0'	5.0'	--	1/2"
Extrc	>E	--	10.0	22.0-27.0'	--	16.0	1/2"
	A	.015	--	15.0-20.0'	10.0'	--	1/2"
	D	0	--	24.0-29.0'	10.0'	--	1/2"
	B	0	--	15.0-20.0'	3.0'	--	1/2"
	F	.1	--	24.0-29.0'	5.0'	--	1/2"
Extrc	>C	--	2.5	15.0-29-0.0'	--	16.0	1/2"
	A	.01	--	15.0-20.0'	20.0'	--	1/2"
	D	0	--	24.0-29.0'	20.0'	--	1/2"
	B	0	--	15.0-20.0'	5.0'	--	1/2"
	F	0	--	24.0-29.0'	3.0'	--	1/2"
Extrc	>C	--	3.0	15.0-20.0'	--	17.0	1/2"
	A	.03	--	15.0-20.0'	20.0'	--	1/2"
	D	0	--	24.0-29.0'	20.0'	--	1/2"
	B	.005	--	15.0-20.0'	5.0'	--	1/2"
	F	0	--	24.0-29.0'	3.0'	--	1/2"
Extrc	>C	--	3.0	15.0-20.0'	--	17.0	1/2"
	A	.02	--	15.0-20.0'	20.0'	--	1/2"
	D	0	--	24.0-29.0'	20.0'	--	1/2"
	B	.005	--	15.0-2.0'	5.0'	--	1/2"
	F	0	--	24.0-29.0'	3.0'	--	1/2"

TABLE 1
(continued)

INFLUENCE STUDY PERFORMANCE DATA

Probe/Well ID		Influence Vac("H20)	Extraction Note cfm	Perforated Depth	Capture Radius	Extraction Vacuum ("Hg)	Probe/Well Diameter
Extrc	>C	--	3.0	15.0-20.0'	--	17	1/2"
	A	.02	--	15.0-20.0'	20.0'	--	1/2"
	D	0	--	24.0-29.0'	20.0'	--	1/2"
	B	.005	--	15.0-20.0'	5.0'	--	1/2"
	F	0	--	24.0-29.0'	3.0'	--	1/2"
Extrc	>C	--	3.2	15.0-20.0'	--	3.2	1/2"
	A	.02	--	15.0-20.0'	20.0'	--	1/2"
	D	0	--	24.0-29.0'	20.0'	--	1/2"
	B	.01	--	15.0-20.0'	5.0'	--	1/2"
	F	0	--	24.0-29.0'	3.0'	--	1/2"
Extrc	>F	--	3.0	24.0-29.0'	--	17.0	1/2"
	A	.02	--	15.0-20.0'	20.0'	--	1/2"
	D	0	--	24.0-29.0'	20.0'	--	1/2"
	B	0	--	15.0-20.0'	5.0'	--	1/2"
	E	.01	--	24.0-29.0'	5.0'	--	1/2"
Extrc	>F	--	3.0	24.0-29.0'	--	17.0	1/2"
	A	.01	--	15.0-20.0'	20.0'	--	1/2"
	D	0	--	24.0-29.0'	20.0'	--	1/2"
	B	.005	--	15.0-29.0'	5.0'	--	1/2"
	E	.01	--	24.0-29.0'	5.0'	--	1/2"
Extrc	>F	--	3.0	24.0-29.0'	--	17.0	1/2"
	A	.02	--	15.0-20.0'	20.0'	--	1/2"
	D	0	--	24.0-29.0'	20.0'	--	1/2"
	B	0	--	15.0-20.0'	5.0'	--	1/2"
	E	.02	--	24.0-29.0'	5.0'	--	1/2"



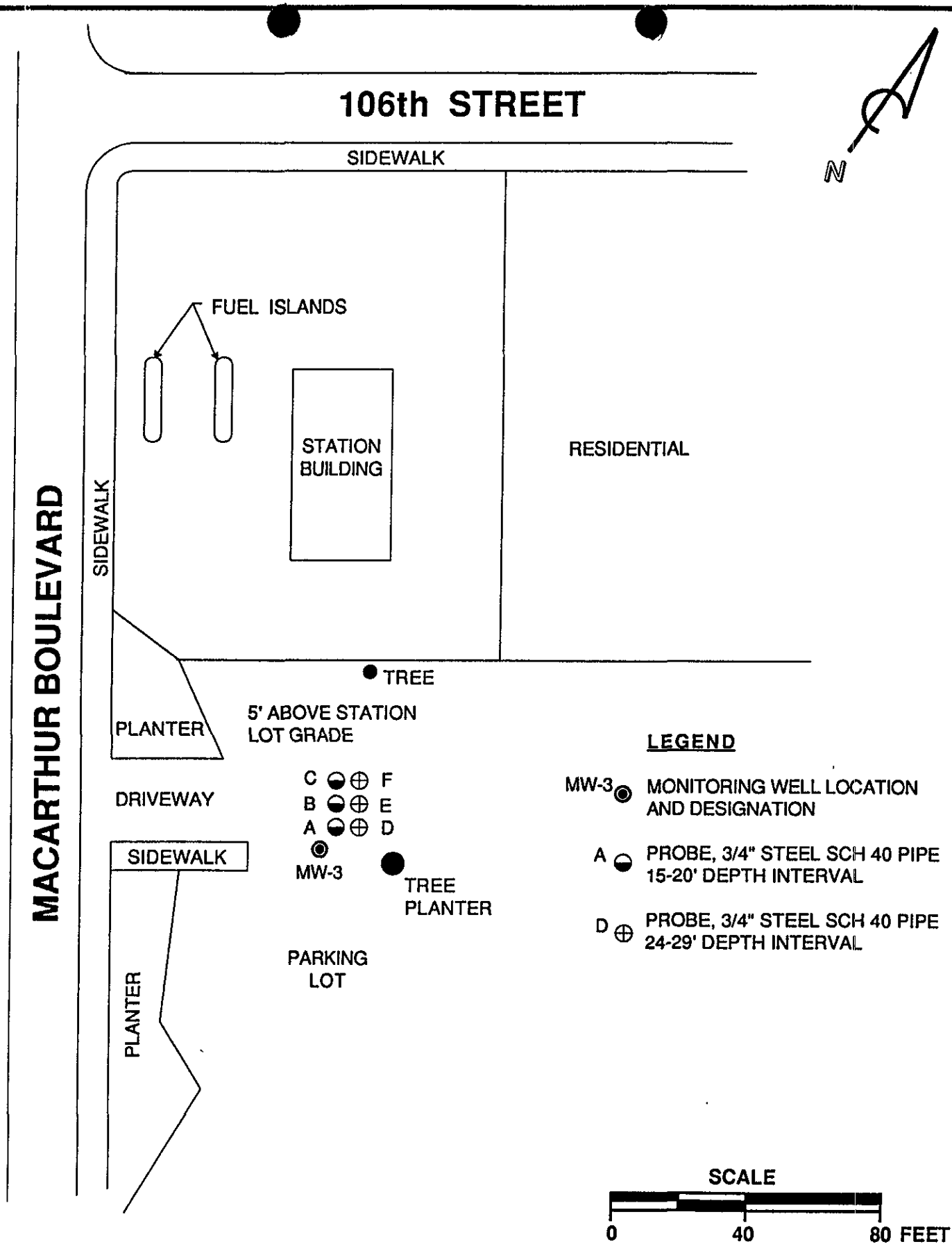
QUADRANGLE LOCATION

REFERENCE:
USGS 7.5 MIN. TOPOGRAPHIC MAP
TITLED: OAKLAND EAST, CALIFORNIA
DATED: 1959 REVISED: 1980
TITLED: SAN LEANDRO, CALIFORNIA
DATED: 1959 REVISED: 1980

SCALE

2000 0 2000 FEET

PACIFIC ENVIRONMENTAL GROUP, INC.	**ARCO STATION #0276** 10600 MacArthur Boulevard Oakland, California	FIGURE: 1
	SITE LOCATION MAP	PROJECT: 330-40.03



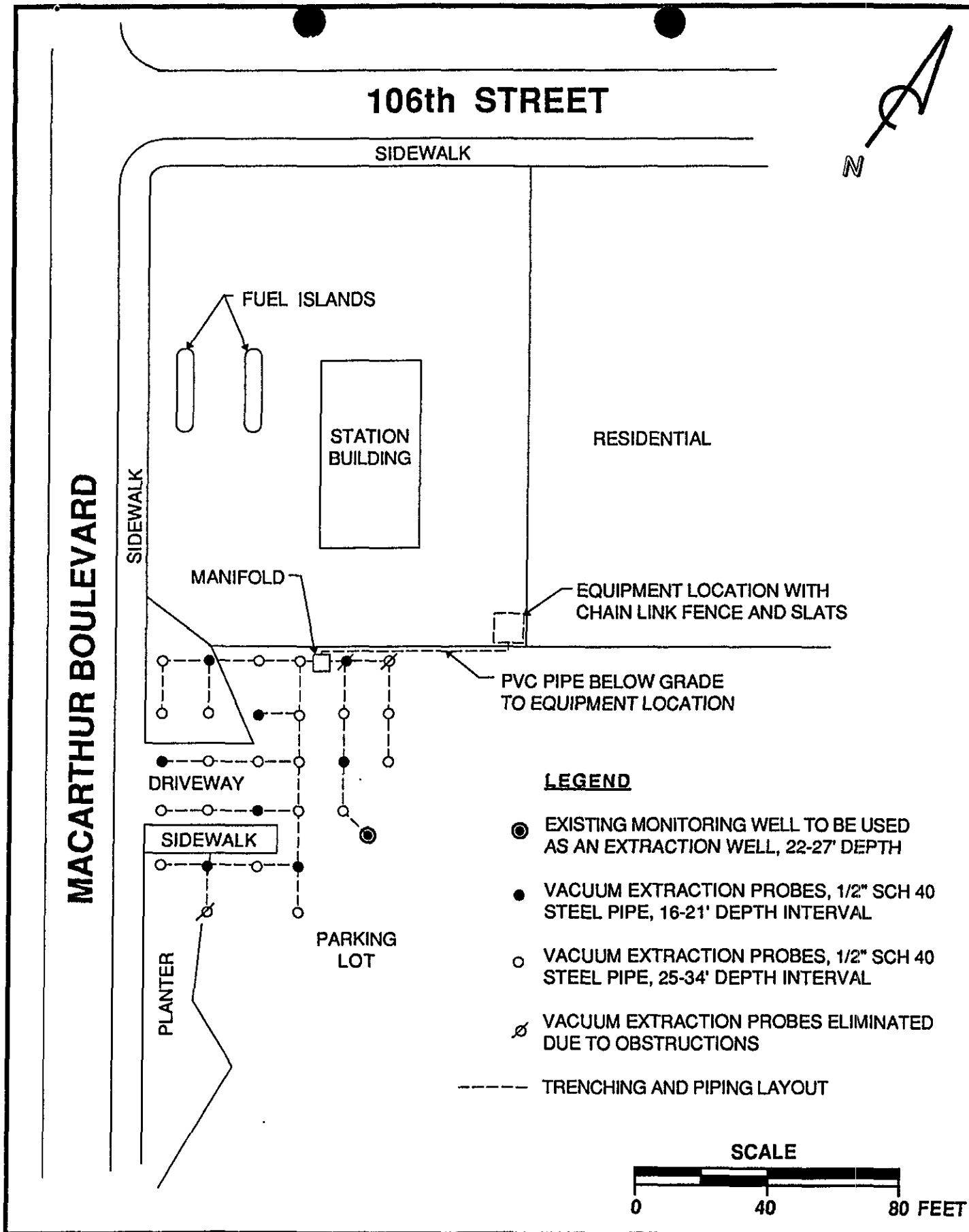
PACIFIC ENVIRONMENTAL GROUP, INC.

ARCO SERVICE STATION #0276
10600 MacArthur Boulevard
Oakland, California

PERFORMANCE TESTING LAYOUT

FIGURE: **2**

PROJECT: 330-40.03



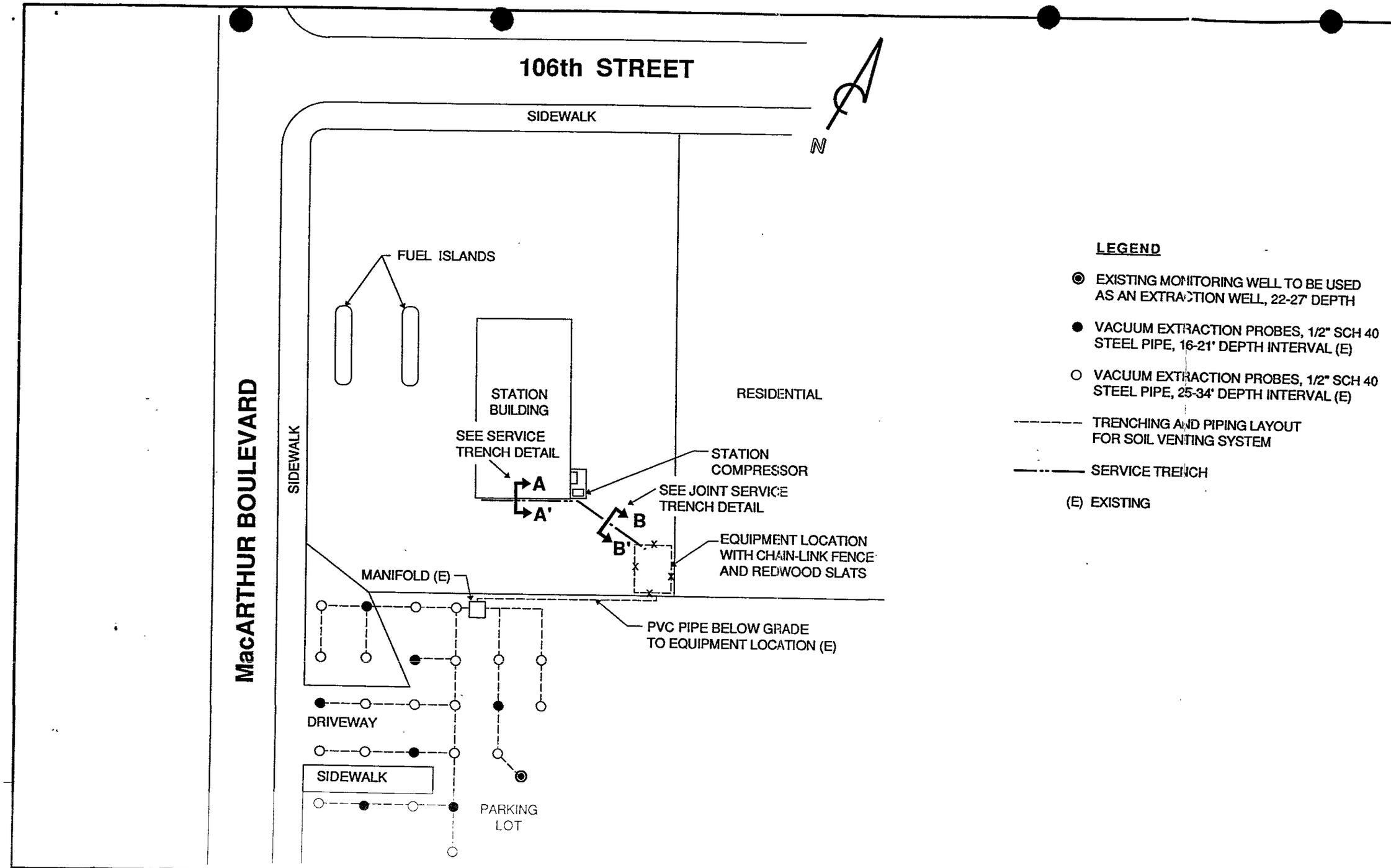
PACIFIC ENVIRONMENTAL GROUP, INC.

ARCO SERVICE STATION #0276
10600 MacArthur Boulevard
Oakland, California

SOIL VENT SYSTEM

FIGURE: **3**

PROJECT: 330-40.03



PACIFIC ENVIRONMENTAL GROUP, INC.

SCALE
0 30 60 FEET

ARCO SERVICE STATION #0276
10600 MacArthur Boulevard at 106th Street
Oakland, California

SOIL VENT SYSTEM - SITE MAP

FIGURE : 1
PROJECT: 330-40.03

1. All work shall be performed and completed in accordance with all California and City of Oakland building codes.

2. Engineer shall provide building permit. Contractor shall be responsible for obtaining all other permits.

3. Contractor shall be responsible for verifying all field dimensions before beginning work.

4. Contractor shall contact Underground USA to mark all existing utilities at the site and shall be responsible for identifying all conflicting utilities with utility owners before beginning work. Contractor shall repair or replace, at his own cost, utilities that are damaged during construction activities.

5. Contractor shall arrange and schedule all inspections. Contractor shall notify Engineer a minimum of 24 hours prior to all inspections.

6. Existing asphalt surface shall be sawcut along a straight line prior to removal and soil excavation.

7. Service trenches shall be excavated a minimum of 4 inches deeper than the bottom of installed pipes or conduits. All piping shall have a minimum bury of 24 inches.

8. Contractor shall backfill utility trenches as per service trench detail. Backfill shall be clean and placed in accordance with Caltrans Standard Specifications (Caltrans) Section 10-3.025B. Loose thickness of each layer of material before compaction shall not exceed 6 inches. Sand shall have a relative compaction of not less than 95 percent.

9. Asphalt pavement shall be in accordance with Caltrans Section 39 for Type B asphalt concrete. Sawcut edge of existing asphalt pavement shall be cleaned and shall have a coat of liquid asphalt applied prior to construction of new asphalt pavement. Pavement striping shall be restored to existing or better condition.

10. Contractor shall submit record drawings to Owner and Engineer upon 30 days completion of work.

11. 40 amps of existing service on site shall be furnished to treatment location per details. All electric work performed on site shall be performed by a qualified electrician and must conform with local city codes and Pacific Gas and Electric (PG&E) codes.

12. All electrical work within treatment area shall be installed a minimum of 24 inches above grade.

13. All new gas piping shall be pressure tested in accordance with applicable building codes. If any corrections are required, contractor shall make these repairs at his own expense.

14. Gas riser at station building location shall rise 24 inches above ground surface and stem 15 inches to the right of existing PG&E gas riser. Gas riser as treatment location shall have the 24 inch rise requirement only. Both gas risers shall be installed per details.

15. All underground piping and rigid conduit shall have a protective coating applied pending engineers approval.

16. Contractor shall install Remedi-Cat, vapor extraction pump (blower), vapor conveyance lines, and miscellaneous appurtenances in accordance with manufacturer's installation requirements.

17. Contractor shall conduct on site work in such a manner as to minimize disruption of the business operation on the site.

18. Contractor shall notify station owner a minimum of 24 hours in advance of any utility shutdowns.

19. All open piping and conduit shall be closed with a removable cap.

20. Contractor shall furnish and install fence and gates with redwood slats in accordance with Caltrans Section 80 for 9 foot high chain link fence. The fence enclosure shall have a chain link top with a 6 inch hole cut out of the top to allow the 10 foot exhaust stack to penetrate the exterior.

21. Any conflicts between these drawing and notes shall be brought to Engineer's attention prior to beginning work.

22. All items required for completion of the job except those noted as owner supplied (O) or existing (E) shall be supplied by the contractor.

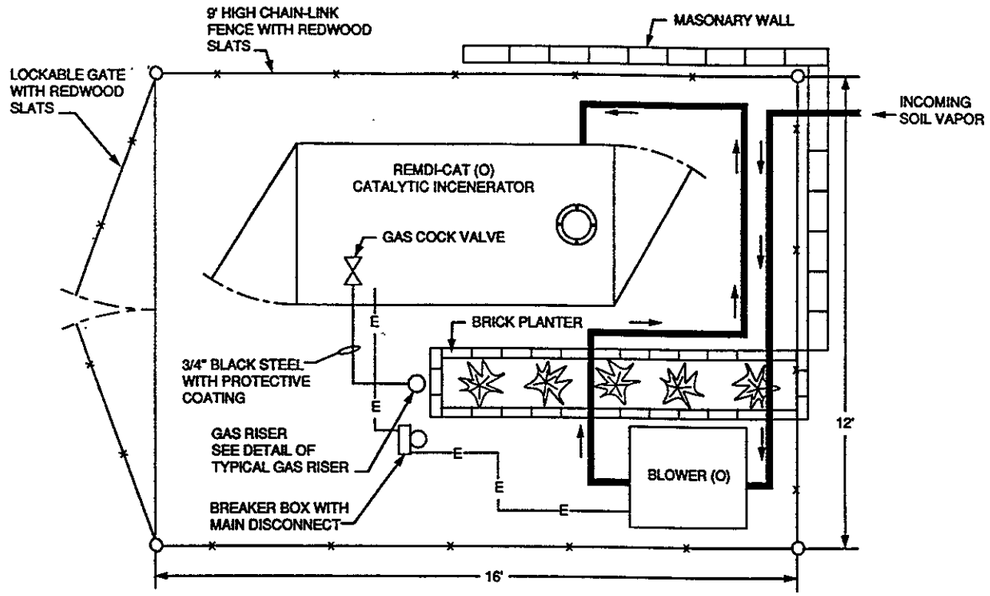
23. Contractor shall weatherproof and install Proposition 65 signs on outside of treatment facility fencing. Engineer shall furnish signs.

PACIFIC ENVIRONMENTAL GROUP INC.

ARCO SERVICE STATION #0276
10600 MacArthur Boulevard at 106th Street
Oakland, California

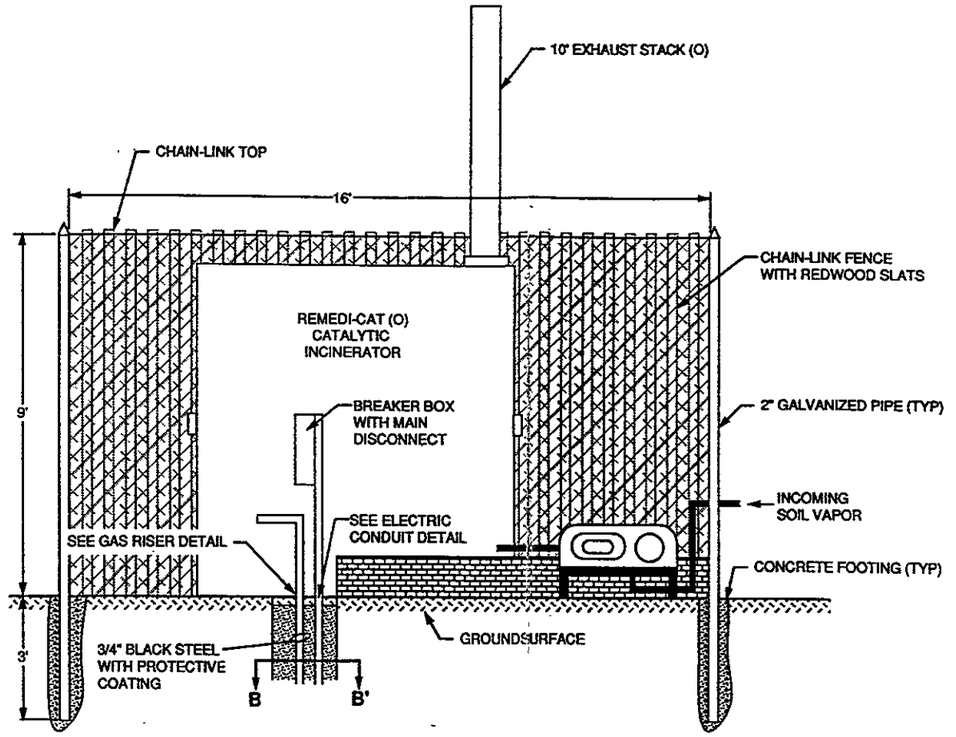
SOIL VENT SYSTEM - NOTES

FIGURE: 2
PROJECT: 330-40.03



TREATMENT SYSTEM PLAN

NO SCALE



TREATMENT SYSTEM PROFILE

NO SCALE

PACIFIC ENVIRONMENTAL GROUP, INC.

ARCO SERVICE STATION #0276
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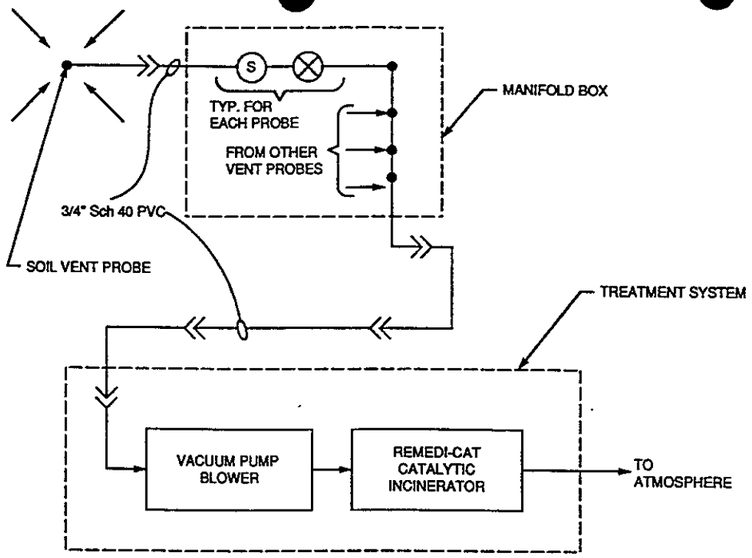
Oakland, California

SOIL VENT SYSTEM - DETAILS

FIGURE: 3

PROJECT: 330-40.03



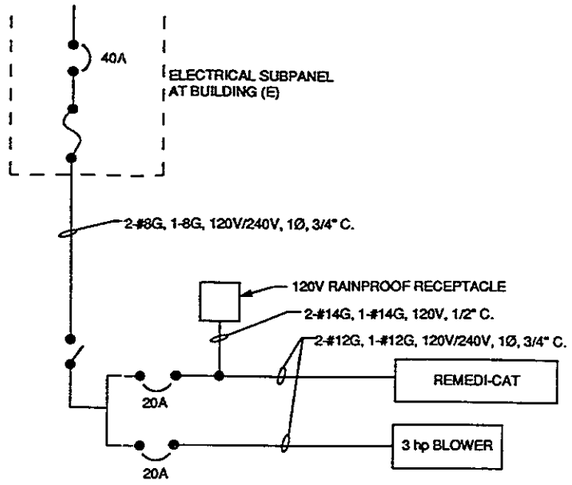
LEGEND

S SAMPLE PORT

VALVE

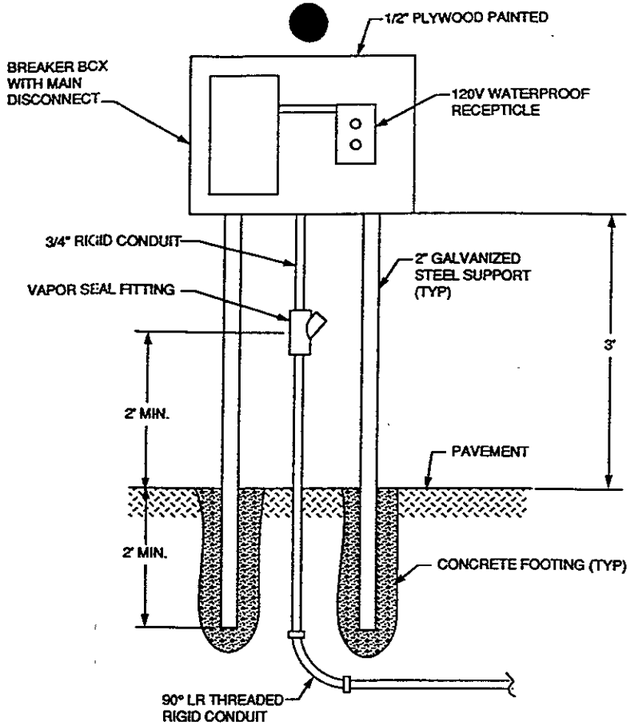
PROCESS DIAGRAM - SOIL REMEDIATION

NO SCALE



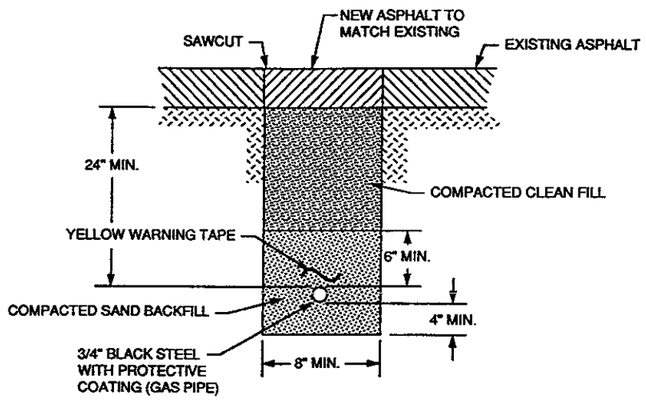
ELECTRICAL SINGLE-LINE DIAGRAM

NO SCALE



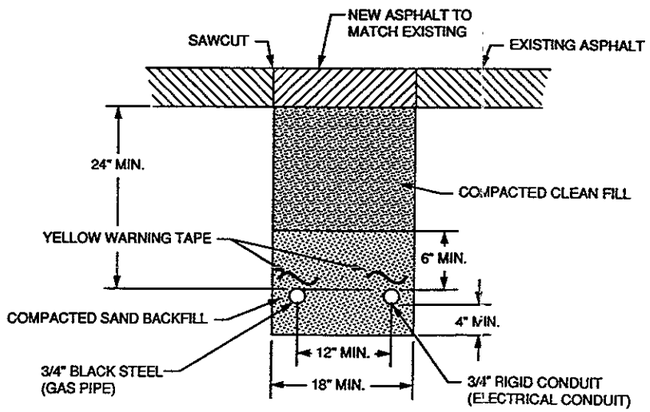
ELECTRIC CONDUIT DETAIL

NO SCALE



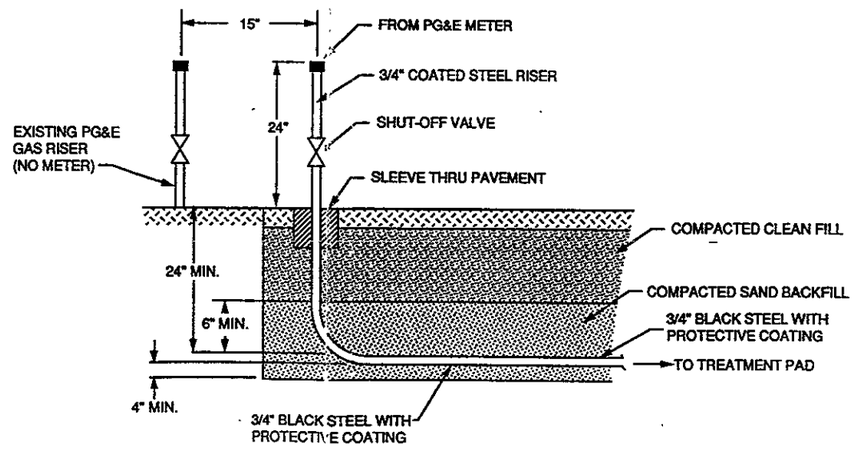
SERVICE TRENCH
SECTION A-A'

NO SCALE



JOINT SERVICE TRENCH
SECTION B-B'

NO SCALE



GAS RISER

NO SCALE

PACIFIC ENVIRONMENTAL GROUP, INC.

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SOIL VENT SYSTEM - DETAILS

FIGURE: 4

PROJECT: 330-40.03