

ENVIRONMENTAL
RESEARCH
EP-7 PM 3:07

September 5, 1995

Mr. Scott Seery
Senior Hazardous Materials Specialist
ALAMEDA COUNTY HEALTH CARE SERVICES
1131 Harbor Bay Parkway
Second Floor
Alameda, California 94502

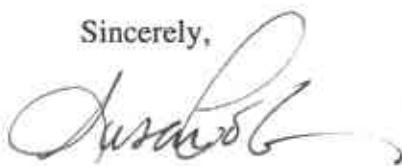
RE: TRANSMITTAL

Dear Mr. Seery:

Enclosed please find a copy of the technical specifications and drawings for the Unocal Service Station Number 5367 in San Leandro. Professional Service Industries, Inc., (formerly GeoResearch) is submitting these items to you on behalf of Unocal.

Please contact the Ms. Tina Berry of Unocal at (510) 277-2321 or Mr. Frank Poss of Professional Service Industries if you have any questions or require any further information.

Sincerely,



Susan Cole
Administration

Enclosure

cc: Tina Berry

TECHNICAL SPECIFICATIONS
Unocal Service Station 5367
500 Bancroft Avenue, San Leandro, California

Description of Vapor Treatment System

Two 1,000 pound vessels of vapor phase granular activated carbon (GAC) will be installed in series for adsorption of the petroleum-hydrocarbon laden vapor extracted from the subsurface soil. The system design specifications are:

- Granular Activated Carbon - 2 vessels
 - 1,000 pounds vapor phase GAC connected in series
 - 99.9% removal efficiency

- Pipes
 - 2-inch Schedule 40 poly vinyl chloride (PVC) vapor conveyance pipes
 - 3-inch Schedule 40 PVC vapor manifold pipes

- Vacuum pump, 1 unit (for the vapor extraction system).
 - Maximum process vapor flow rate of 250-300 standard cubic feet per minute (scfm)
 - Maximum vacuum of 7.5 inches of mercury (in. Hg)
 - 10 horsepower motor
 - 230-460 volts, single-phase, 60 hertz
 - equipped with a discharge silencer
 - UL approved

- 55-gallon Knockout pot, 1 unit.
 - equipped with level meter

- Low vacuum centrifugal pump, 1 unit (for the knockout pot).
 - 1 horsepower motor
 - 110-220 volts, single-phase, 60 hertz
 - equipped with a discharge silencer
 - UL approved

- Control panel, automatic
 - NEMA 4
 - equipped with safety switches

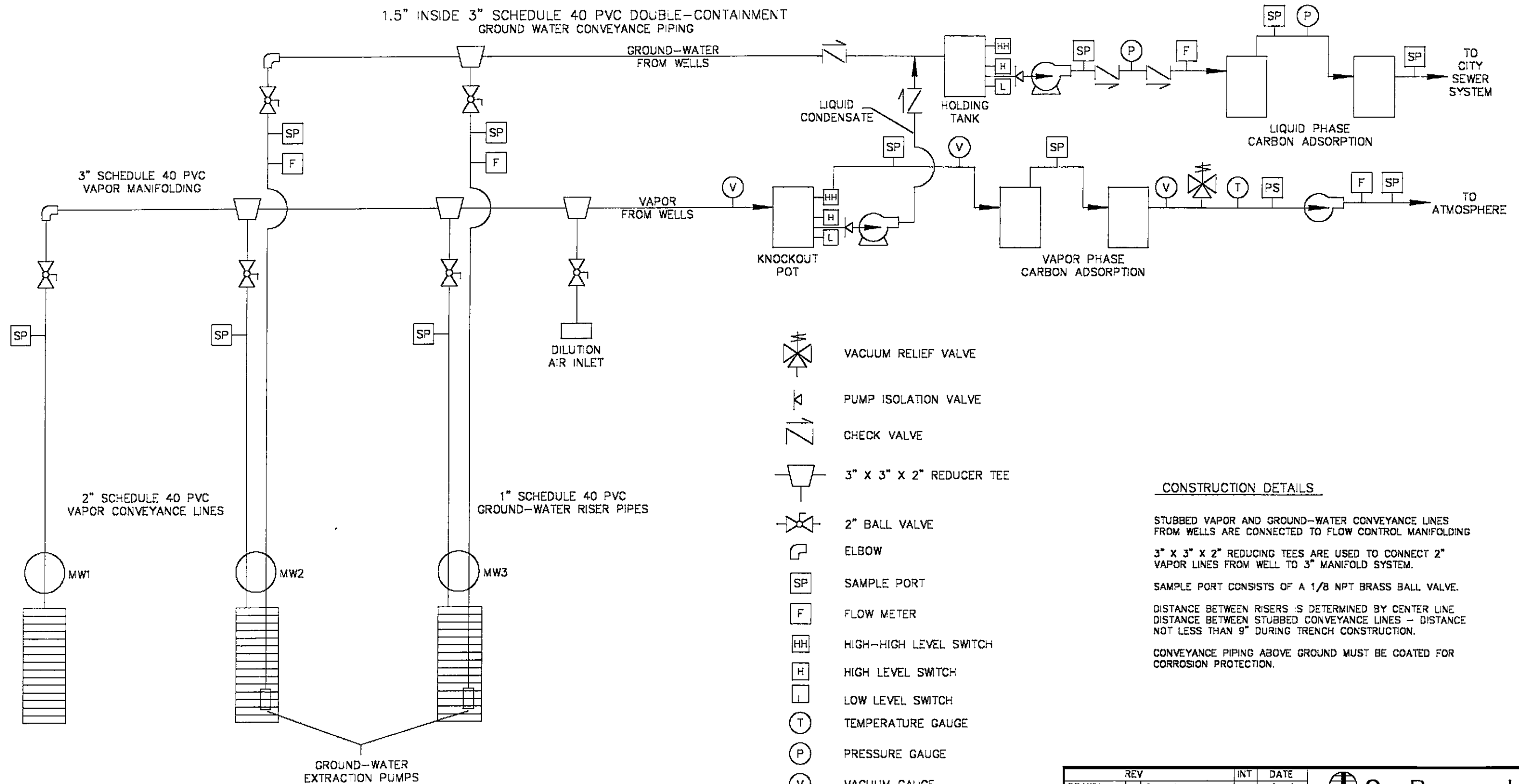
- Operation: Continuous (24 hours/day, 7 days/week)

Description of Ground-Water Treatment System

Two 1,000 pound vessels of liquid phase granular activated carbon (GAC) will be installed in series for adsorption of the petroleum-hydrocarbon impacted ground water extracted from the subsurface. The system design specifications are:

- Granular Activated Carbon - 2 vessels
 - 1,000 pounds liquid phase GAC connected in series
 - 99.9% removal efficiency
- Pipes
 - 1-inch Schedule 40 poly vinyl chloride (PVC) ground-water riser pipes
 - 1.5-inch Schedule 40 PVC pipe inside a 3-inch Schedule 40 PVC pipe double-containment ground-water conveyance pipes
- Electric ground-water extraction pumps, 2 units (for the wells).
 - Maximum process liquid flow rate of 2.5 gallons per minute (gpm) each
 - 2.5 horsepower motor
 - 110-220 volts, single-phase, 60 hertz
 - UL approved
- Holding tank, 1 unit.
 - equipped with level meter
- Centrifugal pump, 1 unit (for the holding tank)
 - Maximum process liquid flow rate of 5 gpm
 - 1.5 horsepower motor
 - 110-220 volts, single-phase, 60 hertz
 - equipped with a discharge silencer
 - UL approved
- Control panel, automatic
 - NEMA 4
 - equipped with safety switches
- Operation: Continuous (24 hours/day, 7 days/week)

REV		COMMENTS	DATE	INT
A		ADDED SEVERAL VALVES	8/15/95	DC



- VACUUM RELIEF VALVE
- PUMP ISOLATION VALVE
- CHECK VALVE
- 3" X 3" X 2" REDUCER TEE
- 2" BALL VALVE
- ELBOW
- SAMPLE PORT
- FLOW METER
- HIGH-HIGH LEVEL SWITCH
- HIGH LEVEL SWITCH
- LOW LEVEL SWITCH
- TEMPERATURE GAUGE
- PRESSURE GAUGE
- VACUUM GAUGE
- PRESSURE SWITCH
- BLOWER
- CENTRIFUGAL PUMP

CONSTRUCTION DETAILS

STUBBED VAPOR AND GROUND-WATER CONVEYANCE LINES FROM WELLS ARE CONNECTED TO FLOW CONTROL MANIFOLDING

3" X 3" X 2" REDUCING TEES ARE USED TO CONNECT 2" VAPOR LINES FROM WELL TO 3" MANIFOLD SYSTEM.

SAMPLE PORT CONSISTS OF A 1/8 NPT BRASS BALL VALVE.

DISTANCE BETWEEN RISERS IS DETERMINED BY CENTER LINE. DISTANCE BETWEEN STUBBED CONVEYANCE LINES - DISTANCE NOT LESS THAN 9" DURING TRENCH CONSTRUCTION.

CONVEYANCE PIPING ABOVE GROUND MUST BE COATED FOR CORROSION PROTECTION.

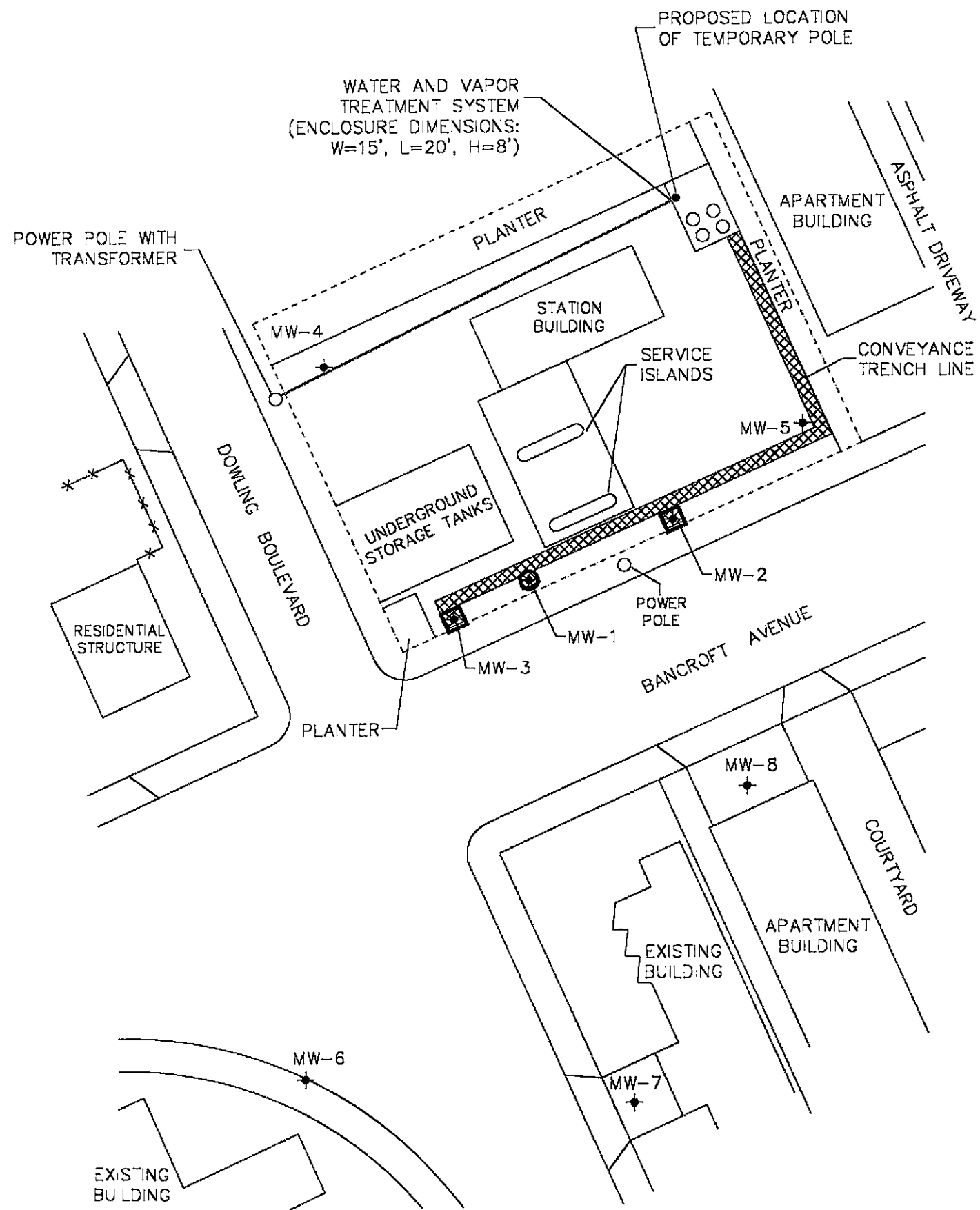
REV	INT	DATE
DRAWN	S. NASH	6/30/95
DESIGN	M. BELTRAN	6/30/95
REVIEWED	G. RAGLE	6/30/95
APPROVED	L. HALL	8/30/95
DRAWN	A. D. CHERNOW	8/15/95

GeoResearch
 3980 OILMAN STREET LONG BEACH, CA 90815 (310) 597-3977

PROCESS AND INSTRUMENT DETAILS
 UNOCAL SERVICE STATION 5367
 500 BANCROFT AVENUE
 SAN LEANDRO, CALIFORNIA
 PROJECT NUMBER: 9580800100

SIZE	FILE NO.	REV
D	C1	A

SCALE: NTS FIGURE NO.: 3



WATER AND VAPOR TREATMENT SYSTEM
(ENCLOSURE DIMENSIONS:
W=15', L=20', H=8')

REVISIONS			
REV	COMMENTS	DATE	INT
A	MODIFIED LOCATION OF TEMPORARY POWER POLE	8/22/95	DJC

CONSTRUCTION DETAILS

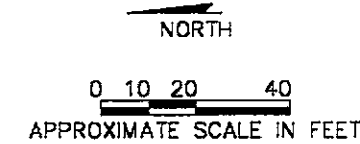
AT TIMES OF EXCAVATION OPERATIONS, THE SURFACE CAP SHALL BE CUT WITH A PAVEMENT SAW PRIOR TO BREAKING.

WHEN EXCAVATING NEAR EXISTING UNDERGROUND WIRING AND PIPING, ALL OPERATIONS SHALL BE DONE MANUALLY. CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE EXISTING LINES.

TRENCHES OF APPROXIMATELY 12-INCHES IN WIDTH AND 2- FEET 6-INCHES IN DEPTH SHALL BE EXCAVATED TO INSTALL THE CONVEYANCE PIPES FROM VAPOR EXTRACTION WELLS TO THE REMEDIATION SYSTEM.

LEGEND

- MW-8 MONITORING WELL LOCATION
- MW-1 12" EMCO-WHEATON WELL BOX
- MW-3 3' X 3' MANWAY
- CONVEYANCE TRENCH LINE



REFERENCE:
MAP PROVIDED BY APPLIED GEOSYSTEMS, 3/94

REV	INT	DATE
DRAWN	S. NASH	7/3/95
DESIGN	M. BELTRAN	7/3/95
REVIEWED	G. RAGLE	7/3/95
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3950 GILMAN STREET LONG BEACH, CA 90815 (310) 597-3977

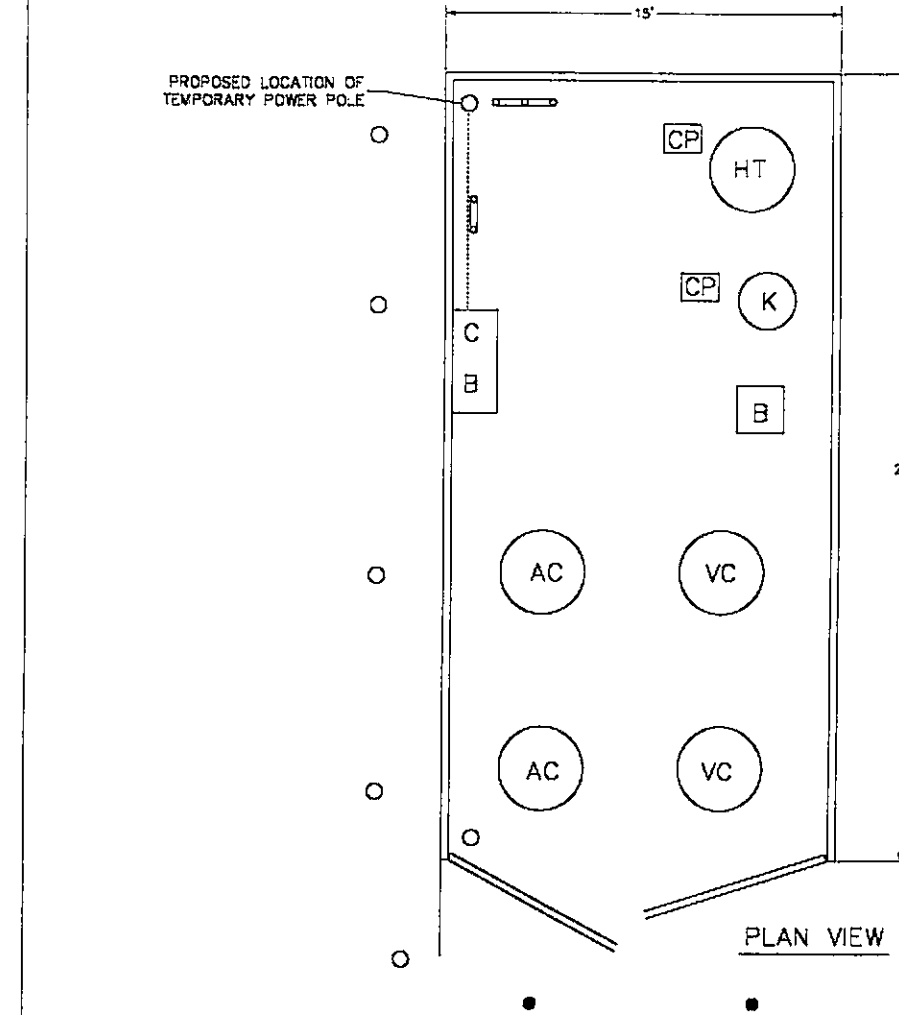
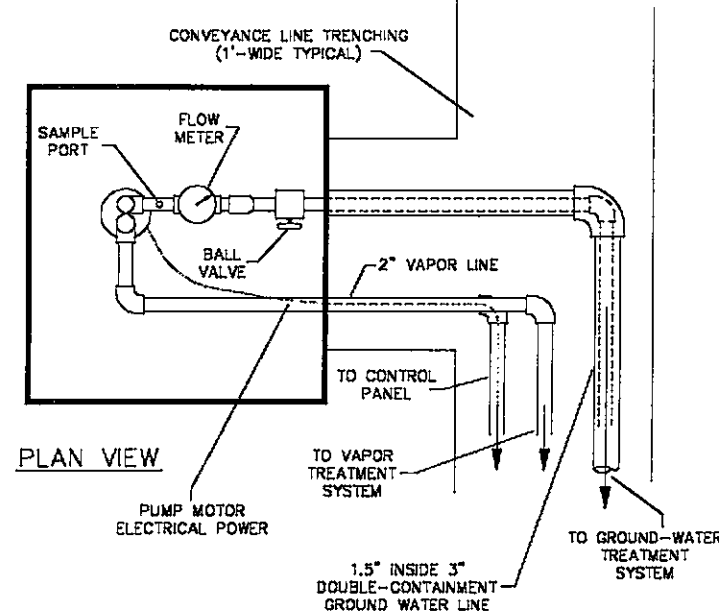
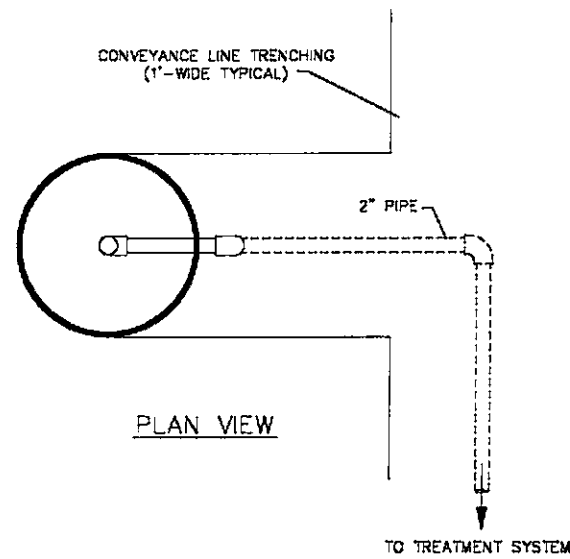
SITE LAYOUT AND TRENCHING LOCATION
UNOCAL SERVICE STATION 5367
500 BANCROFT AVENUE
SAN LEANDRO, CALIFORNIA
PROJECT NUMBER: 9580600100

SIZE	FILE NO:	REV
D	D1	A
SCALE: NTS		FIGURE NO.: 1

REVISIONS			
REV	COMMENTS	DATE	INT
A	ADDED EQUIPMENT LAYOUT	8/15/95	DC

SINGLE-COMPLETION WELL

DUAL-COMPLETION WELL



ENCLOSURE

- HT = HOLDING TANK
- K = KNOCKOUT POT
- CP = CENTRIFUGAL PUMP
- B = BLOWER
- VC = VAPOR CARBON
- AC = AQUA CARBON
- CB = CONTROL BOX

CONSTRUCTION DETAILS

AN ENCLOSURE SHALL BE CONSTRUCTED AROUND THE REMEDIATION SYSTEM.

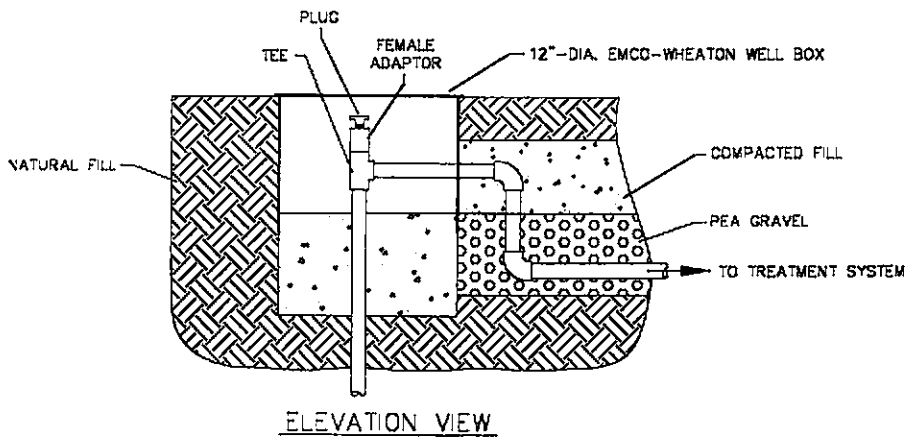
DIMENSIONS OF ENCLOSURE ARE 20 FEET LENGTH, 15 FEET WIDTH, AND 8 FEET HEIGHT WITH BARBED WIRE RUNNING ALONG THE TOP OF ENCLOSURE.

STRUCTURE OF ENCLOSURE SHALL BE MADE OF CHAIN-LINK FENCE WITH PRIVACY SLATS.

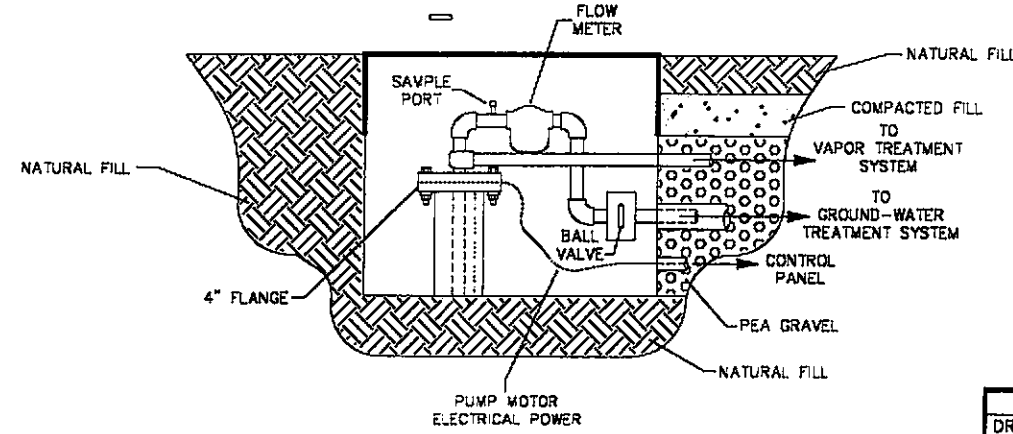
A GATE IN THE FRONT SHALL PROVIDE ACCESS TO THE ENCLOSURE SPACE, AS SHOWN IN THE FIGURE.

SAFETY POLES SHALL BE INSTALLED ON THE PERIMETER OF THE ENCLOSURE. REMOVABLE SAFETY POLES SHALL BE INSTALLED IN FRONT OF THE DOUBLE GATE TO ALLOW ACCESS.

**12"-DIA. TRAFFIC RATED CHRISTY BOX
TYPICAL FOR SINGLE-COMPLETION (MW1)**



**3' X 3' MANWAY
TYPICAL FOR DUAL-COMPLETION WELL (MW2 AND MW3)**



CONSTRUCTION DETAILS

3' X 3' MANWAY SHALL BE INSTALLED AT LOCATIONS SHOWN ON FIGURE 1.

MANWAY SHALL BE LOCKABLE AND COMPLETED TO 1-INCH ABOVE GRADE.

CONSTRUCTION DETAILS

12"-DIA. TRAFFIC RATED CHRISTY BOX SHALL BE INSTALLED AT LOCATIONS SHOWN IN FIGURE.

MANWAY SHALL BE LOCKABLE AND COMPLETED TO 1-INCH ABOVE GRADE.

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 ENCLOSURE AND TRENCHING DETAILS
 UNOCAL SERVICE STATION 5367
 500 BANCROFT AVENUE
 SAN LEANDRO, CALIFORNIA
 PROJECT NUMBER: 9580600100

SIZE	FILE NO.	REV
D	E1	A
SCALE: NTS	FIGURE NO.: 2	